"An Important International Crossroads"

Implementing Canada's Arctic Priorities in *Strong, Secure, Engaged*

Symposium hosted by the
Centre for National Security Studies,
Canadian Forces College
Ottawa, Ontario
10-11 October 2018

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Executive Summary

Event:

"An Important International Crossroads": Implementing Canada's Arctic Priorities in *Strong, Secure, Engaged* – a symposium hosted by the Centre for National Security Studies (CNSS), Canadian Forces College, in Ottawa, Ontario, 10-11 October 2016.

Organizers:

Melinda Mansour, Director, CNSS, and Dr. Whitney Lackenbauer, Canada Research Chair in the Study of the Canadian North, Trent University

Purpose:

- To discern, discuss, and debate what actionable items and steps DND/CAF might undertake to realize its Arctic policy priorities in *Strong, Secure, Engaged* (*SSE*).
- To lay the foundation for relationships between the Defence Team and other stakeholders to frame and tackle challenging questions that might focus priorities, activities, and investments in the Arctic.
- How do we build relationships across different silos, both within the department and the Canadian Armed Forces (CAF), and in a broader Defence Team comprised of many stakeholders?
- What are some of the areas that require additional research and ideas for innovation? Furthermore, how do we look beyond Horizon 1 (1-5 years) to anticipate or consider trends that might have an impact on Horizon 2 (5-10 years) and Horizon 3 (10-20 years)?

Structure:

- Introductory Keynote: SSE and the Arctic – An Overview – ADM(Pol)
- Session 1: Setting the Arctic Context(s): Geostrategic Considerations, Geopolitical Drivers, and Domestic Priorities
- Session 2: Arctic Surveillance, Control, and Continental Defence
- Session 3: NATO and the Arctic
- Session 4: Enhancing Arctic Mobility and Operations
- Session 5: "Indigenous Communities are at the Heart of Canada's North": Leveraging Northern Knowledge and Diversity
- Session 6: Ideation Session on Priorities for Innovation to Support Arctic Defence and Security

Selected Policy Relevant Highlights

Improving the CAF's Capabilities in the Arctic

- There is a need to continue clarifying roles, responsibilities, and opportunities for the Canadian Army, Royal Canadian Navy, and Royal Canadian Air Force in the region

- Mobility is the "key enabler to achieve effects" across the CAF's mission spectrum in the Arctic and must be continuously improved
- The CAF's Arctic mobility is hampered by the risks and challenges posed by the Arctic environment and by the lack of suitable infrastructure in the region – its ability to influence degrades significantly as the force is projected beyond community infrastructure
- The CAF should improve its ability to forward deploy and sustain forces in the field to meet all the existing and possible threats in the Arctic
- The CAF requires equipment and procedures to effectively address environmental risks and their impact (e.g. cold weather casualties), with collective transportation a particular priority
- The CAF has collected lessons on Arctic operations for decades, but has not necessarily learned them – and it requires improved mechanisms for the collection and dissemination of lessons learned
- Indigenous Knowledge and local knowledge are vital to the military as it extends its footprint in the North and the CAF must continue to learn how to incorporate Indigenous Knowledge and local knowledge into its northern activities in a holistic manner
- Efforts to expand and enhance the training and effectiveness of the Canadian Rangers should be conceived and implemented after deliberate, substantive consultation with the Rangers themselves, and investments "to improve their functional capabilities within the Canadian Armed Forces" should respect and reinforce the Rangers' roles within their communities and their broader contributions to Arctic sovereignty, security, and safety

Canada's Arctic Engagement with NATO and the United States

- The Canada-U.S. defence relationship in the North is of critical importance, and there is a need to reinvest in and reinvigorate existing structures that have "atrophied," such as the Permanent Joint Board on Defence (PJBD) and Military Cooperation Committee (MCC)
- *SSE* commitments to modernize NORAD and replace the North Warning System (NWS) require greater clarification to identify practical problem sets (which are essential before S&T investments to devise solution sets)
- Canada needs to better coordinate strategic communications with its NATO allies related to Arctic and North Atlantic security
- There is a need for further discussion and improved understanding of how emerging Arctic challenges might shape NATO's future, with a particular focus on Russia and China as potential competitors, and the implications of changing geostrategic contexts on the Kingdom of Denmark/Greenland, Iceland, and Norway

Information Sharing and Domain Awareness

- There is a need for increased Domain Awareness & Understanding across the Arctic
- Augment regional maritime domain awareness by leveraging the situational awareness of Canadian Rangers and other community-based organizations about what is and what is not normal in their local areas, fostering a "see something, say something culture"

- There is a need for improved mechanisms for information sharing on Arctic matters between Canada and its NATO allies and partners

Infrastructure and Communications

- Improve infrastructure in the Arctic in a manner that supports CAF operations but also benefits Northern communities and facilitates civilian development more generally

Engagement with OGDs

- To improve the CAF's Arctic mobility, the CAF must continue to leverage and build relationships with the OGDs and partners operating in the region
- Burden-sharing is key in the Arctic, and investments should be multi-purpose and yield multiple benefits – not just to DND, but to other government departments and Northern communities

Engagement with the Private Sector

- The CAF needs to explore how it can best leverage the infrastructure, knowledge, and expertise of the private sector operating in the Arctic to support its operations

Engagement with Northern Communities and Community Resiliency

- The positive relationships that exist between the CAF and Northern communities serve as the centre of gravity for Arctic operations and must be maintained and strengthened
- Indigenous governments are and will continue to be key partners to the CAF and every effort must be made to strengthen these relationships
- Security, safety, and defence are linked to the economic, social and environmental well-being of Northerners
- The CAF has a role to play in improving community resiliency in the North, and further research is required to examine how the CAF is improving community resiliency and how it can do so moving forward
- There is a need for concerted efforts across federal departments and across governments to map local capacity in the North, which the CAF and OGDs can leverage during SAR and emergency response activities
- There is a need to measure the impacts of CAF activities on and in Northern communities, including the social impacts of youth participation in the JCRs

PROCEEDINGS

Background

Strong, Secure, Engaged, released in June 2017, reinforced that the Arctic remains an area of particular interest and focus to the Department of National Defence (DND)/Canadian Armed Forces (CAF). "To succeed in an unpredictable and complex security environment," the new defence policy committed to "increase CAF presence in the Arctic over the long-term and work cooperatively with Arctic partners," reiterating longstanding images of the Arctic as a region undergoing massive change. Climate change, resource issues, undefined continental shelf boundaries, potential maritime transportation routes, and security concerns have factored significantly into the domestic and foreign policy agendas of Arctic states, non-Arctic states, and organizations.

The Arctic security environment is complex, with overlapping political, legal, strategic, and commercial elements interacting in a dynamic system. Developed in consultation with the *SSE* leads, this multi-disciplinary workshop was designed to benefit the Defence Team by bringing together stakeholders from DND/CAF, other government departments and agencies (OGDs), academic, non-governmental organizations, and the private sector. While *SSE* provides a road-map for many Arctic initiatives (both specifically and in the context of broader global, continental, and domestic frameworks), the organizers sought to create an opportunity for participants to help discern the best ways to implement and operationalize this policy direction as concrete action, provide immediate access to leading-edge research, and test assumptions about the changing security environment (eg. the shifting balance of power, the changing nature of conflict, the rapid evolution of technology, and environmental, social, and political change). Through robust discussions about the history, current drivers, and possible futures of the Arctic security environment, we sought practical outcomes for policy makers and practitioners, including identifying priority areas for further research, analysis, and relationship building.

From the perspective of the Centre for National Security Studies (CNSS) at Canadian Forces College (CFC), we also intended for this workshop to inform core curriculum, particularly the annual JCSP Arctic symposium and other Arctic-related programming. Accordingly, we have produced this substantive workshop report not only to inform DND/CAF policy and practitioner audiences, but also to serve as a current Arctic security primer for CFC students.

SSE PRIORITIES - ENHANCING ARCTIC CAPABILITY

Initiative E: "Increase presence in the Arctic over the long-term and work cooperatively with Arctic partners"

To enhance the Canadian Armed Forces' ability to operate in the Arctic and adapt to a changed security environment, the Defence team will:

106. Enhance the mobility, reach and footprint of the Canadian Armed Forces in Canada's North to support operations, exercises, and the Canadian Armed Forces' ability to project force into the region.
107. Align the Canadian Air Defence Identification Zone (CADIZ) with our sovereign airspace.
108. Enhance and expand the training and effectiveness of the Canadian Rangers to improve their functional capabilities within the Canadian Armed Forces.
109. Collaborate with the United States on the development of new technologies to improve Arctic surveillance and control, including the renewal of the North Warning System.
110. Conduct joint exercises with Arctic allies and partners and support the strengthening of situational awareness and information sharing in the Arctic, including with NATO.

Welcoming Remarks

Melinda Mansour, Director of the Centre for National Security Studies at CFC, and former CFC Distinguished Visiting Professor Whitney Lackenbauer launched the symposium with the idea that, with *Strong, Secure, Engaged* (*SSE*) having laid out the government's defence policy, this gathering was organized to discern, discuss, and debate what actionable items and steps DND/CAF might undertake to realize its Arctic policy priorities. How do we build relationships across different silos, both within the department and the Canadian Armed Forces (CAF), and in a broader Defence Team comprised of many stakeholders? What are some of the areas that require additional research and ideas for innovation? Furthermore, how do we look beyond Horizon 1 (1-5 years) to anticipate or consider trends that might have an impact on Horizon 2 (5-10 years) and Horizon 3 (10-20 years)? While many academic workshops have grappled with strategic issues and broad political and policy frameworks, the organizers hoped that the presentations and the broad range of experts brought together for this event would invite a deeper dialogue on practical pathways forward. In turn, their intent was to lay the foundation for relationships between the Defence Team and other stakeholders to frame and tackle challenging questions that might focus priorities, activities, and investments in the Arctic.

BGen **Brian McPherson**, the Commandant at Canadian Forces College, also welcomed the participants to the event, expressing his delight at the high level of interest, from senior officers, to policy-makers, to the practitioners on the ground.

> *SSE* is the Government of Canada (GC) policy direction that articulates the strategic vision of the DND/CAF. It spells out in precise terms what Defence must accomplish to succeed in an unpredictable and complex security environment. It allocates the human, materiel and financial resources that will enable Defence to conduct that evolution and succeed. The articulation of CAF's eight core missions is a critical element of the policy which will drive the evolution of the CAF. Evolving the CAF through the design of a Force Structure capable of meeting the directed concurrency of operations must be constantly at the forefront. DND/CAF needs to ensure that it has a Defence Team comprised of the right force mix, representative of the Canadian population and values, with the required skill sets and equipped with the right capabilities.
>
> *CAF Defence Plan 2018-2023*, p.2

Introductory Keynote: *SSE* and the Arctic – An Overview

In the introductory keynote, **Peter Hammerschmidt**, Assistant Deputy Minister (Policy) at DND, reinforced that, with Arctic conditions in a constant state of flux and given the ever-changing operating environment, this was a timely subject. Input from gatherings like this one would support his team's ongoing efforts to check their assumptions and confirm whether DND/CAF's implementation efforts were heading in the right direction. His macro-view of the strategic and policy landscape served to ground subsequent discussions, providing essential framework and context for the symposium.

Canada' defence policy, *Strong, Secure, Engaged*, was released in July 2017 after a year and a half of concerted policy review and development work, as well as unprecedented consultation across the country (including nine expert roundtables, with one dedicated to Arctic issues that was held in Yellowknife). Through this consultation process, policy-makers learned the value and importance of engaging a wide range of views and perspectives "beyond the bubble in Ottawa" which, in turn, informed their thinking on security trends at the strategic level, and how the military might orient to meet opportunities and challenges in a changing global security environment. He highlighted three dominant trends:

1. A return to Great Power competition, with an evolving balance of power and challenges to the international rules-based system (particularly relating to China and Russia);
2. Quickening changes to the nature and complexity of conflict, including the effects of climate change, and the increasing use of hybrid tactics by state and non-state actors;
3. Increasing pace of technological change, which imposes the need to keep up with adversaries but also to remain interoperable with partners. The space and cyber domains offer both challenges and opportunities given our expertise and industrial base, and we need to contemplate the impacts of emerging technologies, such as quantum computing and artificial intelligence, on an ever-changing military environment.

All of these trends have manifestations in an Arctic context, bringing increasing interest and activity in the region by both state and non-state actors. Climate change is the most obvious, opening access to natural resources, new shipping routes, and new technologies.

The geopolitics of the region are undergoing "fundamental change," given that the Arctic lies at the "international crossroads" of climate change, security, economic development, shipping, and the environment. Russia views the Arctic as key part of its identity, economic development, and national security, as indicated by the scale of Russian activity and expanding capabilities in the region. China, as a self-declared "near-Arctic state" with global ambitions, produced its first Arctic white paper earlier this year and flagged its intention to create a "Polar Silk Road." These geopolitical trends dictate that the Government will need to assume a greater role in the region, and that the CAF will have an increasingly important role in support of other government departments (OGDs) and their mandates. The Arctic also remains vital from a continental defence perspective. The US is our "premier partner" in the region, and our ability to operate with them is key. The growing demand for the CAF to address defence, security, and safety in the North requires enhanced capabilities, including upgrading domain awareness. While Canada's geography has been sanctuary for a long time, this is disappearing and it no longer offers us inherent defence and insulation from the aforementioned trends.

SSE offers a new vision for defence, constructed around the idea of being strong at home, secure in North America, and engaged in the world. In an Arctic context, strong at home means an enhanced

presence and ability to respond in the Arctic, as well as a greater role for Reservists. This requires smart investments that leverage innovation in the defence sector. Being secure in North America requires that Canada be engaged globally, with strong commitments to work with our allies.

To implement this new approach to defence, Canada must anticipate emerging threats, adapt to changing circumstances, and act effectively. *Anticipating* emerging threats is particularly difficult in the Arctic, necessitating new thinking to create innovative solutions to joint intelligence gathering/sharing, surveillance, and reconnaissance. Many of these activities must be tailored to Arctic requirements and environmental realities. *Adapting* to rapidly changing conditions (particularly climate change) in a region with limited infrastructure also requires creativity. *Acting* decisively with effective capability requires the right training and equipment. Accordingly, *SSE* outlines five primary Arctic initiatives:

> 106. Enhance the mobility, reach and footprint of the Canadian Armed Forces in Canada's North to support operations, exercises, and the Canadian Armed Forces' ability to project force into the region.
> 107. Align the Canadian Air Defence Identification Zone (CADIZ) with our sovereign airspace.
> 108. Enhance and expand the training and effectiveness of the Canadian Rangers to improve their functional capabilities within the Canadian Armed Forces.
> 109. Collaborate with the United States on the development of new technologies to improve Arctic surveillance and control, including the renewal of the North Warning System.
> 110. Conduct joint exercises with Arctic allies and partners and support the strengthening of situational awareness and information sharing in the Arctic, including with NATO.

Canada faces various challenges in implementing the 111 new initiatives in *SSE*, many of which directly or indirectly relate to the Arctic. Given the heightened expectations of the Government of Canada to deliver on this policy, DND's credibility is tied to its ability to deliver on this policy. It has made headway on several initiatives already, including the alignment of the Canadian Air Defence Identification Zone (CADIZ) with Canada's sovereign airspace and its approaches; expanding the regional footprint and reach of the CAF in the Arctic (which is essential to respond in the Arctic, secure and defend Canada and North America, and deter potential threats); producing an Arctic Campaign Plan; and progress on the Arctic and Offshore Patrol Vessels (with HMCS *Harry DeWolf* christened the previous week and the RCN to receive it in 2019). Working with allies will extend the number of partners with whom Canada can work and share information (thus improving situational awareness) in the North. For example, NATO is revitalizing its capacity for its members to work together and share information, not only in the North American Arctic but in the European Arctic as well. Canada hosted a NATO Parliamentary Assembly meeting in our Arctic in the fall of 2017, which included briefings from various Canadian officials and academics. The goal is not to militarize the Arctic, Hammerschmidt emphasized, but to keep it as low tension as possible – a challenge given Russia's ability to project power in the Arctic and difficulties in insulating the region from what is happening in the North Atlantic, Northern Europe, and globally.

Looking forward, the ADM(Pol) noted Canada's ambitious program of investment in Arctic capabilities. This include a reinforced commitment to the Arctic and Offshore Patrol vessels, the docking and refuelling facility at Nanisivik, a new fleet of fighter jets to replace the CF-18s, a family of land-based vehicles designed for Arctic operations, and replacements for the CP-140 Aurora and fixed-wing SAR aircraft. Investments in new technologies include the RADARSAT Constellation mission; new robust

satellite communications in the Arctic (intended to put Canada at the forefront of technological development in this area), and procuring remotely piloted vehicles to support persistent surveillance in the Arctic.

Despite these initiatives, Hammerschmidt noted that there remains "a lot of road to travel" to fully implement Canada's defence policy. What does it mean to enhance presence in the Arctic? Does it have to be physical presence or can we look at other solutions? How do we work effectively with Northern Peoples to provide security and meet needs at the community-level? What role can the private sector play with respect to innovation and investment in the North? Do we have our assumptions right? We are implementing towards Horizon 1 (1-5 years) right now, but what do Horizon 2 (5-10 years) and Horizon 3 (10-20 years) look like? *SSE* has a twenty-year window, which is necessary to make prudent long-term investments. This protracted time horizon also means that DND/CAF must check in on assumptions on an ongoing basis.

The final part of the opening keynote explained other areas of ongoing policy development. First, DND is actively participating in the co-development of the Government of Canada's Arctic Policy Framework, which sets out of a national vision to 2030. While economic development, social cohesion, and the environment are priorities, the Arctic Policy Framework will also have an important defence and security chapter – something that Northerners, not Cabinet, insisted must be included as a key aspect of Canadian Arctic policy given that, without security, it is impossible to make headway on development and social cohesion issues. Second, Hammerschmidt highlighted ongoing government commitments to invest in continental defence. What should we prioritize in light of our enduring partnership with the United States? NORAD remains as relevant today as when it was established sixty years ago, and modernization initiatives are still being defined in light of the need to upgrade the North Warning System, projected to become obsolete in 2020s, to provide advanced warning of aerospace threats.

Post-Keynote Discussion

Discussions following the keynote focused on several key themes and questions:

- What mission does the CAF want to achieve in the Arctic? How do we move concepts into design and, if the intent is not to "militarize" the Arctic, what does it mean from a design perspective to "mobilize forces" there rather than sending troops there? The CAF already has a capability to respond to a major air disaster (MAJAID), but what about larger disasters? Prepositioning equipment is key, but given the vastness of the Canadian North, how should we do this outside the hubs? Mobility and situational awareness are essential to any pathway forward.
- The CAF must be nimble and anticipate threats, but what if we move from a low or medium threat environment to a high threat one? Do our planned investments allow us to meet such a scenario? *SSE* promises to make a massive infusion of investment over the life of the policy to renew and revitalize core CAF capabilities, such as modern fighters and domain awareness. These are intended to provide a solid foundation upon which flexibility and adaptability depend, as will strategic investments in new technologies.
- What synergies are being missed between DND, OGDs, and private industry? Baffinland's Mary River mine, for example, employs 2000 workers from across the country, and will have 70 Panamax-size vessels travel to and from its port at Milne Inlet this year. How can government benefit from the experience and expertise of capable private sector organizations that work year-

round in a high-risk environment, with a business model achieving profit? Attempts to build synergies with government have met with little success. How can silos be bridged or dismantled to facilitate more private-public collaboration?

- How will DND/CAF infrastructure and social investments in the North benefit Northern landowners and rightsholders? As one Indigenous Northerner commented, a "with us, for us" approach is key. How does the military see engaging and co-creating with highly capable Indigenous governments in the North? NORAD modernization and the replacement of the North Warning System (NWS), as well as new Northern basing requirements, are physical infrastructure investments on the near horizon. In terms of the social element, the Canadian Rangers are an important CAF and Government of Canada asset throughout the North, as is the Junior Canadian Ranger programme. Efforts to co-develop the Arctic and Northern Policy Framework over the past two years has revealed both the benefits and challenges associated with this model.
- How can Canada and the U.S. address the common challenge of resourcing initiatives in the Arctic? Given that the U.S. considers Alaska an "economy of resource theatre" that does not attract a lot of resources, what are opportunities for additional bi-national cooperation / resource sharing vis-à-vis NORAD or other platforms? How do we cooperate to address threats in other domains that NORAD does not address – such as space, cyber, land and sea?

Session 1: Setting the Arctic Context(s): Geostrategic Considerations, Geopolitical Drivers, and Domestic Priorities

Chair: Honorary Captain (Navy) Tom Paddon, Chairman, Baffinland Iron Mines Ltd.

Panelists:

- Dr. Rob Huebert, Associate Professor, Political Science, University of Calgary
- Wayne Walsh, Director General, Northern Strategic Policy, Crown Indigenous Relations and Northern Affairs Canada
- Jutta Wark, Circumpolar Affairs Division, Global Affairs Canada
- Rear Admiral Brian Santarpia, Chief of Staff Operations, Canadian Joint Operations Command

Session Introduction

Strong, Secure, Engaged (*SSE*) highlights the Arctic's cultural and economic importance to Canada as well as its state of rapid environmental, economic, and social change. While this change presents opportunities, it has also spawned new defence, safety, and security, challenges. To meet those challenges and "succeed in an unpredictable and complex security environment," *SSE* commits to an ambitious program of naval construction, capacity enhancements, and technological upgrades to improve situational awareness, communications, and the ability of the CAF to operate across the Arctic. *SSE* also states that "the Arctic region represents an important international crossroads where issues of climate change, international trade, and global security meet." Rather than promoting a narrative of inherent competition or impending conflict, it points out that "Arctic states have long cooperated on economic, environmental, and safety issues, particularly through the Arctic Council, the premier body for cooperation in the region. All Arctic states have an enduring interest in continuing this productive collaboration."

Panel chair HCapt(N) **Tom Paddon** noted that, in terms of resource development, the private sector must provide return on investment but, most importantly, development must be good for the North and for Canada. The same logic applies to government policy. In this session, panelists situated *SSE* and DND/CAF Arctic interests in global, circumpolar, and domestic policy contexts. Presenters offered perspectives on the effects of resurgent strategic competition between Russia and the United States on Canada's Arctic defence, security, and foreign policy; explained ongoing efforts to co-develop Canada's Arctic and Northern Policy Framework; and identified strong alignments between priorities in *SSE* and Canada's broader Arctic strategies. This opening session also touched on many themes covered in subsequent discussions, from the changing role of NORAD in aerospace and maritime defence; Russia's ability and willingness to project power in the region; the return to great power politics; the evolving role of NATO in the region; and how the CAF can and should work with allies and partners to address the strategic and operational challenges created by climate change and shifting geopolitical realities in the North.

The Panel

Dr. **Rob Huebert**, a regular commentator on Arctic affairs, launched the panel with his ideas about the implications of what he called the "New Arctic Strategic Triangle Environment" or NASTE (pronounced "nasty"). Emphasizing that the CAF needs to be nimble to adapt to a rapidly changing geopolitical world, Huebert insisted that the threats are not *going* to come in horizon 2 or 3: they exist now. He was dismissive of those commentators who suggest that "Arctic exceptionalism" means the region should be considered a special zone, insulated from the rest of the international system. He suggests that Canadians and their allies were fortunate in the 1990s, anticipating a zone of peace while Russia was too weak to act in the Arctic and China was relatively disinterested. But the Arctic does not exist "in a bubble," in terms of environmental security, social challenges, or terrible indicators for health and well-being. Despite normative hope for a peaceful Arctic, Huebert emphasized that the reality of Arctic geopolitics leaves us with the risk of sleepwalking into a "dangerous disaster" because we have bought into the mantra that the Arctic is an area of low tension.

Huebert noted that the source of Canada's problem lies in our geographic position in the middle of the resurgent geopolitical power triangle between Russia, China, and the U.S. Russia is actively seeking great power status through hybrid warfare and political interference designed to undermine Western solidarity and democratic governance systems. China, he argued, is on a path directed against our global interests. Its defence spending is now the second highest in the world, and the Chinese are actively engaged in interfering in governance and economic activity through cyber warfare and investments in strategic assets. The third part of triangle is a Trump administration in the U.S. that does not respect our countries' "special relationship" and has a win-lose mentality that poses challenges to our security if it sees Canada as just another state competitor.

Further elaborating on these power dynamics, Huebert suggested that Russia's decision in 2008 to re-establish strategic deterrence and assert regional hegemonic control of the Arctic portended the arrival of a "NASTE" Arctic geopolitical environment. The Russian Federation has placed its strategic deterrent with the Northern Fleet, bases and defences have been strengthened, and Russian military capability has expanded substantively. Russia is intent on disrupting NATO, which has Arctic implications. Huebert predicts that when the Finns and Swedes ultimately make an official declaration of their intention to join NATO, "we are heading to some very troubling times" when "Russian will make life miserable across the board, including in the Arctic."

The Chinese have expressed a more concerted interest in the Arctic since 1999. Although they currently play by the rules, they insist on being included in Arctic governance systems. Their notification that they intend to develop a white water naval capability, Huebert suggests, was demonstrated in their transit of the Aleutian Islands and visits to the Nordic countries in 2015. If the Chinese intend to compete with the Americans for naval control, Huebert insisted, they will need to develop an Arctic capability. Will some of their recent submarines be fitted with under-ice capabilities? What will this mean for Arctic stability? Huebert encourages us to imagine an increasingly complex and volatile future Arctic filled with Chinese, Russian and U.S. submarines.

As the U.S. has moved towards isolationism, it has changed its understanding of borders and now conceives of a world comprised of "win-lose" propositions. Its declining faith in and emphasis on NATO is disconcerting, and Huebert asks (despite the Government of Canada's longstanding insistence

that our bilateral border disputes are well-managed) how long will it be before Canada faces an American challenge over our legal position on the Northwest Passage and overlapping claims to sections of the Beaufort Sea?

How does Canada prepare for "NASTE"? How do we handle our borders with the U.S., and how do we protect them? "New technology means that borders have to be pushed out from a domain awareness side," Huebert explained, and "we need to be able to protect borders" from new Russian and Chinese hypersonic capabilities. "We will need to do these things on our own, as well as in NORAD," he emphasized. Enhanced maritime domain awareness in the Arctic is essential. "We have capabilities for how to get up there, but we now need an operational capability," Huebert insisted. "We should not be depending on U.S. in the future – we have to grow up in being able to recognize that we are facing a situation that will be one of the most challenging that we've ever faced." This requires a shift in Canadian thinking from "tactical cognition" to deeper and broader strategic awareness, where Canadians "stop sleepwalking in the Arctic" and start thinking strategically as *Canadians*.

Wayne Walsh, the Director General of Northern Strategic Policy at Crown-Indigenous Relations and Northern Affairs Canada (CIRNA), began with the question: "What does Northern development mean in the twenty-first century?" In 2016, the Trudeau Government announced its intention to refresh *Canada's Northern Strategy* (2009) and *Statement on Canada's Arctic Foreign Policy* (2010) in a new Arctic and Northern Policy Framework for Canada that would incorporate both domestic and international aspects. Rooted in the principle of co-development with Northerners, Territorial and Provincial governments, and First Nations, Inuit, and Métis People, this "whole of government" initiative has involved unprecedented collaboration across 33 federal departments (including DND, Global Affairs Canada, Transport Canada, Environment and Climate Change Canada and Polar Knowledge Canada), as well as partnerships with Northerners and other stakeholders, on how to move forward with policy-making. This approach acknowledges a recognized need for policy development that moves beyond traditional approaches to consultation. "The days of writing up policy papers and shopping them around town for comments are gone," Walsh explained. "We were tasked with the development of a policy framework and vision from Northerners and for Northerners."

The government's broad engagement strategy has included roundtable sessions, written submissions, and online engagement, yielding a tremendous amount of international and domestic policy inputs. During the consultations, Walsh explained that officials heard the consistent message that "the reality and framework need to be centred on the people who live and work in the Arctic. We have also been sleepwalking in the Arctic on social and economic realities, and we need to acknowledge those realities and address them." The emerging (working) framework identifies six key thematic areas:

- Education, skills development and capacity building will unlock economic opportunities
- Investment in social, transportation, energy and connectivity infrastructure supports all priorities
- Climate change is a lived reality in Canada's Arctic and impacts all sectors
- Science and Indigenous Knowledge can and must be brought together
- Domestic and international spheres cannot be considered in isolation
- Security, safety and defence are linked to the economic, social and environmental well-being of Northerners

Co-Development and Co-Implementation: A Different Way of Working Together

The Government of Canada's commitment to co-development:

- recognizes the need for engagement and participation in policy development that goes beyond traditional approaches to consultation.
- reflects evolving domestic governance in Canada's Arctic and Northern regions.
- requires flexibility and adaptability in processes and timelines.
- aims to build- and build on-relationships that can be leveraged to support policy implementation in the long term.

These thematic areas are all linked in a people-centric approach. The well-being of people and communities is integral to the Framework and to Canada's global Arctic leadership. If you want improved food security, for example, you have to look at income security, and infrastructure. How do you address these issues? Through economic development, which requires both education and infrastructure. To achieve desired outcomes, how the Government does things is as important as what they do. Accordingly, collaboration and partnership are predicated on ideas that Northerners are best placed to make decisions in areas that impact them, Indigenous-Crown partnerships are key to addressing socio-economic gaps and moving forward together, and the economic potential of the North should be developed to the benefit of Northerners.

Walsh explained that the thematic area on security, safety and defence was added as a co-development priority after the consultations, which included "some very passionate interventions" on how these components are integral to addressing challenges that come with increased changes in and accessibility of the Arctic. Relationships and collaboration with local communities, Indigenous organizations, and Territorial and Provincial governments, must be consistent and enduring, which has not always been the case. "The history in the High Arctic has been one of exercising sovereignty by pointing to the existence of Inuit in Northern, isolated communities," Walsh noted. "Northerners have told us that 'we are ok with you recognizing us as flagpoles, but why do we have to do it in poverty'?" Unfortunately, most Canadians are naïve about the Arctic context within Canada, and Walsh suggested that the fourth side of Huebert's triangle is the realities faced by Canada's Northern communities. "We cannot look outward without also looking inward," he emphasized. Understanding domestic realities is essential to situate Canada's Arctic, and its policy framework, in a global context.

Civil servants are being asked to be bold by the federal minister and the people, Walsh explained, to create a Framework that will provide overarching policy direction to the Government of Canada's priorities, activities and investments in the Arctic, with a horizon of 2030. "Northerners are asking for a nation-building exercise," and his team is aiming to deliver a policy framework that will articulate Canada's ambition for the Arctic both domestically and internationally. Northerners want to know Canada's response to Chinese and Russian Arctic ambitions. Conversely, the world is interested in learning how Canada articulates its Arctic vision. "All of this will be meaningless if we don't acknowledge Northern

realities and then lay out a roadmap on how to attain a better future," Walsh concluded – a consideration that ties directly to Crown-Indigenous reconciliation processes.

Jutta Wark, the Director of Nordic and Polar Relations at Global Affairs Canada, began her presentation with the question: are our foreign policy tools the right ones, in the right mix, to address the challenges that we are facing? How do these tools find their application in our North, in the circumpolar region, and globally? She noted that the lines between what is safety, security, and defence and what is trade, investment, development, economic and foreign policy are increasingly blurred and coming together in more complex ways. This is important given Canada's desire to re-emerge as an Arctic leader.

Setting a broad context, Wark emphasized that there is no legal vacuum in the Arctic. Governance in the Arctic region is sophisticated and well-established compared to other parts of the world. The Law of the Sea Convention (UNCLOS), Polar Code, UN Framework Convention on Climate Change, and Biodiversity Convention provide mechanisms to engage with other Arctic states and the rest of the world. The International Agreement to Prevent Unregulated High Seas Fisheries in the Central Arctic Ocean signed the previous week showed a proactive approach to addressing problems that do not yet exist, demonstrating a commitment by 5 Arctic states, 4 Asian countries, and the European Union (EU) to anticipate and study scenarios that might come to pass once fishing becomes a viable option in the region.

Despite the absence of an immediate conventional military threat to Canada's Arctic, we still must be ready. Arctic and Northern Policy Framework consultations reaffirmed that Northern and Indigenous interlocutors are concerns about safety, security, and sovereignty as Arctic waters open up. Preparedness is key. Canadians and international partners have dedicated significant thinking to search and rescue, a major air disaster (MAJAID) or maritime disaster (MAJMAR), and oil spill response, but we have been fortunate thus far in not having to exercise some of these instruments or capabilities in response to a major incident.

The Arctic Council is our pre-eminent multilateral forum, providing Permanent Participants (PPs) – representing transnational Indigenous peoples – with a direct opportunity to influence policy. Through the PPs, Northern Indigenous peoples have a strong working relationship with the Government of Canada through the Arctic Council Advisory Committee. Wark emphasized that the Arctic Council is a resource for people who work in defence and security spheres because it is good at synthesizing data and knowledge that helps us to understand Arctic dynamics (such as climate and environmental change data that has strong implications for defence and security). Reading Arctic Council assessments through a security lens can help to determine key issues and challenges moving forward. The Arctic Council's efforts to incorporate Indigenous Knowledge into assessments, thus facilitating access to that information source, provides "a good starting point for Reconciliation," and it is essential that Canada take these Indigenous viewpoints into account as we build future scenarios.

Although the Arctic Council mandate specifically excludes defence and security, the line is more blurred in practice, as indicated by the legally-binding Agreement on Cooperation on Aeronautical and Maritime Search and Rescue in the Arctic (2011) and Agreement on Cooperation on Marine Oil Pollution Preparedness and Response in the Arctic (2013), negotiated under the auspices of the Arctic Council, as well as the Arctic Coast Guard Forum emerging out of Arctic Council recommendations. There are opportunities for Global Affairs Canada and the Department of National Defence to work together more closely to develop Canada's positions, both multilaterally and bilaterally. Amongst the Arctic states, there is work to be done to enhance continental defence cooperation with the United States. Despite current

tensions with Russia, we still cooperate on areas of mutual interest in an Arctic Council context, such as food security, science, and permafrost. Canada is also opening dialogues with non-Arctic states with emerging Arctic interests (such as China, Japan, Korea, and Singapore), with scientific cooperation a key shared interest, as is trade and investment in the Arctic's resource potential. Global Affairs Canada has now integrated responsibilities for bilateral relationships with the five Nordic countries under the Nordic and Polar Relations branch, which allows for a more concerted focus. Along these lines, a key question to consider is how a pivot towards bilateral relationships might allow Canada to leverage these relationships to address gaps in the region (eg. education, health, and economics)?

Canada's Arctic Security Perspective

- No immediate military threat in the Arctic region, but need for continued surveillance
- Committed to working with neighbours to ensure Arctic remains a zone of peace and stability
- Increasing traffic and foreign presence heightens safety and security concerns in the region
- Importance of preparedness, including for search and rescue operations, maritime disaster, oil spill response, etc.

Wark described the Arctic and Northern Policy Framework as a major opportunity for Canada to be ambitious and re-position itself as an Arctic leader. The co-development process has been interesting and innovative, but she noted that it has been "a little less complex on the international affairs front" because engagement in the Arctic Council Advisory Council already facilitated ready access to Northern perspectives. The decision to link the domestic and international aspects of the Policy Framework reflects a strong sense that, if Canada wants to be a Global Arctic leader, "we need to get our own house in order." The details on how Canada will seek to position itself as a leader remain to be confirmed, but proposed initiatives include:

- efforts to "beef up" the Arctic Council's Sustainable Development Working Group (which is chronically underfunded);
- streamlining trans-border Indigenous mobility (Yukon-Alaska and Baffin-Greenland);
- a larger focus on Northern trade and investment, discerning how to leverage and harmonize trade tools to support Northern needs (perhaps through a dedicated trade commission);
- filing Canada's submission on outer limits of continental shelf in the Arctic Ocean; and
- updating data to measure the limits of Canadian waters in the Arctic

The final panelist, **Rear Admiral Brian Santarpia, Chief of Staff Operations at CJOC**, prefaced his comments by emphasizing that the CAF does not develop or advocate for policy – it develops policy options for senior decision-makers to act upon. CJOC treats the Arctic as a theatre of operations, and therefore has coalesced its activities into a year-round Operation NANOOK. Given the challenges of having a military presence, the decision to treat these activities as an operation allows the CAF to increase its focus on all of the variables required to support missions there. When you want to force employ in the Arctic, Santarpia explained, you need to have capabilities already developed, and this takes time. The tyranny of distance and time is an enduring reality that must be recognized at every level, from planning to execution. Furthermore, burden-sharing is key in the Arctic, and investments should be multi-purpose and yield multiple benefits – not just to DND, but to other government departments and Northern communities.

Turning to CAF mission sets, Santarpia cited a recent Parliamentary committee testimony by CJOC Deputy Commander MGen William Seymour who reiterated that Canada does not face an imminent

military threat in the Arctic, but countries do have capabilities to challenge us if they want to do so. Because threat = capability + intent, both capability and intent are required to categorize something as a threat. The absence of hostile intent means that there is no current threat. Nevertheless, DND/CAF must provide military options to counter a foreign capability whether there is a threat or not. No other country is intending to invade or occupy Canada's North (which is implausible given sustainment challenges), but other countries could use our Arctic against our interests. Furthermore, given NATO's 360-degree policy, an international conflict (eg. in Eastern Europe) could very well spill over into the Arctic. Furthermore, Russia is continuously improving its capabilities, and the Russians do not need to be in Canadian airspace to use that airspace against us. For example, a foreign adversary could launch a missile from their home territory over the Arctic as part of a global strategy to deflect our attention from other parts of the world or to take pressure off another theatre. Accordingly, DND/CAF must provide options to meet these risks.

CJOC works closely with NORAD to anticipate and meet aerospace threats and provide maritime warning. Through this strong, resilient, 60-year old relationship, Canadians are ready to work in concert with our American counterparts – and this longstanding partnership should weather any political storm between the two countries. In the Canadian Arctic, the Canadian Rangers provide first-hand understandings of what is happening and often offer a first-response capability for SAR and other domestic emergencies. 1st Canadian Ranger Patrol Group has approximately 1850 Rangers patrolling around and supporting more than sixty northern communities. Responding to an air crash (MAJAID) in the far north is particularly challenging, but this is an important mission and the CAF will receive 16 new C295W fixed-wing SAR platforms due for delivery from 2019-22. The CAF Arctic Training Centre in Resolute provides facilities for up to 140 personnel and equipment storage. Furthermore, the CAF has 4 Immediate Reaction Units (IRUs) and 4 Arctic Response Company Groups (ARCGs) that are held in high-readiness and can be sent north to respond to contingencies. The Royal Canadian Navy will acquire six *Harry DeWolf*-class Arctic and Offshore Patrol Vessels (AOPVs) from 2019-22, and the Nanisivik Naval Station will open for the 2019 navigation season, enhancing the ability of the CAF and OGDs to sustain Arctic maritime operations. Collaboration with ODGs is key to CAF mission success in the Arctic more broadly, particularly given the security and safety issues that are at play. This August, when the Russian cruise ship *Akademik Ioffe* ran aground on a shoal in the Canadian Arctic, it was fortunate that none of the 102 passengers were injured and it was soon refloated. But what if the *Ioffe* had sunk? What if the crew and passengers had to put ashore on Baffin Island? How would we have got the passengers out of there? On another note, what kind of information might that ship have been collecting during its cruise through Canadian waters?

Discussion Period

The discussion period for the panel on Setting the Arctic Context centred on four main themes: the state of the Canada-US Arctic Relationship; Arctic governance and its robustness at various levels; resurging Great Power strategic competition and the danger of global or regional conflicts "spilling-over" into the Arctic; the effects of Canada's co-development approach to policy making on its international relationships; and the need for Whole of Government (WoG) collaboration.

1. The Canada-US Relationship

A vigorous conversation grappled with what the current "season of political uncertainty" between Canada and the United States meant for Arctic security relationships and concomitant planning assumptions. Framed as "premier partners" in the Arctic by one another, several commentators emphasized that our

countries' convergent interests far outweigh our divergent ones and, accordingly, we can safely assume ongoing defence and security cooperation. Others anticipated that the Trump White House's tendency to push aside people who understand the "special relationship" with Canada (evidenced during NAFTA negotiations taking place at that time) is likely to spill over into the defence and security realm. Citing talk of Canada as a security threat in some Republican corridors, Huebert suggested that the longer the administration stays in power the more "the individuals who made our special relationship work will be pushed aside." Rebuttals to his statement insisted that there are "apolitical" people in US security circles who understand the importance of the relationship, and these key individuals will not disappear.

Participants also emphasized the importance of not allowing political rhetoric to harm our "familial" relationship, so that shared commitments and responses could be prioritized in a region where we have many common interests and face common constraints. Towards this end, "apolitical anchors" are essential to help counter political narratives that damage our bilateral relationships, and we must "look for the win-win where we can." Specific recommendations included the need to reinvest and reinvigorate existing structures that have "atrophied," such as the Permanent Joint Board on Defence (PJBD) and Military Cooperation Committee (MCC) – with reassurances from defence officials that this will be a priority moving forward.

2. Arctic Governance

Some participants questioned the idea that Arctic governance is robust and stable. Many U.S. government officials see governance as: a set of rules and regimes to guide activity; the ability to monitor compliance with rules and regimes; and the ability to enforce those rules when you detect misbehavior. One participant saw deficits in all three conditions in the Arctic context. "The Law of the Sea does not provide much guidance for security regimes; our ability to monitor behavior in Arctic is limited; and our ability to get up there and police the region is non-existent," the participant argued. "The Arctic is a neighbourhood where there may be some laws and as long as everyone agrees with them it is fine. But we don't have neighbourhood watch or police, so what happens when they don't?" Are Canada and the U.S. on a path that will provide us with the tools to enforce the rules effectively?

Responses differentiated between the structures in place to facilitate a circumpolar dialogue between Arctic states (and with Indigenous groups) and operational-level gaps in enforcement and monitoring capabilities. Various multilateral mechanisms exist to facilitate international dialogue on areas of common interest, and these structures can yield positive, practical outcomes (such as the SAR and oil spill response agreements). Thus, while enforcement remains an issue at the operational level, collaboration at the policy level has brought clear successes.

3. Great Power Strategic Competition and the Danger of "Spill-Over" into the Arctic

Various participants offered differing opinions on whether the Canadian and American "measured responses" to renewed Great Power rivalry are appropriate. Although there are no "imminent threats" to the Arctic, do we have the equipment or procurement strategy that will enable us to react to potential threats that may emerge in the region? Is a capability-based approach the right way to adapt to evolving threats?

Other discussions related to the potential for global or regional conflicts to "leak" or "spill" into the Arctic, including the potential for the Arctic to serve as a diversionary theatre. Academics have explored some of these questions (particularly Russia academics), but there was no indication of any official "game-planning" efforts in any detailed manner. Canada's avowed support to a rules-based international order offers useful policy cover to explore military options to address possible threats.

4. Co-Development of Policy and the Need for Whole of Government (WoG) Collaboration

Given the effort that the Government of Canada has dedicated to co-developing its Arctic and Northern Policy Framework, and the decision to link the domestic and international aspects, will Canada be able to explain an inward-focus to our international partners? One participant emphasized that this may allow us to get "our house in order," but other Arctic states expressed frustration during Canada's last chairmanship of the Arctic Council (2013-15) that our priorities were excessively domestic-focused rather than circumpolar. Discussions noted that the commitment to co-development is a new way of doing business for civil servants and partners that, understandably, has elicited questions from international partners who are asking for clarification about our policies. Canada must be prepared to explain the parameters of our co-development processes to the world, and should reinforce the message that we are not simply inward-focused. What kind of alliance partner are we going to be if co-development inhibits progress on international relationships? The Arctic and Northern Policy Framework will have to "find the balance between feeding domestic hunger for progress" in addressing challenges in the Canadian North while setting the conditions to be a leader internationally.

Another thread of conversation emphasized the need for enhanced collaboration across federal departments and agencies, and between levels of government, to address security challenges. "Whole of Government collaboration is embedded in ministerial mandate letters," one panelist explained. Although some people still thought "within their lanes," this individual emphasized how "issues in the Arctic are so complex that we need to continuously rethink how we approach Whole of Government (WoG). We might consider taking a Grand Challenges Approach to deal with these issues to create a more cohesive dialogue. We do need to think about working differently given how connected everything is." Another panelist emphasized the need to properly articulate the federal government's interest in the Arctic, in light of devolution and new political dynamics. Although every other circumpolar country has an Arctic coordination office, Canada does not. Is it time to re-think how to cooperate in the Arctic from an organizational perspective? How does, and how should, government get things done?

Session 1: Setting the Context(s)

Major Themes

- The effects of renewed strategic competition between Russia and the United States on Canadian and circumpolar Arctic relations
- Strong alignments between priorities in *Strong, Secure, Engaged* and Canada's forthcoming Arctic and Northern Policy Framework
- The importance of Whole of Government collaboration and Comprehensive Approaches (including academia and the private sector) in a Northern context
- The centrality of the Canada-U.S. defence relationship in the Arctic and the need to strengthen the structures and mechanisms that support the relationship

Session 2: Arctic Surveillance, Control, and Continental Defence

Chair: Stéphane Roussel, Ecole nationale d'administration publique, Gatineau

Panel:

- Major General Randy 'Church' Kee, Executive Director, Arctic Domain Awareness Centre, Anchorage, Alaska
- Lieutenant-Commander Michael Bielby, J3 North America, CJOC
- Colonel Pierre Beauchamp, A/D Air Plans, RCAF
- Dr. Andrea Charron, Political Studies, University of Manitoba

SSE 107. Align the Canadian Air Defence Identification Zone (CADIZ) with our sovereign airspace.

SSE 109. Collaborate with the United States on the development of new technologies to improve Arctic surveillance and control, including the renewal of the North Warning System.

Session Introduction

Strong, Secure, Engaged affirms the compatibility between Canada exercising sovereignty and collaborating with international partners. "Canada remains committed to exercising the full extent of its sovereignty in Canada's North, and will continue to carefully monitor military activities in the region and conduct defence operations and exercises as required," the policy explains. Concurrently, "Canada's renewed focus on the surveillance and control of the Canadian Arctic will be complemented by close collaboration with select Arctic partners, including the United States, Norway and Denmark, to increase surveillance and monitoring of the broader Arctic region." NORAD is also acknowledged as playing a central role in the protection of North American security and a central element of the new Arctic security environment. To improve NORAD's ability to respond to the new military technological elements of the threats, a commitment was made to modernize the North Warning System (NWS). To this end, *SSE* announced that Canada and the United States have begun a series of studies to determine what is needed. The policy statement also makes it clear that the modernization of the NWS is only one element of improving NORAD's surveillance capabilities. *SSE* was explicit that both the air and maritime approaches are to be included in any effort to modernize the overall system, thus acknowledging the growing bomber/cruise missile and submarine threat. This will include the replacement of the current RADARSAT system to improve the identification and tracking of threats and improve situational awareness in and through Canadian territory along with the development of other space-systems to improve communications globally and specifically for use throughout the Arctic region. In short, the Canadian Government is about to embark upon an ambitious program to significantly improve Canada's surveillance capabilities in the Arctic. This is needed as the geopolitical environment changes along with the development of new weapon systems. *SSE* specifically notes that new weapons such as hypersonic cruise missiles and new ballistic missiles will increase the threats that face Canada in its Arctic region.

SSE commitments to renew the NWS and modernize elements of NORAD flow from Canada's longstanding bilateral defence arrangements with the US to jointly monitor and control the air and maritime approaches to the continent. New commitments, however, will require creative thinking and new approaches. The decision to align the Canadian Air Defence Identification Zone (CADIZ) with our sovereign airspace above the Queen Elizabeth Islands is compatible with Canadian control over its sovereign airspace but risks creating a gap between commitments and capabilities. Accordingly, this panel was intended to stimulate innovative thinking on questions related to NORAD infrastructure, surveillance and detection, interception capabilities, and command and control relationships.

The Panel

The first presenter, **Major General (ret'd) Randy "Church" Kee**, the Executive Director of the Arctic Domain Awareness Centre in Anchorage, Alaska (funded by the US Department of Homeland Security, with a primary focus on US Coast Guard issues), emphasized the need for joint Canadian-American solutions to Arctic scientific research and development challenges. "People with experience need to get involved in educational programming to train our replacements," he stressed from the onset. The presentation also highlighted the need for concerted efforts by both countries to increase the volume of Northern voices. The North American states, as rational actors, had to strive for "win-wins" through a *comprehensive approach* involving information and resource sharing. This is essential given that that the North American Arctic is replete with vulnerabilities, such as:

- Diminishing Ice Environment is an incentive for increased human activity.
- Day to day: Increased tourism, resource extraction and shipping…happening now…and projected to accelerate.
- Changing Arctic ecosystem impacts physical environment and the human terrain.
- Indigenous subsistence lifestyles are threatened and may become unsustainable over the coming decades.
- Despite policies and positions of rational Arctic nations, the Arctic is at increasing risk of becoming a zone of competition…at non-state and state levels
- Logistics costs and constrained national budgets equate to a North American Arctic that is less secure than Canada and the U.S. would likely prefer.
- [Likely that the U.S. and Canada have a] respective interest to share information, capabilities and complement existing bi-national relationships to more comprehensively secure the North American Arctic.

Kee then turned to the "Arctic Security Catalyst" in a rapidly-changing physical environment which is allowing increased seasonal activity such as tourism, resource development, and fishing. As nations, corporations, and other actors push activity north, real needs associated with protecting and defending sovereign interests, borders, and resources, curbing crime, and protecting people must be addressed. In short, a rapidly-warming Arctic will facilitate increased human activity which drives an increase in defence, security, law enforcement, environmental protection, and safety needs. Meeting the challenge intelligently, effectively, and efficiently in a resource-constrained fiscal scenario means increasing collaborative solutions, Kee emphasized. The Arctic is an "economy of resource theatre" that demands

collaboration to work towards a shared framework based on mutual interests which, in turn, requires trusted relationships.

In terms of addressing SSE 109 and thinking about future missions and operations across the North American Arctic, Kee identified the following requirements:

- Increased Domain Awareness & Understanding across the Arctic.
- Improved ability to operate and communicate (and technologies that reduce risks to the operator).
- Smart infrastructure investments to enable "right sized" security presence to serve and protect…and secure respective Sovereign territory.
- Presence and ability to patrol and enforce national laws across respective Extended Economic Zone.
- Ability to know the hazards beneath the waves as marine traffic increases.
- Ability to protect ports and infrastructure investments in light of physical/environmental changes.
- Improved ability to respond to search and rescue, humanitarian assistance and disaster response.

In response to these needs, ADAC strives to advance opportunities for shared CANUS solutions in research, S&T solutions, information sharing, and complimentary security approaches to complement bilateral defence relationships, in hopes that governments and academics can access and "harvest" their expertise. ADAC's efforts to date include fundamental and applied S&T, as well as convening workshops that seek CANUS solutions in practical measures, policy, and bi-national approaches in Arctic research. Accordingly, Kee and his colleagues have sought to foster maritime scientific partnerships and Arctic knowledge product development with Canadian researchers since 2016, and every ADAC-sponsored Request for Proposal has included a specific invitation for Canadian researchers. Kee emphasized that *operators* need to drive the ADAC research agenda, including initiatives dedicated to modelling, outreach, and operator decision support tools.

University of Alaska's **Arctic Domain Awareness Center** (ADAC) is hosted by the University of Alaska and conducts research across a growing network of academic and industry partners.

Vision: The U.S. Department of Homeland Security Center of Excellence (DHS), providing networked and mission-focused support to the U.S. Coast Guard Operator in the High North.

Mission: To develop and transition technology solutions, innovative products and educational programs to improve situational awareness and crisis response capabilities related to maritime challenges posed by the dynamic Arctic environment.

Strategy: Advance knowledge in relevant science and technology through conducting research and development in close collaboration with mission agencies' end users. The Center also develops future leaders for the DHS enterprise through structured education programs.

ADAC's principal customer: U.S. Coast Guard in support of their Arctic search & rescue, disaster response, law enforcement and assistance missions.

ADAC works with an array of international, federal, state, local, tribal, industry and academic partners to advance domain awareness of the Arctic region.

ADAC hosts regular operator-driver research workshops to bring together different actors and enhance capabilities useful for USCG and Arctic mariners. Canadians are very involved in these workshops, which are designed to work through common challenges, such as how to respond effectively to an Arctic oil spill. (ADAC has four new projects centred on this problem.) Arctic Medium- and Long-Term Environment (MaLTE) workshops, which involving "asking the people with a PhD in Arctic living about their concerns in the Arctic," are tailored events that "look long term to identify emerging trends, challenges and opportunities." The latest, on North American Arctic Maritime & Environmental Security, was held in partnership with Trent University and the Royal Military College of Canada in September 2018 to provide recommendations for policy makers in Washington and Ottawa. Encouraging participants to think about all the issues that might arise in the near- and long-term, it identified various needs and proposed solutions including:

ADAC's Understanding of Operator Concerns in the Arctic

• Communications. • Multi-dimension information fusion. • Arctic bathymetry. • Understanding sea-ice dynamics. • Oil spill response. • Precision weather (including sea-ice formation and accurate sea-states). • Vessel Safety. • Waterways management• Multi-dimension information fusion. • Arctic bathymetry. • Understanding sea-ice dynamics. • Oil spill response. • Precision weather (including sea-ice formation and accurate sea-states). • Vessel Safety. • Waterways management • Understanding Marine mammal and fish dynamics. • Understanding changes in the water column. • Discerning dark targets. • Arctic mariner compliance with new IMO Polar Code. • Ability to respond proactively across the range of missions.

- Establishing a CANUS Arctic Security Working Group that is comprehensively-oriented, involving communities; federal, province/state, and local governments; and key supporting organizations
- Seeking a CANUS Comprehensive Security Framework to compliment NORAD
- Increasing the number of binational federal exchanges
- Increasing the unity of effort in CANUS initiatives to better include Canadian First Nations/Inuit and Alaska Natives, including the creation of new CANUS Indigenous networks
- Addressing a critical need for CANUS Arctic information sharing protocols, so that practitioners can respond at speed
- Enhancing CANUS shared Arctic research and S&T that characterizes, understands and proactively addresses Arctic changes
- Increasing bi-national collaboration and interoperability between defence, law enforcement and environmental protection communities
- Increasing CANUS educational exchanges across government agencies
- While fully respecting Canada and U.S. legislative and policy differences, seeking practical joint approaches in remote/Arctic region law enforcement collaboration
- Increasing CANUS training and exercises in defense and disaster management
- Identifying bi-national solutions in Arctic equipping, transportation, and logistics to increase CANUS Arctic interoperability
- Leveraging the power of social media to protect remote Arctic people and communities
- Investing in cultural intelligence

- Increasing awareness of threats to remote Arctic communities that emanate from outside CANUS borders
- Further exploring risks and threats associated with illicit trafficking, illegal narcotics, environmental activism, and illegal immigration/entry

A full workshop report will be released in early December 2018.

The second presenter on the panel, **Lieutenant Commander Michael Bielby** (J3 North America at CJOC), began with a snapshot of the maritime picture in Canada's Arctic in 2017. Last year, 191 vessels that broadcast with AIS were active in Canadian Arctic waters – a 17% increase over the previous year. 31 of these vessels transited the Northwest Passage (NWP), including the circumpolar voyage of the Chinese research icebreaker *Xue Long*. Across the pole, the first commercial container ship transited the Northern Sea Route (NSR).

What does this increase in merchant shipping and research traffic in Arctic waters mean for national defence? Biebly explained that the Prime Minister's mandate letter to the Minister of National Defence in November 2015 asked DND to renew surveillance and control efforts in the Arctic. Furthermore, *SSE* provides "top cover" to practitioners for support to domestic operations, given that the priority assigned to being "Strong at Home" means assisting civil authorities in the Arctic, as does the Chief of the Defence Staff directive. How, then, does DND/CAF deliver on this direction?

Op LIMPID Mission
Plan, coordinate, and conduct routine and contingency domestic surveillance and control operations within the Canadian domestic area of responsibility in order to enhance CAF domestic awareness across the following domains:

- Aerospace - NORAD;
- Space – Canadian Space Operations Centre;
- Cyberspace – Cyber Component Commander; and
- Maritime and Land – CJOC via Maritime Component Commander and the Regional Joint Task Forces.

Maritime domain awareness is defined by the International Maritime Organization as the effective understanding of anything associated with the maritime domain that could impact the security, safety, economy, or environment. The maritime domain is defined as all areas and things of, on, under, relating to, adjacent to, or bordering on a sea, ocean, or other navigable waterway, including all maritime-related activities, infrastructure, people, cargo, and vessels and other conveyances.

Bielby described Operation LIMPID, Canada's National Surveillance and Control Operation, as a key deliverable. Enhancing maritime domain awareness throughout Canada's regional joint task force (RJTF) areas, it also feeds into monthly maritime domain situational awareness synchronization efforts with CANUS partners (including NORAD). Defence, safety, and security requirements dictate that Canada and its allies must detect, track, and identify vessels when they leave a foreign port and operate in Canada's EEZ, not just when they enter into Canada's territorial sea (12 nautical miles from the coast or our straight baselines).

The presenter then shared a CANUS Security Threats Matrix – Arctic, derived from an Arctic Domain Awareness Center (ADAC) workshop held earlier this year, to determine the top threats to Canadian interests and security in the region. Analysis prioritizes asymmetrical, non-conventional threats in the Arctic, with the intelligence community discerning that Russia has military capabilities but no intent to threaten North American Arctic security at this time. "Dark Targets" (asymmetric threats that are difficult to define) represent the most acute threat to national security, with others emanating from foreign nations, transnational organized crime (TOC), search and rescue (SAR) obligations, illicit fisheries, limited high latitude communications, a lack of local situational awareness (SA), and icebreaker operations. Domain awareness is essential – "to counter threats we need to know what threats are." So too is enhanced inter-agency cooperation, hydrographic charting, and information-sharing between federal departments and allies.

Assets Leveraged for Surveillance & Control Maritime and Land	
Air	RCAF Maritime Patrol Aircraft Fisheries & Oceans – contracted air Transport Canada - NASP
Maritime	Royal Cdn Navy/ Canadian Coast Guard US Navy/ US Coast Guard NORAD (Maritime Warning notices)
Land	Canadian Army & Canadian Rangers Coastal Automatic Identification System (AIS) Liaison Officers to Provincial Emergency Ops Centres INNAV – vessel traffic management system
Space	RADARSAT 2 AIS Long Range Identification & Tracking (LRIT)
Multiple	Maritime Safety & Security Information System (MSSIS) Interdepartmental Maritime Information Command Control Communication (IMIC3) Maritime Command & Control Information System (MCCIS) US Navy

Expressing his personal views of the way forward, Bielby emphasized the need to more fully leverage the capabilities of the Canadian Rangers and their situational awareness of what is normal – and what is not – in their local areas. Efforts to create synergies with the Nunavut Tunngavik Inc. (NTI)/Inuit Tapiriit Kanatami (ITK) Inuit Marine Monitoring Program through the Canadian Coast Guard and Department of Transport will also augment regional maritime domain awareness and foster a "see something, say something culture." Finally, efforts to foster a culture of information-sharing both domestically and bi-nationally, including sharing data feeds from automatic sensors so that we can identify anomalies, are vital. As domain awareness evolves, Canada should explore options to sign memoranda of understanding (MOUs) between countries that will facilitate better information-sharing in a whole of government (WoG) context rather than narrowly between organizations.

The next panelist, **Colonel Pierre Beauchamp**, the acting director of Air Plans with the RCAF, focused his presentation on the aerial component of Arctic surveillance, control, and monitoring. Rather than viewing the Arctic as a *newly* accessible region from the standpoint of air power, he emphasized that it is actually a *longstanding* reality. He began by furnishing a brief overview of historical efforts at defending North America against the Cold War threat posed by Soviet manned bombers. Geography and technology in the early post-Second World War era dictated that the USSR had to penetrate and overfly North America to deliver gravity bombs and eventually short-range cruise missiles onto targets in the US and Canadian political and industrial heartland. Bilateral cooperation to address the growing strategic air threat to North America culminated in the creation of NORAD, as well as the construction of the Mid-Canada and Distant Early Warning (DEW) radar lines (and eventually a modernized North Warning System) to provide advanced warning of air threats through the North so that NORAD could cue intercepting aircraft and engage them over the Great Lakes and along the 47th parallel. With the end of the Cold War, NORAD continued to defend against a declining Russian threat, but the 1990s saw a relative "stagnation"

of Arctic defence efforts. Nevertheless, the development of newer generation weapons and sensors have reduced Russia's need to penetrate North American airspace with manned bombers, and the increasing range of strategic weapons requires CANUS partners to defend the continent "further forward." The dawn of the new century revealed new, trans-regional, multi-domain threats, with the establishment of US NORTHCOM in 2002, CANADACOM in 2006, and then CJOC in 2012 heralding a new emphasis on continental defence.

Beauchamp provided a valuable overview of Canada's decision to align the Canadian Air Defence Identification Zone (CADIZ) with our sovereign airspace and its approaches (SSE Initiative 107), extending coverage over the entire Canadian Arctic Archipelago and beyond effective 24 May 2018. Dispelling myths and misconceptions about this move, he explained that all countries have an air identification zone, and the expanded CADIZ will facilitate increased awareness of the air traffic approaching and operating in Canada's sovereign airspace and assess threats to national security. Although commentators frequently highlight the lack of current infrastructure in the Canadian Arctic, Beauchamp illustrated that the RCAF and NORAD have access to much more than is commonly assumed to detect and deter threats to Canada and North America.

RCAF Arctic Mandate

- Improve mobility and reach in Canada's northernmost territories, and pursue a greater presence in the Arctic over the longer-term.
- Provide military support to civilian organizations on national security and law enforcement matters when called upon, engaging in rapid disaster response, and contributing to effective search and rescue operations
- Introduce a number of new Arctic-focused capabilities including assets such as the RADARSAT Constellation Mission, polar satellite communications, Remotely Piloted Aerial Systems, operational support sites and integrate these capabilities into a 'system-of-systems' approach to Arctic surveillance, comprising air, land, sea, and space assets connected through modern technology.

The RCAF took over responsibility for the defence space program in 2016 and its mandate, laid out in *SSE*, sets an ambitious agenda for future investments in space-based capabilities. Col Beauchamp explained how the RCAF has made significant progress in offering options to the Government of Canada relating to the future space domain. For example, the Defence - Enhanced Surveillance from Space Program (DESS-P) will replace the RADARSAT Constellation Mission in 2026 with a constellation of satellites configured with Synthetic Aperture Radar, Automatic Identification System, and other sensors. The Enhanced Satellite Communications Project – Polar will provide both narrowband and wideband voice and data satellite communications at the tactical, operational and strategic levels to provide assured, secure and reliable communications in support of Canadian and international operations in the Arctic. Furthermore, launching MEOSAR payloads on Global Positioning Satellites (GPS) – the first foreign payload on a US national element - will reduce response time, provide more accurate positions, and allow satellite connectivity up to the North Pole. Like the other speakers on this panel, Beauchamp highlighted the *SSE* commitment to work closely with allies to develop innovative solutions and new systems.

The final panelist, **Dr. Andrea Charron**, associate professor in Political Studies at the University of Manitoba, presented her ideas about "The Crossroads for NORAD." The observation that NORAD is at a crossroads is not new – she explained that there have been many crossroads over the six decades of the binational command's existence. NORAD began with the functional need to ignore borders to address common threats and, to ensure that it remains relevant, is again considering how it is going to outpace various emerging threats in an era of rapid technological advances and resurgent great power politics. The functional logic that led to the creation of NORAD in the first place, she contends, points towards the possibility for an all-domain North American Defence Command in the future. For now, there is simply no political appetite but the logic remains.

In order to stay ahead of threats, Dr. Charron explained what the NORAD calculus will have to factor in: (1) opponent intentions and capabilities (which necessitates looking out far enough to identify and track potential threats to North America); (2) vulnerabilities; (3) changes to freedom of movement in the Arctic; and (4) resources. Ideally, NORAD needs *all* domain awareness, better communications (in terms of both technology - including mobile capability – and bilateral channels) as well as communication across commands including the tricommand (CJOC, USNORTHCOM and NORAD), the unified combatant commands and allies, and expensive infrastructure. The latter provides strong incentives to continue working together, with rough estimates that it will cost $11 billion+ just to replace the North Warning System (NWS) let alone consider new configurations, capabilities and a system of systems' architecture.

Dr. Charron also highlighted a shift in NORAD discourse since General Jacoby's tenure as commander (2011-14), with a new focus on "the archer as well as the arrow." Russian Long Range Aviation (LRA) can reach North America from deep inside Russia, as that country's out-of-area (OOA) patrols have resumed since 2007. Rather than concentrating on the threat, attention needs to be paid the platforms from which the threats emanate. The same logic of defeating threats far from North America applies to other potential adversaries. "Canadians would be shocked by this change in language," Charron explains, but she insists that "we need to have a frank conversation about the kinds of threats that NORAD has to deal with." She noted that an Anti-Access/Area Denial (A2AD) strategy persists, and that hypersonic weapons also pose a new threat as do conventional threats This new strategic environment has served as the catalyst for various changes, including the alignment of CADIZ (discussed above), a reconsideration of the location of forward operating locations (FOLs) (including potentially Thule, Greenland) "to get the arrows if we miss the archers," and new command and control (C2) arrangements for battle management, including, for example, a NORAD Combined Forces Air Component Commander (CFACC who "think tactically so that the NORAD commander in Colorado Springs can return to thinking strategically (i.e. up and out), as was required during the Cold War and atrophied during the 1990s and 2000s."

Charron also explained changes to NATO that keep it "separate and apart," leaving seams and gaps between North American and global defence. There is no longer a Supreme Allied Commander Atlantic (SACLANT) – one of two supreme commanders of NATO tasked from 1981-2002 to provide for the security of the North Atlantic by guarding sea lanes to deny their use to an enemy and to safeguard them for the reinforcement and resupply of NATO Europe with personnel and materiel – which bridged the NATO-NORAD gap. The Greenland-Iceland-United Kingdom (GIUK) gap, which serves as the key strategic gateway to and from the Arctic from the North Atlantic, has been neglected. Accordingly, Charron noted the return of a variant of the SACLANT position to Norfolk, Virginia – a new joint force command for the Atlantic for sea lanes of communication (SLOC) co-located with US Fleet Forces

Command and NAVNORTH. She hopes a key deliverable of the new commander will be exercises on the strategic level and to test NORAD-NATO coordination.

In response to these challenges, Charron explained that NORAD is looking ahead – indeed, well ahead of the politicians in contemplating threats and solutions. Through the Evolution of North American Defence (EvoNAD) deliberations, they are "conceiving of domains that we haven't begun to think of as well as domains not yet within the mission suite of NORAD such as cyber and land." Charron encourages consideration of a North American Defence Command that spans all domains (air, maritime, cyber, aerospace, space, and land) – something she sees as a logical and natural evolution of NORAD to meet today's threats. "The military is often ahead of politicians in thinking along these lines," she observed; but there is no political appetite to open the binational agreement. "Nevetheless, in Canada, we need to have serious conversations about what the threats to North America are and how best to face these threats."

Discussion Period

The discussion period for the panel on Setting the Arctic Context centred on three main themes: how to identify and respond to dark targets; perceived political and sovereignty implications of the proposal for a North American Defence Command (NOR[A]D); and enhancing Whole of Government and Comprehensive approaches to Domain Awareness.

1. Dark Targets

Dark targets are those which are not picked up on sensors or cannot be identified, therefore representing potential threats. The discussion highlighted the importance of developing new tools or finding new methods of combining systems (such as radar and optical satellites) to track activities in Canada's Arctic waters by dark ships -- vessels that are not broadcasting Automatic Identification System (AIS) signals. The defence and security implications of these dark targets are significant: for example, a small fishing vessel could be carrying a cruise missile, or bringing in illegal foreign fighters. The innovation challenge is to develop a better multi-sensor maritime domain awareness picture.

2. Sovereignty and the Proposal for a North American Defence Command (NOR[A]D)

Participants and panelists debated Dr. Charron's proposal to expand NORAD into an all-domain North American Defence Command, particularly over the political implications of delegating "sovereignty" to a binational command with this scope. While we are not subordinate to the United States in the NORAD decision-making process (with the commander having lines to both the US Secretary of Defense to the U.S. President and the Canadian Chief of the Defence Staff to the Prime Minister), the perception of sovereignty loss – particularly if American land forces were stationed on Canadian soil – raised the question of political cost versus operational gains. Are maritime and land forces inherently different from the aerospace domain? Does the changed international context mean that we should revisit the 2006 proposal for NORAD to have both maritime warning *and* control? (The maritime surveillance mission was removed at the last minute because of concerns that this was a "sovereignty mission.") Is jointly *assessing* intelligence streams coming in from both countries with regard to the Arctic a good place to start?

3. Enhancing Whole of Government and Comprehensive Approaches to Domain Awareness

Panelists were asked to identify gaps in inter-departmental collaboration, particularly around multi-domain awareness, and to suggest specific mechanisms that might be implemented to facilitate more or better information-sharing across and then between federal governments. The responses acknowledged that WoG efforts can reveal friction points (for instance, the Maritime Security Operation Centres required coordination to focus them on particular deliverables) but that better information-sharing is key. One panelist explained that the US Department of Homeland Security and Public Safety Canada play a role in the PJBD, which allows for a greater consideration of the efforts required to address broader security concerns, thus allowing that bilateral instrument to play a broader role than simply national defence. Are we really sharing information between countries on "dark targets" and, if not, how can this be facilitated? One panelist highlighted that the goal is not just to increase domain awareness, but domain awareness *and understanding* in the Arctic. This entails bringing Northern communities, territorial/provincial/state governments, and OGDs into the process of painting a comprehensive picture of what is going on.

Session 2: Arctic Surveillance, Control, and Continental Defence

Major Themes

- NORAD's operational requirements have led to the reconsideration of forward operating locations in the North American Arctic
- Need for improved information-sharing and joint assessment of intelligence between the U.S. and Canada
- The importance of increased Domain Awareness and Understanding across the Arctic
- The challenge posed by Dark Targets and the need to develop new tools and systems to track them in Canada's Arctic waters
- Augment regional maritime domain awareness by engaging Canadian Rangers and other Northern community-based organizations to report on what is normal – and what is not – in their local areas, fostering a "see something, say something culture."

Session 3: NATO and the Arctic

Chair: Dr. Rob Huebert, University of Calgary

Panelists:

- LCol Dave Gowdy, JS Continental, Canadian Joint Operations Command
- Mr. Andreas Østhagen, Research Fellow, Fridtjof Nansen Institute, Oslo
- Ms. Heather Conley, Senior Vice President for Europe, Eurasia and Arctic, Center for Strategic and International Studies, Washington, D.C.

Initiative E: "Increase presence in the Arctic over the long-term and work cooperatively with Arctic partners"

SSE 110. Conduct joint exercises with Arctic allies and partners and support the strengthening of situational awareness and information sharing in the Arctic, including with NATO.

Session Introduction

The "state competition" section of *SSE* that immediately precedes the discussion about a changing Arctic observes that "NATO Allies and other like-minded states have been re-examining how to deter a wide spectrum of challenges to the international order by maintaining advanced conventional military capabilities that could be used in the event of a conflict with a 'near-peer.'" Highlighting that "NATO has also increased its attention to Russia's ability to project power from its Arctic territory into the North Atlantic, and its potential to challenge NATO's collective defence posture," the policy notes that "Canada and its NATO Allies have been clear that the Alliance will be ready to deter and defend against any potential threats, including against sea lines of communication and maritime approaches to Allied territory in the North Atlantic." Furthermore, *SSE* calls for joint exercises with Arctic allies and partners "to support the strengthening of situational awareness and information sharing in the Arctic."

The panel chair, **Dr. Rob Huebert**, noted that the emphasis on NATO's role in the Arctic in *SSE*represents a significant break from Canada's past defence policy, given that Canada has been reticent to have NATO adopt an explicit Arctic role over the past decade. How can and should Canada participate in NATO's strengthened defence and deterrence posture and how does this align with Canadian interests in circumpolar and broader international contexts? How can Canada better coordinate with its NATO allies on strategic communications related to Arctic and North Atlantic security? What capabilities best serve Canadian and NATO interests? How might emerging Arctic challenges shape NATO's future? In light of these questions, panelists discussed the evolution of NATO's role in the Arctic, what the future might bring, and the implications of these developments for Canada.

The Panel

In his overview of CAF activities in the Arctic, **Lieutenant Colonel Dave Gowdy** from Canadian Joint Operations Command (CJOC) highlighted the participation of Canada's NATO allies in Operation Nanook. The central objectives of Nanook are training, improved readiness, and developing the capability

to work with the Other Government Departments (OGDs) involved in the region. These will continue to be the primary objectives of Nanook as it is expands to involve year-round activities that will serve to increase the visibility of the CAF in the North. An additional objective of Nanook has been to incorporate training opportunities for Canada and its NATO allies. In 2018, Operation Nanook-Nunalivut involved High Arctic training with members of the German and British armed forces. Meanwhile, the maritime element of Nanook involved vessels and personnel from the U.S. and Denmark. Planning for Nanook 2019 has already involved representatives from the U.S., Germany, France, Norway, and Denmark (with participation in the activities remaining to be confirmed).

Beyond Nanook, Gowdy explained that Canada is engaging with its allies in various circumpolar settings. He highlighted the CAF's participation in Exercise Trident Juncture in Norway, with 1900 Canadians involved in a naval task group, the air element and multi-national brigade. The Royal Canadian Air Force has also participated in joint NATO activities in Iceland, including the deployment of six CF-18s to the island. In 2020, the CAF is planning on participating in a joint exercise in Alaska. While joint exercises have increased the CAF's capability to work with its NATO partners in the Arctic, Gowdy explained that much work remains to be done to improve information sharing between the allies. As part of this process, the CAF has been asking its allies about their objectives and needs in the region. The establishment of a Canadian liaison officer position within the U.S. Alaskan Command is another positive step. Nevertheless, Gowdy suggested that additional mechanisms need to be put into place to facilitate greater information sharing on what is going on in the Arctic.

Andreas Østhagen, a research fellow at the Fridtjof Nansen Institute in Oslo, provided a Norwegian perspective on Arctic geopolitics and NATO's role in the region. The Arctic was put on Norway's political agenda in 2005-2006 and has been an umbrella issue since that time, encompassing a broad array of Norwegian concerns from economic development to its broader relations with Russia. When the Norwegian government engaged with Arctic geopolitics a decade ago, it embraced the narrative that there was a dangerous scramble for resources and even territory in the region. Norway's proximity to Russia amplified the perceived dangers of this new geopolitical reality. Soon after, Norway attempted to place the Arctic on NATO's agenda – in sharp contrast to the Canadian government, which argued that there was no need for an explicit NATO Arctic policy.

Over the last thirteen years, however, Norway's approach to the Arctic has changed and matured. The fact that the vast majority of potential resources in the region fall within the Exclusive Economic Zones (EEZs) of the Arctic states has undermined the narrative that there is a scramble for resources, Østhagen explained. The Norwegian government does not talk about the scramble for Arctic resources anymore. The threat posed by Russia, however, continues to dominate Norwegian thinking on the region. Russian aggression in Crimea and the revival of the northern bastion concept have highlighted the strategic importance of the Arctic. A future global conflict would, after all, quickly spill over into northern Norway, not the Canadian Arctic. Rather than focus on Arctic security threats and needs, the Norwegian government has tied these developments into broader North Atlantic security concerns. The Russian bastion concept, after all, may take place in the Arctic but it is not about the Arctic – it is about the North Atlantic and the GIUK gap. As a result, Oslo has stopped pushing for a NATO Arctic policy because it has largely achieved Norway's objective – NATO's re-engagement with North Atlantic security has brought the organization back into the Arctic. Proof of this has been on full display to the world through Exercise

Trident Juncture, which involved 35,000 troops, 70 ships and 130 aircraft from 30 NATO allied and partner nations. While the Norwegian government has framed Trident Juncture as a response to North Atlantic and maritime security concerns, Østhagen observed, the exercise has fulfilled Norway's objective of having NATO forces firmly planted in the Arctic.

Heather Conley, Senior Vice President for Europe, Eurasia and Arctic at the Center for Strategic and International Studies in Washington, highlighted the need for contemporary decision-makers to understand the Arctic in geostrategic terms – as they did during the Cold War. After the Cold War, the Arctic quickly transformed from a potential front line in any future conflict, and thus a central focus for American defence planners, to an afterthought. Over the last few years, however, increased Russian and Chinese activity in the region has led to a renewed interest in the Arctic in the U.S. military. Both the U.S. Navy and the Air Force have moved to articulate Arctic strategies. Still, Conley explained, little has actually been done to address new Arctic security concerns. While Washington excels at policy writing, these ideas are rarely tied to resources or identified as priorities. At a more basic level, keeping the Arctic on the radar of American defence planners has been difficult – a trend that has shaped NATO's response to geopolitical developments in the Arctic in recent years.

The lack of American interest in the Arctic stands in sharp contrast to Russia's military build-up in the region since 2008. In a decade, the Russians have re-opened 50 Soviet-era military installations in their Arctic zone. They initiated the modernization of the Northern Fleet and a re-militarization of the Kola Peninsula. In a 2013 war game, the Russian Air Force conducted a mock nuclear attack against Sweden. In 2014, the Russians established their new Arctic Joint Strategic Command, which they followed up a year later with an unannounced exercise to display their combat readiness in the region. In a September 2017 exercise, Moscow rehearsed a conflict along Russia's western borders, which involved over 65,000 troops. Additional exercises have involved bomber flights over the Norwegian Sea and the deployment of paratroopers above the Arctic Circle. In recent years, the Russians also launched their new supersonic Oniks cruise missiles at their Kotelny base. It is clear, Conley observed, that the Russians consider the Arctic to be a continuous Area of Operations. Their military doctrine is focused on making sure that NATO does not have access to significant parts of the region. The Arctic is critical to Russia and their military investments reflect this national and strategic importance. A critical question moving forward is how much of this military build-up is tied to the region's economic development and Russia's plans for the Northern Sea Route, and how much reflects other strategic purposes.

In recent years, NATO has reconceptualized the Arctic as an Area of Operations that requires a military response. The U.S. has posted 700 Marines in Tromso (even at the height of the Cold War the U.S. did not base forces in Norway). Norway has invested in significant capabilities, including 52 F-35s and a cavalry battalion based in the Finnmark region bordering Russia. NATO has intensified its efforts to monitor Russian submarine traffic in the North Atlantic and GIUK and has re-focused on its anti-submarine warfare capabilities.

While these steps have bolstered NATO's presence in the Arctic, Conley argued that the organization should conceptualize the region as a continuous Area of Operations (as the Russians do) and better integrate its air, sea and land assets in the region. NATO allies must also do a better job at

information sharing and trying to understand Russia's motivations and military posture in the Arctic. Conley concluded by suggesting the need for a high-level forum in which NATO and Russia could discuss military developments in the Arctic and even craft a code of military conduct for the region (perhaps even a version of the Arctic Council dedicated to security issues). She argued that the Arctic requires a set of confidence- and security-building measures to enhance transparency, along the lines of the Vienna Document and the Open Skies Treaty. Such a treaty for the Arctic could involve an annual exchange of military information, the notification of various types of military activities, and even on-site inspections. These measures could be supplemented by greater engagement with Russia on risk reduction measures including enhanced Search and Rescue cooperation. There is still a window of opportunity for these kinds of measures or other innovative policy ideas and solutions, Conley argued, which could help create a more stable and predictable region.

Discussion Period

The discussion period for the panel on NATO in the Arctic centred on three main themes: Russia's intentions in the Arctic, what China's interests and intentions are in the region and whether NATO should adopt a larger role in the region.

1. Russia's Intentions in the Arctic

The discussion on Russia's Arctic intentions cautioned against misinterpreting what Russia is doing in the Arctic. As Conley stated in her presentation, it can be difficult to determine what Russia's military objectives are in the region. How much of its military build-up is attached to economic development and the desire to turn the Northern Sea Route into a premier international shipping artery? These are key questions to consider when assessing the security situation in the Arctic and Russia's intentions.

Building off this idea, both Conley and Østhagen emphasized the need to be nuanced in how we think about Russia, rather than seeing it as one monolithic entity. Østhagen reminded the audience of the high level of cooperation that exists between the Russian and Norwegian Coast Guards in Arctic waters. In both countries, these institutions are part of the military, yet they cooperate and work together on a weekly, and sometimes daily, basis. Conley pointed out that the U.S. shares a border with Russia on the Bering Sea and that considerable cooperation exists between the U.S. Coast Guard and the Russian Federal Security Service (FSB). There is a high level of on-the-ground cooperation occurring across the Arctic, which is an important dynamic – sometimes this kind of sub-regional cooperation can sustain a government-to-government dialogue until a positive relationship can be re-established more generally.

While Russia has shown a willingness to cooperate on certain issues in the Arctic, several commentators warned that, on the whole, the Russians are trying to see how far they can push the boundaries of international legal norms before someone tries to enforce them. Conley insisted that there is a need to get Russia back on track with respect to these international legal norms and the Arctic might offer the ideal venue in which to achieve this goal by establishing a framework for military activity along the lines of the Vienna Document and Open Skies Treaty.

2. China's Interests and Intentions in the Arctic

While the panel focused exclusively on Russian activities, several commentators suggested that understanding China's interests and activities in the region was also important. Both panelists and audience members emphasized China's economic interests in the region, whether it be international shipping opportunities, oil and gas in Yamal, or rare earth minerals in Greenland. In the long term, the Chinese are very interested in fishing stocks and want to ensure that the Arctic-5 do not prevent them from fishing in the Arctic Ocean. Østhagen emphasized that when oil prices dropped, China remained interested in the Arctic, pushing ahead in certain areas and filling the vacuum left by retreating companies. Many of the companies currently investing in the Arctic have significant ties to the Chinese government and the People's Liberation Army. In short, China's interest in the Arctic is strong and will continue to grow in the future. Where China chooses to invest its time, energy and resources in the Arctic will shape the region moving forward. For instance, if China decides to utilize the transpolar route for its shipping, rather than the Northern Sea Route, it will have consequences for the entire region, especially for Iceland and Russia.

A central point raised by several participants was whether China will cohabitate and cooperate with Russia in the Arctic, or whether they will attempt to crowd one another out of the region. In answer to this question, one commentator highlighted the economic cooperation that already existed between China and Russia to bring LNG from the Yamal Peninsula to market. This is a massive endeavour for which both countries are building more carriers and icebreakers to keep up with the pace of development and production in the region. Chinese-Russian economic and development cooperation will be a key trend to watch moving forward.

3. NATO's Role in the Arctic

While the panelists did not disagree that NATO has a role in the Arctic, several commentators questioned the wisdom of NATO making formal, explicit declarations about its re-engagement with and in the region. Given Russia's strong objection to NATO activities on its borders, one participant asked whether a better system could be developed to respond to some Arctic security issues. Another participant made the point that there are good reasons to avoid an explicit Arctic-focus for NATO from a Canadian perspective. Former Prime Minister Stephen Harper kept discussions on a role for NATO in the Arctic to a minimum because he did not want to draw attention to ongoing legal disputes about the status of the Northwest Passage and the boundary between the U.S. and Canada in the Beaufort Sea – or to provoke the Russians given their deep-seated concerns about NATO encirclement. By emphasizing NATO's role in the Arctic or by cooperating more with the U.S. military in the region, Canada risks drawing the attention of President Trump – the results of which could be disastrous for Canadian sovereignty and the broader Canada-U.S. relationship.

One of the presenters responded to concerns about the danger of re-militarizing the Arctic by stating that this is already occurring. While the Obama administration refused to discuss Arctic security for fear that this is might be perceived as a case of the U.S. "militarizing" the region, there is "a real danger in burying our collective heads in the sand." While there is no need to be alarmist about these security issues, there is a need to talk about them and mitigate the dangers that they pose.

Session 3: NATO and the Arctic

Major Themes

- Canada needs to better coordinate with its NATO allies on strategic communications related to Arctic and North Atlantic security
- There is a need for improved mechanisms for information sharing on Arctic matters between Canada and its NATO allies and partners
- There is a need to identify the capabilities that best serve Canadian and NATO interests in the Arctic
- Greater discussion and understanding of how emerging Arctic challenges might shape NATO's future
- NATO's engagement with North Atlantic security concerns, as highlighted by Exercise Trident Juncture, has fulfilled Norway's objective of having NATO forces firmly planted in the Arctic
- Russia views the Arctic as a continuous Area of Operations, and its military strategy is focused on ensuring that NATO does not have access to significant parts of the region
- The Arctic might benefit from a set of confidence- and security-building measures to enhance transparency in terms of military activity in the region
- There is a need to consistently re-evaluate assumptions about the motivations behind Russia's military build-up in the region and how these fit within its broader geostrategic goals

Session 4: Enhancing Arctic Mobility and Operations

Chair: Dr. Adam Lajeunesse, St. Francis Xavier University

Panelists:

- Lieutenant Colonel Tim Halfkenny, CO 1st Canadian Ranger Patrol Group
- Major Gary Johnson, CAF Arctic Training Centre, Canadian Army Doctrine Training Centre
- Commander Michele Tessier, CO HMCS *Margaret Brooke*, Royal Canadian Navy
- Colonel Pete Allan, Deputy Chief of Staff Continental Operations, CJOC

SSE 106. Enhance the mobility, reach and footprint of the Canadian Armed Forces in Canada's North to support operations, exercises, and the Canadian Armed Forces' ability to project force into the region.

Session Introduction

The importance of Arctic mobility to the CAF is captured in *SSE*'s commitment to "enhance the mobility, reach and footprint of the Canadian Armed Forces in Canada's North to support operations, exercises, and the Canadian Armed Forces' ability to project force into the region." As LCol Tim Halfkenny, the former Deputy Chief of Staff, Operations and Plans for Joint Task Force (North) and the current Commanding Officer of 1CRPG, explained during his presentation, mobility is the "key enabler to achieve effects" across the CAF mission spectrum in the Arctic – SAR and emergency response, strategic defence, sovereignty (surveillance of maritime approaches), strategic messaging (presence and multinational operations), and capability building. Given the *SSE*'s emphasis on enhanced mobility and reach in Canada's North, this panel examined the current status of the CAF's mobility in the Arctic, explored areas for improvement, and discussed future requirements.

The Panel

In his presentation on Arctic mobility from the perspective of Joint Task Force (North), **Lieutenant Colonel Tim Halfkenny** emphasized that while the CAF is capable of deploying to the Arctic and has improved its capabilities in the region, achieving a robust Arctic mobility capability remains a work in progress. Today, the CAF utilizes a "strategic hub, tactical spoke" approach to achieve effects outside of communities. The CAF's mobility in the Arctic is hampered, however, by a lack of infrastructure, including communications and power generation, and the adverse impacts of ice and weather.

Air mobility, Halfkenny argued, is the key to achieve rapid effect in the north. In practice, few runways in the region are accessible by C-17s, while some are not even accessible to C-130s. Outside of the territorial capitals, communities do not have the infrastructure and facilities to handle multiple aircraft. Alongside these infrastructure issues, the weather also has a major impact on air operations, from adverse weather systems, to extreme cold, to the RCAF's limited ability to land on ice (currently restricted to the CC-138 Twin Otter).

The Arctic and Offshore Patrol Vessels (*Harry DeWolf*-class) will enhance the CAF's overall Arctic mobility. These vessels will provide a significant capability to fulfill a broad spectrum of mission sets,

provided they have the correct equipment configuration. At the same time, Halfkenny emphasized, much work remains to be done to determine how the AOPVs will operate within a joint context in the Arctic.

The CAF's mobility on the land is largely relegated to single/user rider systems (such as all-terrain vehicles-ATVs or light over-snow vehicles). The BV-206, the CAF's medium over-snow vehicle, is approaching the end of its life and provides little capability to deploy beyond the immediate vicinity of the CAF Arctic Training Centre (ATC) in Resolute. During training exercises out of the ATC, the BV-206 can transport personnel from point A to point B, but has difficulties effectively sustaining them once in the field. When deployed on Arctic operations, the CAF has no true collective means of transport, which negatively impacts its ability to deliver effective casualty management. Currently, the CAF's land mobility in the Arctic is restricted and it is unable to deliver mass effect on the ground outside of communities. Halfkenny also advised that no tactical operating procedures exist to "fight" the current vehicle fleet.

Overall, Halfkenny observed that the ability of the CAF to project in the Arctic is limited, which means that its ability to mass resources in a timely response to a threat on the defence spectrum is limited. The ability to influence degrades significantly as the force is projected beyond community infrastructure: in particular, the strategic hubs. The operational focus in the extreme weather of the Arctic continues to be on survivability, sustainability, and maneuverability – in that order – and there is still a minimal focus on joint effects.

All plans for Arctic operations must take into consideration the limitations imposed on mobility and the additional time it takes to accomplish even basic tasks. To improve the CAF's Arctic mobility, Halfkenny suggested that it must continue to leverage relationships with the OGDs and partners operating in the region. He pointed to the untapped possibilities provided by private industry in the Arctic and advised that the CAF needs to learn how to access and leverage the infrastructure assets of private companies. Finally, Halkenny insisted that personnel operating on the ground in the Arctic must continue to learn how to move and survive from the Indigenous Peoples who know the land best.

Major Gary Johnson from the Canadian Army Doctrine and Training Centre also highlighted similar observations in his presentation on the CAF's Arctic Training Centre's role in enhancing Arctic mobility and operations. The ATC supports training out to 300 nautical miles and focuses on teaching the three keys of Arctic operations: survivability, sustainability, and mobility. If any one of these variables is removed from the equation, Arctic operations will not work.

Johnson took the picture down to the tundra level to highlight the challenges of operating in the High Arctic environment. He emphasized the shock that many southern-based soldiers experience when they exit their Globemaster (C-17) in Resolute for the first time and step into the cold and dark of the High Arctic – a hostile environment the likes of which they have never experienced before. In terms of ground movement, the CAF is heavily reliant on mechanical mechanisms, which has an impact on operations. Mobility, for instance, is limited by ice conditions, which requires significant training to understand: What are the different kinds of ice? How do you move on the different kinds of ice? What are open-water polynyas? What are the mobility issues created by multi-year ice? How soldiers interact with the ice is important, but the decisive element in Arctic operations is how they interact with the cold. Johnson highlighted the ease with which frostbite can occur in Arctic temperatures:

- -28°C to -39°C (-18.4°F to -38.2°F) = Risk of Frostbite in 10 to 30 Minutes
- -40°C to -47°C (-40°F to -52.6°F) = High Risk of Frostbite of Exposed Skin in 5 to 10 Minutes (Even Less if Winds Are Sustained Over 50km/h (31 miles/h)
- -48°C to -54°C (-54.4°F to -65.2°F) = Very High Risk of Frostbite of Exposed Skin in 2 to 5 Minutes (Even Less if Winds Are Sustained Over 50km/h (31 miles/h).

In light of how easily cold weather casualties can occur while out on the land in the Arctic, Johnson emphasized that a key consideration in any operation must be how to get personnel to safety and treatment when inevitable cold weather casualties occur.

While it is easy to focus on the challenges of operating in the cold of the Arctic, Johnson also stressed the difficulties of operating on the tundra in the shoulder seasons, highlighting just how quickly conditions can change in the Arctic. To illustrate this point, he shared the story of an ATV that sank into the mud in the spring. A few days later the ATV was frozen solid into the ground, requiring great expenditure of effort to free the machine.

Johnson concluded his presentation by suggesting that CAF personnel deployed on Arctic operations should adapt the mission focus that is so central to military activities in the south to the harsh conditions of the Arctic – which on occasion might mean dropping it altogether. The CAF is developing its mobility on the ground in the Arctic, but more work remains to be done. To facilitate this process, Johnson emphasized the need to listen and learn from the Canadian Rangers.

Commander Michelle Tessier, the Commanding Officer of the Arctic and Offshore Patrol Vessel HMCS *Margaret Brooke*, provided the Royal Canadian Navy's perspective on Arctic mobility. The AOPVs are classified as non-combatants and are capable of a broad array of surveillance activities and domestic roles. The AOPVs will "show that we are there, that we care and that we are aware." The key to the success of their northern deployments will be their ability to cooperate and work with the Canadian Coast Guard and OGDs operating in the Arctic. The vessels may also be asked to operate in the waters of other Arctic states, such as Norway.

Learning how to operate in the Arctic and undertake activities in northern waters will take time, Tessier explained. She highlighted unpredictable ice conditions as a particularly difficult hazard. While the general trend sees summer seasons with more open water, ice continues to pose significant challenges to shipping. Multi-year ice can move quickly and is difficult to track. Large chunks of multi-year ice float into the channels of Canada's Arctic Archipelago, where they mix with first-year ice – after a snowfall, this hard ice becomes almost invisible to ships. Tessier also pointed to the lack of logistical support available in the Arctic, which is limiting from an operational perspective. Logistical difficulties in the Arctic underlined the need for re-supply self-sufficiency and drove the Navy's forward deployed posture. While Tessier focused on ice conditions and logistical difficulties, she also mentioned several other areas where the RCN has much to learn, including the challenges associated with going ashore. This has led, for instance, to the RCN re-introducing the shotgun to crew members for predator control.

Colonel Pete Allan, Deputy Chief of Staff Continental Operations at CJOC, elaborated on the role the CAF will need to play in a rapidly-changing Arctic. Climate change has made the region more accessible, bringing more people into the Arctic who do not understand the dangers posed by the environment. Allan also referenced the demographic changes going on in Canada's North and the rapidly

expanding northern population. These trends mean that more people are in the Arctic, which equals more missions for the CAF. Given this rapidly-changing situation the CAF must continuously improve its capabilities.

Allan explained that Arctic operations are not new for the CAF – many lessons have been learned over the years. In the past, the CAF had the capability and equipment to do rapid deployment in the Arctic, and it is rebuilding those capabilities. Currently, Operation Nanook reflects what the CAF believes it should be able to do in the North, and the CAF is learning how to work with to support OGDs and other partners in the region. It is also getting better at community engagement – a key part of any Northern operation.

The CAF still has much work to do. It must continue to improve on its ability to forward deploy and sustain forces in the field to meet all of the existing and possible threats in the Arctic. How might we best sustain our forces deployed to the Arctic in the future? Allan used the grounding of the *Akademik Ioffe* to illustrate the importance of rapid and reliable reactions to incidents – in that case requiring the deployment of a significant portion of the CAF's SAR capability. It took a day to get resources to the grounded vessel, and days to recover. Allan also highlighted how well private industry functions in the Arctic. What the military conceptualizes as a multi-year project, industry can finish in one. This observation underscores that the military must change the way it thinks about and approaches accomplishing tasks in the North. Allan also insisted that the CAF must think about what investments are required to ensure the safety and security of the Northwest Passage if it does become a viable commercial route in the future. After all, Canada is a maritime trading nation and must be able to safeguard all its trading routes.

The CAF provides support for emergency response to natural disasters across Canada and, while this has never happened on a major scale in the Far North, the mix of climate change and more people in the region means this will likely become a CAF mission in the near future. How will the CAF respond to natural disasters in the Arctic? More generally, how might the CAF develop deployable infrastructure to support Arctic operations? Are current airfields sufficient or do we require increased investments in this area? Can we improve on the training that CAF personnel receive for moving on the land? All of these questions will have to be tackled as the CAF works to acquire the right combination of reach, mobility, and footprint in the Arctic.

Discussion Period

The discussion period for the panel on Arctic mobility centred on three main themes: infrastructure requirements, CAF missions, and areas for innovation.

1. Infrastructure Requirements

Given Major Johnson's explanation that the CAF has a 300-nautical mile range out of the Arctic Training Centre, discussions explored how many operational hubs would be required to provide adequate coverage to the entire High Arctic. Complicating this question, the CAF does not know where specifically it will have to deploy in this vast, isolated region. CJOC is investigating basic transportation and distribution problems in the Arctic, including where infrastructure is currently available and where the CAF might need to make future investments.

The discussion on infrastructure requirements transitioned into one on how the CAF could best leverage infrastructure already created by private industry in the North. One participant asked for clarity on who has the right and responsibility to approach private companies in the North to ask if the CAF could

utilize their facilities and infrastructure. Another asked if any of the other Arctic states provide a better model for how armed forces can leverage private infrastructure. While CJOC can reach out to the private sector to support specific Arctic operations, a more permanent relationship should be created at higher levels. A major theme emanating from this discussion is that there exist great opportunities for collaboration between the CAF and private industry at the practical level. Many infrastructure and logistical problems facing the CAF are not new: industry has been dealing with them for decades, has been effective in creating the required infrastructure, and can bring people to bear successfully and safely. There is room for both the military and private industry to benefit from greater collaboration.

2. Missions

Discussion about the missions of the CAF in the Arctic highlighted the need to continue clarifying roles, responsibilities and opportunities for the Canadian Army, Royal Canadian Navy, and Royal Canadian Air Force in the region. Operation Nanook has been pivotal for clarifying how the CAF mandate in the region intersects with the roles and responsibilities of OGDs – but the capability to coordinate and work together still needs to be further developed. Questions about the CAF mission set in the Arctic focused on potential roles for the *DeWolf*-class AOPVs. One commentator asked if the vessels would assist in charting the waters of the Arctic Archipelago, only 10% of which are charted to modern standards. While the AOPVs are equipped to conduct side sonar scans, making the charting of the ocean floor possible, such activities would have to be conducted in cooperation with the OGDs involved in Arctic charting. Another commentator asked if the *DeWolf*-class would meet all of Canada's strategic needs in a rapidly-changing Arctic, given that the vessels were designed before the Russians launched their new northern warships and China regularly sent icebreakers into the Arctic. Answers to this point stressed the need to try and understand how Russia and China intend to use their new Arctic-capable assets – a return to ongoing definitions of threat (as both capability *and* intent).

3. Innovation

An audience member asked the panelists if they could identify any specific areas that would benefit from new and innovative thinking and problem-solving, from the point of view of practitioners operating in the Arctic. Responses underlined the CAF's lack of an effective evacuation capability during northern operations and suggested immediate research into how to respond to cold weather casualties and evacuate them if required. The need for improved modularized structures and tentage to improve living conditions represents another pressing issue for Arctic land operations. Other panelists stressed the need for innovative solutions to the communications problems experienced by operators in the High Arctic.

Building off the question on innovation, another audience member asked if more thinking should be devoted to tactics, techniques, and procedures for CAF Arctic operations. They also asked whether the CAF should place more emphasis on establishing a doctrine for an Arctic warfighting capability. The answer to this question highlighted the need to compile the lessons and tactics, techniques, and procedures (TTPs) already derived and distilled from Arctic deployments. Lessons have been *collected* for decades, but they have not been effectively *learned* by the CAF. Innovation to address this problem would focus on determining a stronger mechanism or framework for compiling and acting on lessons learned. The panelist also emphasized the training opportunity that the Arctic provided to the Canadian Army. As

time goes on the CAF will continue to develop a capacity allowing it to move from the simple focus on survival into the enhancement and application of other capabilities. After all, if soldiers can learn how to move, shoot and survive in the Arctic, they can do it anywhere.

Session 4: Arctic Mobility

Major Themes

- Current and emerging trends point to more people being present in the Canadian Arctic, which will mean more missions for the CAF and a greater need for effective mobility in the region
- Mobility is the "key enabler to achieve effects" across the CAF's mission spectrum in the Arctic
- The CAF's Arctic mobility is hampered by the risks and challenges posed by the Arctic environment and by the lack of suitable infrastructure in the region
- The CAF's ability to influence degrades significantly as the force is projected beyond community infrastructure: in particular, the strategic hubs
- The CAF requires equipment and procedures to effectively address environmental risks and their impact (e.g. cold weather casualties), in particular a means of collective transportation
- The CAF should continue to improve its ability to forward deploy and sustain forces in the field to meet all the existing and possible threats in the Arctic
- To improve the CAF's Arctic mobility, the CAF must continue to leverage and build relationships with the OGDs and partners operating in the region and forge new ones with private industry
- The CAF has collected lessons on Arctic operations for decades, but must develop stronger mechanisms to compile, disseminate, and act upon these as lessons *learned*, with a potential role for academics to assist with the consolidation and analysis process

Session 5: "Indigenous Communities are at the Heart of Canada's North": Leveraging Northern Knowledge and Diversity

Chair: Dr. Whitney Lackenbauer, Canada Research Chair in the Study of the Canadian North, Trent University, and Honorary Lieutenant Colonel of 1st Canadian Ranger Patrol Group

Panelists:

- Yvonne Nakimayak, Executive and Indigenous Affairs, Government of the Northwest Territories
- Major Conrad Schubert, J9, Civil Military Cooperation, Joint Task Force (North)
- Lieutenant Colonel Tim Halfkenny, Commanding Officer, 1st Canadian Ranger Patrol Group
- Lieutenant Colonel Donnie Oulton, Deputy Chief of Strategic Plans, National Cadet and Junior Canadian Rangers Support Group
- Sergeant Kevin Kullaulik, Iqaluit Patrol, 1st Canadian Ranger Patrol Group

SSE 108. Enhance and expand the training and effectiveness of the Canadian Rangers to improve their functional capabilities within the Canadian Armed Forces.

SSE Initiative C: Strengthening Canadian Communities by Investing in Youth.

Session Introduction

In resonance with the broader thrust of Canada's Arctic policies, *SSE* highlights that "Indigenous communities are at the heart of Canada's North" and commits "to expand and deepen our extensive relationships with these communities, particularly through the Canadian Rangers and Junior Canadian Rangers." The policy commits to expand and enhance "the training and effectiveness of the Canadian Rangers … to improve their functional capabilities within the Canadian Armed Forces" while, at the same time, ensuring that the grassroots relationships that animate the Ranger organization are maintained and reinforced. *SSE* also notes that expanding and deepening Northern relationships involves "engaging local populations as part of routine operations and exercises." Acknowledging that "the Cadet and Junior Canadian Ranger programs are an important investment in our youth," *SSE* also commits DND "to expanding the reach of these important programs so more Canadian youth can experience these tremendous and positive youth development opportunities and continue to strengthen communities across Canada." In light of these objectives, this panel delved into the substantive meanings of community engagement in the Arctic, examined the foundations of the positive relationships that exist between the military and Northern communities, and explored how the CAF can respectfully and effectively leverage Indigenous and local knowledge to support Northern operations.

The Panel

In her presentation "Leveraging Indigenous and Local Knowledge," **Yvonne Nakimayak**, from the Executive and Indigenous Affairs branch of the Government of Northwest Territories, emphasized the importance of listening to Indigenous Knowledge keepers in northern communities and learning the lessons that they impart. Nakimayak defined Indigenous Knowledge as "knowledge and values, which have been acquired through experience, observation, from the land or from spiritual teachings, which were handed down from one generation to another." In the North, Indigenous Knowledge is passed down through stories and from the direct guidance of Elders on the land. It is localized and land-based, rooted in a deep love and connection to the land – the main source of transportation, food, culture and stories for Northern Indigenous Peoples. Nakimayak explained that Indigenous Knowledge defines cultural identity, fosters a close connection to nature, is a source of the intrinsic adaptability that marks Northern Indigenous Peoples, and provides people with pride and a sense of control over their own lives – as such it is a tremendous source of strength. She pointed out that in the Canadian Rangers patrol members elect their patrol leaders for their knowledge of the land and environment and for how well they work with community members – attributes rooted in Indigenous Knowledge.

Nakimayak emphasized that Indigenous and local knowledge is vital to the military as it extends its footprint in the North. The knowledge and experience of Northern Indigenous Peoples, and their understanding of the land and environment that they have inhabited for thousands of years, must be recognized as assets and resources. The Canadian Rangers and the Junior Canadian Rangers are testament to the CAF's recognition that Indigenous and local knowledge are essential to its activities in the region. Nakimayak praised the Rangers for the role they play in creating a sense of belonging and community in the North. Those young people enrolled in the JCRs enjoy increased confidence and a feeling of control over their own destinies. Still, the CAF must continue to work on incorporating Indigenous and local knowledge into all of its activities in the North. Nakimayak highlighted the impact of devolution in the North, stressing that activities carried out in the region need to respect the interests and wishes of the people who not only live there but also exercise jurisdiction. The CAF must continue to learn how to incorporate Indigenous Knowledge and local knowledge into its northern activities in a holistic manner – from the planning stages to the actual operation on the ground.

Major Conrad Schubert, J9 for Civil Military Cooperation at Joint Task Force (North), pointed out that he has been warmly received in every community he has visited in the North. The positive relationships that exist between the CAF, Indigenous governments, and Northern communities are the centre of gravity for Arctic operations. Schubert emphasized that Indigenous and local knowledge is intellectual property that must be respected – the CAF cannot assume that it will be given automatic access to this knowledge. The positive relationship that the CAF has cultivated with Northern communities allows for this sharing of local knowledge and must be sustained. The central question is why such a positive relationship exists between the CAF and Northern communities and how it can be maintained and improved moving forward.

Schubert argued that the patterns of the past dictate how the present and future unfold. The Canadian military has played a significant role as nation builder in the region since the Yukon Field Force (YFF) went North to oversee the Klondike Gold Rush and assert Canada's control over the region. The YFF deployed to the Yukon in an "aid to the civil power" capacity, assisting the Northwest Mounted Police in

maintaining law and order during the rush. During the interwar years, the NWT & Yukon Radio System was established by the Royal Canadian Corps of Signals (RCCS) to provide instant communication between communities. Military operations and construction projects in the Second World War (e.g. Alaska Highway, Canol pipeline) and Cold War (e.g. the DEW Line) brought employment opportunities, substantial infrastructure development, and the establishment of the Canadian Rangers. Throughout these decades, the CAF assisted in the construction of bridges, roads, community airfields, schools, and hospitals, provided invaluable Search and Rescue assistance, and helped train Northerners for jobs in the trades, communications, and other fields, all of which contributed to a positive civil-military relationship. Schubert explained that in the late 1940s the .303 Lee Enfield – the same rifle that was given to Regular Force personnel in southern Canada – was entrusted to the members of the Canadian Rangers – most of whom were Indigenous. This important act reflects the long-standing trust relationship between the military and Northern Indigenous communities. Schubert concluded that the history of the CAF's engagement with the Arctic laid the groundwork for widespread, positive expectations for military activity in the region that continues through to the present.

Today, the Canadian Rangers and the CAF's Search and Rescue activities continue to sustain positive relationships with Northern communities. The Rangers are a true success story, Schubert explained, and through this organization Northern community members participate in the CAF at four times the national average. In the North, 1 in 100 Canadians are Rangers - and many more have been in the Rangers. This participation rate fosters a constructive, intimate relationship between the CAF and the communities. In addition, 5% of the CAF's SAR activity takes place north of 60, even though the territorial population makes up only .031% of the national population. Accordingly, Northerners appreciate the CAF's role in SAR.

While Rangers and SAR activities will continue to form the bedrock of the positive relationship with northern communities, the CAF must seek out other ways to engage with Northerners and improve this relationship. CAF operations in the North must take into account that all land is subject to settled or unsettled land claims. As a result, Indigenous governments are and will continue to be key partners to the CAF and every effort must be made to strengthen these relationships, as well as those at the community-level. Moving forward, the maintenance of these relationships should be a key responsibility of all CAF members.

Lieutenant Colonel Tim Halfkenny, Commanding Officer of 1st Canadian Ranger Patrol Group, presented on how the CAF leverages Indigenous and Northern knowledge and diversity within 1CRPG and the Junior Canadian Rangers. 1CRPG has two distinct roles: to provide lightly-equipped and self-sufficient mobile forces in support of CAF operations in Yukon, NWT, Nunavut, and northern B.C., and to deliver a successful and challenging youth program. "Canadian Rangers are the eyes, ears and voice in the North. They maintain knowledge of the local land/environment around their communities," Halfkenny explained. "They represent their communities with pride and are actively involved in organizing and supporting local events, to include supporting local youth on-the-land programs."

Rangers conduct and provide support to sovereignty operations, which includes surveillance and sovereignty patrols, support for CAF training, and the reporting of suspicious and unusual activities. Rangers also conduct and provide assistance to CAF domestic operations, maintaining a presence in areas which cannot be conveniently or economically covered by other elements of the CAF. They provide Indigenous and local knowledge during CAF operations, participate in SAR and emergency response, and

provide assistance to federal, provincial, territorial and municipal authorities. The Rangers are a sub-component of the Reserve force and are not required to undergo annual training, although they may attend courses and training if authorized by the CO. Unless activated under Section 31 of the *National Defence Act*, Rangers will not undertake military tactical training, perform local defence tasks, provide vital point security, assist in discovery or apprehension of criminals or terrorists, or serve in an aid to the civil power capacity. Rangers also maintain a CAF presence in local communities, instructing, mentoring and supervising the JCR and supporting local events.

At the community-level, Halfkenny explained, patrols have a significant say in who is accepted as a Ranger. The basic requirements are that a potential Ranger be a Canadian citizen of "good character" and over the age of 18. They must know how to survive on the land and be in good health, although there is no requirement for a medical exam. Further, there is no retirement age in the Canadian Rangers. Emphasizing this point, Halfkenny pointed out that two Rangers were recognized this June for 52 years of continuous service. 1CRPG is an incredibly diverse unit and is made up of Indigenous and non-Indigenous people, young and old, male and female. The units bring an amazing diversity into the CAF: 20-23% of its Rangers are female, 85-90% are Indigenous, while over 16 Indigenous dialects are spoken by Rangers.

Rangers play a pivotal role instructing, mentoring, and supervising the Junior Canadian Rangers in their communities. The JCRs are not a feeder program into the Rangers, although transition from the youth program to Ranger service is often a natural evolution. The JCRs are given three circles of training: Ranger skills (eg. First Aid, map and compass, GPS), traditional skills (eg. hunting and fishing, cooking, carving, drumming) which are delivered by community members who decide the knowledge and skills to pass along, and life skills (eg. anger management, nutrition, hygiene). The JCR program is intended to support individuals in their efforts to live on the land and be of value to their communities, while providing them with the confidence, knowledge and skills necessary to make healthy choices. The program also embraces important group outcomes, including the generation of leaders and the creation of generally healthy environments.

In working with the Canadian Rangers, Halfkenny suggested that CAF personnel must take an approach rooted in the cultural traditions of Northern Indigenous peoples. The Rangers generally embrace consensus-based decision-making and an ethic of non-confrontation in personal interactions, and they are not necessarily time-bound – dynamics with which all CAF personnel should be familiar. Tasks are approached at a different pace in the North, and the key to working with the Rangers is listening to them when they explain how things should be done – and why certain things should not be done.

LCol Halfkenny ended his presentation with a discussion of SSE 108, which states that the training and effectiveness of the Rangers will be expanded to improve their functional capabilities. He cautioned about the difference between quantitative and qualitative growth in the Rangers. The CAF needs to think about issues around viability and sustainability before it creates new Ranger patrols in the North – there are reasons why certain communities do not have a patrol. Halfkenny also cautioned against expanding out the maritime role of the Rangers, as various commentators have suggested. While Rangers use boats to get from one point of land to the next in the ice-free season, an expanded maritime role would open up a host of complications that must be considered in consultation with the Rangers and other subject matter experts with extensive experience in Northern operations. Furthermore, given that Rangers are

often multi-hatted as members of the Coast Guard Auxiliary, volunteer SAR organizations, and other community-based organizations, the risk of "burnout" must considered.

Halfkenny highlighted specific areas where the effectiveness of the Rangers could be improved. They need better training on communications, and especially on how to communicate back to headquarters. There is room to expand Ranger capability around Ground SAR, and to streamline the convoluted procedures in place for the RCMP or territorial emergency measures organizations to request Ranger assistance. While there is a Basic Ranger Indoctrination Course in place, not all Rangers have taken it. Ranger sergeants (the local patrol commanders) have reported that they cannot obtain sufficient background on CAF institutional values without taking the course, but the patrol groups cannot obligate them to take the course prior to assuming a leadership role.

The concept of the Rangers as a lightly-equipped, self-sufficient organization means that they are expected to use their own personal equipment (such as ATVs, snowmobiles, and boats) for training and official taskings for which they are compensated according to an established Equipment Usage Rate. While outside commentators have called upon the CAF to provide the Rangers with more equipment, Halfkenny emphasized that "the more equipment I give, the more I need to sustain and maintain it – and this is very hard given the costs and logistics involved." Responsibilities for training, sustainment, and transporting equipment to communities is astronomical compared to the established process of EUR compensations for Rangers using their own equipment. The payment of damage claims to Rangers whose equipment is affected beyond normal "wear and tear" during operations is important given that the loss of use of a Ranger's personal equipment eliminates a piece of equipment that is essential to individual and community livelihood.

Lieutenant Colonel Donnie Oulton, Deputy Chief of Strategic Plans, National Cadet and Junior Canadian Rangers (JCR) Support Group, explained how the JCR program serves as a mechanism to strengthen communities, forge the next generation of leaders, and develop skills that the CAF will require moving forward in the Arctic. Pursuant to *SSE* initiative C – support to youth in Canadian communities – he explained how the JCR serves as a vehicle through which the CAF can continue to leverage essential Indigenous and local knowledge and skills. The JCR reinforces and fosters positive relationships between the CAF and communities by providing "a structured youth program, which promotes traditional cultures and lifestyles, in remote, coastal and isolated communities of Canada." The Cadet program in the North also develops citizenship and leadership, promotes physical fitness, and stimulates youth interest in the Canadian military. The goal is to have a positive, life-long impact on youth who participate.

This youth programming is important in the North, balancing safety and challenge to keep young people engaged. It is also high popular, with 1631 JCRs in 51 JCR patrols, and 413 cadets in 14 cadet squadrons across the North. Oulton stressed the need for additional research to look at the social impacts of this youth participation and to support assumptions that they are having a positive impact.

Sergeant Kevin Kullaulik, who leads Iqaluit's Ranger patrol, presented his views on the Rangers in a conversation with Dr. **Whitney Lackenbauer** (the Honorary Lieutenant Colonel of 1CRPG). Sgt. Kullaulik joined the Rangers because his grandfather had been a Ranger, as were many of his relatives. He is proud to be Ranger because the community looks up to the patrol and values its members. The Army also respects and values the Rangers. When southern-based units come to town, the Rangers help the soldiers survive on the land. They need Ranger knowledge. The Rangers also assist their communities, conducting SAR – both in uniform on official taskings and also informally as an organized group with training to operate collectively. In Iqaluit, 12 of 15 members also participate in the local SAR team, and they respond to these emergencies out of uniform, but are able to use their Ranger skills and training in these situations. Kullaulik stressed the importance of the new technology that the CAF has trained the Rangers on, including GPS.

In terms of equipment, Kullaulik explained that upon joining the Rangers he was told he had to be self-sufficient, ready to go at any time. But if his equipment breaks, he is left with nothing – his entire livelihood is at stake. Everything he hunts and catches goes to the community; if his equipment breaks on a Ranger exercise, he will have to wait for damage claims to go through. He broke his motor on a training exercise 14 years ago and still has not been compensated. During another exercise, his boat motor broke and he was not compensated for six months. Many Rangers do not have their own equipment and look to friends and family for loans, but persistent problems with the military claims process keeps some from doing so.

While there are policies in place to ensure due diligence for claims, Lackenbauer observed, Northern realities mean that rigid approaches can problematic. If the trust relationship between the Rangers and the military were to dissolve because of delays over the settlement of damage claims, the military would lose their critical enablers in the North, which would have a strategic impact.

Sgt Kullaulik concluded his talk with some of the other ways that the CAF could better support Rangers. Although Iqaluit is the hub of the Eastern Arctic, its patrol sometimes did not receive training from a Ranger Instructor for up to two years. The rapid turnover of Ranger Instructors also posed a problem because it meant that promises to fix problems were often unfulfilled owing to the lack of continuity. A backlog in paperwork, leaving some Rangers on the nominal rolls even after they had been released or dead for years, prevented Ranger patrols from recruiting or enlisting new members because, on paper, they were listed as being full. Along these lines, Lackenbauer indicated that one way to increase the effectiveness and functional capability of the Rangers was not to grow 1CRPG beyond the 1800 authorized Ranger positions in the territorial north, but to provide Canadian Ranger Patrol Groups with more administrative support/clerks and more Ranger Instructors to support and enable the Rangers.

Discussion Period

The discussion period for the panel on leveraging Northern knowledge and diversity focused on two main areas: policy around Ranger equipment, and capacity issues in northern communities.

1. Ranger Equipment

Participants discussed why the Canadian Rangers are expected to purchase, maintain, and use their own equipment for training and taskings. If the CAF can procure 150 new snowmobiles for its Arctic Training Centre in Resolute Bay, why not do so for the Rangers across the North? Rangers would not be worried about breaking their own equipment or waiting for the processing of damage claims if the army provided them with equipment. In response, panelists emphasized that the diverse landscapes in which Rangers live and operate require different equipment and clothing needs. Treating the Rangers as self-sufficient, lightly-equipped members of the defence team recognizes this reality, as well as the military's limited capabilities for providing logistical support and sustenance to community-based patrols distributed across the territorial north. During training and official taskings, Rangers are compensated for the use of their own equipment and vehicles such as snowmachines, all-terrain vehicles (ATVs), and boats according to an established Equipment Usage Rate (EUR). "This arrangement provides Rangers with money that they can invest in their own equipment and tools, appropriate to their local environment, which they can then use in their everyday lives without having to ask the government for permission to do so," Lackenbauer explained. "By allowing individuals to invest in their own, privately-owned equipment, this approach represents a material contribution to local capacity-building as well as a fair way of reimbursing Rangers for using their tools in military activities." It also allows the CAF to avoid a prohibitively costly sustainment burden when it comes to maintaining equipment dispersed across more than sixty communities in the territorial north. The suggestion was raised that, if the current system works, the military might provide the Rangers with additional funding to purchase personal equipment that they can use in the course of their Ranger service.

2. Capacity

Panelists also discussed how an increasing number of federal, territorial, hamlet, and Indigenous government programs are drawing on a limited personnel pool in Arctic communities and straining local capacity. More effort should be dedicated to coordinating the various programs and initiatives focused on "soft" security and safety to ensure that people wearing "multiple hats" are not over-taxed with demands and, at the same time, training and capacity-building efforts are appropriately leveraged.

Session 5: Leveraging Northern Knowledge and Diversity

Major Themes

- Indigenous and local knowledge is vital to the military as it extends its footprint in the North
- The CAF must continue to learn how to incorporate Indigenous Knowledge and local knowledge into its northern activities in a holistic manner
- The positive relationships that exist between the CAF and Northern communities serve as the centre of gravity for Arctic operations – these relationships need to be maintained and improved moving forward
- Indigenous governments are and will continue to be key partners to the CAF and every effort must be made to strengthen these relationships
- There is a need to ensure that efforts to expand and enhance the training and effectiveness of the Canadian Rangers are conceived and implemented after substantive consultation with the Rangers themselves, and to ensure that investments "to improve their functional capabilities within the Canadian Armed Forces" also respect and reinforce their roles within their communities and their broader contributions to Arctic sovereignty, security, and safety
- There is a need for concerted efforts across federal departments and across governments to map local capacity in the North, which the CAF and OGDs can leverage during SAR and emergency response activities
- There is a need to measure the impacts of CAF activities on Northern communities, including the social impacts of youth participation in the JCRs

Session 6: Ideation Session on Priorities for Innovation to Support Arctic Defence and Security

As a culminating activity for the symposium, the Innovation for Defence Excellence and Security (IDEaS) Program and Policy Horizons Canada facilitated an exercise to explore and anticipate potential disruptive changes in or to the Arctic that might affect Canadian defence and security. Utilizing the changes and challenges they identified, participants then determined the most important and pressing needs and requirements requiring innovation in the field of Arctic Science and Technology.

Announced as part of *SSE*, the $1.6-billion IDEaS Program (funded over 20 years) fosters open innovation to provide creative thinkers with the structure and support to encourage solutions, which will assist in solving some of Canada's toughest defence and security challenges. IDEaS will support the development of solutions from their conceptual stage, through prototype testing and capability development. The program includes several elements that promote collaboration between innovators, provides developmental resources and provides opportunities to interact with DND's science and military members. Through which all innovators are on an even playing field to solve specific defence and security challenges.

As one of its elements, the IDEaS Program supports the establishment of new Innovation Networks and, where appropriate, existing networks, to stimulate collaboration and the free flow of ideas critical to innovation. Academics, industry and other partners are encouraged to come together to form collaborative Innovation Networks. Areas for support of advanced research and development (R&D) will vary over time depending on Canada's current and future defence and security Innovation Challenges.

Ideation sessions allow multidisciplinary engagement with one or more of the many defence and security challenges identified by the program. Participants – including professionals from academia, the private sector, government and non-government organisations – may be invited to work with subject-matter experts from the DND, Defence Research and Development Canada (DRDC), and the CAF to identify, refine and analyse complex defence challenges. Further, ideation sessions may be used to help identify potential pathways for integration of solutions.

Policy Horizons Canada is an organization within the federal public service that "conducts strategic foresight on cross-cutting issues that informs public servants today about the possible public policy implications over the next 10-15 years." Horizons' mandate is to "identify emerging policy issues and explore policy challenges and opportunities, as well as to help build foresight literacy and capacity across the Government of Canada" (http://www.horizons.gc.ca/en/content/who-we-are). In facilitated workshops, interdepartmental meetings and discussions, Horizons' futurists utilize the Horizons Foresight Model to guide participants in the exploration of plausible alternative futures. One of the organization's priorities moving forward will be Arctic Science and Technology Innovation.

To start the exercise, facilitators split the symposium participants into groups. They then asked the participants to apply their knowledge to several essential questions: What new environmental, social, or technological changes might disrupt aspects of Northern society? What new challenges could emerge to sovereignty, security, safety, and stewardship in the Canadian Arctic? What geopolitical and geostrategic pressures might undermine prevailing assumptions about the future Arctic security

environment? What kind of innovation and technology is required to address potential changes, challenges and opportunities in the Arctic?

In exploring these questions, the exercise facilitators pushed the participants to determine how the changes and challenges they identified might evolve, looking at second to fifth order consequences. They also asked the participants to conduct a cross impact analysis to explore how the identified change drivers and insights could interact with each other and shape future outcomes. The overall of goal of identifying challenges, changes, and their impacts, was to highlight capability gaps that the existing Canadian defence community cannot easily address.

To end the exercise, the facilitators asked each group to come up with several challenge statements to present to the symposium. The challenge statements were meant to capture the challenges and changes identified by the groups and the innovation that might be required to address these issues. The challenge statements highlighted many of the major themes that had been developed in the symposium panels. They can be grouped into four major themes: Knowledge, Information Sharing and Situational Awareness; Infrastructure, Communications and Community Resiliency; Improving the CAF's Operational and Tactical Capabilities in the North; and Leveraging Other Government Departments and Private Industry in the North.

HMW = How might we
IOT = In order to

Knowledge, Information Sharing and Situational Awareness

- HMW synthesize a multi-faceted Arctic environment sensing program that coordinates technological and human sources IOT produce a geographically comprehensive, accurate, information picture that fulfills Canada's defence and security mandates, nationally and internationally in partnership with our allies?
- HMW lower the cost of communications, navigational and surveillance sensors IOT improve situational awareness and improve Arctic air access for better safety, survival, security & sovereignty?
- HMW develop hardware and software IOT collate multiple sources of situational awareness data?
- HMW better detect and identify dark targets IOT improve maritime domain awareness and takes appropriate action?

Infrastructure, Communications and Community Resiliency

- HMW develop long-lasting, renewable, small-size, climate resistant power sources IOT power remote operated surveillance & data collection devices?
- HMW reduce reliance on terrestrial communication systems (e.g. microwave technology) IOT provide complete communications coverage in the North?
- HMW create forward deployed equipment infrastructure that meets security needs as well as community/industry needs IOT create a stronger Canadian Arctic, more generally?

- HMW increase redundancy or critical systems and infrastructures IOT sustain & protect the people of the Arctic?
- HMW develop light & durable (infrastructure) materials for Arctic weather IOT construct roads & buildings + clothing?
- HMW increase air mobility through innovative airfield infrastructure IOT reduce risk and maintenance requirements while fostering community development and prosperity?
- HMW configure fuel distribution & storage IOT minimize its vulnerability to disruption, flexibility for distribution / transit between nodes?

Improving the CAF's Operational and Tactical Capabilities in the North

- HMW coalesce lessons learned from Army Arctic ops and use these as a springboard into further S&T (i.e., medical evac) IOT create an effective Army Arctic warfare / Ops doctrine?
- HMW increase the CAF footprint in the Arctic region IOT maintain sovereignty as well as local security of communities?
- HMW establish a flexible logistical support capability that can be task tailored IOT facilitate a response to any contemporary challenge (war fighting, SAR, community engagement)?
- HMW enhance mapping and data collection of permafrost and ice movement IOT understand risk for mitigation and planning for Search and Rescue activities and emergency response?

Leveraging Other Government Departments and Private Industry in the North

- HMW coordinate WoG opportunities to the Arctic IOT meet SSE objectives?
- HMW leverage private/public organizations IOT respond effectively to military mobility challenges in the Arctic?

Conference Wrap-Up

Co-organizers Melinda Mansour and P. Whitney Lackenbauer highlighted that one of the major themes throughout the symposium was the centrality of relationships – at domestic and international levels. The symposium succeeded in bringing together a diverse array of stakeholders to share ideas and perspectives, and they urged participants to carry these conversations forward in more focused activities to address gaps, seams, and opportunities raised during the discussions. Their intent was for this gathering to spark some different conversations than those usually held within the DND/CAF, federal family, or academic circles. Some discussions confirmed certain themes, dynamics, challenges, and opportunities that require further thinking and action. In other cases, the conversations at the symposium inspired new ideas, deeper thinking, or the articulation of practical options to move forward. Furthermore, by encouraging the exchange and co-creation of ideas across practitioner, policy, academic, and industry domains, it highlighted the potential that the formation of collaborative networks can bring to improve practice, creatively explore ways to implement policy and frame new policy options, and guide innovation

– not just through technical or scientific research & development circles, but social and human science ones as well.

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"An Important International Crossroads"

Implementing Canada's Arctic Priorities in *Strong, Security, Engaged*

Proceedings of a Symposium hosted by the Centre for National Security Studies, Canadian Forces College
Held in Ottawa
10-11 October 2018

Report by P. Whitney Lackenbauer and Peter Kikkert