Confronting Climate Change: The Canadian Army and Domestic Operations

A Monograph

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The Canadian Army has been conducting disaster relief operations in support of Canadians for over a century. With the onset of climate change and its impact on the frequency and severity of natural disasters, the Government of Canada finds itself calling upon the Canadian Armed Forces more than ever to assist Canadians in time of need. With a small army, leaders often find themselves resource-constrained given requirements to support both domestic and expeditionary operations. Preparation is key. Not only does it permit the Canadian Army to be less reactionary, it will enable a higher level of support for Canadians on the home front. Analysis of post operation reports from the past ten years indicates that efficiencies can be achieved across the Canadian Army to improve responsiveness, capabilities provided, and overall cohesion with civilian agencies. With the defense of Canada as a top priority for the Canadian Armed Forces, this study outlines simple measures that can be taken internal to the Canadian Army to better support Canadians on the home front.

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Abstract

Confronting Climate Change: The Canadian Army and Domestic Operations, by MAJ Jason A. Hudson, Canadian Army, 38 pages.

The Canadian Army has been conducting disaster relief operations in support of Canadians for over a century. With the onset of climate change and its impact on the frequency and severity of natural disasters, the Government of Canada finds itself calling upon the Canadian Armed Forces more than ever to assist Canadians in time of need. With a small army, leaders often find themselves resource-constrained given requirements to support both domestic and expeditionary operations. Preparation is key. Not only does it permit the Canadian Army to be less reactionary, it will enable a higher level of support for Canadians on the home front.

Analysis of post operation reports from the past ten years indicates that efficiencies can be achieved across the Canadian Army to improve responsiveness, capabilities provided, and overall cohesion with civilian agencies. With the defense of Canada as a top priority for the Canadian Armed Forces, this study outlines simple measures that can be taken internal to the Canadian Army to better support Canadians on the home front.

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Abbreviations

AAR	After Action Review
ALEA	Assistance to Law Enforcement Agencies
CA	Canadian Army
CAF	Canadian Armed Forces
CDS	Chief of Defence Staff
CJOC	Canadian Joint Operations Command
CONPLAN	Contingency Plan
DND	Department of National Defence
DLO	Domestic Operations Liaison Officer
GoC	Government of Canada
IRU	Immediate Reaction Unit
JTF	Joint Task Force
LO	Liaison Officer
MND	Minister of National Defence
MRP	Managed Readiness Plan
RFA	Request for Assistance
RJTF	Regional Joint Task Force
TO&E	Table of Organization and Equipment

Illustrations

Introduction

> By 2040, the summer of 2018 will likely seem normal. But extreme weather is not a matter of "normal"; it is what roars back at us from the ever-worsening fringe of climate events. This is among the scariest features of rapid climate change: not that it changes the everyday experience of the world, though it does that, and dramatically; but that it makes once-unthinkable outlier events much more common, and ushers whole new categories of disaster into the realm of the possible.
>
> —David Wallace-Wells, *The Uninhabitable Earth: Life After Warming*

Background

Members of the Canadian Army (CA) have reliably supported Canadians in response to natural disasters for over a century.[1] Given the ongoing and future effect of climate change on weather patterns, the number of Canadian Armed Forces (CAF) deployments in support of domestic operations is increasing exponentially. Highlighted within *Strong, Secure, Engaged: Canada's Defence Policy*, The Honourable Harjit S. Sajjan, Canada's Minister of National Defence (MND), articulates that the defense of Canada is a top priority.[2] An increase in CAF supported domestic operations in response to natural disasters has conditioned Canadian citizens and select government officials with an expectation of military involvement during or following most disasters.[3] Canadian citizens not only welcome soldiers in the time of need, but perceptions of soldier employment in response to natural disasters is also a reasonable means to justify military's expenditures. As deployment of CA formations in support of domestic operations are becoming the norm, senior leaders are required to forecast and plan for potential domestic deployments as part of their annual operating plans. This circumstance comes with unique

[1] Johanu Botha, "Two Floods, a Wildfire, and a Hurricane: The Role of the Canadian Armed Forces in Emergency Management," (PhD diss., Carlton University, 2018), 38, accessed August 13, 2020, https://curve.carleton.ca/178b4b6a-690b-4a62-bc65-1a1f3ebae193.

[2] Department of National Defence, *Strong, Secure, Engaged: Canada's Defence Policy* (Ottawa, Ontario: DND, 2017), 14, accessed August 11, 2020, https://www.canada.ca/content/dam/dnd-mdn/documents/reports/2018/strong-secure-engaged/canada-defence-policy-report.pdf.

[3] Donald Saul, "Domestic Military Disaster Mitigation: A New Approach," *Canadian Military Journal* 19, no. 3 (Summer 2019): 46, accessed August 11, 2020, https://ufdc.ufl.edu/AA00066755/00063.

challenges that leaders must manage, given the MND's priorities, as depicted in Canada's defense policy.

CAF domestic operations come in many forms and are delineated as follows: 1) Provision of service, 2) Humanitarian assistance, 3) Assistance to law enforcement agencies (ALEA), 4) Aid of the civil power, and 5) Defense of Canada, including sovereignty.[4] Although all have historically been employed, provision of service and humanitarian assistance are the most common forms of CAF support to domestic operations. However, the CAF, and by extension the CA, is expected to be adequately prepared to support all forms of domestic operations in the event direction is issued by the Government of Canada (GoC). Consequently, in line with the MND's priorities, the CA has identified its nine significant roles that support operations, seven of which coincide and nest with types of CAF domestic operations.[5] Provided its size, inherent capabilities, and basing of units across the country, a significant portion of the lines of effort within domestic operations requiring human labor fall to the CA. Nevertheless, a joint and comprehensive approach is typically the preferred means in response to natural disasters.[6] For the scope of this monograph, the use of the term natural disaster will refer to overland flooding, wildfires, and damaging storms given their regular occurrence. These natural disasters generally transpire on an annual basis, necessitating frequent analysis on how the CA can be better prepared in the time of need.

Canada's sheer size and geographic diversity make it one of the more unique countries in the world. Bordering the Atlantic, Pacific, and Arctic Oceans, Canada encompasses nearly ten million square kilometers. Its landscape is diverse, with vast mountain ranges, thousands of lakes

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[4] Department of National Defence (DND), Canadian Forces Joint Publication (CFJP) 3-2, *Domestic Operations* (Ottawa, Ontario: DND, 2011), 4-1.

[5] Government of Canada, "The Canadian Army of Today," June 24, 2020, accessed September 16, 2020, https://www.army-armee.forces.gc.ca/en/about-army/organization.page.

[6] DND, CFJP 3-2, 2-1.

and rivers, densely forested areas, prairie grasslands, and Arctic tundra.[7] These characteristics, along with the CA being a small land force component internal to the CAF make natural disaster response operations exceptionally challenging. Although the CA and CAF are structured to support and implement the GoC policy on expeditionary operations, the CA has units and formations distributed across the country that are prepared to support domestic operations.[8] However, the strength of the CA tallies only 23,000 Regular Force and 19,000 Reserve Force members.[9] Therefore, senior leaders are significantly limited in their abilities to provide support in response to natural disasters. Having a lean and agile force is preferred, but it is essential to manage the expectations of the CA force and resource limitations due to Canada's vast and challenging terrain. Many have drawn a comparison between the readiness of soldiers trained for combat with the readiness of soldiers tasked for natural disaster response mission. Johanu Botha, Doctor of Philosophy from the University of Carlton, argues that "The range of tools and skills CAF used during domestic disaster response are therefore largely convenient byproducts of tools and skills required to fight wars."[10] As such, the CAF is perceived as a major resource during natural disaster response missions.

Legal and operations frameworks exist for CAF commitment to domestic operations. Generally, the legal authority for CAF involvement in domestic operations is based upon the Crown prerogative and Canadian legislation. Crown prerogative is the GoC's authority to employ executive powers, while Canadian legislation provides the CAF with the authority to conduct

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[7] Citizenship and Immigration Canada, *Welcome to Canada: What You Should Know* (Ottawa, Ontario: Government of Canada, 2013), 17, accessed September 15, 2020, https://www.canada.ca/content/dam/ircc/migration/ircc/english/pdf/pub/welcome.pdf.

[8] Sean M. Maloney, "Domestic Operations: The Canadian Approach," *Parameters* 27, no. 3 (Autumn 1997): 135, accessed August 11, 2020, http://www.seanmmaloney.com/wp-content/uploads/2016/02/PARAMETERS-US-Army-War-College-Quarterly-Autumn-1997.pdf.

[9] Government of Canada, "The Canadian Army of Today."

[10] Botha, "Two Floods, a Wildfire, and a Hurricane: The Role of the Canadian Armed Forces in Emergency Management," 40.

domestic operations.[11] Therefore, Regional Joint Task Force (RJTF) commanders do not have the authority to respond in anticipation of a natural disaster. For the majority of domestic operations, the CAF responds to requests from all levels of government. Provinces legally have the responsibility to protect the public during times of crisis within their means. In the event a crisis exceeds provincial capabilities, a formal request for assistance (RFA) is submitted to the federal government for approval. Only once approved and directed can the CAF align resources to project forces in the time of crisis.[12] Even then, the province or territory that submitted the request retains the responsibility for the allocation and priority of federal resources.[13] This requires a comprehensive understanding by government officials of the CA's capabilities.

The Canadian Joint Operational Command (CJOC) is the overarching command tasked by the Chief of Defence Staff (CDS) to plan and execute all CAF operations, including domestic operations. As mentioned above, CJOC's domestic area of responsibility, the entirety of Canada, is exceptionally large. Figure 1 highlights CJOC's delineation of sub-areas of responsibility to its RJTFs. Habitually, response to RFAs submitted in a specific region will correspond to the deployment of CA units that reside within that region. For example, a response to a wildfire near Edmonton, Alberta, would involve soldiers deployed from units that reside within Joint Task Force (JTF) West's area of responsibility. However, it is possible to deploy soldiers to other RJTFs depending on the resources required or the scale of the natural disaster. Following guidance from the GoC to support an RFA, the CDS appoints CJOC as the supported command, with the other services as supporting commands as deemed necessary by Commander CJOC. Given that CJOC is merely an operational headquarters with no soldiers, it looks to the other services to force generate resources for force employment as required. Depending on the location

[11] DND, CFJP 3-2, 1-2.

[12] Ibid., 3-1.

[13] Department of National Defence (DND), Canadian Forces Joint Publication (CFJP) 3-4, *Humanitarian Operations and Disaster Relief Operations* (Ottawa, Ontario: DND, 2005), 3-2.

of the natural disaster, the applicable RJTF is then activated, and the RJTF commander is responsible for the planning and conducting the operation. This RJTF is accountable to Commander CJOC, who exercises operational command of the overall mission. Based on resource requirements from RJTF analysis and requests from the provinces involved, soldiers and equipment are then assigned to the RJTF from various formations, preferably those who comprise part of the associated division, until mission completion.

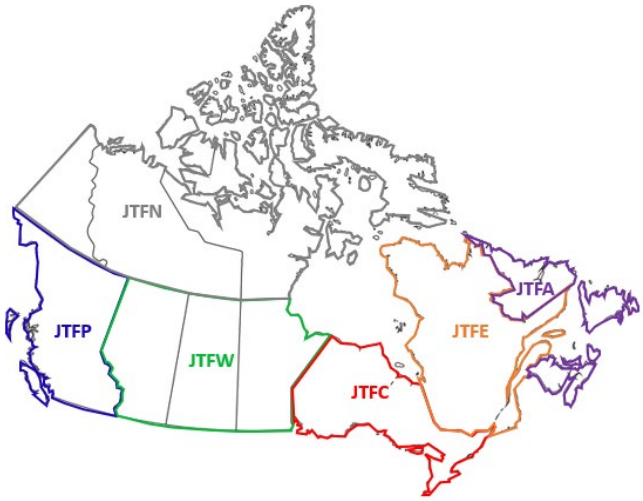

Figure 1. CJOC Area of Operations by RJTF. Department of National Defence, "Regional Joint Task Forces," April 5, 2018, accessed September 30, 2020, https://www.canada.ca/en/department-national-defence/services/operations/military-operations/conduct/regional-task-force.html.

Although the defense policy clearly lays out the MND's expectations, challenges still exist given the broad range of tasks required for the CA to fulfill. Balancing expeditionary force generation and force employment requirements with those of mid to long term unpredictable domestic operations possibilities can be difficult to synchronize and coordinate. With an expectation for the CAF to support domestic operations in time of need, these challenges will continue to burden leaders as natural disasters become a more common reality. As Canadians' defense and safety remain a top priority, the CA is therefore required to determine how it can support Canadians on the home front first, while managing readiness for employment on a variety of expeditionary operations that tend to expose soldiers to more risk. Large deployments in

support of humanitarian assistance has the potential to take away from training, thereby leaving soldiers inadequately trained and less prepared for higher tempo and potentially life-threatening operations.[14] Although Lieutenant-General Eyre, Commander of the CA, concluded that military "training has not been affected to a significant degree yet," an increased trend in the number of requests to the CA to support natural disaster response is concerning.[15] Given the ongoing impact of climate change and its direct correlation on the frequency, severity, and duration of severe weather events, it is not unreasonable for CA leaders to be concerned.[16] Therefore, the purpose of this monograph is to answer the following research question: Despite conflicting force employment requirements, how can the CA better support Canadians on the home front? Efficiencies are always possible, so leaders must identify mechanisms to better prepare for domestic operations in order to preserve time and resources for other operational demands.

Climate Change and Natural Disasters

Although some skeptics charge that climate change is a myth, a scientific consensus demonstrates that it is ongoing and inexorable. Dr. Olufemi Adedeji and colleagues, from the University of Ibadan, Nigeria, argues that "The evidence of climate change is compelling: sea levels are rising, glaciers are retreating, precipitation patterns are changing, and the world is getting warmer."[17] Climate, as long-term weather patterns, are changing worldwide.[18] However,

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[14] Lee Berthiaume, "Disaster Relief a Threat to the Canadian Army's Fighting Edge, Commander Says," *National Post*, January 20, 2020, accessed September 14, 2020, https://nationalpost.com/news/canada/disaster-relief-threatens-to-hinder-canadian-armys-readiness-for-combat-commander.

[15] Ibid.

[16] Lydia Dotto, et al., *Canadians at Risk: Our Exposure to Natural Hazards: Canadian Assessment of Natural Hazards Project* (Toronto, Ontario: Institute for Catastrophic Loss Reduction, 2010), 19, accessed August 11, 2020. https://www.preventionweb.net/files/13008_CanadiansatRisk20101.pdf.

[17] Olufemi Adedeji, Reuban Okocha, and Olufemi Olatoye, "Global Climate Change," *Journal of Geoscience and Environment Protection* 2, no. 2 (January 2014): 114, accessed September 17, 2020, https://www.researchgate.net/publication/276495677_Global_Climate_Change.

[18] Ibid., 115.

Canada's climate appears to be undergoing change at a faster rate than the rest of the world. Over the past seventy years, Canada's temperature has risen by approximately 1.7 degrees Celsius, which is nearly double that of the rest of the world.[19] This has direct effects on environmental conditions, which will likely lead to more frequent and severe natural disasters, including flooding, drought, wildfires, and significant weather storms. The increase in climate change will make it more difficult and costlier to manage these natural disasters.[20]

Each year, natural disasters impact Canadians in multiple regions. Global climate change and an increasing population suggest that the outcome of natural disasters will be even more severe in the future.[21] Because of Canada's topographical size, varying terrain, and other geographical characteristics, the impacts of climate change fluctuate widely from one part of the country to another.[22] What people are experiencing on the coasts, prairies, and in the northern part of the country tend to be different, diversifying the problems of response. As the frequency and severity of natural disasters increase, the associated financial burden will increase as well. In just twenty years between 1995-2015, the cost in insurance claims as a result of natural disasters quadrupled, as depicted in Figure 2. A more recent report indicates that natural disasters cost Canadians $2.4 billion in insurance losses in 2020 alone, the fourth costliest year on record. Furthermore, of the ten costliest years on record, all but two have taken place prior to the past

[19] Council of Canadian Academies, *Canada's Top Climate Change Risks* (Ottawa, Ontario: Council of Canadian Academies, 2019), 1, accessed August 12, 2020, https://cca-reports.ca/reports/prioritizing-climate-change-risks/.

[20] Olufemi Abedeji et al., "Global Climate Change," 114.

[21] Dan Henstra and Gordon McBean "Canadian Disaster Management Policy: Moving Toward a Paradigm Shift?" *Canadian Public Policy* 31, no. 3 (September 2005): 315, accessed November 23, 2020, https://www.jstor.org/stable/3552443?seq=1.

[22] Climate Change Indicators Task Group, *Climate, Nature, People: Indicators of Canada's Changing Climate* (Winnipeg, Manitoba: Canadian Council of Ministers of the Environment, 2003), 2, accessed August 10, 2020, https://www.researchgate.net/publication/313700169_Climate_Nature_People_Indicators_of_Canada%27s_Changing_Climate.

decade.[23] This trend is indicative that climate change is affecting the population in ways never experienced before. As climate change continues, the financial and emotional burden associated with the impacts of natural disasters will also rise. Although pre-emptive measures can occur, only so much can be done in preparation for the next natural disaster.

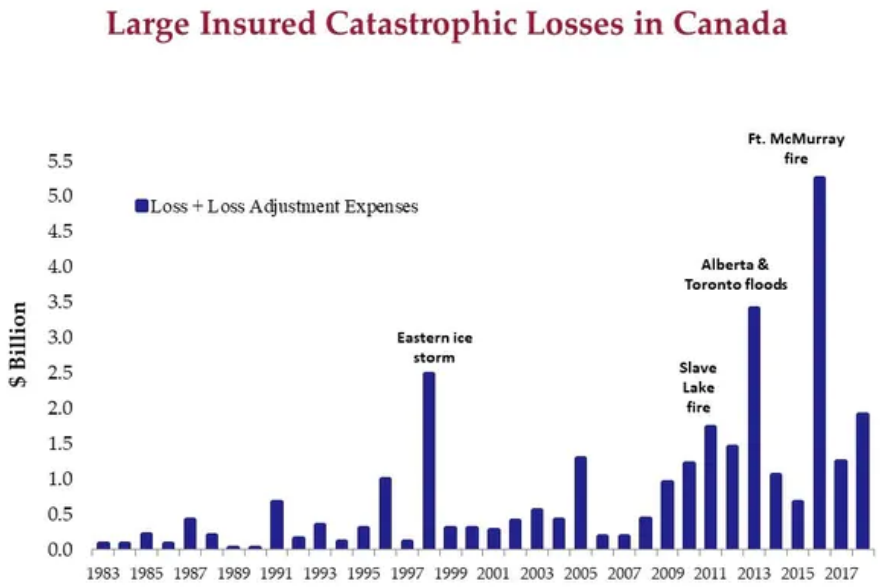

Figure 2. Insurance Losses due to Natural Disasters. Gary Martin and Glenn McGillivray, "Canada: As Climate Changes, the way we Build Houses Must Change Too," Prevention Web, March 12, 2019, accessed January 27, 2021, https://www.preventionweb.net/news/view/64223.

The impacts of climate change are not solely a Canadian problem. As a whole, global expenditures in response to the effects of climate change are spiking, as depicted at Figure 3. The effects of climate change do not respect international boundaries. For example, the consequences of carbon emissions in one country can be felt by numerous other countries around the world.[24] As Canada's climate has warmed more rapidly than most, the country is at a heightened risk of natural disasters each year. Specifically, *Canada's Changing Climate Report* states that since

[23] Daniel Martins, "$2.4-Billion Price Tag for Natural Disasters in Canada in 2020," *The Weather Network*, January 27, 2021, accessed January 27, 2021, https://www.theweathernetwork.com/ca/news/article/2-4-billion-dollar-price-tag-for-natural-disasters-in-canada-in-2020.

[24] United Nations, "Sustainable Development Goals: Climate Change," accessed February 3, 2021, https://www.un.org/sustainabledevelopment/climate-action/.

1948, the annual average temperature in the northern part of the country has increased 2.3 degrees Celsius, a rate faster than the rest of the country. This has directly affected Canada's northern climate and increased the rate of glacier melting.[25] Glacier melting is producing a rise in Canada's waterways and oceans, which will affect the livelihoods of many Canadians in the near-term future. As the world is a system with its own interrelated sub-systems that effect on one another, controlling climate change and its effects are a global concern and must be acknowledged.

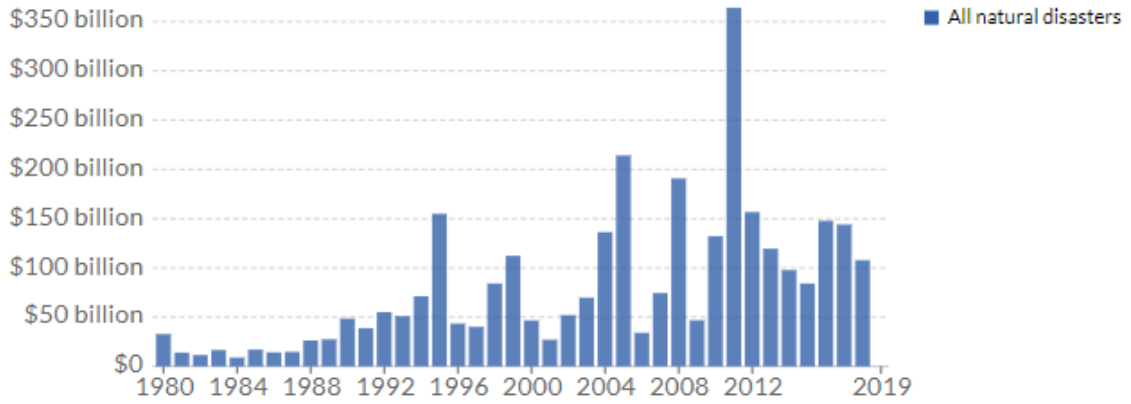

Figure 3. Global Economic Costs of Natural Disasters. EM-DAT, "The International Disaster Database," Centre for Research on the Epistemology of Disasters-CRED, 2020, accessed January 27, 2021, https://www.emdat.be/.

Overland and urban flooding represent two of the most prominent natural disasters. Although the country has coped with severe flooding for multiple decades, the number of floods has soared in the past twenty-five years. Climate change has resulted in changes in rainfall and snowfall trends, which has increased precipitation in many parts of the country.[26] This increase in precipitation elevates the risk of flooding from year to year, particularly in urban environments. Most urban centers' design capacity of water collection systems are not suited for a significant

[25] Elizabeth Bush, Nathan Gillett, Barrie Bonsal, Stewart Cohen, Chris Derksen, Greg Flato, Blair Greenan, Majorie Shepherd, and Xuebin Zhang, *Canada's Changing Climate Report – Executive Summary* (Ottawa, Ontario: Government of Canada, 2019), 5, accessed August 10, 2020, https://changingclimate.ca/CCCR2019/chapter/executive-summary/.

[26] Ibid., 7.

increase in water flow, which leads to flooding in these regions.[27] Furthermore, given that temperature extremes have widened in Canada, it is likely that warmer weather will intensify weather extremes.[28] This could imply various outcomes, including more intense storms and extreme amounts of precipitation over shorter periods of time, as well as the rise of severe weather patterns occurring in locations not typically prone to them. The severe weather characteristics will potentially cause unforeseen flooding events that stress local and provincial resources beyond their capacity. Furthermore, although increased temperatures will decrease annual snowfall accumulations, extremely warm weather will cause areas still receiving significant amounts of snow to melt faster, thereby triggering significant overland flooding, particularly in the lowland areas of the country.[29] These changes in weather patterns will likely be unpredictable, thereby having significant effects on the population in a period of crisis. With increased flooding across the country, all government levels must look for ways to mitigate such circumstances and be prepared to manage the consequences.

Climate change not only produces unpredictable flooding, it is also a source of severe storms that trigger devastating wildfires. Even though human behavior is the source of most wildfires, many are ignited naturally by lightning strikes. Having direct and indirect ties to climate change, wildfires depend on multiple factors, including temperature, soil moisture, and fuels such as trees, shrubs, and debris.[30] With a large portion of the country encompassing many of these risk factors, wildfires are always a potential hazard predominantly in the summer months.

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[27] Dan Henstra, and Gordon McBean, *Climate Change, Natural Hazards and Cities for Natural Resources Canada* (Toronto, Ontario: Institute for Catastrophic Loss Reduction, 2003), 5, accessed August 11, 2020, http://chs.ubc.ca/archives/files/Climate%20Change,%20Natural%20Hazards,%20and%20Cities.pdf.

[28] Bush et al, *Canada's Changing Climate Report – Executive Summary*, 9.

[29] Blair Feltmate and Anna Fluder, *Too Small to Fail: Protecting Canadian Communities from Floods* (Waterloo, Ontario: Intact Centre on Climate Adaptation, 2018), 10, accessed February 3, 2021, https://www.intactcentreclimateadaptation.ca/wp-content/uploads/2018/10/Climate-Change-Adaptation-Projects-FINAL.pdf.

[30] Center for Climate and Energy Solutions, "Wildfires and Climate Change," accessed September 14, 2020, https://www.c2es.org/content/wildfires-and-climate-change/.

Additionally, The Center for Climate and Energy Solutions indicates that warmer, drier conditions also contribute to the spread of insects that weaken or kill trees, providing an excellent fuel source for wildfires.[31] A substantial portion of forested areas being dry and littered with deadfall also creates a tinderbox. Surprisingly, as depicted at Figure 4, the number of wildfires appears to be decreasing; however, the effects of these wildfires have been more noticeable.[32] The number of hectares burned is increasing and the locations of the wildfire areas is spreading, which is affecting more of the population and forcing mandatory evacuations of towns or cities. Nevertheless, there is no specific reason why wildfires appear to be affecting urban areas more frequently. Provided that the size of wildfires is expanding, urban areas in close proximity to densely forested regions will be at a heightened risk. Consequently, this trend is attracting heightened attention given its impact on urban populations. Overall, with the increase in devastating effects of wildfires experienced across the country, a concerted effort to project potential hotspots and improved preparations must occur in anticipation of the next big wildfire.

[31] Center for Climate and Energy Solutions, "Wildfires and Climate Change," accessed September 14, 2020, https://www.c2es.org/content/wildfires-and-climate-change/.

[32] Cordy Tymstra, Brian J. Stocks, Xinli Cai, and Mike D. Flannigan, "Wildfire Management in Canada: Review, Challenges and Opportunities," *Progress in Disaster Science* 5, no. 100045 (2019): 2, accessed September 15, 2020, https://www.sciencedirect.com/science/article/pii/S2590061719300456#bi0005.

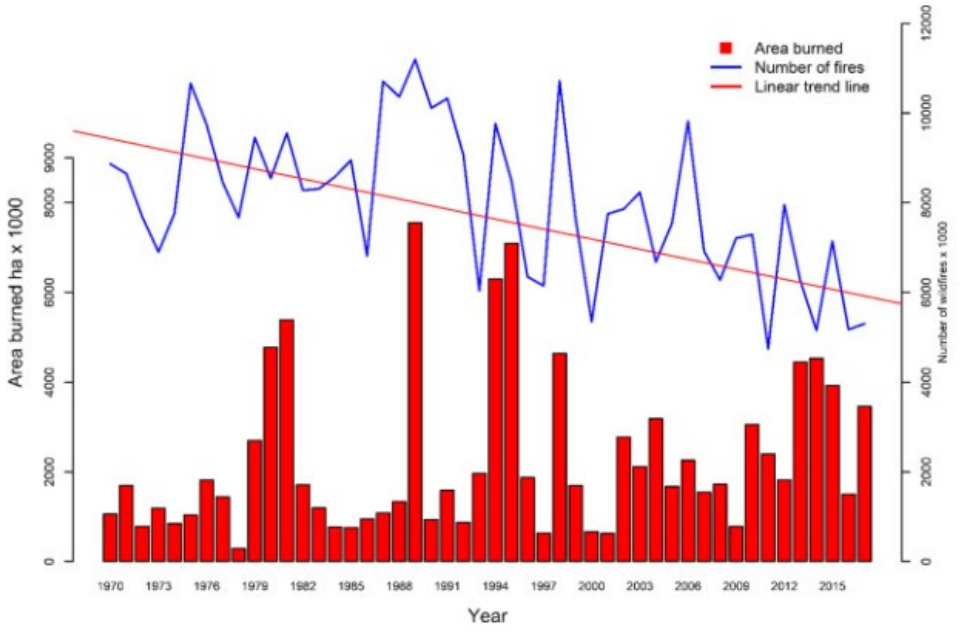

Figure 4. Number of Wildfires and Areas Burned in Canada 1970-2017. Cordy Tymstra, Brian J. Stocks, Xinli Cai, and Mike D. Flannigan, "Wildfire Management in Canada: Review, Challenges and Opportunities," *Progress in Disaster Science* 5, no. 100045 (2019): 2, accessed September 15, 2020, https://www.sciencedirect.com/science/article/pii/S2590061719300456#bi0005.

Canadian Army Support to Domestic Operations

The CAF has coined Operation Lentus as its mission title in response to forest fires, floods, and other natural disasters.[33] Due to the rising possibility of natural disaster occurrences, CA members receive regular meteorological updates, and discussions regarding Operation Lentus activation is a common theme throughout the service's routine battle rhythm. In the past ten years, the CAF has provided support in response to natural disasters close to twenty-five times.[34] As illustrated at Figure 5 (minor responses such as localized evacuations not listed), of the twenty-five CAF responses to major natural disasters, the CA has supported sixteen of those.[35]

[33] Department of National Defence, "Operation LENTUS," April 3, 2020, accessed September 30, 2020, https://www.canada.ca/en/department-national-defence/corporate/reports-publications/transition-materials/caf-operations-activities/2020/03/caf-ops-activities/op-lentus.html.

[34] Department of National Defence, "Operation LENTUS," December 11, 2018, accessed September 30, 2020, https://www.canada.ca/en/department-national-defence/services/operations/military-operations/current-operations/operation-lentus.html.

[35] Ibid.

The type and duration of operations vary; however, primary efforts include sandbagging before and during floods, evacuating personnel, cleaning up following wildfires and winter storms, and delivering an assortment of aid. In particular, the CA deployed soldiers and equipment to most Canadian provinces in some degree within the past three years. Typically, wildfire response occurs in Central and Western Canada, major weather events response occurs in Central and Eastern Canada, and flooding response occurs across the entirety of the country. With an increase in climate change and its secondary effect on natural disasters, this trend will likely continue, but also creep outside of those trend areas.

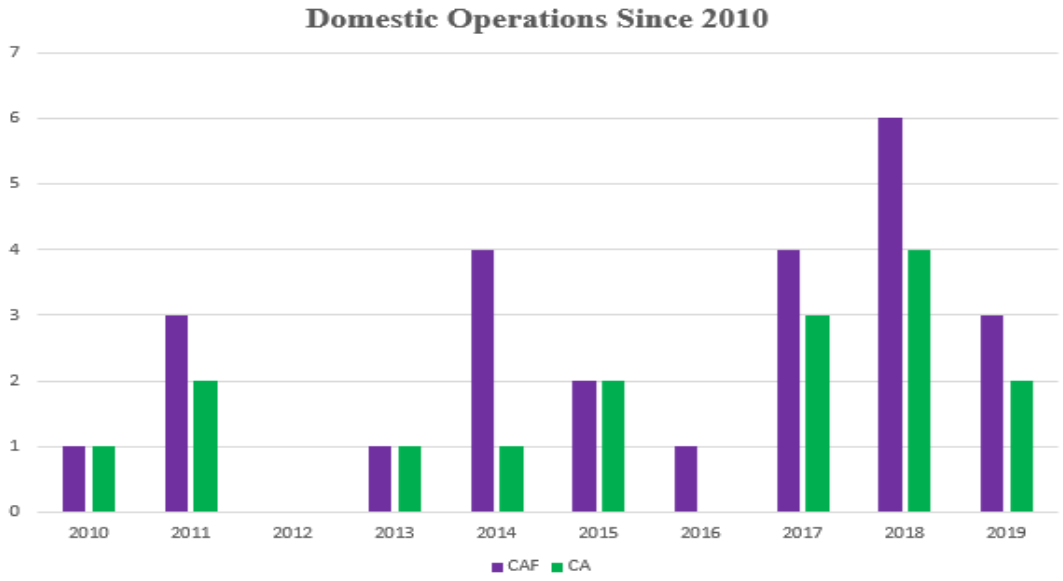

Figure 5. Number of Significant Domestic Operations Across the CAF and CA. Department of National Defence, "Operation LENTUS," December 11, 2018, accessed September 30, 2020, https://www.canada.ca/en/department-national-defence/services/operations/military-operations/current-operations/operation-lentus.html.

Given recent history and the heightened potential for future natural disasters, CJOC has developed and continuously updates Contingency Plan (CONPLAN) Lentus, as part of the Standing Operations Order for Domestic Operations. This CONPLAN serves as the baseline directive to guide CAF response once a domestic operational mission has been declared. As with any CONPLAN, it aims to provide enough baseline information and guidance to initiate an

operation, but it is tailorable to fit the requirements of any given situation. As the severity of natural disasters is often difficult to predict, CONPLAN Lentus provides RJTFs enough flexibility to initiate planning quickly. Once better situational awareness is achieved, CJOC then issues supplementary fragmentary orders that build on CONPLAN Lentus.

At the brigade level, standing directives are drafted and regularly updated whereby Immediate Reaction Units (IRU) are created and placed on a notice-to-move status during known or historical peak natural disaster seasons.[36] These directives are based on standing guidance from their various RJTFs, which in turn are derived from CJOC CONPLANs as previously mentioned. Each brigade directive delineates a table of organization and equipment (TO&E) and places assigned units on the associated notice-to-move status in accordance with higher headquarters' direction, or the commander's assessment of the likelihood of a natural disaster and possible follow-on RFA. IRU TO&E's are tailorable to most tasks, but do occasionally require alterations given unit capabilities coupled with the requirements of the mission. The intent of the TO&E is to have pre-identified personnel and equipment ready in the event of IRU activation. This mitigates chaos and accelerates battle procedure at the sub-unit through brigade levels of command.

During the execution of domestic operations, commands at all levels are expected to identify lessons learned as part of regular after-action reviews (AAR). Doing so feeds into the overarching post-operational reporting process to ensure areas that need to be sustained and improved upon are noted. Most importantly, areas for improvement are highlighted so they can be rectified in anticipation of future IRU deployments. Overall, CJOC is responsible for consolidating domestic operations lessons learned. Contributing to this effort, subordinate commands are encouraged to provide input by focusing on the following themes: a) command

[36] Department of National Defence, "3120-4 (G3 Ops) 1 CMBG Contingency Plan – Immediate Reaction Unit (IRU)," (Edmonton, Alberta: DND, 2011), 1/12.

and control, b) military support to civilian authorities, c) cooperative planning, d) acquisition and sharing of information, e) legal considerations, f) capabilities and training, and g) public affairs.[37] With domestic operations typically conducted in a civil-military and joint manner, it is strongly encouraged to gather perspectives across all elements of the team and all levels of the chain of command. Additionally, provincial emergency management organizations are encouraged to complete after-action reviews for similar purposes and ideally include cross discussion between military and civilian organizations. Given the current norm for the CA to support domestic operations, the lessons learned process is vital. It behooves all CAF members to actively participate in providing the best possible support to Canadians.

This research was conducted by employing a qualitative analysis of previous reports, the existing CAF CONPLAN, AARs, and post operational reports completed following CAF redeployments from domestic operations. In order to provide consistency, analysis included gathering and examining studies and AARs from across the RJTFs as well as municipal and provincial governments that support domestic operations. Given Canada's geographical size and its varying weather patterns, examining research that is representative of the entire nation adds to its credibility.

Reliable research has been conducted on military support to domestic operations; however, minimal research has been conducted within the past eight years. Considering this gap in available research, updates are required given the increased frequency of natural disasters. This monograph's primary sources include AARs from the past ten years, most up-to-date versions of official CAF domestic response doctrinal publications, and current provincial domestic response directives. Secondary sources consist of journal articles, books, organizational websites and

[37] Department of National Defence, "3000-1 (J5) CJOC Standing Operations Order for Domestic Operations (SOODO): Annex LL," (Ottawa, Ontario: DND, 2014), 2.

previous theses, which offer varying perspectives that contribute to the credibility and validity of the research.

Given the current operational tempo of the CA and its requirement to support a multitude of operations across the globe, evidence suggests that there are not enough resources or time to support all domestic operations. With direction from the MND to protect Canadians as a priority, it is critical that current structures are examined to ensure CA leaders are enabled to best support Canadians on the home front. As the second largest geographic country in the world with a small land force component internal to the CAF, setting the conditions for success prior to the manifestation of natural disasters should be a leader focus across the CA. As operating environments are continuously changing, regularly updating policies and CONPLANs facilitates a *be ready tonight* mentality that is always required in anticipation of any form of operation.

Current Operating Picture

Barriers to Communication

When a natural disaster is severe enough that local and provincial governments are unable to manage the fallout, formal mechanisms are in place for the various levels of government to seek federal assistance through the RFA process. In accordance with the Emergency Management Act, only when an emergency reaches a state where the province or territory has deemed that the situation is beyond the scope of its own resources may an RFA be submitted to federal authorities.[38] As provinces and territories are expected to manage their emergencies internally, the federal government expects its subordinate provinces and territories to exhaust all of their own resources first, assuring that federal resources are not prematurely activated. Typically, requests are made by provincial or territorial public security officials to the office of the federal Minister of Public Safety; however, various provincial or territorial public

[38] DND, CFJP 3-2, 2-4.

security officials may contact the RJTF headquarters directly. In any case, requests will inevitably reach the federal level where a determination will be made on the activation of federal resources for employment by and in support of the applicable province or territory. Given that costs associated with CAF employment in support of natural disaster mitigation are normally the responsibility of the requesting agency, it behooves the province to ensure that its means have been exhausted prior to submitting a formal RFA.[39]

Once provincial and territorial authorities have determined that integral resources have been exhausted, the RFA process can begin. As part of the RFA process, the requesting agency is required to assess and indicate, to the federal government, the resources they require, as well as the duration they require those identified resources. Representatives of provincial and territorial emergency management offices must examine their current resources, then predict the assistance required in order to bridge the gap until they are capable of regaining situational control. This is considered standard operating procedure across the country, but it has been noted that the details within the resource request, as part of the RFA process, must be better delineated. An example occurred during JTF West's deployment to Saskatchewan in 2015.

JTF West's mission to support wildfire operations as part of Op Lentus 15-02 was considered a huge success for the supporting CAF contingent. Due to the quick spread and catastrophic potential of the wildfires, the RFA developed quite rapidly; however, minimal internal discussions between the province of Saskatchewan and JTF West's Headquarters were conducted prior to the submission of the RFA to the federal government.[40] For a period of just over two weeks, the Saskatchewan government requested federal support in the form of a military response to contribute in fire line operations, including patrolling, surveillance of known and unknown hotspots, digging, suppressing hotspots, and numerous other logistical support

[39] DND, CFJP 3-2, 1-5

[40] Department of National Defence, "3350-1 (G5) Joint Task Force West Headquarters, Op LENTUS 15-02 Post Operation Report," (Edmonton, Alberta: DND, 2015), 3/6.

mechanisms. Close to 900 soldiers were deployed to conduct operations in support of the municipal and provincial emergency management teams.[41] Although the small CAF element was prepared for a domestic operational deployment and the mission was deemed successful, the RFA that was submitted to the federal government was extremely specific, which challenged the JTF West's leadership. Specific soldier numbers and unique equipment requests were included in the RFA, and the "number of requested troops became the driving factor in the provision of those troops, even though the province could not train or employ them immediately."[42] Given that a CAF IRU has a specific TO&E, the province's request for a specific number of soldiers forced the CAF element to adjust their organizational structure on short notice, prior to deploying hundreds of kilometers to the area of operations. Although TO&Es are relatively tailorable, CA units are structured in such a way to facilitate ease for command and control, equipment distribution, and logistical support. The requirement for specific numbers of soldiers caused issues in unit logistics, as well as created a requirement to develop an ad hoc command and control structure of the deployed elements. Although this is only one example, similar issues with RFAs were observed for the 2013 Calgary floods, 2014 Manitoba floods, and others. If representatives of the provincial government had a general understanding of the hierarchical structure of CA units or IRU TO&E, and the details encompassed within the RFA were communicated in terms of effects requested of the CAF contingent, it is likely that the RFA would have looked much different. Instead, there was confusion once soldiers arrived to the area of operations, thereby causing unnecessary delays in the commencement of operations. Therefore, it is evident that better collaboration and an understanding of CA hierarchy is important.

[41] Botha, "Two Floods, a Wildfire, and a Hurricane: The Role of the Canadian Armed Forces in Emergency Management," 130-131.

[42] Department of National Defence, "3350-1 (G5) Joint Task Force West Headquarters, Op LENTUS 15-02 Post Operation Report," 3/6.

Minimal discussions took place between the Saskatchewan government and JTF West Headquarters prior to the development of the RFA. This lack of communication could have likely hindered the preparation and commencement of military operations before the contingent even deployed from their home stations. If better dialogue had occurred, CAF personnel would have had the opportunity to highlight and make suggestions on their current military structure and capabilities, thereby arming the provincial government with knowledge of CAF equipment and resource capabilities. This in turn would have facilitated the drafting of a clearer, better-defined RFA that would have filtered through the federal government while making its way back down the chain of command once approved in Ottawa. In summary, this possible lack of initiative between the RJTF Headquarters (JTF West) and Saskatchewan government complicated and delayed deployment, hindered a smooth commencement of operations, and forced JTF West commanders to make assumptions on how CAF elements would best support the province. Regardless of organization type, civilian or military, having a common operating picture and shared vision are vital. As such, barriers to communication must be eliminated to avoid re-occurrences. As the likelihood of future natural disasters is inevitable, a better understanding of the structure and capabilities of aligned RJTFs is necessary. Interagency cooperation should be encouraged, to include training, passage of information, rehearsals, and public education.[43] This cooperation could be a driving factor in the success or failure of future responses to natural disasters.

Employment of Liaison Officers (LO)

Similar to the employment of LOs outside of a domestic context, the utilization of LOs during domestic operations is essential for collaboration and the passage of information. As there are multiple organizations involved in the conduct of natural disaster response missions, all of which have different structures, mandates, and policies, bridging the communication gap opens

[43] DND, CFJP 3-4, 3-4.

the door for a whole-of-government approach. Within CAF doctrine, "Operational commanders are responsible for establishing effective liaison with federal and provincial/territorial emergency measures authorities, PSPEC's regional offices and directors, other relevant agencies and law enforcement agencies (LEAs) for disaster relief operations planning."[44] Despite today's technological capabilities and given the complexity of a comprehensive approach to disaster relief operations, LOs are essential to ensure mutual understanding by enabling shared understanding between civilian and military organizations. The role of LOs during traditional military operations is critical in domestic responses since the civilian agency is the coordinating and lead element. Some tactical commanders are unfamiliar with having civilian agencies as the lead; therefore, leveraging LOs can be a force multiplier in all phases of domestic operations.

Given the importance of the liaison role, coupled with an increase in the number and severity of natural disasters, CJOC has mandated that RJTFs identify and employ domestic operations LOs (DLO) who typically work within the various provincial emergency management offices. As such, RJTFs incorporated a permanent J5 DLO position into their organizations.[45] This capacity facilitates shared understanding between CAF and provincial organizations. Furthermore, the role serves to better coordinate with other governmental departments in the planning for, and conducting of, domestic operations, especially with the current RJTF operating environment and the impact natural disasters exert on military battle rhythms.

Another trend across many AARs indicates that CAF employment of LOs is an essential element to sustain.[46] Not including the permanent DLO position embedded within provincial emergency operations centers, RJTFs generally employ various other non-permanent LOs in

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[44] DND, CFJP 3-4, 3-6.

[45] D.S. MacGregor, "Canadian Forces Domestic Operations: Are We Ready to Make Canada First?" (master's thesis, Canadian Forces College, 2012), 43, accessed August 11, 2020. https://www.cfc.forces.gc.ca/259/290/298/286/macgregor.pdf.

[46] Department of National Defence, "3350-01 Op LENTUS (J33 Contl 1 / RDIMS 356875), CJOC Post Operation Report – Op LENTUS 14-05," (Ottawa, Ontario: DND, 2014), 2/4.

order to facilitate open dialogue and shared understanding across all levels of command. Given the likelihood of vast areas of operations during a domestic operation, subordinate RJTF units employ their own integral LOs across multiple government department levels. Furthermore, while the incorporation of civilian LOs into CAF elements is strongly encouraged, it is not always possible.

CAF appointment of experienced, senior individuals as LOs is strongly encouraged and must be sustained and formalized.[47] These LOs are not only the face of the CAF, they are also equipped with institutional knowledge and experience to confidently speak on behalf of CAF capabilities. They also possess considerable experience speaking and acting on behalf of CAF commanders, effectively employing mission command. Furthermore, LO employment mitigates uncertainty and essentially nullifies communication lag between CAF and civilian agencies. Given that most civilian and military communications networks are not interoperable, or because communications blackouts do occur, LOs can act as the *middle man*, creating comprehensive situational awareness. Lastly, employment of LOs assure IRU elements are meaningfully employed in support of domestic operations.[48] Provincial and municipal emergency operations centers often have a far better understanding of the operating environment and are therefore better situated to identify where CAF employment can assist, based on their understanding of CAF capabilities.

As a whole, CAF employment of LOs has proven highly effective throughout all stages of domestic responses. However, improvements can be made, particularly on the mounting stages of operations. More specifically, DLOs can assist in the drafting of provincial or territorial RFAs. As these individuals have a firm understanding of CAF structures and capabilities, they should be

[47] Department of National Defence, "3500-1 (G3 Ops) 1 Canadian Mechanized Brigade Group Headquarters, Op LENTUS 1803 After Action Review (AAR)," (Edmonton, Alberta: DND, 2018), 4/6.

[48] Department of National Defence, "3000-1 (G3 Ops 2) Op LENTUS – Post Op Report (POR)," (Edmonton, Alberta: DND, 2013), 1/2.

actively leveraged in the drafting of RFAs to the federal government.[49] Although the provinces determine what their requirements are in order to augment their resource deficiency, DLOs have an opportunity to shape RFAs. In doing so, CA IRU elements are better situated to respond with a higher tempo and are better structured to circumvent being surprised once deployed to the area of operations.

Linked to barriers to communication between CA and provincial emergency management offices, there is often a struggle with determining, synchronizing, and then communicating mission transition criteria.[50] Within the RFA process, supported agencies request resources based on an assessed timeframe where officials predict how long external resources will be required using pre-determined criteria. Their assessment determines how long they will require assistance until integral capabilities can manage the situation. Understandably, this is only a prediction. Therefore, there is capacity for RFAs to be amended as required by the requesting agency. Militarily, it is standard operating procedure that mission termination criteria and redeployment plans be developed as soon as operations commence, which facilitates a seamless transition to disengagement once those conditions have been met. Thus, it is critical that military and civilian organizations share a common *language* and communicate regularly to ensure there are no misperceptions as to the mission termination criteria. This shared understanding should be facilitated by the RJTF DLO and various other LOs who are employed throughout the operations when commanders do not have the capacity to regularly communicate with civilian leaders. The CAF is required to maintain a presence until RFA conditions are met, therefore, mission termination is determined by the requesting agency in conjunction with CAF recommendations

[49] Department of National Defence, "3350-01 Op LENTUS (J33 Contl 1 / RDIMS 356875), CJOC Post Operation Report – Op LENTUS 14-05," 2/4.

[50] Department of National Defence, "JTFA: 3350-1 (J33) RDIMS #580603, Op LENTUS 19-01 – Post Operation Report," (Halifax, Nova Scotia: DND, 2019), C-3/4; Department of National Defence, "3350-Op LENTUS 16-01 (G5 SPO) Joint Task Force West Headquarters, Op LENTUS 16-01 – Post Operation Report," (Edmonton, Alberta: DND, 2016), 4/4.

based on their capabilities. Synchronization and communication are important, so regular use of LOs and command engagement is strongly encouraged at all levels.

Table of Organization and Equipment

Given Canada's size, diverse geography, and climate, Canadians are exposed to an array of natural disasters, including flooding, hurricanes, earthquakes, wildfires, and severe storms.[51] As such, CA response on behalf of the federal government in support of natural disasters must be flexible and tailorable. This requirement comes with its own challenges given the current structure of CA formations.

Current CA regular force mechanized brigade groups are composed of a variety of units, to including three infantry battalions, an armored regiment, a combat engineer battalion, an artillery regiment, a combat service support battalion, signals squadron, and health services battalion. All units consist of varying establishments and have different logistical capabilities. In addition, due to the dispersion of formations across the country, two of the CA's three regular force brigades are separated and dispersed across multiple provinces. Although there are many other defining characteristics, logistical structures and dispersion of units pose challenges when planning for and conducting domestic operations.

In accordance with brigade IRU readiness instructions, the IRU TO&E is generic in nature and assigned units are required to fill the positions prior to declaring themselves as operationally ready. Simplistically, IRU battalions are manned at approximately 400 personnel with accompanying vehicles and equipment.[52] The expectation is for support and command personnel to deploy utilizing military pattern vehicles, with follow-on soldiers deploying by bus to areas of operations. Once there, soldiers are often provided transport by the local government,

[51] Lydia Dotto, et al., *Canadians at Risk: Our Exposure to Natural Hazards: Canadian Assessment of Natural Hazards Project*, 3.

[52] Department of National Defence, "3120-4 (G3 Ops) 1 CMBG Contingency Plan – Immediate Reaction Unit (IRU)," D1/1.

or military troop carry vehicles will be deployed for employment. Since each brigade unit is different, it can be challenging for assigned IRU elements to meet the requirements as delineated within the IRU directive. As such, contingency TO&Es should be tailored to meet the needs of each type of natural disaster and aligned to the capabilities of the designated unit. Provided that natural disasters typically do not occur without warning, local commanders are able to forecast the possibility of a potential IRU activation and also predict effects that are likely to be requested. Identified IRU commanders should then match their TO&E to the requested effects that are formulated within the RFA. Furthermore, with the poor state of the CA fleet, coupled with the continuous requirement to conduct various levels of unit training, equipment deficiencies are common. For example, the two mechanized infantry units within a brigade can force project soldiers to an area of operation utilizing their light armored vehicles, whereas an armor regiment or light infantry battalion do not have this luxury. Therefore, current TO&Es do not reflect what a designated unit can actually support in the event of IRU activation.

Competing Priorities

Clearly outlined within Canada's Defence Policy, the CAF's main priority is the defense of Canada.[53] The term domestic defense classically implies protecting one's country from adversarial threats, both internally and externally to its territorial borders. Within the context of this monograph, natural disasters constitute the threats. With the MND's priorities clearly depicted, it is quite apparent where CA priorities should lie; however, it is far more complicated than allocating all of the CA's resources to domestic operations. The CA is also responsible for meeting expeditionary operational demands which comes with its own requirements, including individual and collective training.[54] With such a small active duty component, coupled with a small element of the Reserve Force that can be leveraged as augmentation, the CA finds itself

[53] Department of National Defence, *Strong, Secure, Engaged: Canada's Defence Policy*, 14.

[54] Ibid., 59-61.

over-extended and with conflicting and competing priorities. Maintaining a combat ready force capable of responding whenever and wherever a threat to the country emerges, while at the same time maintaining a ready notice-to-move force in support of domestic operations, has proven to be a challenge for the CA. The commander of the CA is quite concerned given the increase in the employment of soldiers in response to natural disasters. He is even more concerned about the CA's readiness levels if the current trend of responding to natural disasters continues.[55]

In order to harmonize and manage delineated tasks to the CA, the managed readiness plan (MRP) was developed as a synchronization tool for commanders, providing a general forecast for planning purposes. As depicted in Figure 6, the MRP delineates efforts across three levels of readiness periods: reconstitution, road to high readiness, and high readiness.[56] The current plan is cyclical and encompasses the CA's three manned divisions' regular force brigades. As there are three phases in the MRP, each brigade is incorporated into a phase of the cycle that shifts to the subsequent phase the following year. This ensures each phase of the MRP is filled and each brigade has an opportunity to cycle through the MRP phases every three years. For example, while 1 Canadian Mechanized Brigade Group (CMBG) is in their high readiness phase and is likely deployed in support of expeditionary operations, 2 CMBG is in the road to high readiness phase, conducting collective training in preparation to be declared operationally ready for their subsequent high readiness phase. Finally, 5 CMBG is in the reconstitution phase, having likely returned from expeditionary operations. This provides an opportunity for the brigade in reconstitution to conduct individual training, rest, and refit in preparation for the follow-on road to the high readiness phase. Furthermore, the brigade that is within this phase is generally the

[55] Lee Berthiaume, "Disaster Relief a Threat to the Canadian Army's Fighting Edge, Commander Says".

[56] Douglas Russell, "Canadian Army Strategic Readiness – How Can We Improve?" (service paper, Canadian Forces College, 2018), 4, accessed November 24, 2020, https://www.cfc.forces.gc.ca/259/290/405/192/russell.pdf.

initial formation to fill CA national taskings, including opposition forces for the brigade conducting road to high readiness training.

Though a challenging task, the MRP is designed to endure multiple and simultaneous operational deployments.[57] This is the current reality for the CA, and concerns of endurance in this endeavor are being considered due to unit and soldier fatigue. Most CA collective training requires soldiers to be away from their families for extended periods of time. Once a unit is assigned an operational mission and completes theater mission specific training, the unit can be deployed for upwards of eight to ten months, so soldiers spend very little time with their families over two years. In addition, concurrent leadership training must occur to satisfy CA, regimental, and career succession planning requirements. As such, synchronization or training and operations is a significant challenge for commanders. It is not uncommon for leaders to be absent from force generation training, or even deployed operations given competing priorities. These leadership courses are not illustrated within the MRP.

[57] Department of National Defence, *Evaluation of Land Readiness*, (Ottawa, Ontario: DND, 2016), 29, accessed October 24, 2020, https://www.canada.ca/content/dam/dnd-mdn/migration/assets/FORCES_Internet/docs/en/about-reports-pubs-audit-eval/276p1258-220-eng.pdf.

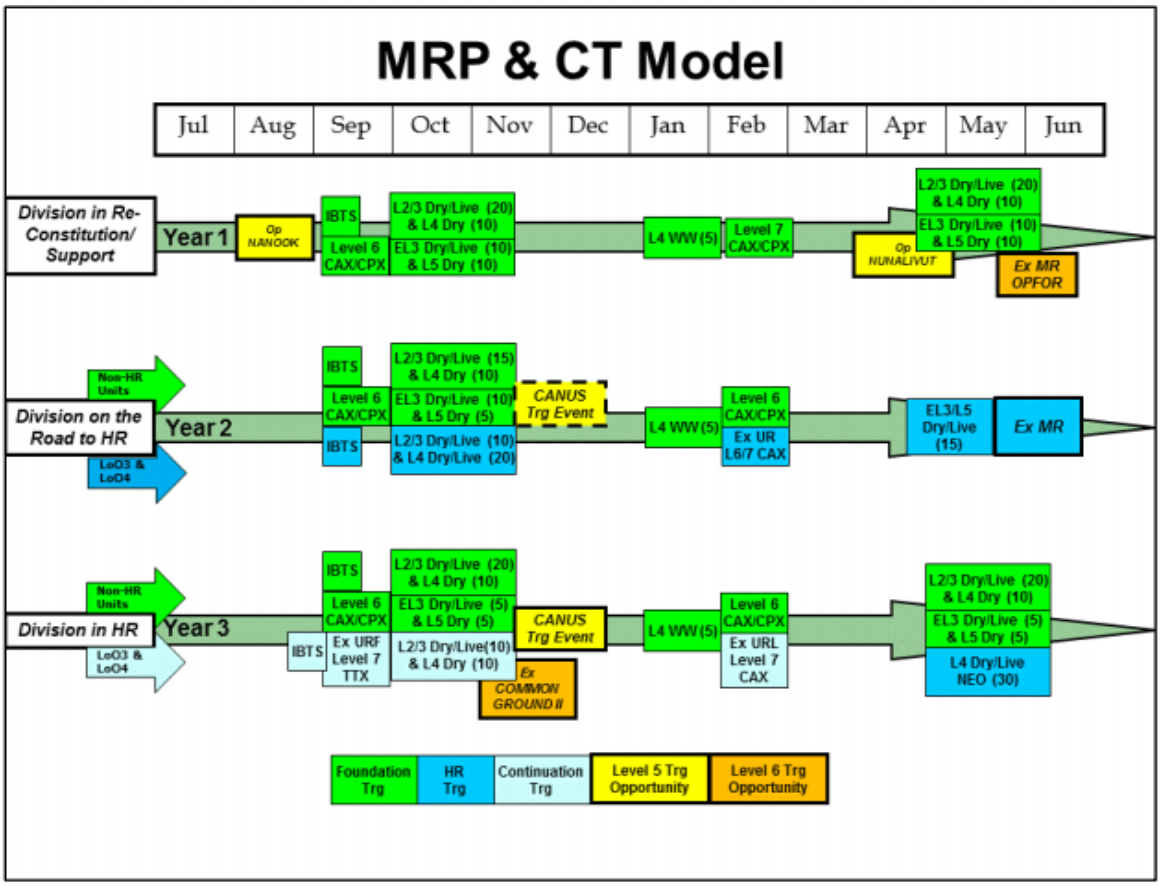

Figure 6. Canadian Army Managed Readiness Plan. Department of National Defence, *Evaluation of Land Readiness* (Ottawa, Ontario: DND, 2016), E-1/3, accessed October 24, 2020, https://www.canada.ca/content/dam/dnd-mdn/migration/assets/FORCES_Internet/docs/en/about-reports-pubs-audit-eval/276p1258-220-eng.pdf.

As depicted in Figure 6, nowhere does the MRP incorporate training or potential support to domestic operations. Domestic deployments can occur anytime; therefore, it is implied throughout the illustration, leaving little room to support a RFA without affecting the overall MRP. Natural disasters occur with more frequency throughout the spring and fall, which is the same time that CA formations conduct their primary individual and collective training.[58] This is a point of contention for force generating divisions and becomes a risk acceptance concern across the CA leadership. Consequently, with the likelihood of supporting domestic operational

[58] Lee Berthiaume, "Disaster Relief a Threat to the Canadian Army's Fighting Edge, Commander Says".

responses on top of annual training periods, this becomes a tempo concern for leaders at all levels.

Geographic alignment with the MRP is an important factor as well, especially given that RJTFs are, for the most part, aligned with CA divisions (less JTF West and the Third Canadian Division). This means that a division that is in the high readiness phase of the MRP could also be required to respond to a natural disaster. In this circumstance, the division in the high readiness phase of the MRP could struggle to fill the IRU TO&E given other expeditionary commitments. If an RFA happens to be supported by the GoC and the location of the domestic operation geographically aligns with a division in the high readiness phase, missions requiring more than a battalion would be extremely challenging to support. Although reserve brigades are expected to be prepared to resource Territorial Battle Groups in support of domestic response, this is not sustainable given both manning shortfalls and the reserve force personnel requirement to be responsive to their civilian employment commitments.[59] Deploying contingents from flanking divisions to support represents an option; however, this would be extremely costly and delay response time. Therefore, as the GoC looks more to the CAF to support provinces in natural disaster response, pressure is being placed on commanders at all levels to *do more with less*.

The Importance of Time

A primary mechanism of being successful in response to natural disasters is that IRU elements need to get ahead of the disaster. Whether it is being deployed in advance of a pending major ice storm, sandbagging key infrastructure before the peak of a flood, or clearing easily accessible fuel for a wildfire, being ahead of the adversary is crucial to mission success. A common issue when CAF elements respond to natural disasters is that deployed IRU elements often arrive to the area of operations after it is too late. Characteristically, IRU elements arrive to the area of operations after major destruction has already occurred. Responding early to overland

[59] Department of National Defence, *Evaluation of Land Readiness*, 2.

or urban flooding and to wildfires is particularly challenging given limitations imposed on IRU leaders. As a member of the 1 CMBG staff during the Calgary, Alberta, floods of 2013, the author witnessed firsthand commanders at all levels doing everything in their power to manage the destruction that had already taken place in the Canmore, Calgary, and High River areas. As the peak flow had not yet occurred, IRU elements had to work tenaciously to complete life-saving operations in these areas before quickly re-deploying to Medicine Hat just in time to complete emergency sandbagging and facilitate evacuations. Fortunately, IRU elements for this scenario were able to get ahead of the natural disaster in Medicine Hat but were too late arriving to the Canmore and High River flood locations.

As briefly mentioned, only once the federal government has scrutinized and approved an RFA can CAF IRU elements deploy in support of natural disaster response. That said, one of the main contributing factors that causes delays in the deployment of IRU elements is that the requesting agency takes too long to formalize and submit the RFA. Whether it is a matter of provincial pride, fiscal considerations, indecisiveness, or outright misjudgment, delaying an RFA submission can be detrimental. Johanu Botha, Doctor of Philosophy in Public Policy, observes that, "premiers are eager to appear in control during a disaster for as long as possible, which – ironically – is one of the reasons requests for federal assistance in the form of the CAF can be delayed until significant damage is already done, harming the premier's reputation in the process."[60] Given that the requesting agency is ultimately responsible for covering the costs of the additional resources utilized to combat natural disasters, commitment delays are not uncommon, thereby delaying the overall RFA process before IRU units are even authorized to activate and deploy. A DLO can potentially help by shaping the final output of the RFA, and as a uniformed member of the CAF communicate to RJTFs early warning and specifics of a pending

[60] Botha, "Two Floods, a Wildfire, and a Hurricane: The Role of the Canadian Armed Forces in Emergency Management," 25.

RFA. At present, IRU and Land Component Commanders do not have the authority to pre-emptively deploy or even pre-position forces in anticipation of the authorization of a pending RFA. As a result, commanders must legally wait until official guidance from the federal government is granted to deploy in support of RFAs.

Given the geographical size of the country and the CA's limited number of soldiers, delays are possible given that vast distances and remote regions are often difficult and time consuming to navigate. For example, JTF West's area of responsibility covers twenty percent of Canada's landmass, which includes Alberta, Saskatchewan, Manitoba, and a portion of Western Ontario.[61] With the majority of 1 CMBG located in Edmonton, Alberta, and two of its units based in Shilo, Manitoba (approximately 1,000 kilometers away), the rest of the division's area of responsibility is vacant of regular force elements. Some of the most recent responses to domestic operations in Western Canada included deployments to the Calgary and Lower British Columbia Mainland floods and Northern Saskatchewan wildfires. With the exception of the 2013 Calgary floods, deployments included significant travel of over 500 kilometers for IRU units. Therefore, deployments to regions outside of home station areas takes substantial time and deliberate planning. As such, an expedient RFA process is preferred to permit a speedy IRU response time. Despite the massive area of responsibility belonging to JTF West and the other RJTFs, the DND owns numerous small installations across the country.[62] These are often leveraged as staging, holding, or lodging areas to logistically support domestic operations, thereby strengthening IRU lines of communication. However, deployments to more remote areas, such the 2015 Saskatchewan wildfires, may not have this luxury whereby IRU elements are required to complete various environmental assessments and land use agreements in the event of damage to

[61] Government of Canada, "Joint Task Force West," April 5, 2018, accessed November 26, 2020, https://www.canada.ca/en/department-national-defence/services/operations/military-operations/conduct/regional-task-force/west.html.

[62] Department of National Defence, "3500-1 (G3 Ops) 1 Canadian Mechanized Brigade Group Headquarters, Op LENTUS 1803 After Action Review (AAR)," 2/6.

civilian property.[63] Lengthy deployments, coupled with burdensome administrative requirements, have the potential to delay operations, stealing valuable time from soldier response.

In accordance with IRU directives, commanders place identified IRU units on notice-to-move statuses in order to achieve desired deployment windows and also permit subordinate commander planning at the lowest levels. These notice-to-move time windows can be altered depending on the alert status determined by the commander.[64] IRUs are habitually organized into a reconnaissance group, headquarters group, vanguard sub-unit, follow-on sub-units, and main body, all of which have different notice-to-move statuses. For example, reconnaissance, headquarters, and vanguard groupings are usually deployable within twelve hours.[65] However, twelve hours is not much time if floods are peaking or wildfires are threatening a community. Therefore, having the flexibility to alter notice-to-move statuses could mean success or failure at IRU activation.

Locations

As natural disasters have intensified over the last decade, observing trends and forecasting the likely location of future natural disasters may be possible. Western Canada annually experiences hundreds of wildfires given the heavily forested areas across Alberta and British Columbia. Furthermore, depending on the status of the thawing annual snow melt, floods are quite common as experienced in the 2013 British Columbia Lower Mainland and Calgary floods. Central Canada is also prone to wildfires given its highly forested geography, but it is also susceptible to localized overland flooding. In addition, given its location relative to the Great Lakes, Southern Ontario experiences severe winter storms. Lastly, Eastern and Atlantic Canada

[63] Department of National Defence, "3350-1 (G5) Joint Task Force West Headquarters, Op LENTUS 15-02 Post Operation Report," (Edmonton, Alberta: DND, 2015), 4/6.

[64] Department of National Defence, "3120-4 (G3 Ops) 1 CMBG Contingency Plan – Immediate Reaction Unit (IRU)," C1/1.

[65] Ibid.

are also vulnerable to forest fires and overland flooding, as observed during the 2019 New Brunswick flood, but Atlantic Canada is also vulnerable to extreme winter storms and hurricanes given its geographical proximity to the Atlantic Ocean. These key areas do not comprise an exhaustive list, but trends can enable commanders to plan and prepare for future domestic operations.

The effects of climate change are being felt in the Arctic regions as well. Changes in weather patterns are being experienced across the northern region; however, one of the most significant effects is an increase in the earth's temperature that it is causing the Arctic ice to melt at an alarming rate. Although ice-shelf loss is happening quite quickly, analysts struggle to predict with precision just how quickly this is happening. However, over the past fifty years, Arctic permafrost has receded nearly eighty miles.[66] As depicted in Figure 7, some scientists suggest that the Arctic ice could completely melt during the summer season by 2030. This clearly has many connotations such as an increase in carbon emission, effects on wildlife patterns, rising sea levels, and a further increase in global temperatures.[67] Given that Canada is bordered by three oceans, the impacts of the Arctic melt will continue to be experienced by those living near the coastal regions. Not only is the sea level rising, which is threatening those communities living below or near sea-level, the higher sea levels may result in higher waves and storm surges that impact inland regions.

In terms of the domestic employment of the CAF, melting Arctic ice will result in relief efforts in Northern inhabited communities, storm clean-up, or localized evacuations along the coasts, which the CA and CAF must be ready to respond to. Many persons living in the coastal

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[66] David Wallace-Wells, *The Uninhabitable Earth: Life After Warming* (New York: Crown Publishing Group), 62.

[67] Robert W. Corell, "Challenges of Climate Change: An Arctic Perspective," *A Journal of the Human Environment* 35, no 4 (June 2006): 150-152, accessed November 26, 2020, https://www.researchgate.net/publication/6843543_Challenges_of_Climate_Change_An_Arctic_Perspective.

regions will likely be reluctant to accept that the rising sea levels will ultimately change their ways of living. Unfortunately, it often takes a disaster for humans to fully grasp the significance of an ongoing calamity. Regardless, contingency plans must be scrutinized to ensure mechanisms are in place for this eventuality. According to David Wallace-Wells, author of *The Uninhabitable Earth: Life After Warming*, ocean chemist David Archer determined that if the earth was three degrees warmer, the sea level could rise by 50 meters. To put this into perspective, this increase would completely submerge the state of Florida.[68] Therefore, the significance of climate change must be taken seriously, especially for the CA who will unavoidably be called upon to offer support.

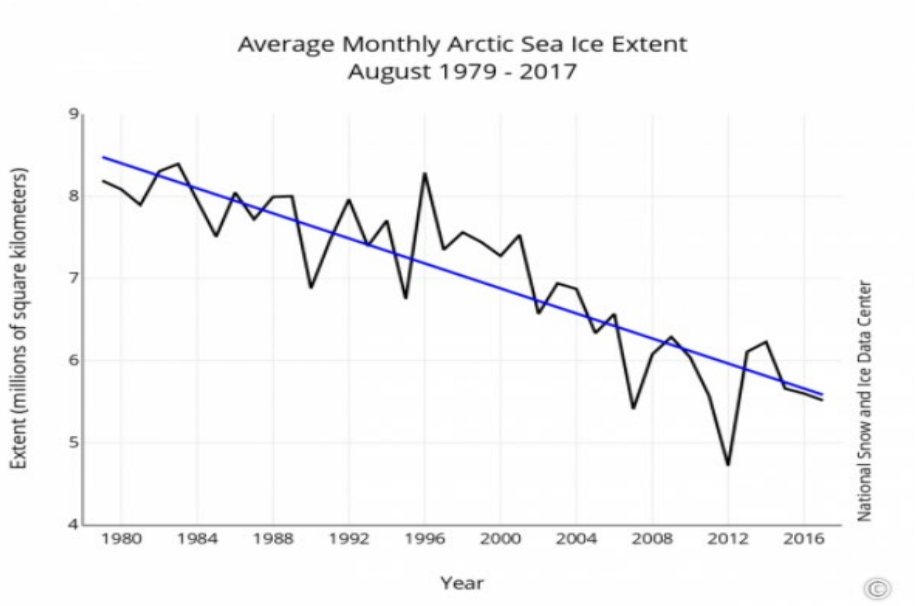

Figure 7. Receding Arctic Ice. Nick Bradford, "Diminishing Arctic Sea Ice," National Environmental Education Foundation, accessed March 12, 2021, https://www.neefusa.org/nature/water/diminishing-arctic-sea-ice.

Conclusion

As global climate change continues to increase the frequency and severity of natural disasters, the CAF, and by extension the CA, is supporting an increased number of domestic

[68] David Wallace-Wells, *The Uninhabitable Earth: Life After Warming*, 63.

operations in response to federal approved RFAs. As the MND has communicated his priorities via Canada's defense policy, *Strong, Secure, Engaged*, development and maintenance of CONPLANs that set the conditions for natural disaster relief have become the new norm. However, given other readiness and global political commitments, the CA finds itself overstretched and struggling to meet all expected demands. As such, CA senior leadership must find mechanisms to balance support to its assigned tasks while providing the world class capability it is renowned for. Therefore, the CA must have the capacity to manage operating tempo while providing the best support to Canadians, in addition to maintaining a force capable of providing exemplary effects around the world.

Recommendations

1. Employment of DLOs. Employment of DLOs within provincial emergency management offices is a highly effective mechanism to forge teamwork and shared understanding between military and civilian organizations. Although most, if not all, RJTFs are already employing this tactic, additional efficiencies are possible. DLOs not only mitigate barriers to communication between civilian and military organizations, they also build pre-existing relationships that are critical in times of disaster. Pre-establishing relationships based on trust and mutual respect provide an invaluable rapport that is critical across organizations. Continual employment of DLOs within civilian organizations is vital to ensure shared understanding. If not already employed, it is recommended that mechanisms be examined to permanently assign full-time DLOs to all provincial emergency management offices that have not already done so.

Additionally, selection criteria for individuals to fill the role of a DLO is strongly encouraged. Organizations tend to employ inexperienced and lower caliber individuals in liaison roles; however, because these individuals represent the CAF and often speak on the behalf of RJTF commanders, their selection should not be taken lightly. At a minimum, prerequisites should include being staff trained (Joint Command and Staff Programme equivalent) and

possessing the rank of major. Identified individuals must have expert knowledge of the inner workings of CJOC and RJTFs, including manning, equipment capabilities, limitations, and CAF policy as it relates to the employment of military personnel in support of domestic operations. Showcasing confidence and initiative, DLOs should have mechanisms in place to educate provincial emergency management decision makers, ensuring they are regularly updated on RJTF operating plans and how such plans could affect operations in the event of a domestic mission. Alternatively, DLOs must update the RJTF staff on significant changes internal to provincial emergency management offices that are of concern to the CAF. Lastly, selected DLOs should be responsible for regularly updating RJTF staff on provincial forecasting of natural disasters and the associated likelihood of RFAs. Where not already occurring, terms of reference should be either created or updated, ensuring all measures are being taken to hold DLOs accountable and guarantee open dialogue between the provinces and aligned RJTFs.

Lastly, DLOs must have expert knowledge in the RFA process and confidence in their ability to assist provincial emergency management offices in the drafting and submission of RFAs. Expertise of RJTF capabilities and awareness of unit operating plans is critical when informing RFA drafting. Submission of an RFA to the federal government that is written in a *language* that the CAF fully understands will significantly mitigate time delays and confusion at the RJTF and brigade level once approved. RJTFs have demonstrated a 'get it done' mentality, but mitigating delays through the proper employment of DLOs is an easy way to better achieve interoperability and provide the right capability at the preferred time and place.

2. RJTF Commander Authorities. As previously mentioned, one of the challenges associated to responding to natural disasters is lack of time. Routinely, RJTF IRU elements receive authority and guidance to commence operations after it is too late. Whether it is responding to a flood after it has peaked, deploying to fight wildfires after they have passed through a section of terrain, or arriving to a location to complete storm clean-up, CA elements seldom deploy in advance of the peak moments of a natural disaster. Early deployment of soldiers

will not only ensure the resources are in place before the peak period, but could also substantially mitigate the devastating effects of the disasters, particularly as they relate to flooding and wildfires.

Acknowledging that the onus is on the requesting organization to pay for additional resources above and beyond integral capabilities, the costs and benefits must be examined in detail in order to achieve a proper and timely deployment of resources. DLOs can influence provincial emergency management offices, but RJTF commanders should be provided with additional authority to use their judgement in the pre-positioning of resources in anticipation of federal approved support to an RFA. With DLOs integral to provincial emergency management offices having the ability to communicate between provincial and RJTF operations centers, commanders and their staff should be well armed with situational awareness on the required response. Presently, this information permits RJTF commanders to warn their subordinate commanders of possible activation, so final preparations can be made to personnel and equipment. However, based on the specific requests outlined within the RFA, it is suggested that RJTF commanders be authorized additional reconnaissance and pre-positioning authorities to achieve better response time once the RFA is approved. Depending on the location and associated distances required to respond to a natural disaster, preliminary moves could make the difference. Reconnaissance with the associated command teams should be permitted to liaise with local on-site teams to determine support efforts upon the arrival of the main force. Prepositioning forces (in particular the vanguard elements) would expedite CA integration into the civilian effort, thereby reducing time to commence operations. Lastly, given that preliminary moves would be relatively small in nature, the associated costs would likely be minimal in the rare event the GoC does not approve an RFA. Given the benefits of pre-positioning forces and the relatively low cost of such a move, it is further assessed the benefits far outweigh the associated risks of such a move.

3. Re-Examination of the MRP. With a small army and large number of global commitments, whether they are force generation or employment, the CA risks underachieving in its assigned tasks. It is suggested that the CA's MRP be adjusted to incorporate support to domestic operations, or discussions take place at the CA and Strategic Joint Staff levels to determine if assigned tasks are resourced and assigned appropriately. Over-tasking of CA divisions, to meet the MRP, could have a serious impact on CA readiness as it relates to domestic operations and operational readiness. With the increased number of natural disasters and RFAs that follow, the CA is starting to grasp the impact on force generation for expeditionary operations. Furthermore, with the same units being tasked to support a plethora of training events and operations, soldiers and their families are getting tired, which will eventually hasten operational fatigue. If the frequency and severity of natural disasters continues to increase, the quality of CAF support is likely to decrease if assigned tasks are not better managed.

4. RJTF Preparations. Regular updates to RJTF IRU plans and CJOC's CONPLAN Lentus will ensure that formations and units remain current on operational direction and guidance in anticipation of future domestic operations. This practice must continue to occur, but additional areas for improvement must still be passed up the chain of command. Given the CA's size, Canada's geographic realities, and the trend in climate change-induced natural disasters, small improvements will go a long way in mitigating confusion and deployment delays for operational units.

As CMBGs are highly diverse, TO&Es need to reflect the capabilities of all units who are assigned as IRU elements. For example, the armor regiment may not have a similar support echelon as an infantry battalion. Therefore, IRU formations could draft variation to their TO&Es to reflect this diversity. TO&Es are meant to be flexible, but having one that meets the needs of each unit will mitigate confusion once an RFA is pending or approved.

Additionally, CA units are typically required to complete environmental assessments and land use agreements when conducting training or operations on land that is not owned by the

Crown. Standard operating procedures require these to be completed prior to deployment. This does not always happen given the time required to complete the administrative process, coupled with the lack of time available when an IRU is activated, ultimately leaving the CAF vulnerable. As there are certain areas of the country more susceptible to natural disasters than others, standing environmental assessments and land use agreements need to be drafted, signed, and regularly updated to mitigate any chance of lawsuits against the Crown.

Summary

Each and every time it is required to support Canadians in need, the CA has answered the call, delivering effective and timely support. The MND is right: the defense of Canada should be the CAF's priority. Providing premier support to RFAs should always take precedence while also acknowledging that the CA has a range of assigned tasks. Among them is an expectation to maintain readiness and support expeditionary operations; therefore, planners should continuously search for areas of development across the range of military operations. Proper employment of DLOs, delegating low-risk authorities to RJTF commanders, scrutinizing the MRP, and proactively conducting future IRU preparations are relatively easy methods to facilitate better readiness. As all Canadians know, the next natural disaster is inevitable; therefore, the CA must continue to improve and enhance its already impressive reputation to provide cost efficient, proactive domestic response within and beyond its borders.

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