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Lieutenant-Colonel Scott Burke

“Strong at Home”: Combat Engineer Equipment Procurement Is Critical to DOMOPS

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Exercise Solo Flight

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Lieutenant-Colonel Scott Burke

“Strong at Home”: Combat Engineer Equipment Procurement Is Critical to DOMOPS

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“STRONG AT HOME”: COMBAT ENGINEER EQUIPMENT PROCUREMENT IS CRITICAL TO DOMOPS

Commanding Officers should be prepared for a yearly Op LENTUS deployment based on the increased frequency of climate hazards the past few years.

- Colonel Joseph Robinson, 31 CBG Fall O-Grp 2019

INTRODUCTION

In the global context, there are many key trends that are concerning to the security and livelihood of many. However, among these trends, climate change is the one trend that is so complex, divisive, and transcends historical and modern concepts of warfare. “Recognizing the devastating effects of climate change, Canada must bolster its ability to respond to severe weather events and other natural disasters, both at home and abroad.”¹ In Canada’s most recent defence policy *Strong, Secure, Engaged (SSE)*, the Canadian government outlines their new strategic vision for defending Canadian interests. This vision includes the Canadian Armed Forces (CAF) being “strong at home”² which means “ready to assist in times of natural disasters”³ associated to the devastating effects of climate change.

Key to the readiness of the CAF to respond to these climate effects is its capability to deploy task-tailored forces in domestic operations (DOMOPS). Recent and historical CAF DOMOPS involving severe weather and natural disasters have rarely relied on kinetic combat resources and more on combat support assets, such as those organic to the Canadian Army (CA) Combat Engineer Regiments. Organic Combat Engineer Regiment assets such as assault boats, temporary bridging, and heavy equipment are critical capabilities for the ready response to the various climate hazards presented year-round in Canada. However, this critical equipment is

¹ Department of National Defence, Canada. *Strong, Secure, Engaged: Canada’s Defence Policy*. (Ottawa, ON: Minister of National Defence, 2017). 57

² *Ibid.*, 14.

³ *Ibid.*, 14.

aged and in most cases beyond its life cycle for replacement. CAF and CA life cycle management and procurement of this heavy equipment will be critical to ensuring a ready response to domestic climate emergencies.

This paper will examine the CAF strategic response to domestic emergencies and conclude that a change to the common heavy equipment procurement plan is essential to ensuring the CAF satisfies its SSE strategic vision. It will first discuss the aspects of the SSE “strong at home” vision and how it impacts the CA Modernization Strategy. This discussion will demonstrate that Combat Engineer Regiment assets are critical to the ready response in DOMOPS. Next, this essay will discuss the current heavy equipment life cycle management problems and challenges to the CA plan for heavy equipment procurement. This will show the problems with the current heavy equipment fleet, and that the current replacement plan puts CAF readiness to domestic emergencies at risk. It will then discuss the procurement options outlined in the current CA heavy equipment business case submitted by CAF in 2016 to the Treasury Board of Canada Secretariat. Here the essay will assert that the equipment lease option would be more practical given the historical delays in CAF procurement. It will conclude that the current CA purchase plan for heavy equipment procurement does not meet the needs of today and an equipment lease option would better ensure CAF DOMOPS readiness now and in the future.

“STRONG AT HOME”

According to the United Nations (UN), climate change continues to exacerbate the frequency and severity of natural disasters such, as massive forest fires, droughts, hurricanes, and floods, ultimately affecting more than 39 million people in 2018⁴. In Canada’s 2017 defence

⁴ “Infographic: Climate Action,” Sustainable Development Goals, United Nations, accessed May 1, 2022, https://www.un.org/sustainabledevelopment/wp-content/uploads/2020/07/E_infographics_13.pdf.

policy review SSE, climate change was acknowledged as a key trend threatening global security and potentially “disrupting the lives and livelihoods of millions around the world.”⁵ In response to this key trend, SSE envisions a CAF “strong at home” with the capability to appropriately respond to a variety of domestic natural disasters resulting from climate change.

In the 2021 Canadian Army Modernization Strategy, army leadership built upon the climate concerns outlined in SSE and acknowledged the rising climate effects in Canada:

Domestically the frequency of Operation LENTUS deployments to assist civilian authorities has significantly risen in past years, putting pressure on the Canadian Army’s readiness and resources. Climate change is directly affecting how the Canadian Army trains for and executes its missions. It can expect continued impacts on readiness, sustainment, and force employment activities.⁶

Operation LENTUS is the named CAF domestic deployment to natural disasters and “follows an established plan of action to support communities in crisis. This plan can be adapted to multiple situations. These might take the form of forest fires, floods, ice storms, or hurricanes.”⁷

Between 2010 and 2020, there have been several Operation LENTUS’ and other named DOMOPS deployments across Canada. By year, these operations include the following response to different climate hazards⁸:

1. 2010. Operation LAMA. CAF assistance to the Province of Newfoundland for Hurricane Igor relief.
2. 2011.
 - a. Operation FORGE. CAF assistance to the Province of Ontario for northern forest fires;
 - b. Operation LUSTRE. CAF assistance to the Province of Manitoba for flooding along the Assiniboine River; and

⁵ Canada, *Strong, Secure, Engaged*... 49.

⁶ Department of National Defence, Canada. *Advancing with Purpose: The Canadian Army Modernization Strategy*. (Ottawa, ON: Canadian Army Headquarters, 2020). 7.

⁷ “Operation LENTUS,” Department of National Defence, Canada, last modified May 9, 2022, <https://www.canada.ca/en/department-national-defence/services/operations/military-operations/current-operations/operation-lentus.html>

⁸ *Ibid.*

- c. Operation LOTUS. CAF assistance to the Province of Quebec for flooding in the Monteregie region.
3. 2013. Operation LENTUS 13-01. CAF assistance to the Province of Alberta for flooding in the Southern Alberta region.
4. 2014.
 - a. Operation LENTUS 14-01, 14-02, and 14-03. CAF assistance to several communities in Northern Ontario due to spring flooding; and
 - b. Operation LENTUS 14-05. CAF assistance to the Province of Manitoba for intense flooding.
5. 2015.
 - a. Operation LENTUS 15-01. CAF assistance to several communities in Northern Ontario due to spring flooding; and
 - b. Operation LENTUS 15-02. CAF assistance to the Province of Saskatchewan for Northern forest fires.
6. 2016. Operation LENTUS 16-01. CAF assistance to the Province of Alberta for the forest fires in Fort McMurray.
7. 2017. Operation LENTUS Western Canada. CAF assistance to the Provinces of Manitoba and British Columbia for severe forests fires.
8. 2018. Several Operation LENTUS deployments nationwide.
 - a. Spring floods in Northern Ontario, New Brunswick, and British Columbia;
 - b. Forest fires in Manitoba and British Columbia; and
 - c. Winter storm assistance to Eastern Quebec and the Maritime Provinces.
9. 2019. Several Operation LENTUS deployments nationwide.
 - a. Spring floods in Northern Ontario, New Brunswick, and British Columbia.
 - b. First Nations evacuations because of forest fires in Manitoba.
 - c. CAF assistance to the Province of Nova Scotia for Hurricane Dorian relief.

10. 2020. Operation LENTUS 20. Winter storm assistance to the Province of Newfoundland.

By analyzing the DOMOPS data over the past decade, it becomes clear why “strong at home” is a key component of the strategic vision set out in SSE, since all provinces are impacted by climate hazards. Further, this data also reveals that DOMOPS in Canada requires specialized capabilities and task-tailored forces that greatly differ from conventional warfare.

Since 2010, CAF DOMOPS have mainly focused on three main types of climate hazards: Forest fires; hurricane/flood relief; and winter storms. Historically, the common tasks required for these climate hazards greatly differ from kinetic combat operations and include:⁹

1. Creating fire breaks;
2. Moving earth and deadfall;
3. Filling and moving sandbags;
4. Installing aqua dams and protective Hesco barriers;
5. Reinforcing and constructing dykes;
6. Temporary bridging;
7. Civilian evacuation through ground transport and watercraft;
8. Opening and maintaining civilian roadways;
9. Removal of snow negatively affecting key infrastructure;
10. Wellness checks on the local population; and
11. Delivery of critical provisions.

When these tasks are examined, it becomes clear that the specialized capabilities required centre around heavy equipment, such as backhoes and dump trucks. In the CAF, this type of heavy equipment is mostly organic to CA Primary Reserve and Regular Force Combat Engineer

⁹ “Operation LENTUS.”

Regiments across Canada. As a result, the maintenance, lifecycle management, and procurement of this heavy equipment is critical to ensuring the CAF is capable and ready to respond to domestic emergencies from coast to coast as outlined in the SSE “strong at home” vision.

CAF HEAVY EQUIPMENT PROCUREMENT NEEDS

In August 2016, one year prior to the release of SSE, the CA Director Land Requirements (DLR) submitted the business case for the Common Heavy Equipment Replacement (CHER) procurement project to the Treasury Board of Canada Secretariat. This business case outlines the current CAF heavy equipment life cycle management problems and the risk they pose to the CAF. According to the business case:

The current Heavy Support Equipment fleet contains worn out equipment up to thirty-three (33) years old; most of vehicles have surpassed their useful life, and are simply obsolete. The equipment requires a level of maintenance that cannot be economically sustained, nor can it be practically life-extended as some original equipment manufacturers are no longer in business; resulting in fleet attrition because of continual break-downs coupled with a simple lack of repair components.¹⁰

This business case was written under the former defence policy issued under the Harper government. However, despite being submitted under the former defence policy mandate, the need for heavy equipment replacement has not changed.

In SSE, the Trudeau government acknowledges the need for “stable, predictable, realistic funding”¹¹ to ensure CAF capabilities and new initiatives satisfy the SSE strategic vision. The long-term funding model outlined in SSE includes investments in the CA which also included modern “logistics vehicles, heavy engineer equipment and light utility vehicles.”¹² Despite this

¹⁰ Treasury Board Secretariat, Canada. *Business Case: Common Heavy Equipment Replacement*. (Ottawa, ON: Canadian Army – Director Land Requirements, 2016). 2.

¹¹ Canada, *Strong, Secure, Engaged...* 43.

¹² *Ibid.*, 37.

renewed commitment, the SSE has also acknowledged that CAF procurement projects have a historically poor track record for completion, finding “70 per cent of all defence procurement projects were not delivered on time.”¹³

Even after acknowledging the poor CAF procurement track record in SSE, the current Canadian government’s performance still has not improved according to an April 2022 CBC report. In this report, former Commander of the CA and recent Member of Parliament, retired Lieutenant-General Andrew Leslie is quoted saying, “you can promise the moon and stars. If you can’t get money out the door then it’s of no value”¹⁴ referring to what he claimed was the government’s failure to break down bureaucratic barriers in the procurement process.¹⁵ General Leslie’s comments serve to illustrate the political nature of CAF defence procurement. This is further emphasized in a 2019 Canadian Global Affairs Institute article on defence procurement which states:

The nature of elections, cabinet and deputy ministerial shuffles can likewise slow down the procurement process. After the Harper government took power from the Martin government in 2006, it halted ongoing procurement projects for several months, pending a review. The Trudeau government undertook a similar exercise with the controversial \$700-million interim supply ship contract inked with Quebec-based Davie Shipyard by the outgoing Harper government in 2015. The Liberals waited till 2017 before publishing a defence policy with new MCP (major Crown project) commitments... The current minority government situation likely complicates the political stability surrounding defence procurement whereby an ambitious but not politically popular activity like bureaucratic procurement reform is a less enticing exercise to pursuer amid an uncertain legislative calendar.¹⁶

¹³ Jeffrey Collins, “Defence Procurement Canada: Opportunities and Constraints,” *Canadian Global Affairs Institute*, December 2019, https://www.cgai.ca/defence_procurement_canada_opportunities_and_constraints.

¹⁴ Christian Paas-Lang, “Canadian Forces in desperate need of new spending, procurement follow-through, experts say,” *CBC News*, April 2, 2022, <https://www.cbc.ca/radio/thehouse/military-spending-federal-budget-1.6406437>.

¹⁵ *Ibid.*

¹⁶ Collins, *Defence Procurement Canada...*

Unfortunately, the political realities of the CAF procurement process and its associated delays in procuring critical CAF equipment increases the risk in domestic emergencies and jeopardizes the CAF readiness and response to such emergencies.

According to recent a DLR project update briefing, the CHER project is now scheduled to finish March 2030 opposed to the original date of December 2023. Delays to this procurement project have already occurred based on COVID-19 staffing impacts and the slow release of Request for Proposal (RFP) documents in the procurement process.¹⁷ As a result, the current schedule for replacing critical heavy equipment is still eight years away, 13 years after mentioned in SSE, and 14 years after the business case for CHER was submitted to the Treasury Board of Canada Secretariat. Further, based on this timeline, the realities of the political nature in the CAF procurement process pose additional risk to the completion of the CHER project. The next federal election will occur no later than October 20, 2025, with the following election being four calendar years later.¹⁸ What this means is that CHER is subject to two potential changes of government between now and the finishing of the project. Given the history of halting procurement projects when a change of government occurs, it is reasonable to assume further delays of critical heavy equipment procurement will occur based on the current CHER completion timeline.

¹⁷ Department of National Defence, Canada. *DRMIS Projects System Project Details Report May 16, 2022*, (Ottawa, ON: Canadian Army Headquarters, 2022). 2.

¹⁸ “FAQs on Elections,” Elections, Canada, accessed May 9, 2022, <https://www.elections.ca/content.aspx?section=vot&dir=faq&document=faquelec&lang=e#a10>.

CHER OPTIONS AND RECOMMENDATION

The CHER business case submitted in 2016 considered three options for further analysis by the Treasury Board of Canada Secretariat: Option 1 - Maintain the status quo (repair when possible and rent if required); Option 2 - Procure a new fleet; and Option 3 - Lease a replacement fleet. An analysis was conducted by DLR that assessed these options by six evaluation criteria detailed in the below table (table 1)¹⁹:

Evaluation Criteria	Description
Operational Benefit (Strategic Alignment)	The selected option will provide the right equipment to the Canadian Armed Forces in line with the missions assigned by the Government of Canada
Operational Benefit (Protection)	The ability to protect an operator while working in permissive and non-permissive environments
Operational Benefit (Mobility)	The ability to move toward a military objective (tactical, operational, and strategic levels)
Operational Benefit (Effect)	The ability to complete assigned tasks throughout the range of climatic conditions
Operational Benefit (Sustainability)	The ability to be supported across multiple locations and sets of circumstances, while minimizing the consumption of resources
Affordability	The proposed solution is affordable and sustainable

Table 1 – CHER Evaluation Criterion

The analysis by DLR rated these criteria by each option as poor, marginal, and good. The findings of this qualitative analysis were as outlined in the following table (table 2)²⁰:

Evaluation Criteria	Maintain Status Quo (Option 1)	Procure New Fleet (Option 2)	Lease Replacement Fleet (Option 3)
Operational Benefit (Strategic Alignment)	Poor	Good	Good
Operational Benefit (Protection)	Poor	Good	Good
Operational Benefit (Mobility)	Good	Good	Good
Operational Benefit (Effect)	Poor	Good	Good
Operational Benefit (Sustainability)	Poor	Good	Good
Affordability	Marginal	Good	Marginal
Overall Summary	Non-viable - Retained as baseline	Viable	Viable

Table 2 – CHER Qualitative Analysis Summary

¹⁹ Canada, *Business Case: Common Heavy Equipment Replacement...* 28.

²⁰ Canada, *Business Case: Common Heavy Equipment Replacement...* 30.

Based on this CHER qualitative analysis at the time, option 2 - procure a new fleet, was the recommendation.

After reviewing the 2016 CHER business case, anyone can appreciate the detailed analysis of the CAF heavy equipment life cycle management problems and understand why option 2 could have been a viable and preferred option at the time. However, it is now six years later, and the CAF heavy equipment fleet remains the status quo and option 2 is at least eight years from completion because of bureaucratic and COVID-19 delays. Further, it was mentioned before that CHER is at risk of additional delays based on the political nature of the CAF procurement process. As a result, this essay argues that option 3 to lease a replacement fleet, is now the better and more viable CHER option to meet the needs of today and to ensure CAF DOMOPS readiness now and in the future.

In 2016, the main reason for recommending option 2 centred around the potential additional costs associated with option 3. Based on the business case analysis, a capital lease contract, in which the CAF would lease-to-own, would be the preferred lease option since “vendor consultation indicated that indemnity clauses would be immaterial, as preservation of resale value and the costs of removing military modifications are not a consideration, given that the department remains responsible for the complete lease-to-own financial commitment.”²¹ Despite the mitigation of potential indemnity costs, the business case estimated that a capital lease contract would still be 14.6% more expensive than procuring a new fleet. However, it also found that by utilizing a capital lease, it “would allow the Department to more easily fit the cost

²¹ Canada, *Business Case: Common Heavy Equipment Replacement...* 30.

of new equipment within its Vote 1 [operating costs] or Vote 5 [capital costs]²² budget, thereby avoiding the large initial capital expenditure.

It is this ability for the CAF to stay within their current Vote 1 or Vote 5 budget that makes option 3 the more viable and better option today based on current and potential future project delays. As outlined in the business case, most of the heavy equipment in the fleet is commercial-off-the-shelf (COTS) versus ones modified with armour for combat operations. As a result, the CAF could more rapidly replace most of its fleet through capital leases while tendering for the remaining smaller armoured portion of the fleet. Further, capital leases are typically in five-year periods and would provide the CAF flexibility by getting needed equipment fielded now, while giving the CAF a purchase option at the end of the period. Despite the additional cost of the capital lease option, the CAF can no longer wait for a drawn-out bureaucratic procurement process to replace the obsolete fleet as demand for this equipment increases with the frequency of DOMOPS in Canada. This is especially true as “the Department of National Defence failed to spend more than \$1.2 billion of its allotted budget²³” in the 2020-21 fiscal year due to delays in new equipment acquisition resulting from the poor and timely CAF procurement processes.

²² Canada, *Business Case: Common Heavy Equipment Replacement...* 41.

²³ Lee Berthiaume, “Defence Department Failed to Spend \$1.2B in Funding Last Year, Most Due to Delays,” *Richmond News*, February 10, 2022, <https://www.richmond-news.com/national-news/defence-department-failed-to-spend-12b-in-funding-last-year-most-due-to-delays-5049808>.

CONCLUSION

In SSE, the Government of Canada identified climate change as a key security concern to the livelihood of Canadians. As a result, SSE outlines a strategic vision for the CAF that includes being “strong at home” by ensuring the CAF is ready to respond to DOMOPS associated to climate hazards, such as forest fires, hurricane/flood assistance, or ice storms. When examining the tasks related to these DOMOPS, it becomes clear that specialized capabilities are required that centred around heavy equipment, such as backhoes and dump trucks that are organic to Combat Engineer Regiments. However, the current CAF heavy equipment fleet has surpassed its useful life and is simply obsolete. As a result, the CAF heavy equipment procurement plan is critical to satisfying the SSE “strong at home” vision. Unfortunately, the CAF heavy equipment procurement plan, CHER, was submitted in 2016 and has seen project delays based on COVID-19 and bureaucratic issues in the CAF procurement process. CHER is now estimated to finish in 2030, leaving Canadians at risk when the CAF is unable to respond with obsolete equipment over the next eight years.

As a result, this essay has argued that the CAF should change their CHER procurement plan to a capital lease option oppose to a lengthy procurement process to purchase an entire new fleet. Most of the heavy equipment fleet consists of COTS equipment and requires no military modification for DOMOPS needs. Despite the additional cost, a capital lease option for COTS equipment could be contracted under existing Vote 1 or Vote 5 budgets and would avoid the large initial expense. Capital lease contracts are typically five-year periods and would provide the CAF flexibility by getting needed equipment fielded now, while giving the CAF a purchase option at the end of the period. Despite the additional costs of a capital lease option, the CAF needs this equipment now to ensure ready response to DOMOPS mentioned in the “strong at

home” SSE vision. Unfortunately, the CAF continues to have a poor history of completing procurement projects on schedule and being delayed by bureaucratic problems. The CHER project has suffered from these same procurement problems and remains exposed to potential future delays. It is time for the CAF to determine exactly what the secondary impacts have been to its heavy equipment training system and other operational needs based on these CHER procurement project delays to better understand the full risk of inaction and attempts to save money.

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