

A Short Essay on National Defence Policy Review

Prepared for the Honourable Harjit S. Sajjan, Minister of National Defence

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Reference: Defence Policy Review Consultation Paper 2016

In response to the Hon Minister Sajjan's request to respond to key consultation questions posed in the Reference paper, I am pleased to submit the following short essay response to three general topics:

1. Challenges to Canada's Security.

Canada shares the world stage with some of the most important alliances on the planet; most importantly NORAD and NATO. It also shares privileged defence and Security information with the other members of the 5 Eyes nations, US, UK, Australia, New Zealand. These alliances have served the objectives of the Canada First Defence Strategy over the past several decades, and will continue to do so well in to the future. However, the world in which we live is also rapidly changing. We now live in an interconnected world with unprecedented levels of service, and data exchange at our fingertips. Whether it is checking the latest update on social media at home, or a soldier on some remote battlefield, people are not only coming to expect this connectivity in the everyday lives, they are becoming dependent on it. This is driving the trend for smarter, more efficient networks, autonomous systems, applied artificial intelligence, and machine to machine transactions and the like. While the technology revolution offers great advantages in a connected world, it also at the same time gives rise to new threats that can be exploited by non-traditional adversaries in new ways. In turn that creates a need for better security systems (Cyber and Space) in order to protect vulnerable networks and data.

Therefore, it remains the role of the Canadian Armed Forces to address and counter these challenges wherever they may arise. This mission also requires the clear, strong, and unwavering support of the government combined with the moral support of Canadians on the home front.

2. The role of the Canadian Armed Forces in addressing current and future threats.

It has been shown over and over again that when the Canadian Armed Forces are equipped to carry out the main goals of the Governments Defence Policy, either alone or in harmony with our allies, they are also capable of carrying out the vast majority of subtasks or specialized missions that the Canadian government chooses to undertake. These missions traditionally include things such as peacekeeping, Search and Rescue, disaster relief / humanitarian assistance, aide to the civil power, and antipiracy operations to name a few. Although Defence of Canada and North America is foremost in Defence policy, most hardware and operational units are formed are expeditionary in nature. Canada should accept the fact that most major international operations will be led by a major power (likely the US) and Canada's contribution although significant by national standards may be minimal in physical numbers. Thus for Canada to achieve its desired political outcome, it must leverage technological advantages and its forces must integrate and operate seamlessly with our allies Armed Forces. The CAF must be agile and adaptive enough to deploy wherever and whenever needed. Continued close cooperation within key alliances such as NORAD and NATO will help to ensure Canada remains at the forefront of advanced

technologies that are a necessity to be able to provide the flexibility and adaptability to react to multiple mission needs at home and aboard in an affordable manner.

Emerging threats, combined with the rapid advancement and proliferation of new technologies in an interconnected world (Artificial Intelligence, Unmanned Systems and Sensors, Internet of Things, Nano Technologies, Bioengineering are a few things that come to mind) are at the same time facilitating, and challenging the way we live and do commerce globally. The modernized CAF must be equipped and trained to defend against, and to a certain degree be able to exploit these new technologies – specifically increased capabilities in the areas of Cyber security, Space-based surveillance, survivable communications and networks, unmanned vehicles and sensors, and applications of AI.

The role of DND, supported by the whole of Government, is to ensure that the CAF is able to carry out and complete these missions in a manner acceptable to the Canadian public. In today's world that requires the government to foster a strong aerospace and defence industry cooperation to ensure a technical advantage for the CAF and to build the skills, knowledge, and training, of the defence industry in Canada to support the CAF for generations to come.

3. The resources and capabilities needed to carry out the CAF mandate

Designing a defence policy and posture based on the myriad of current and future threats is a daunting undertaking. A key tenet has always been to train and equip the CAF with the right equipment, at the right time for the right price to accomplish the mission of the government. To combat the potential harm from traditional and emerging threats effectively the objectives of Defence Policy, and Canada's Innovation & Science Agenda in particular need to be inexorably linked together. The Canadian Aerospace and Defence industries are uniquely placed to assist. This section will attempt to address two key elements of that objective – procurement of equipment and training.

Defence Procurement in Canada needs to support and leverage all levels of the value chain from OEM / Primes, Tier 1 systems providers, and Canadian SME sub-system providers. Attracting large-scale investment of multinational Defence companies is fundamental to securing jobs, R&D investment, stability and long-term viability of the Defence industry in Canada. Typically, support by the Canadian Government of these large foreign OEM or Tier 1 organizations take the form of tax incentives for in-country R&D and mandatory ITB contributions. However, key factors for most large multinational corporations in deciding on where to invest capital on new technologies or capabilities often has more to do with market access (return on investment), skilled and affordable work force, and retention of IP rights than on tax rates or fulfilling offset obligations. Canada needs to do a better job of providing predictable, reliable funding for major defence programs and working with industry to promote the tremendous value and diversity of large & SMEs in this country. This may include making "off the shelf" procurement decisions for major weapon systems from foreign OEMs where none exist in Canada, such as was done to acquire the C-17, C-130J and CH47 fleets of aircraft, however should also include funded development programs in Canada for technologies that can be developed locally. The US in particular has benefited greatly through the practice of leveraging their industrial base, in partnership with government labs and research institutions, to create new products and services. Many of the innovations we enjoy in the commercial market space today would not exist without these investments.

The Canadian government should continue to strive for in-country content on major equipment acquisitions by providing a business model that entice Primes to create profitable partnerships with domestic companies to participate in the development and delivery of best value solutions for the CAF. By enticing large Defence primes to conduct business in Canada and deliver world-class capabilities to our soliders, with the support of local companies, Canada's defence industry will be on a trajectory for long-term prosperity. Additionally the CAF should be encouraged to test, use and certify Canadian R&D projects for their own and international use (within export control guidelines).

The government procurement process has undergone significant changes in the last few years with the intent of streamlining the approval process and engaging industry earlier and more often. While these are noble intentions, changing the culture throughout the entire organization is difficult and needs to be encouraged. A review of the Single Point of Accountability for major programs could also be considered.

In times of strong economic growth, the CAF faces increased competition for the best and brightest talent coming out of our schools and universities. A more robust, equipped and funded ready Reserve program in Canada could help to bridge that gap, particularly in high technology fields as well as providing a rewarding and meaningful career path for new entry level members of the CAF.

Finally, training requirements have increased as systems become more complex, and the cost of training and realistic combined force exercises continues to skyrocket. Significant advances are being made in the area of virtual reality and application of Live / Virtual / Constructive training systems that offer substantial savings in the cost of delivering high quality, realistic training. Canadian industry and academic institutions, like our key allies, are rapidly developing world class expertise in this area. While there are several other areas equally deserving of special attention, simulation and training systems fits very well with the CAF mandate, core capabilities in Canada, and market opportunities.