



National
Defence

Défense
nationale



Environmental Factors and Force Development

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- Force and Capability Development Initiatives
- Future Planning Factors
- Allied Perspectives
- Canadian Defence Policy



- The continual process by which the Canadian Armed Forces evolve to meet new and emerging threats
- This involves changing or upgrading the platforms we operate, the way we organize and train our people and the manner in which we conduct missions directed by the Government of Canada
- This activity is about more than simply considering technological evolution – it requires conceptual thought
 - The tank was a curiosity in WWI, hardly a decisive game changer – it was the organization of fighting units into combined arms teams that changed the face of modern warfare
 - The integrated circuit and microprocessor improved the speed and accuracy of calculations – the concept of a globally accessible information repository, electronic banking and a connected world have changed our landscape along with the things that threaten it



- We cannot predict the future
 - The best we can do is forward project trends, derive the military implications from those trends and select a set of capabilities that is adaptable to the widest affordable range of contingencies
- The defence reality of Canada is not fixed: our place in the world and Canadian interests evolve
 - Israel needs to preserve the Jewish state against enemies on all sides
 - North Korea needs to ensure survival of the Kim regime
 - Several smaller European nations only need to concern themselves with continental defence and remaining relevant to NATO
 - Canada needs to provide for the security of its citizens while being able to project power where and when the Government dictates in service of the national interest

Force Development Continuum



- Force Development activities are organized along a continuum based on four pillars

Conceive

- What challenges will the CAF face in the future?
- In what context will those challenges arise?
- How might the CAF operate in light of these challenges?
- 20+ year view
- Primary output is a description of conceptual approaches to operations
- This drives experimentation and research

Design

- What do we need to change in order to adopt the future conceptual approaches
- 10-20 year view
- Capability Based Planning projects capability gaps within future operating scenarios
- Projects, to include incorporation of new technologies, doctrinal and structural changes are initiated to avoid or close gaps

Build

- How much capability do we need?
- How versatile do we need it to be?
- Which capabilities are more important than others?
- 5-10 year view
- Project specifications are validated and procurement activities accelerate
- Management of the investment plan

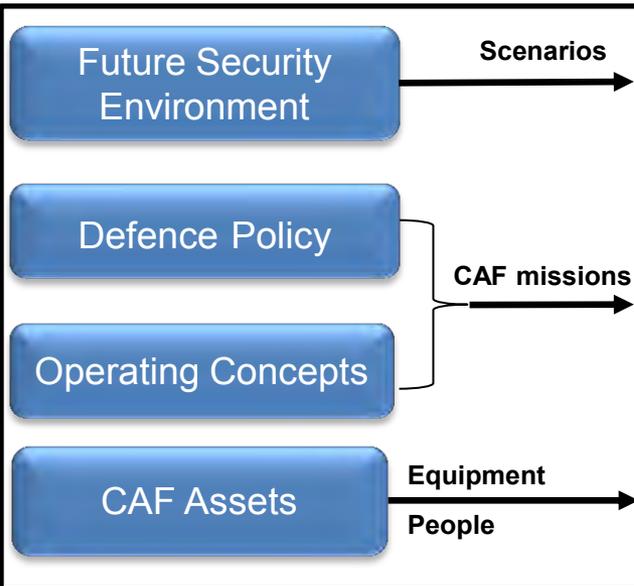
Manage

- How are we operating the equipment?
- Are we getting it right?
- Which improvements are required?
- 0-5 year view
- Involves training activities and actual operations
- Lessons learned are fed back into the continuum

Lessons Learned / Urgent Operational Requirements / Capability Deficiencies

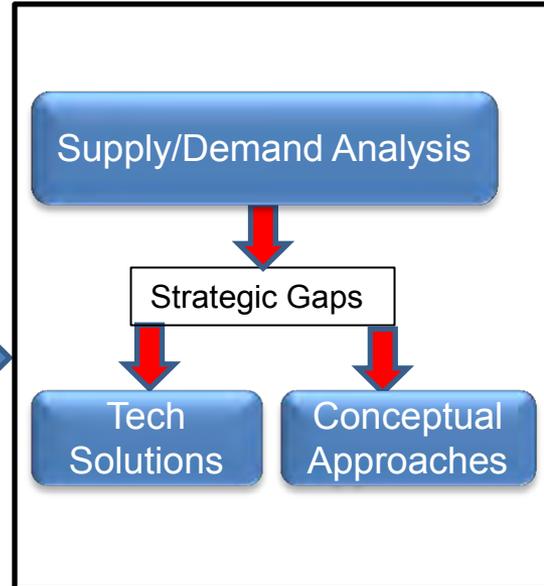


Step 1 – Establish Context



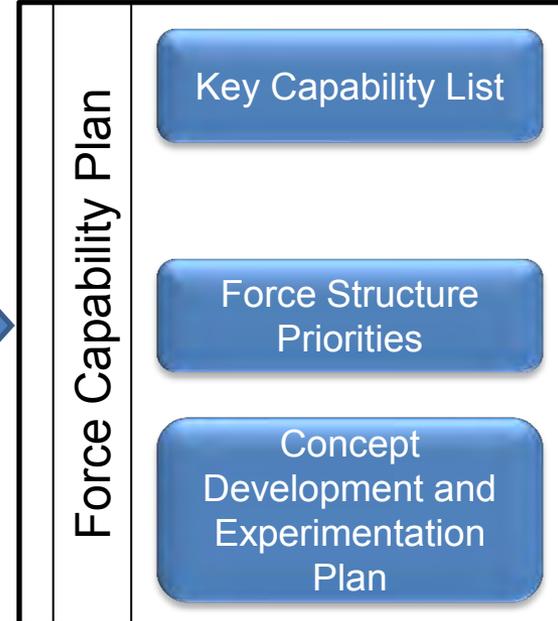
Step 1 involves updating futures work, validation of operating concepts and determination of future force attributes. This answers questions listed in the conceive pillar.

Step 2 – Determine Requirements



The challenges of executing CAF missions in the scenarios are rated. The ability of our people and equipment to meet these challenges is also rated.

Step 3 – Leadership Choice



Solicit senior level guidance on force design recommendations.

Produce subordinate plans and direction to the CAF.



- Climate change will make the Arctic more accessible
 - Resource exploration (both land and maritime based)
 - International navigation and exploration
 - The arctic itself will become a carbon contributor as permafrost melts
- Climate change will produce more extreme weather events
 - This will affect us at home as well as drive additional deployments, potentially concurrently (increase in NEO, HODR)
 - Climate refugees will contribute to the increasing trend of human migration
- Climate change is seen as a threat multiplier
 - It will exacerbate conditions further towards extremes
 - Many of these relationships are cyclical



- Fossil fuels will decline in terms of domestic relevance
 - Increased scarcity of host nation support for fossil fuels
 - Some oil producing nations may become economically impoverished and could become instability hotspots
- Water security will become a significant factor
 - 40% of the world could experience water stress by 2045
 - will need to arrive self sufficient or even find ways to give back to local water sources
- Food security will become an increasing factor
 - Loss of arable land
 - Spike in commodity prices
 - Increased vulnerability when faced with natural disasters/loss of production capacity
- Globally connected markets will broaden the impact of locally acute situations



- Western Allies will be the first hit by aging populations and declining workforce availability
 - Fewer forces may be available to respond to both security and humanitarian situations
- Highest increases in urbanization rates will take place in least developed countries
 - Urban operations present myriad operational challenges and offer even less space for military forces to maneuver, live and support themselves
- Human migration, to include climate refugees will continue to be a byproduct of and a contributor to instability situations
 - Virtually all operations will have a refugee component, further challenging military logistic networks



- **United Kingdom**
 - Climate Change is well nested in virtually all force planning activities
- **NEW ZEALAND**
 - 2016 White Paper outlines force planning guidance for humanitarian assistance and disaster relief operations
- **United States**
 - Gaining increased prominence in their thinking but the tangible path forward remains unclear
- **Australia**
 - Emphasize climate change, Indo-Pacific situations out of necessity
- **NATO**
 - Increased prominence of NATO response to disasters in future alliance operations



- National Defence represents more than half of the Government's greenhouse gas emissions and has a plan to reduce these emissions by 40 percent of the 2005 levels by 2030
- Looking to reduce the footprint of domestic installations
 - Energy performance contracts
 - Alternative sources
 - 20 percent of non military vehicles will be hybrid and electric by 2020
- Investing \$225 million by 2020 in a wide range of infrastructure projects to reduce the carbon footprint of defence
- All new construction and major infrastructure recapitalization will adhere to the Silver Leadership in Energy and Environmental Design (LEED) standard or equivalent
- Alternative energy sources for use on operations are also being considered



- Canadian Force Development analysis builds environmental factors into the planning scenarios to draw out relevant deductions in operational context
- This analysis quantifies the nature and complexity of the challenge and rates our projected ability to meet it with known investment levels
- The difference is expressed as strategic capability gaps that we are now free to apply mitigation strategies against
- Some challenges may be addressed through technology
 - Alternative energy sources
 - More efficient practices and management of waste
- Some challenges need to be addressed through a conceptual lens
 - For example, what is the structure of a Disaster Assistance response team?
 - Do we need many?
 - What capabilities do they require to operate in future environments?



- Climate change is a threat multiplier, but how that reflects on broad FD and future considerations is under consideration
- How can our perspective on climate change enhance capability and force development in the Canadian Armed Forces?
- Do we, or should we, force design for climate change?
 - What would that look like in the CAF?



Questions

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