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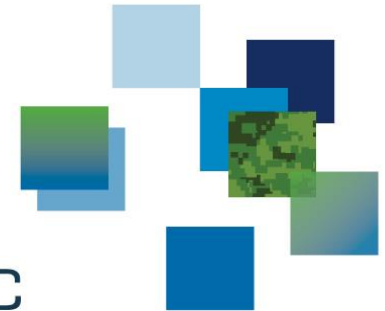
Recherche et développement
pour la défense Canada

Canada's Evolving Risk Profile

Matt Godsoe

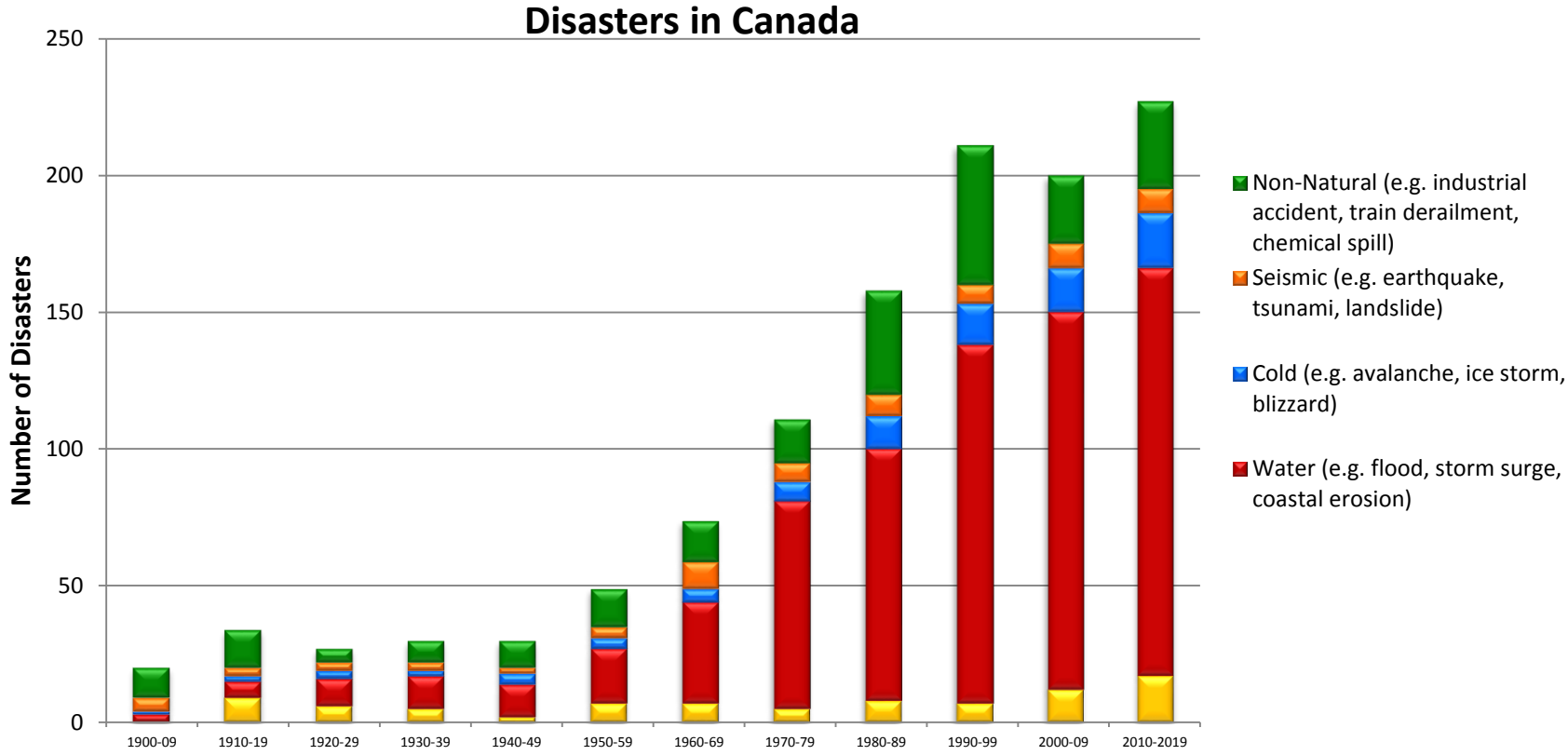
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Canada 

Disaster Trends in Canada



Emergency Management

Four Components of Emergency Management



The problem...

"We are pleased to launch the National Disaster Mitigation Program today as we shift towards a proactive disaster relief model that better allows us to identify, plan for, and prevent flood risks and the costs that Canadians incur as a result of flooding. This important investment will help reduce flood-related costs for all levels of government and help Canadians in **high-risk communities** avoid the heartache associated with reoccurring flooding across Canada."

The Honourable Steven Blaney
Former Minister of Public Safety
April 17, 2015

The Importance of Risk Assessments

- The ***Emergency Management Act (2007)*** requires each Federal Minister to “Identify the risks that are within or related to his or her area of responsibility.”
- The ***Federal/Provincial/Territorial (F/P/T) EM Framework for Canada (2011)*** states “...that sound emergency management decision-making will be based on an understanding and evaluation of hazards, risks and vulnerabilities.”
- The **U.N. Sendai Framework for Disaster Risk Reduction** states “Policies and practices for disaster risk management should be based on an understanding of disaster risk in all its dimensions of vulnerability, capacity, exposure of persons and assets, hazard characteristics and the environment.
- In December 2015, Federal ADM Emergency Management Committee identified exploring development of a **National Risk Profile** for Canada as a key priority.

Towards a National Risk Profile (OECD, 2009)

- Risk assessments provide policymakers with **information** that is **instrumental to steering mitigation investments** toward producing their greatest economic and societal benefit.
- When countries under study have instituted collaborative mechanisms to **leverage multiple sources of expertise and data** it improves the reliability and credibility of information used to quantify the likelihood and impacts of uncertain events.
- Carrying out **technical risk assessments remains the task of specialized public bodies**, which in most countries under study do not have administrative affiliation to one another through a consolidated ministry or other form of coordinated mechanism.
- Without **a tool** such as the "National Risk Assessment", it may be difficult for top level policymakers **to make informed decisions** on the relative benefits of buying down risks to public health, safety or security through mitigation investments.

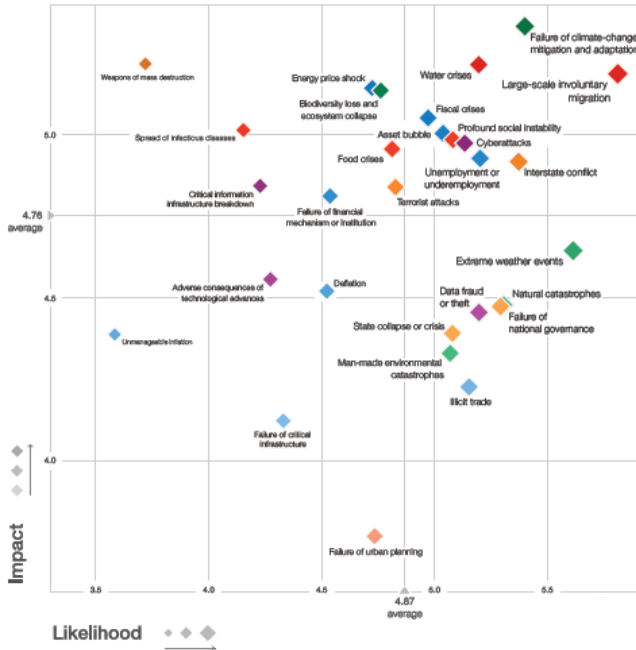
Federal Terminology

Risk: The combination of the likelihood and the consequence of a specified hazard being realized; refers to the vulnerability, proximity or exposure to hazards, which affects the likelihood of adverse impact.

Risk assessment : The product or process which collects information and assigns values to risks for the purpose of informing priorities, developing or comparing courses of action, and informing decision making.

Risk profile: A description of an aggregate view of existing management practices, common vulnerabilities, risk tolerance and key interdependencies concerning particular risk scenarios, as well as an assessment of their relative likelihood, consequences and priority.

World Economic Forum - Global Risks Report

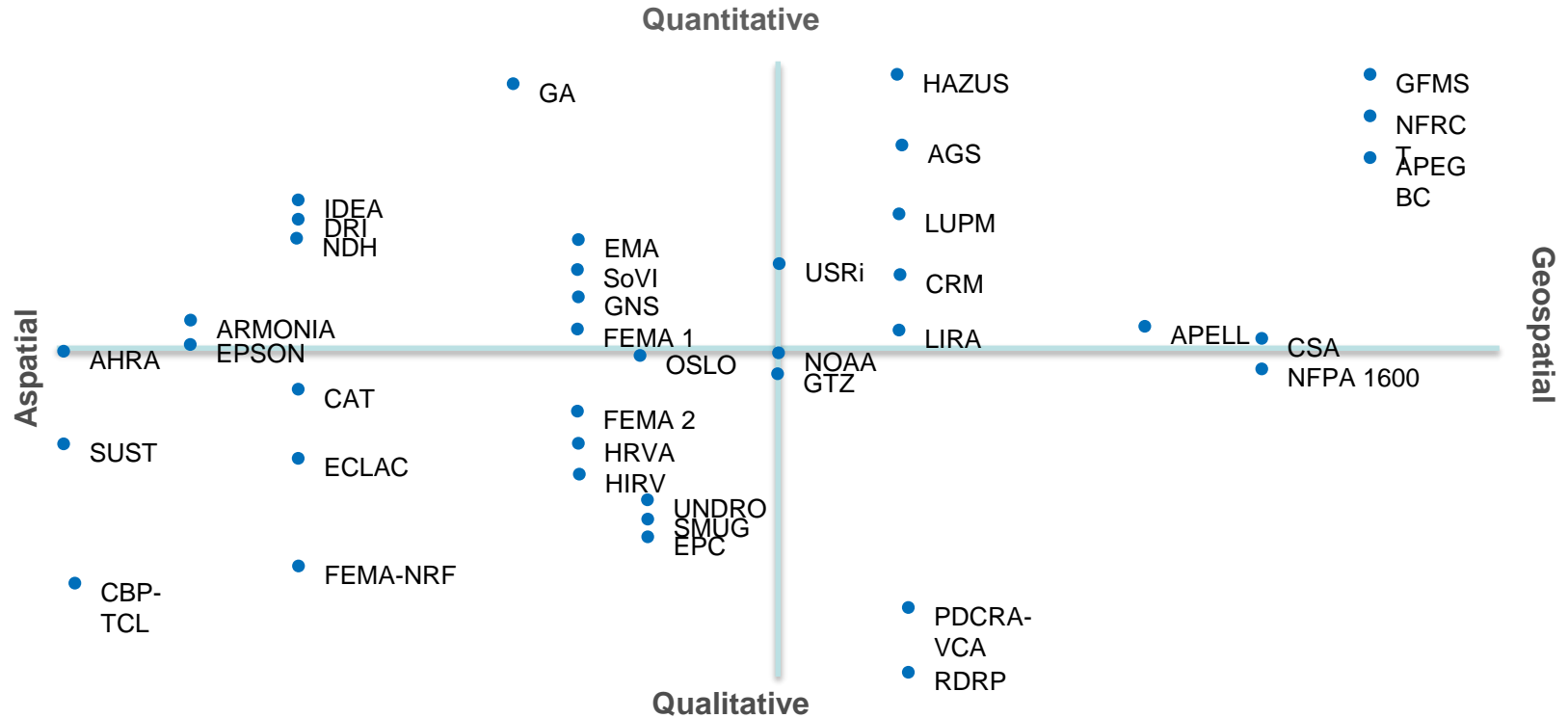


The 2016 Report departure from past findings, as the previous risks are starting to manifest themselves in new, sometimes unexpected ways and harm people, institutions and economies.

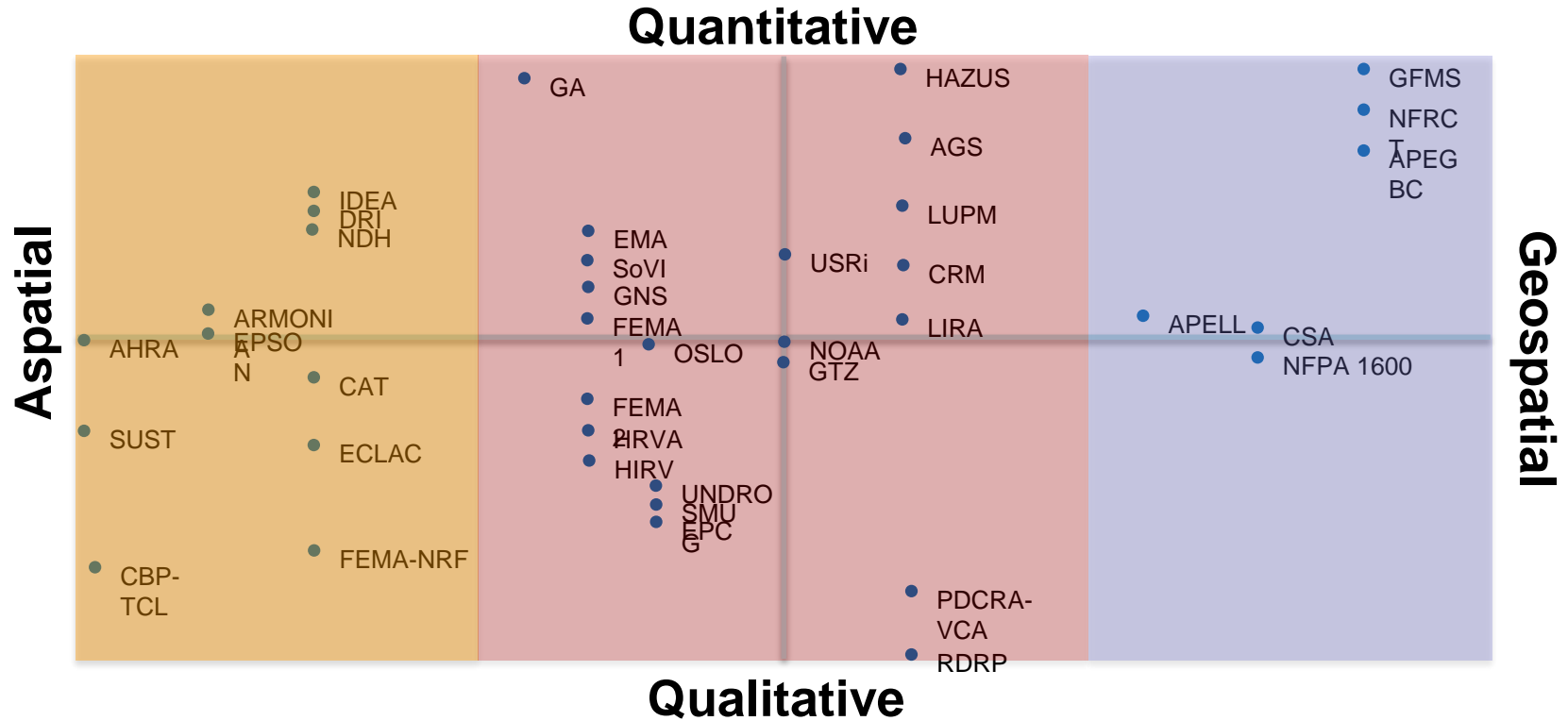
- Warming climate is likely to raise this year’s temperature to 1°C.
- 60M people, the largest in recent history, are forcibly displaced, and
- Crimes in cyberspace cost the global economy US\$445 billion.

In this context, the Report calls for action to build resilience – the “resilience imperative” – and identifies practical examples.

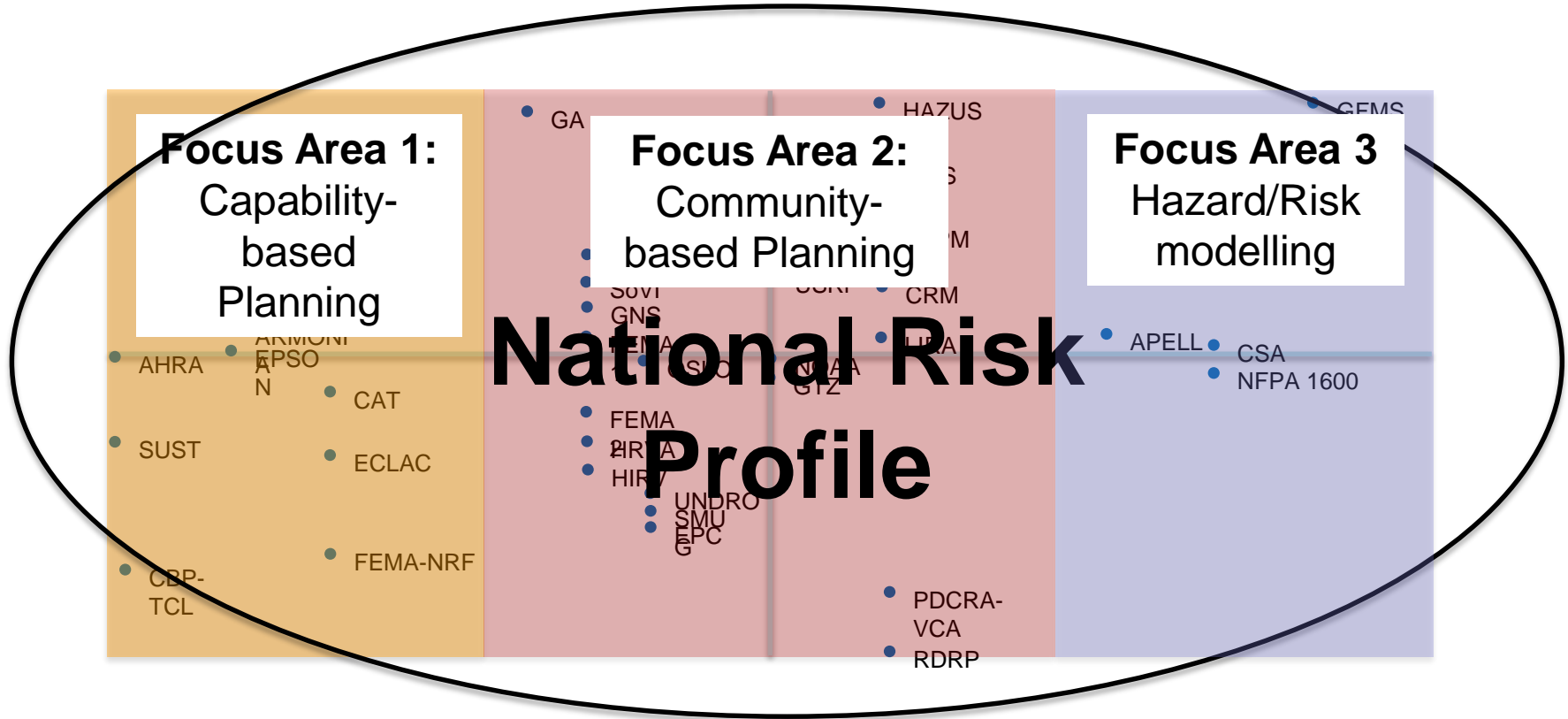
Environmental Scan Findings (see Annex A for acronyms)



Environmental Scan of Risk Assessment Methods



Building Canada's National Risk Profile

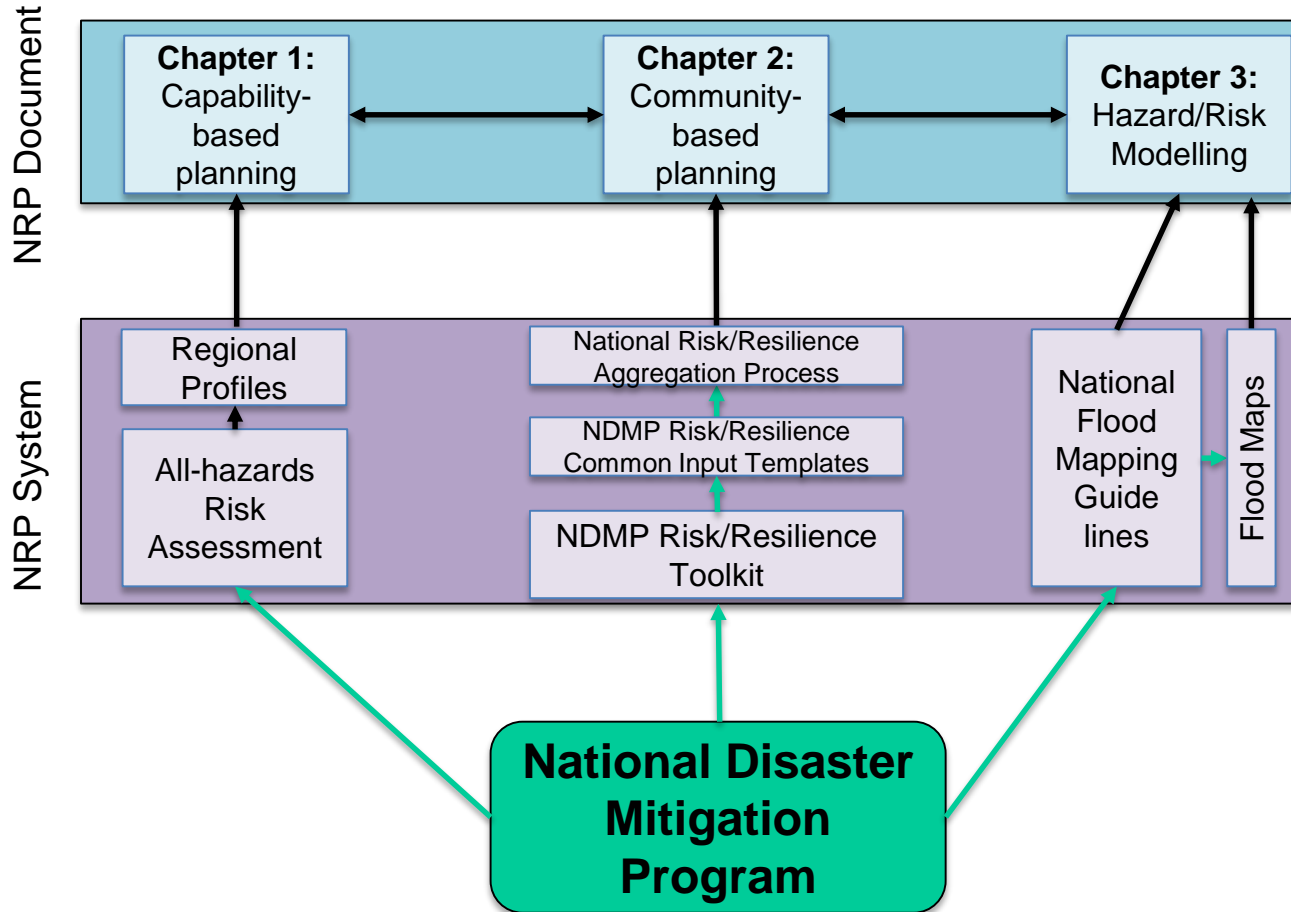


Vision for the NRP based on discussion to date

To develop a NRP that identifies, analyzes and evaluates risks to public safety and security in Canada consistent with best practices from our domestic and international partners - **the document**.

Design and implement a sustainable national risk management structure and governance model that enables and informs the regular production of the NRP, and related products – **the system**.

Proposed National Risk Profile Structure



Focus Area 1: Capability-based Planning

Work objectives:

- Develop best practices and common tools for adaptive scenario planning; capability assessment; and infrastructure interdependence identification.
- Create an inventory of national planning scenarios for use by the EM policy, program and operational communities.
- Develop the capacity for relevant departments to use, refine and improve the planning scenarios on an ongoing basis.

Output:

Chapter 1 of the NRP, containing the pilot scenarios, generic capability assessments, and open infrastructure interdependence information.

Focus Area 2: Community-based Planning

Work objectives:

- Develop and finalize the validation of federally supported community-based planning tools and establish a shared repository for these tools, available to community and jurisdiction in Canada.
- Create a coordinated approach to risk-based planning for policy, program and operational contexts.

Output:

Chapter 2 of the NRP, containing the step-by-step coordinated risk-based planning approach as well as guidance and information for communities on the federally supported community-based planning tools.

Focus Area 3: Flood/Hazard Mapping and Guidance

Work objectives:

- Develop and finalize guidelines and best practices for flood mapping/modelling.
- Foster a robust body of knowledge in flood plain mapping/hazard studies that are integral part of systematic risk management process.

Output:

Chapter 3 of the NRP, containing the guidelines and best practices for the mapping/modelling of floods and flood risks in order to enable interoperable flood mapping across the country.

Questions

- How can the climate adaptation community best be engaged on this work?
- Are there additional approaches that could be included in the NRP development?
- What elements of the NRP are most subject to climate related changes and uncertainties?

Thank you

Matthew Godsoe

Manager – Natural Hazards Portfolio

Defence Research and Development Canada - Centre for Security Science (CSS)

222 Nepean St, 11 floor, Ottawa ON K1A 0K2

p: 613-943-2501; f: 613-995-0002

matthew.godsoe@drdc-rddc.gc.ca

matthew.godsoe@forces.gc.ca

www.drdc-rddc.gc.ca

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ANNEX A - Risk Assessment Tools and Methods

1. Catastrophe Models for Risk Appraisal (CAT)
2. The Natural Disaster Hotspot Analysis (NDH)
3. The Disaster Risk Index (DRI)
4. The European Spatial Planning Observation Network (EPSON)
5. The Applied Multihazard Risk Mapping of Natural Hazards for Impact Assessment (ARMONIA)
6. Geoscience Australia: Risk and Impact Analysis Program (GA)
7. The Australian Geomechanics Society (AGS)
8. Emergency Management Australia (EMA)
9. Geoscience New Zealand Hazards and Society Program (GNS)
10. The Urban Seismic Risk Index (USR)
11. Disaster Risk and Management Indicators for the Americas (IDEA)
12. The United Nations Economic Commission for Latin America and the Caribbean (ECLAC)
13. Federal Emergency Management Agency Multi-Hazard Loss Estimation Methodology (HAZUS)
14. The United States Geological Survey Land-Use Portfolio Model (LUPM)
15. The Social Vulnerability Index (SoVI)
16. The Community Resilience Model (CRM)
17. The Sustainability Science Model (SUST)
18. Deutsche Gesellschaft für Internationale Zusammenarbeit (GTZ)
19. Participatory Disaster Risk Assessment – Vulnerability Community Assessment (PDRA-VCA)
20. The *Evaluation of Peacetime Disaster* (EPC)
21. The Awareness and Preparedness for Emergencies at Local Level (APELL)
22. Federal Emergency Management Agency Risk Assessment Toolkit (FEMA 1)
23. Hazard Identification, Capability Assessment and Multi-Year Development Plans for Local Governments (FEMA 2)
24. The Hazard, Impact, Risk and Vulnerability Model (HIRV)
25. Emergency Management British Columbia Hazard, Risk and Vulnerability Analysis Toolkit (HRVA)
26. Community Vulnerability Assessment Tool: New Hanover County, North Carolina (NOAA)
27. The Norwegian Directorate for Civil Defense and Emergency Planning (OSLO)
28. Australia’s Natural Disasters Organisation handbook on the SMUG Seriousness, Manageability, Urgency, and Growth Hazard Priority System (SMUG)
29. The United Nations Disaster Relief Organization (UNDRO)
30. Canadian Standards Association Second Edition CAN/CSA Q850 (CSA)
31. Defense Research Development Canada - Capability Based Planning-Target Capabilities List (CBP-TCL)
32. FEMA National Response Framework (FEMA-NRF)
33. NFPA 1600 National Fire Protection Association - Standard on Disaster/Emergency Management and Business Continuity Programs (NFPA 1600)
34. National Flood Risk Characterization Tool (NFRCT)
35. Global Flood Monitoring System (GFMS)
36. These Professional Practice Guidelines - Legislated Flood Assessments in BC (APEGBC)
37. Land and Infrastructure Resilience Assessment (LIRA)