The Council of Canadian Academies (CCA) acknowledges that our Ottawa offices are located in the unceded, unsurrendered ancestral home of the Anishinaabe Algonquin Nation, which has historically nurtured the land, water, and air of this territory and continues to do so today.

CCA | CAC

Building a Resilient Canada

The Expert Panel on Disaster Resilience in a Changing Climate

THE CHARGE

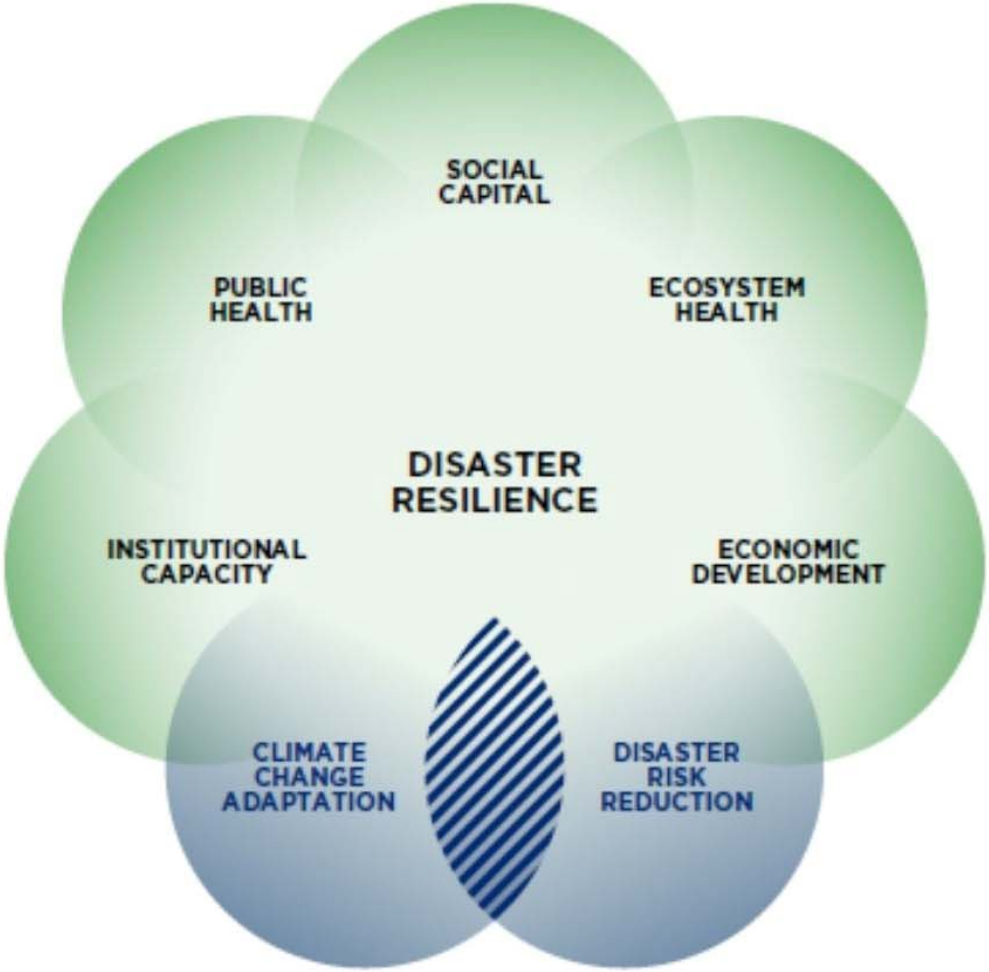
What key opportunities exist to improve disaster resilience in Canada through better integration of disaster risk reduction and climate change adaptation research and practice?

What institutional barriers, incentives, and disincentives prevent the effective integration of climate change adaptation and disaster risk management in Canada?

What climate-related tools, data sources, methods, and frameworks are underutilized in Canada's existing disaster risk reduction efforts? What disaster risk reduction tools, data sources, methods, and frameworks are underutilized in climate adaptation initiatives and practice?

What adaptation and disaster risk reduction capabilities are required to enhance resilience to climate-related natural disasters in the future?

REPORT SCOPE



CCA | CAC

The Expert Panel on Disaster Resilience in a Changing Climate

Scott Vaughan (Chair)

Alain Bourque

Elliott Cappell

Stephanie E. Chang

Jimena Eyzaguirre

Mike Flannigan

Kathryn Hyland

Tara McGee

Kevin Quigley

Roger Rempel

Sarah Sargent

FINDINGS & REFLECTIONS

Scott Vaughan
Chair, The Expert Panel on Disaster Resilience in a Changing Climate

CCA | CAC

APPROACH

The Panel met virtually over the course of 2020 and 2021

Academic literature reviews, expert interviews, grey literature, synthesis reports, and Indigenous and Local Knowledge (ILK)

Risk: the nexus of hazard, exposure and vulnerability

Disasters are not natural; they are the result of decisions that put people and structures in harm's way

CONTEXT

Climate change will increase the frequency and severity of natural hazards in Canada.

The frequency and costs of climate-related disasters in Canada are increasing.

Concurrent, cascading, and non-linear impacts of disasters are increasingly likely in a changing climate.

FINDING 1:

An ongoing failure to fully integrate climate change adaptation into DRR activities, policies, and tools reduces the efficiency and impact of public investments in disaster resilience, leaving Canadian communities at risk.

The lack of a publicly available, integrated, all-hazard risk assessment in Canada makes it difficult to compare risks and be strategic about deploying resources.

Historical norms are no longer a reliable guide to inform investments but limited efforts have been made to adjust decision-making accordingly.

FINDING 1 - Continued

Climate change is one of many disaster risk factors; vulnerability is also key.

Governments persistently underinvest in mitigation and later pay the price in terms of disaster response and recovery.

FINDING 2:

Successfully integrating adaptation and DRR requires overcoming barriers such as disciplinary and departmental silos, conceptual and terminological differences, and jurisdictional misalignments while accounting for perceptions and cognitive and behavioural biases that affect decision-making.

DRR and adaptation may operate at different time scales, in separate departments, and with conflicting terminology.

Myopia, inertia, and optimism are among the cognitive biases that delay and diminish risk mitigation measures.

Accurate and informed perceptions of risks and of potential hazard mitigation options are key to driving individual responses.

FINDING 2 - Continued

INFORMATION BARRIERS:

Information is often not readily available, accessible, or applicable to the context in which it is being used. Climate and disaster data warrant improvement in particular.

As a result, decision-makers are left to grapple with significant uncertainties, undermining the reliability and efficacy of progress.

FINDING 2 - Continued

FINANCIAL BARRIERS:

Lack of risk awareness contributes to inadequate insurance coverage which in turn creates large government liabilities.

Recovery program design and insurance terms can prevent rebuilding in ways that enhance resilience.

FINDING 3:

The integration of adaptation and DRR requires i) information systems adapted to the needs of decision-makers

- Disaster Data
- Indigenous & Local Knowledge
- Nature-based Solutions
- All-hazards Risk Assessments
- Economic Analysis
- Knowledge Brokers

FINDING 3:

The integration of adaptation and DRR requires ii) flexible funding, financing, and insurance arrangements that support proactive investment.

- Home Insurance
- Corporate Disclosures
- Public-private Partnerships
- Public Infrastructure Investments
- Public Disaster Relief

FINDING 4:

Whole-of-society collaboration as well as government mandates are necessary to operationalize integration

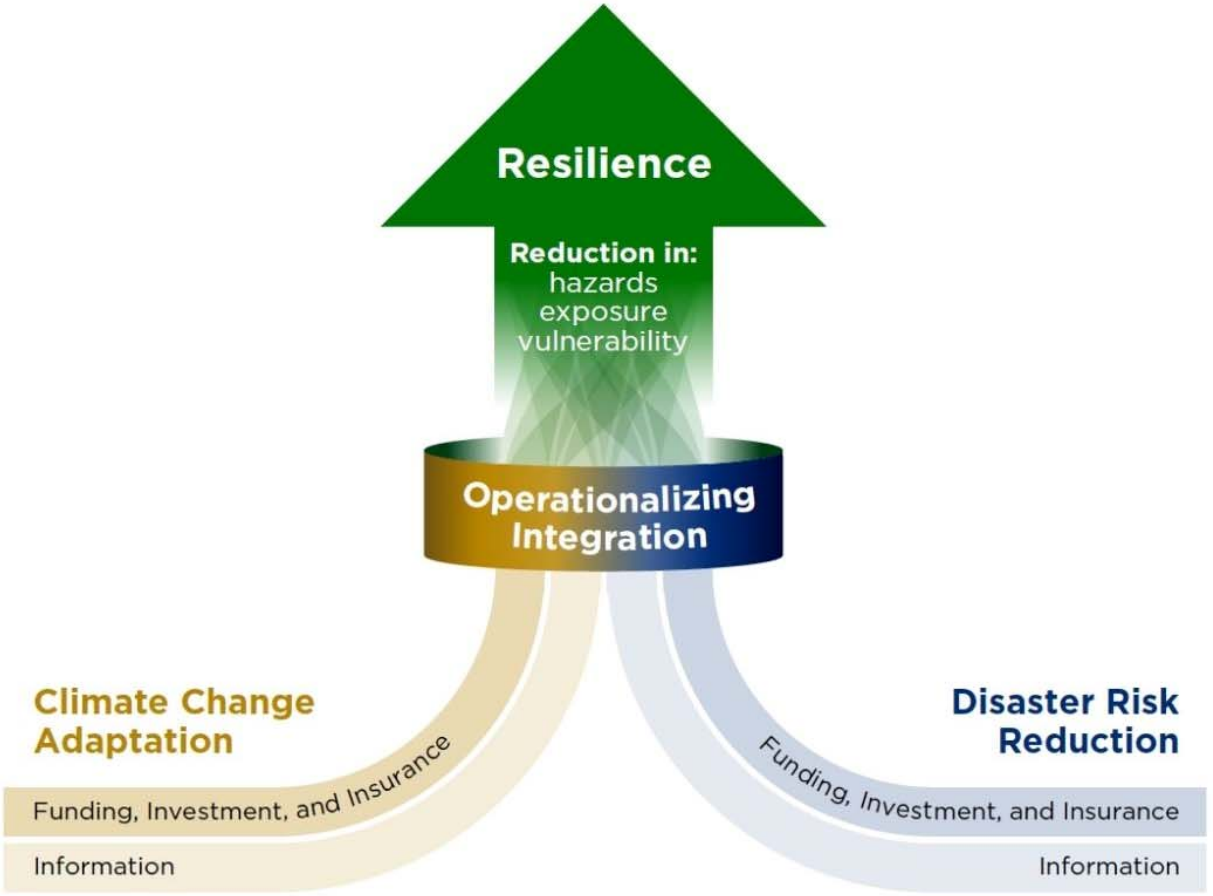
From the bottom-up:

- Leveraging local knowledge and capacities
- Promoting decision buy-in

From the top-down:

- Providing central government funding and information services
- Clearly delineating responsibilities
- Developing appropriate policies, regulations, codes, and standards

CONCEPTUAL FRAMEWORK FOR IMPROVING DISASTER RESILIENCE THROUGH THE INTEGRATION OF DRR AND ADAPTATION



REFLECTIONS

Disasters are the consequences of human choices at individual and societal scales.

Addressing the root causes of vulnerability and hazard exposure are important elements of enhancing resilience.

When disasters unfold, they present important opportunities for learning, community building, and reinvestment.

QUESTIONS?

CCA | CAC