

Floods: Considerations for Policymaking

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Flood disasters represent a multi-faceted problem requiring matters the involvement of all levels of government. For the Federal Government, Public Safety Canada (PSC) has the Legislative mandate to exercise leadership in there. We focussed on defining the wicked problem of flood disasters. The evaluation did not systematically evaluate the effectiveness of past or current federal interventions, nor did it assess metrics of resilience outcomes for the investment and efforts of Public Safety Canada, in coordination with partner agencies.

PROBLEM

In Canada, floods are the most frequent and expensive natural disaster and in recent years, serious floods have been more common. On the emergency management continuum of mitigation: preparedness, response and recovery, flood disasters are uniquely challenging to address for a number of reasons.

- Responsibilities for management of water as a natural resource, emergency management and land-use planning are divided among Federal, Provincial, Territorial, Municipal governments as well as affected First Nations communities and further divided across several government department mandates.

- Flood disasters relate to two overarching Government of Canada priorities: mitigating impacts of climate change and advancing reconciliation with Indigenous Peoples.
- Insurance for overland flood damage is largely unavailable to Canadians.
- Surveys show that Canadians underestimate their vulnerability to flood risk, and consequently do not prepare for floods or support large public expenditure for flood mitigation.

CONSIDERATIONS

A number of Government electoral commitments were outlined in the 2019 Ministerial Mandate letters. These divided the responsibility for flood-disaster mitigation between Public Safety Canada and other federal counterparts, specifically:

- Environment and Climate Change Canada (ECCC) with Natural Resources Canada for completing flood maps.
- Employment and Social Development Canada (through its Minister of Families, Children and Social Development) in partnership with the Canada Mortgage and Housing Corporation for establishing affordable flood insurance and preparing an action-plan to help at-risk residents relocate from flood-prone areas.
- Infrastructure Canada for managing the Disaster Mitigation and Adaptation Fund.

RECOMMENDATIONS

1. Limit involvement in completion of flood maps, which are a useful tool in flood-disaster mitigation, preparedness and coordinated response but not the complete solution.

There is an opportunity for the Federal Government to emphasize its expertise by authenticating and improving public access of housing and GIS topographic and water table data with sufficient resolution to inform the development of flood maps and underpins climate change adaptation by other orders of government. This includes:

- predictive hydrology,
- monitoring of the cryosphere (i.e. snow, glaciers and frozen ground),
- topographic analysis
- meteorological trend modeling.

We believe this work is not suited for PSC staff because it has a minor role to play in advising on climate change adaptation. Instead, PSC should continue to analyze information mentioned in the above bullets. In particular, the department should focus effort for on-the-ground intelligence that supports emergency preparedness through to coordinated response.

2. Play an active role in the modernization of the Canada Water Act and the development of the Canada Water Agency (CWA), led by ECCC. In doing so, PSC should:
 - i. Ensure that the CWA mandate addresses issues and solutions concerning flood disaster and mitigation.
 - ii. Participate in the consultation for the interdepartmental reorganization that is intended to bring together key water units across several federal government departments into the single CWA.
 - iii. Contribute to CWA's priorities including:
 - creation and mobilization of the data to monitor, predict, respond and solve water problems, including flood forecasting;
 - strengthening of transboundary water management; and
 - improving collaborative river basin planning with all levels of governments,

- leveraging expertise and capacity from CWA and other agency outcomes to better inform science, policy and program development concerning flood disaster and mitigation.
3. Continue to build-on recommendations from past program audits and evaluation to incentivize greater investments in mitigation measures, by provinces and territories – as noted in:
 - i. 2016 Evaluation of the Disaster Financial Assistance Arrangement (DFAA) ‘further promote the use of DFAA mitigation component,’ and
 - ii. 2019 Final Report of the National Disaster Mitigation Program (NDMP) ‘explore the policy options to support all-hazards mitigation efforts.’

Consider changing the terms and conditions of DFAAs, to better align with the guiding principles applied by the Flood Damage Reduction Program (1976-1995), which was assessed as ‘extremely successful in redirecting damage-prone development away from flood-risk areas.’

4. With the CMHC, partner with the insurance industry to explore and co-develop:
 - i. approaches to risk pooling and/or public-private underwriting through re-insurance frameworks, and
 - ii. joint public education ventures with industry-backed research institutions – such as, such as the University of Waterloo’s Partners for Action (P4A) and Intact Center on Climate Adaptation or Western University’s Institute for Catastrophic Loss Reduction.
5. Leverage the experience and expertise of countries who have been adept at addressing facets of flood disaster and mitigation, such as:
 - i. The Netherlands, where two-thirds of the country is prone to flooding and 70% of the gross-national-product is earned below sea level, has set aside \$1.6 billion euros

- (\$CDN \$2.47 billion) annually to ‘water defense’ for management of systems such as dykes, pumping stations, canals and drainage structures.
- ii. Countries such as France, Belgium, Denmark, Spain and New Zealand are working with insurers to offer state-backed natural disaster bundled insurance to property owners.
 - iii. The US Weather Service is reinventing itself to become the one-stop-shop for science-driven ‘impact-based decision support service’.
 - iv. The State of Louisiana has published a comprehensive, phased approach to relocating vulnerable populations from the oceanfront.