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Insurance Bureau of Canada

Incentives, Insurance and Infrastructure: Addressing Climate Risks

March 22 , 2021

About Insurance Bureau of Canada

IBC | Insurance Bureau of Canada

- Established in 1964
- National association for Canada's private home, auto, business insurers
- IBC members represent 90% of the Canadian P&C market

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Climate Change, Flooding and Municipal Infrastructure

- The Insurance Reality
- The Shift in Government Assistance
- Pricing the Value of Mitigating Infrastructure
- Natural Infrastructure: Neglected Assets
- Towards a National Flood Action Plan

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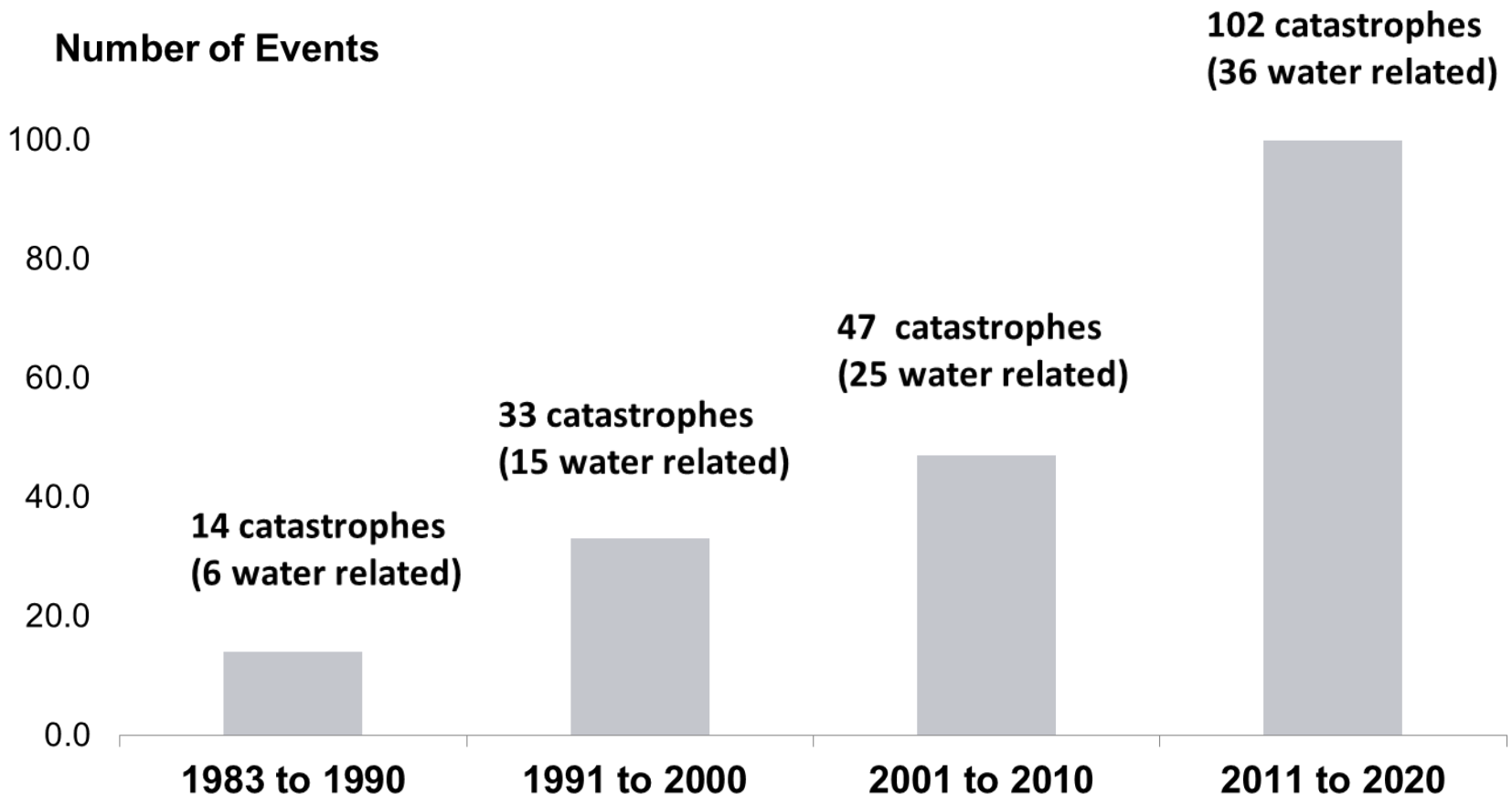
Increasing Number of Catastrophes



Source: 1983 to 2007: IBC, PCS Canada, Swiss Re and Deloitte
Source 2008 -2019: CatIQ
Events included when 2008 $ 25 million limit adjusted by GDP, Population
Perils: Flood, Water, Rain, Storm, Snow, Ice, Hail, Wind, Tornado, Hurricane

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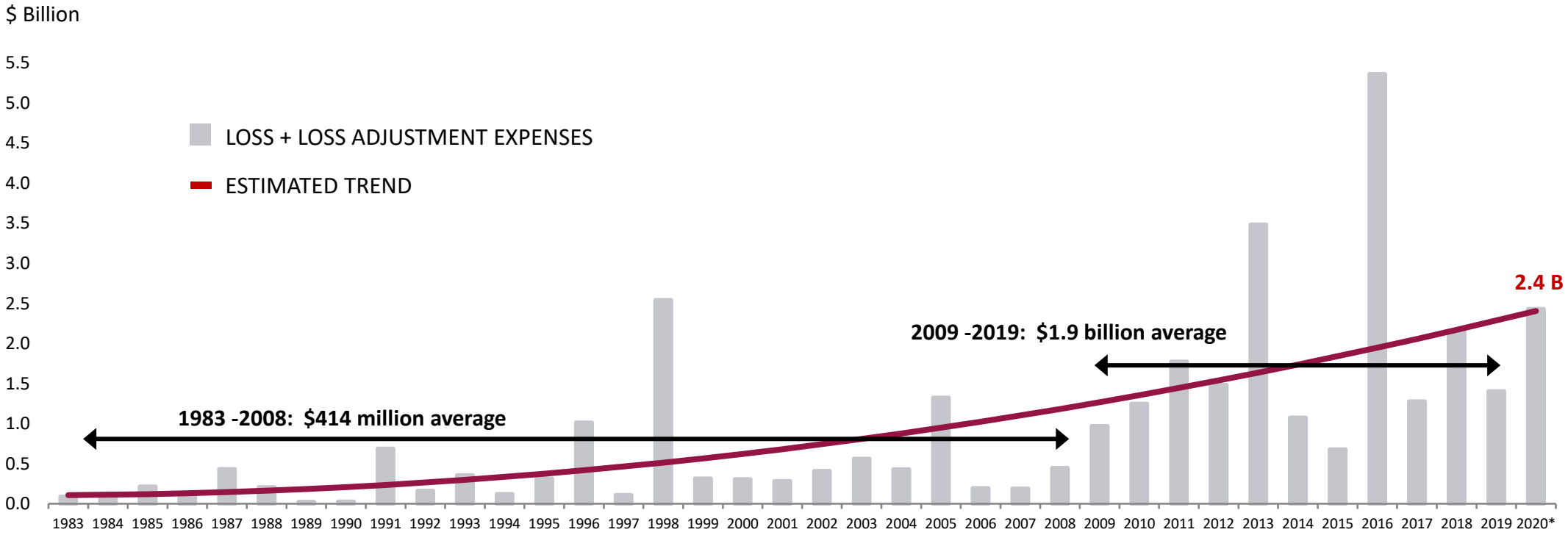
Insured Catastrophic Losses in Canada

*A catastrophic loss = 1 event costing $25 million or more in insured damages



Source: IBC Facts Book, PCS, CatIQ, Swiss Re, Munich Re & Deloitte
Values in 2019 $ CAN
** 2020 preliminary*

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Insured Catastrophic Losses in Ontario

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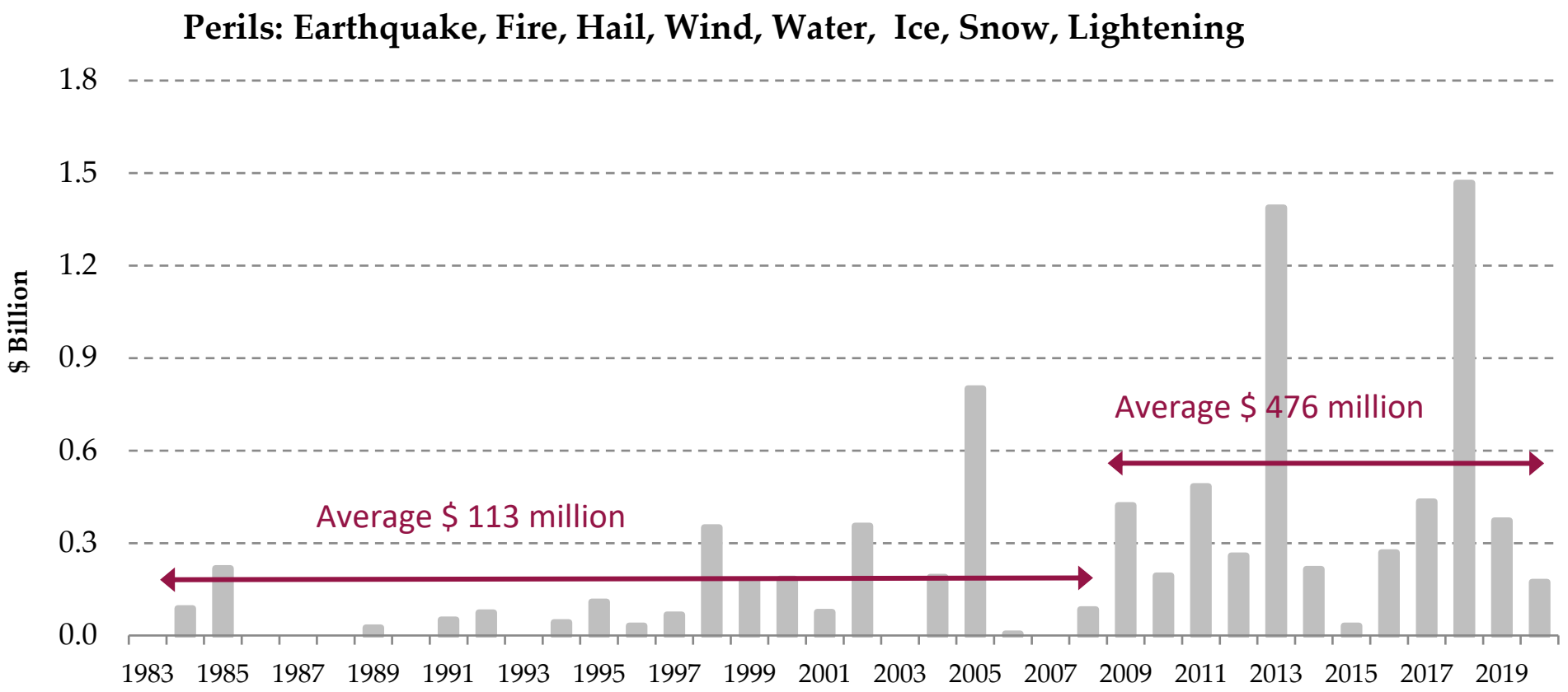

Source: IBC Facts Book, PCS, CatIQ, Swiss Re, Munich Re & Deloitte
Loss & Adj Expenses. Values in 2018$ CAN, 2019 preliminary

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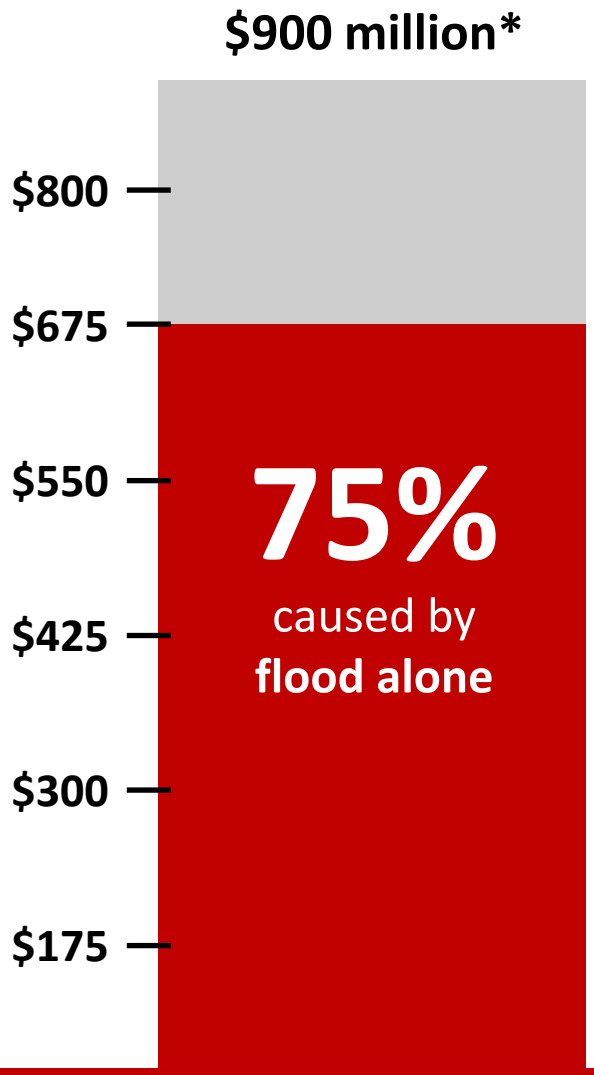
Estimated Cost of Weather Events to Federal Government Through 2021



*Parliamentary Budget Office estimate

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The Other Shoe Dropping. Climate Losses are Resulting in:

- Hardening commercial insurance market
- Escalating premiums
- Disaster Financial Assistance Review

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Post-pandemic: The Infrastructure Opportunity

- Infrastructure should be climate resilient
- We need new defensive infrastructure to protect our communities

BUT:

- We are constrained from leveraging private funds due to our inability to price risk

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Natural Infrastructure

- Natural infrastructure: The oft-neglected option
- How do we price the resilience value of wetlands and sand dunes?
- How do we leverage such pricing to incent

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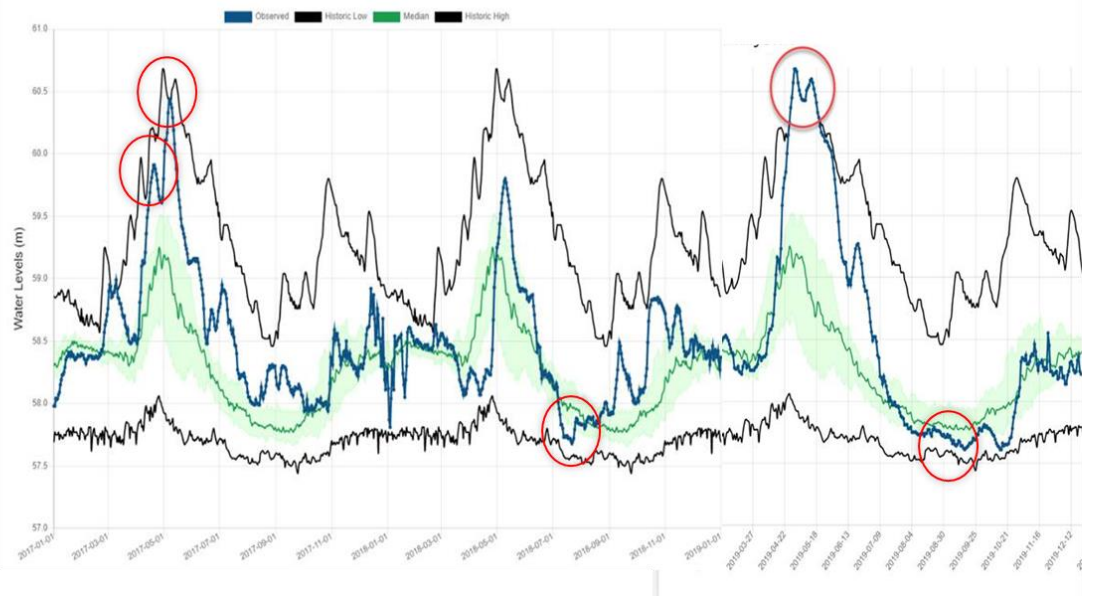
Ottawa suffers from peril(s) that cause damages and budgetary strain

- Precipitation over Ottawa River Basin in April and May 2017 was 174% of normal values, which was also observed in river discharge levels
- **Flooding resulted in over $223 million in insured damage**, forced evacuation of nearly 850 people
- **In 2019, municipalities expected over $3.8 million for repairs** from Ontario's Municipal Disaster Recovery Assistance program and the $1-million Build Back Better program. But **damages are expected to be between $6-10 million**
- Additionally, dry conditions (such as those experienced in 2018 and 2019) create nuanced challenges that set stage for impaired water retention during wetter months

Record-setting peaks were observed over the course of three years

Water levels from Ottawa River Brittania gauge station



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Parametric insurance is an innovative risk transfer tool for the public sector

Insurance relies on **measurement** of a natural phenomenon or index, such as:

- Earthquake magnitude/ intensity
- River flooding
- Excess/ lack of rainfall
- Heat / cold waves
- Windstorm/ Windspeed

Payout of pre-defined amount is made when contractually agreed **threshold** of parameter/index is **exceeded** (e.g. intensity of EQ or amount of rainfall)

Advantages

- **Fast** payout (2-6 weeks)
- Otherwise **uninsurable** risks can be insured (e.g. emergency costs, loss of revenues)
- No loss **assessment** required
- **Flexibility** in the use of funds
- **Transparency** to both insurer and insured
- Avoids **adverse risk** selection
- **No deductible**

Disadvantages

- **Basis risk** (insurance payout may deviate from actual loss)
- Need for objective and accurately measured **historical data**

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Three elements are needed for nature-based insurance solutions (NBIS)

THREAT

What could endanger the asset?

An insurable, defined and measurable event

MITIGATOR

What helps keep that asset safe?

ASSET

What are you trying to protect?

Property, service delivery, revenue, natural asset, etc.

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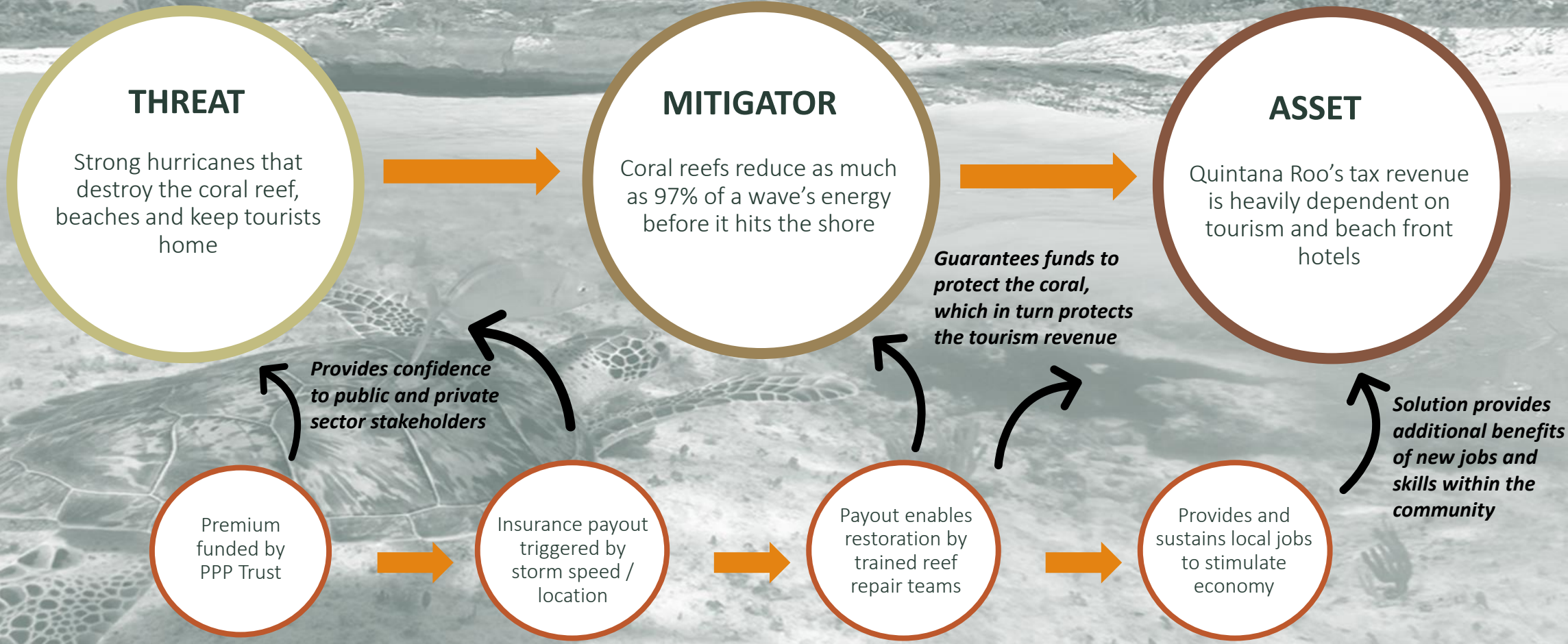
Success Story: Quintana Roo Reef Coverage



After Hurricane Delta, the insured received approximately $800,000 to restore damaged reefs and beaches

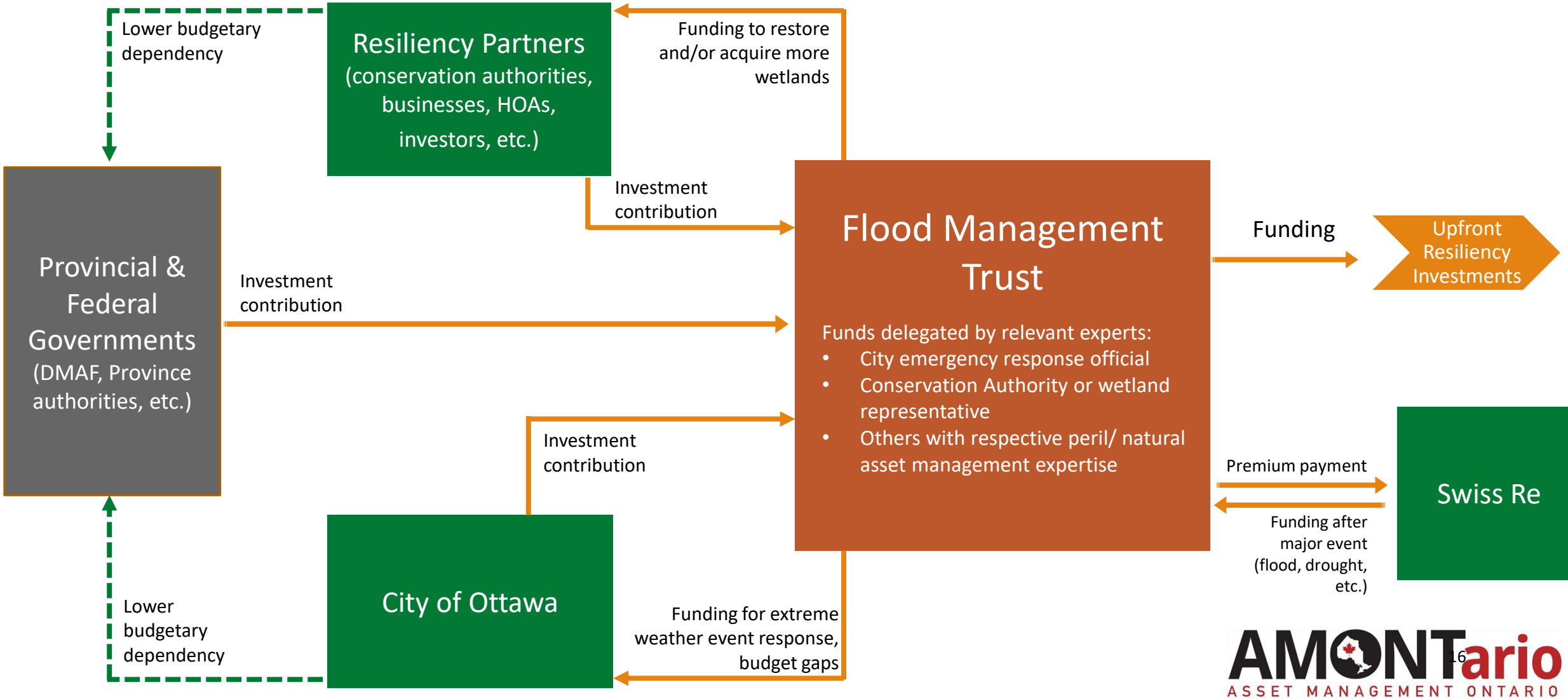
Insurance applications for different natural assets

	ASSET	MITIGATOR	THREAT
Quintana Roo Reef Cover		**The Mesoamerican Coral Reef** reduces up to 97% of wave energy before reaching the shore	**Strong hurricanes** can destroy the coral reef, beaches, and keep tourists at home
Ottawa Emergency Response Cover		**The Rideau Valley watershed wetlands, particularly Goulbourn,** can reduce flooding by about 10%	**Spring flooding can and has** destroyed public/private infrastructure and depleted city budgets

Quintana Roo **tax revenue** is heavily dependent on tourism and beachfront hotels

Ottawa **emergency response budget** is strained and public infrastructure threatened by increasingly expensive natural catastrophes

A proposed structure could provide similar support for Ottawa's natural assets



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Challenges of a Changing Climate for Homeowners

- Flooding poses the highest risk to homeowners
- Approximately **4 million private residences in Ontario**
- **656,000** of these homes **(around 16%)** are at risk of flooding and **360,000 of them are at high risk of flooding**

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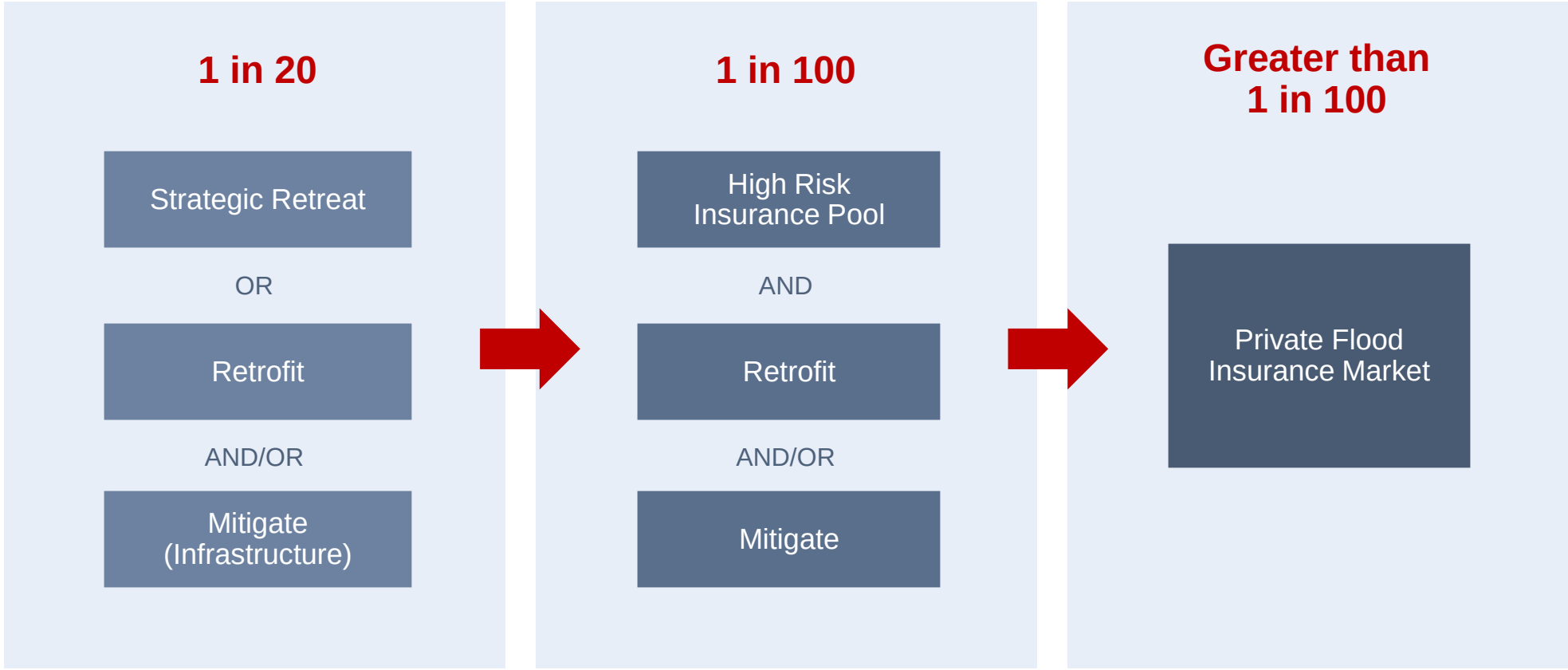
National Action Plan on Flood



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National Action Plan on Flood

Education: Invest in launching a robust consumer flood portal based on accurate flood mapping and reliable information.

Governments at all levels should:

- Invest in improving the quality of terrain data that is the foundation of flood mapping
- Collaborate with **insurers**, **realtors** and **mortgage lenders** to ensure flood portals maximize consumer engagement

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National Action Plan on Flood

Relocate and Protection

Move homes away from areas that repeatedly flood and develop affordable insurance protection for properties in high-risk flood zones. This can be achieved by:

- Providing government financial assistance to relocate those at highest risk of repeat flooding
- Targeting priority infrastructure investments in the highest-risk areas to protect as many people as possible
- Developing high-risk insurance pools for residents in high-risk areas

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National Action Plan on Flood

Amended Land-Use Rules

- Going forward: no home built on a flood plain should be eligible for disaster assistance or affordable insurance

- Provincial and municipal governments should adopt improved building codes and standards

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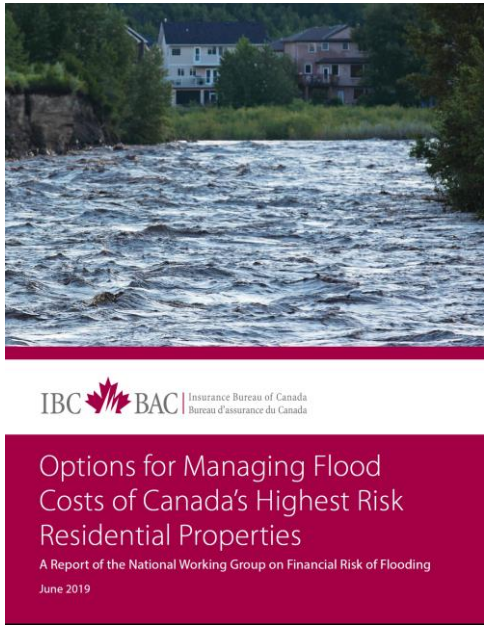
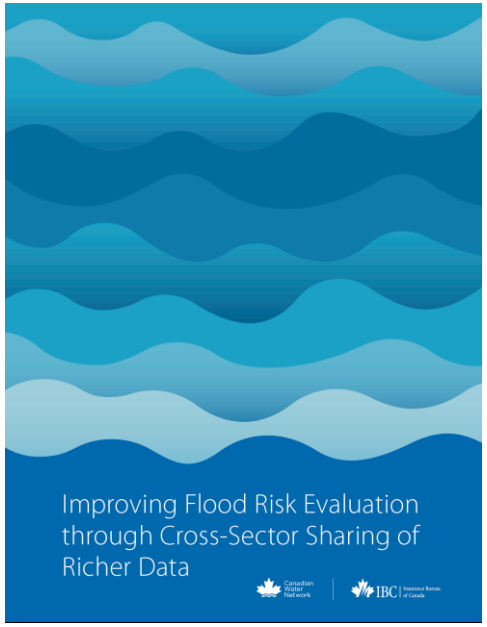
Reports and Flood Related Products Created by IBC





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