

September 9, 2021

Building Resilient Communities

IBC  BAC



Image credit to Scott Porter - Reddhart Workwear



Severe Weather Trends in Canada

IBC's Research & Advocacy on Flood Risks and Adaptation



Canadian Association of
Municipal Administrators

ROB DE PRUIS Director, Consumer & Industry Relations, IBC

About 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

Canada's Property & Casualty Industry at a Glance



There are **192 private P&C insurers** actively operating in Canada, with more than **131,600** people employed in the industry.



P&C insurers contribute **\$10.5 billion*** annually in premium taxes and levies.



Insurers paid out **\$42.4 billion** in claims in 2020.



Insured losses from severe weather in 2020 exceeded **\$2.4 billion.**

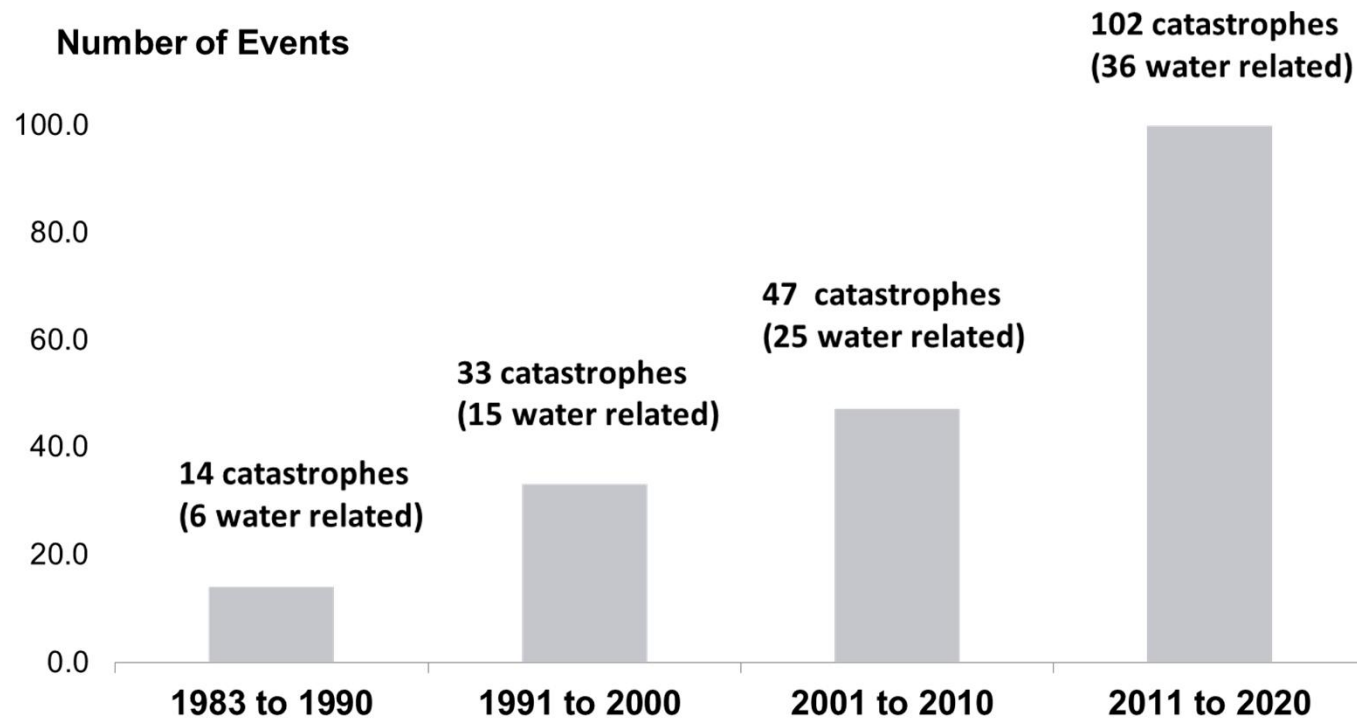
*Tax figures as of 2019

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



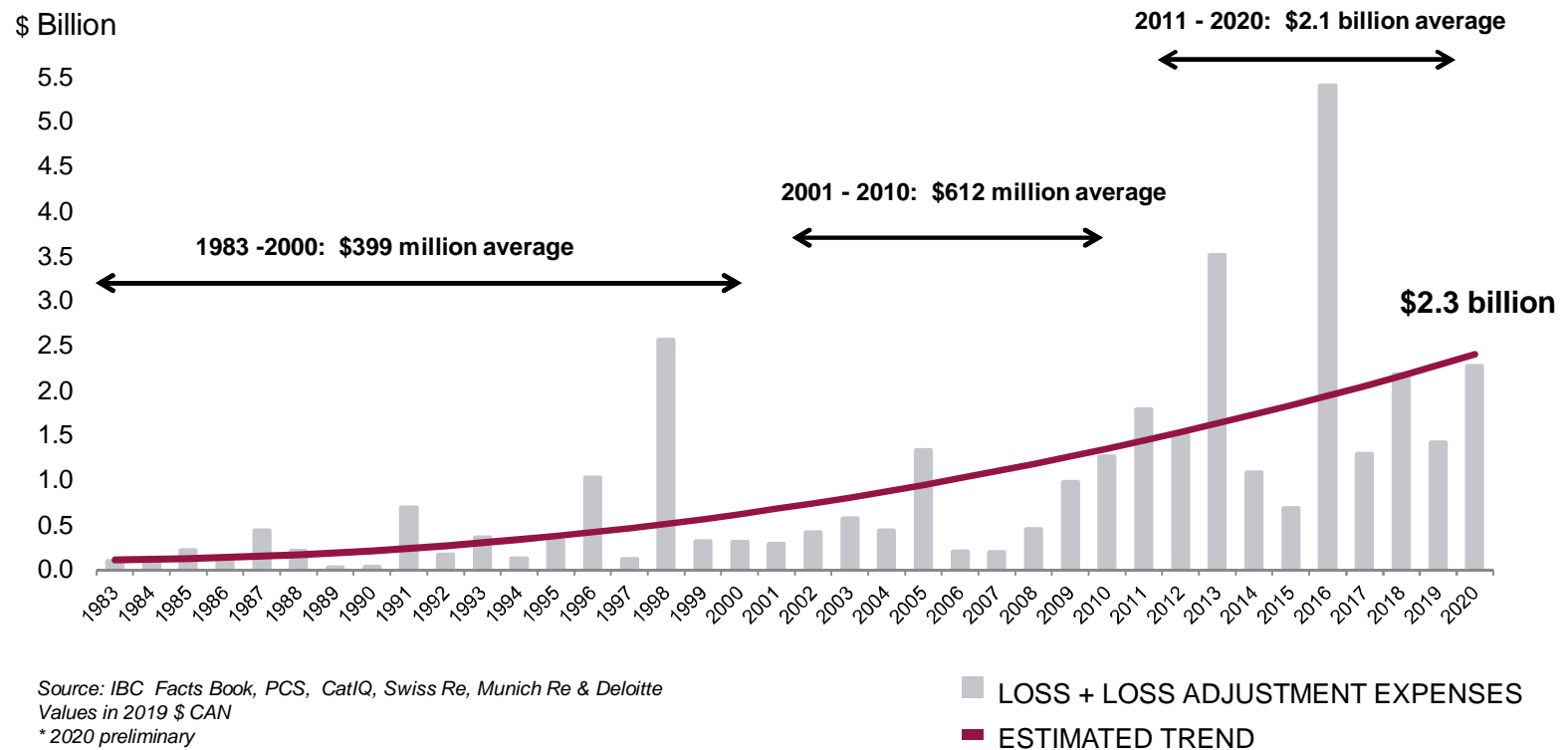
Increasing Number of Catastrophes



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

Insured Catastrophic Losses in Canada

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



Insured Catastrophic Losses in 2021

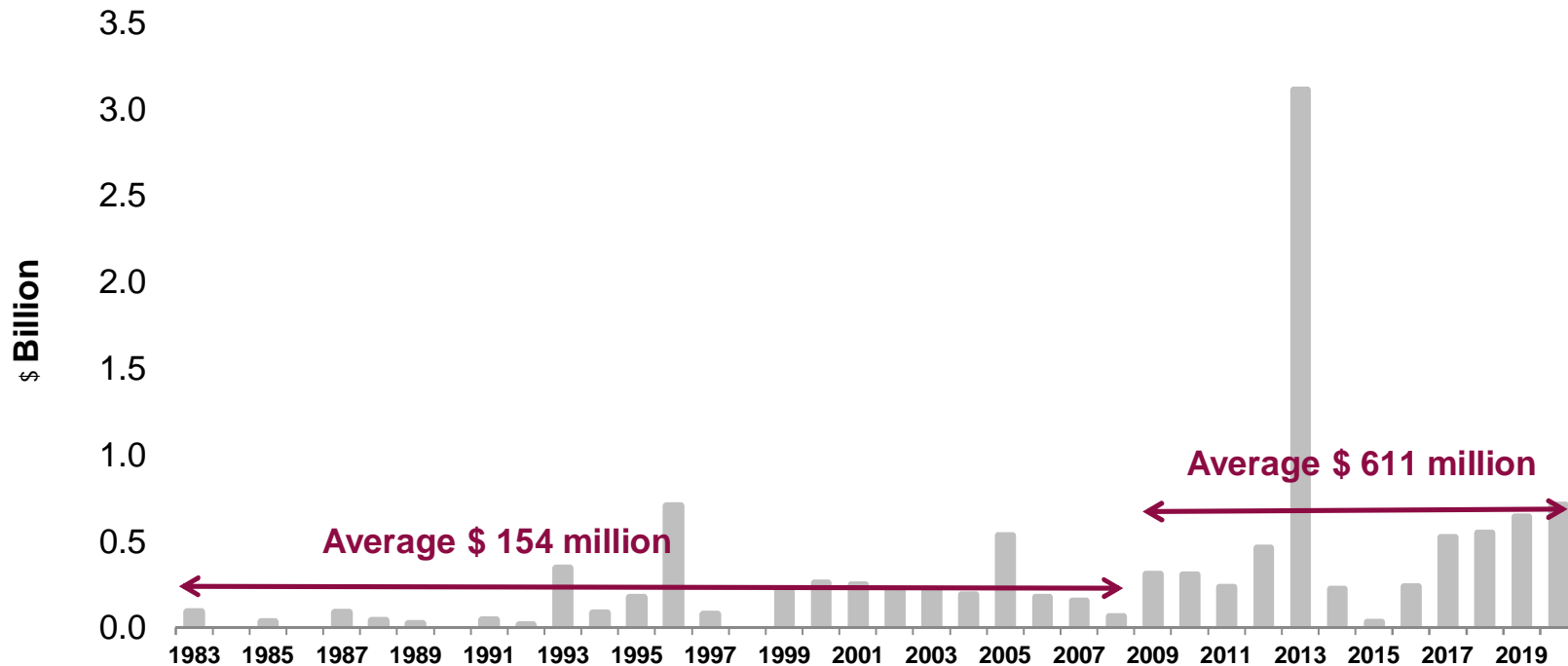


- § Windstorms in Western Canada between January 12-14 caused **\$134 million** in insured damage.
- § Heavy rains and strong winds between March 26-29 stretching from southern Ontario to Newfoundland and Labrador caused **\$50 million** in insured damage.
- § A hail, rain, and windstorm that hit Calgary on July 2 caused **\$500 million** in insured damage.
- § A wildfire that devastated Lytton, British Columbia on June 30 is now estimated to have caused **\$78 million** in insured damage.
- § A series of tornadoes that struck Barrie and areas eastward on July 15 caused **\$74.5 million** in insured damage.

The amount of insured damage is an estimate provided by CatIQ (www.catiq.com) under licence to IBC.

Insured Water Catastrophic Losses in Canada

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



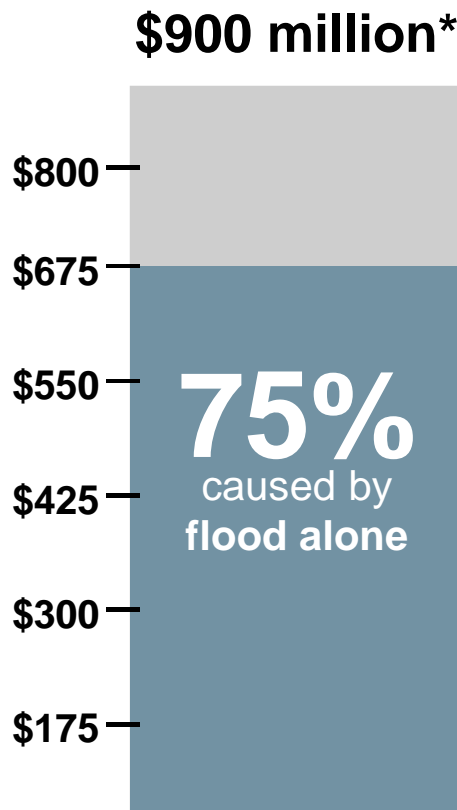
First Peril listed: Flood, Water, Rain, Storm

Source: IBC Facts Book, PCS, CatIQ, Swiss Re, Munich Re & Deloitte

Values in 2020\$ CAN, loss and loss adjustment expenses

* 2020 preliminary

Estimated Cost of Weather Events to Federal Government Through 2021



*Parliamentary Budget Office estimate

The Other Shoe Dropping. Climate Losses are Resulting in:

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



Post-pandemic: The Infrastructure Opportunity

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

Taking Action:

- § Climate Proof Canada



Why Climate Proof Canada?



**CLIMATE PROOF
CANADA**

Building a Resilient Tomorrow

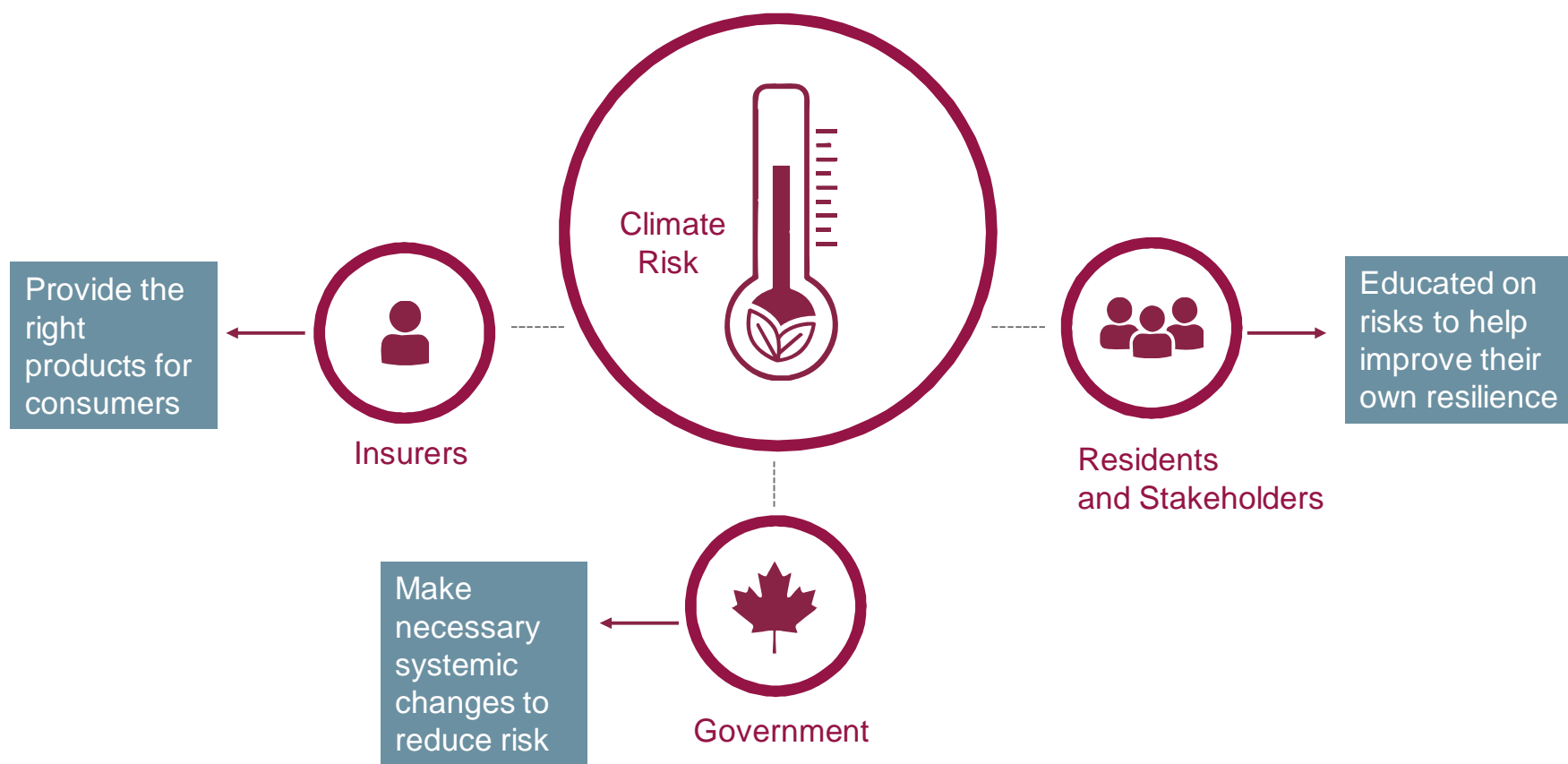
- § Putting in place a **National Climate Adaptation Strategy** to protect people and infrastructure from the dangers of increased flooding, wildfire and heat.
- § Creating a **new national agency** to improve Canada's disaster readiness and resilience.
- § **Enhancing current plans** to reduce the risk and impact of flooding across Canada.
- § Ensuring that there is the **right level of funding** for projects that will help to climate proof Canada.

Challenges of a Changing Climate for Homeowners

- § Flooding poses the highest risk to homeowners
- § **Twenty per cent** of Canadian households now have some vulnerability to floods – **with 11 per cent defined as being at high risk.**
- § **825,000** of these homes have a **5% chance of flooding each year**



We need a collaborative approach

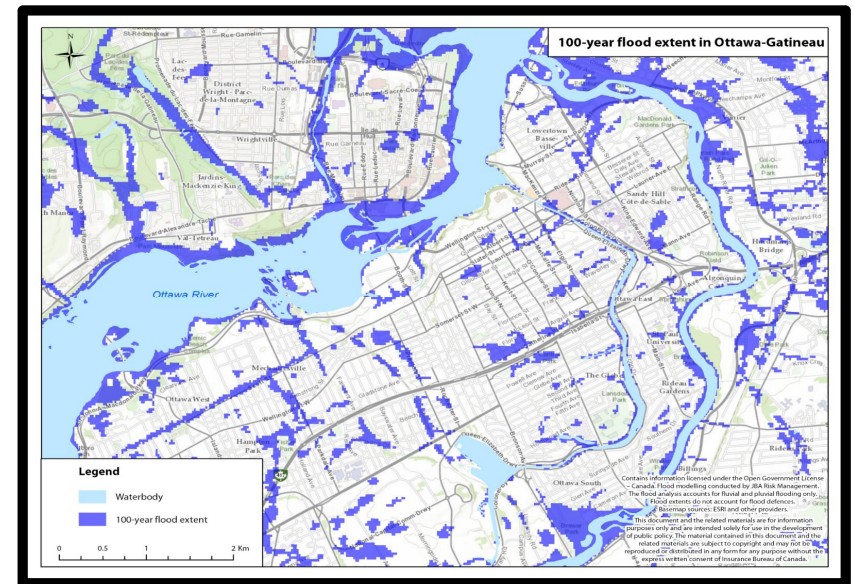


National Action Plan on Flood

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



National Action Plan on Flood

Relocation 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

High-Risk Insurance Pool Guiding Principles



IBC  BAC | Insurance Bureau of Canada
Bureau d'assurance du Canada

Options for Managing Flood Costs of Canada's Highest Risk Residential Properties

A Report of the National Working Group on Financial Risk of Flooding
June 2019

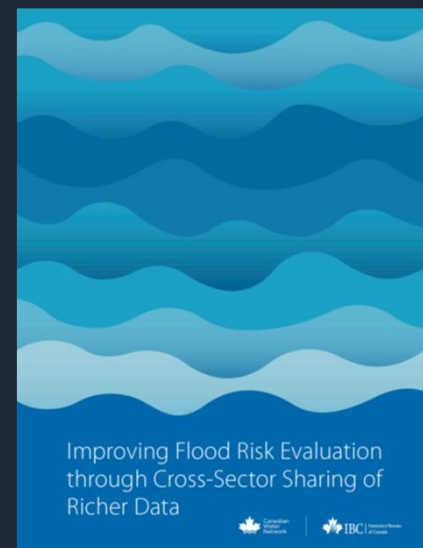
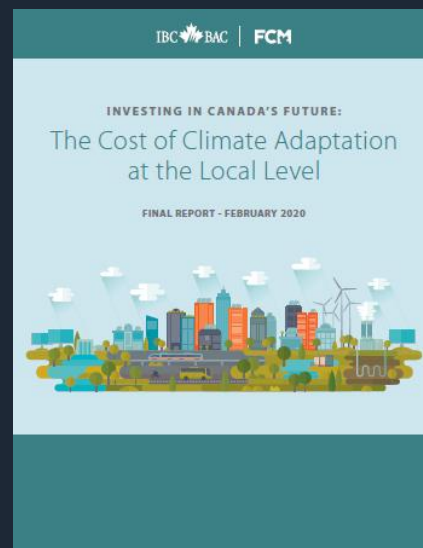
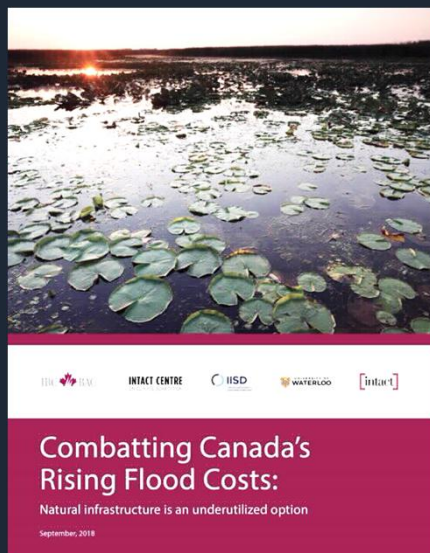
- § Affordability
- § Inclusivity
- § Efficiency
- § Optimal Compensation
- § Shield the Taxpayer
- § Financially Sustainable

High-Risk Insurance Pool Recommendations

- § High Risk borne by customized insurance pool
- § Governments transition out of Residential DFA
- § Governments focus on mitigation and strategic retreat
- § Insurers offer subsidized risk-priced insurance to all high risk residents



Reports and Flood Related Products Created by IBC



W204:19 – Design for Resilience

- § Storm Sewer System Design
- § Street Design
- § Sanitary Sewer Design
- § Wastewater Pumping Station Design
- § Preservation of Natural Infrastructure



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CAMA  ACAM

Thank You

September 9, 2021

Building Resilient Communities

IBC  BAC



Image credit to Scott Porter - Reddhart Workwear

Better preparing your Municipality through CSA Standards, Research and Training

Agenda

- **About CSA Group**
- **Flood Resilience**
- **Gaining Predictability**



CSA Group At-a-Glance

HOLDING THE FUTURE TO A HIGHER STANDARD

Standards Development Organization

Commercial Subsidiaries



PM29 **previously approved for AUMA**
Patricia Matthews, 8/8/2021

Our Areas of Focus



Electrical



Health Care and Well-being



Environment and Natural Resources



Nuclear



Construction and Infrastructure



Public Safety





Management Systems



Occupational Health and Safety



Fuels and Transportation



Mechanical and Industrial Equipment



Information and Communication Technology



Petroleum and Natural Gas

PM30

Approved slide

Patricia Matthews, 8/8/2021

What is a CSA Standard?

CSA Standards are *not* Regulations

CSA Standards are *not* the same as Guidelines

Typical Guideline

“Explain to me what this topic is about and what I need to understand.”

Typical CSA Standard

“Tell me what I need to do or what end results I need to achieve.”

Typical CSA standard:

- § Document developed by experts in the field
- § Provides agreed upon content written in a way that allows users, reviewers and the public to verify that a *process, task* or *product* has been consistently completed in the expected manner

PM31 **previously approved for AUMA/FCM**
Patricia Matthews, 8/8/2021

COLLEEN SKLAR, EXECUTIVE DIRECTOR, WINNIPEG METROPOLITAN REGION

“The use of CSA standards provides a clear and consistent best practice approach that facilitates regional planning and development. Standards take the guess work out, ensuring taxpayer’s dollars deliver the best outcomes and are used in the best way possible.”

PM59 new quote, not yet approved
Patricia Matthews, 8/20/2021



Flood Resilience

It's not a priority, until it becomes one



Credit: Sonoma Water

PM57 **Permission for photo use from Sonoma Water, Santa Rosa, CA**
Patricia Matthews, 8/9/2021

Flooding Risk in Canada

Flooding is the costliest climate change risk in Canada⁵, and the prevalence of extreme flooding events is expected to continue increasing.

High costs

- In Canada, “spring flooding and major rainstorms accounted for **80 per cent** of the weather events that qualified for disaster funding in the last three years”¹

High exposure

- There are **1.7 million** Canadian households (19% of Canada’s population) at risk of river and surface water flooding.²
- Coastal flooding and erosion caused by water level and wave extremes present a risk for about **6.5 million** Canadians currently living near our marine coasts and more than **10 million** in the Great Lakes region.³

Increasing prevalence

- By 2060 — within the lifetime of about half of Canadians now living — coastal floods off British Columbia and the Maritimes that used to occur once a century will be **annual events**.⁴

¹ <https://globalnews.ca/news/6441170/canada-severe-weather-costs-2019/>

² https://www.intactcentreclimateadaptation.ca/wp-content/uploads/2018/09/IBC_Wetlands-Report-2018_FINAL.pdf

³ Environment and Climate Change Canada and the U.S. Environmental Protection Agency, 2017. State of the Great Lakes 2017 Technical Report.

⁴ IPCC, Special Report on the Ocean and Cryosphere in a Changing Climate, September 2019

⁵ <http://assets.ibc.ca/Documents/Resources/IBC-Natural-Infrastructure-Report-2018.pdf>

PM34 **previously approved for BRACE**
Patricia Matthews, 8/8/2021

Given the Earth's surface area
the global, averaged, annual precipitation is...

39" or 990 mm

Credit: Al Gore

PM35 permission for graphic given to Mike Leering for AI Gore presentation
Patricia Matthews, 8/8/2021

PM36 Content and slide needs approval from marketing/legal
Patricia Matthews, 8/8/2021

DM27
PM58

Flooding from Katrina 2005 - 7.8" in 48 hours

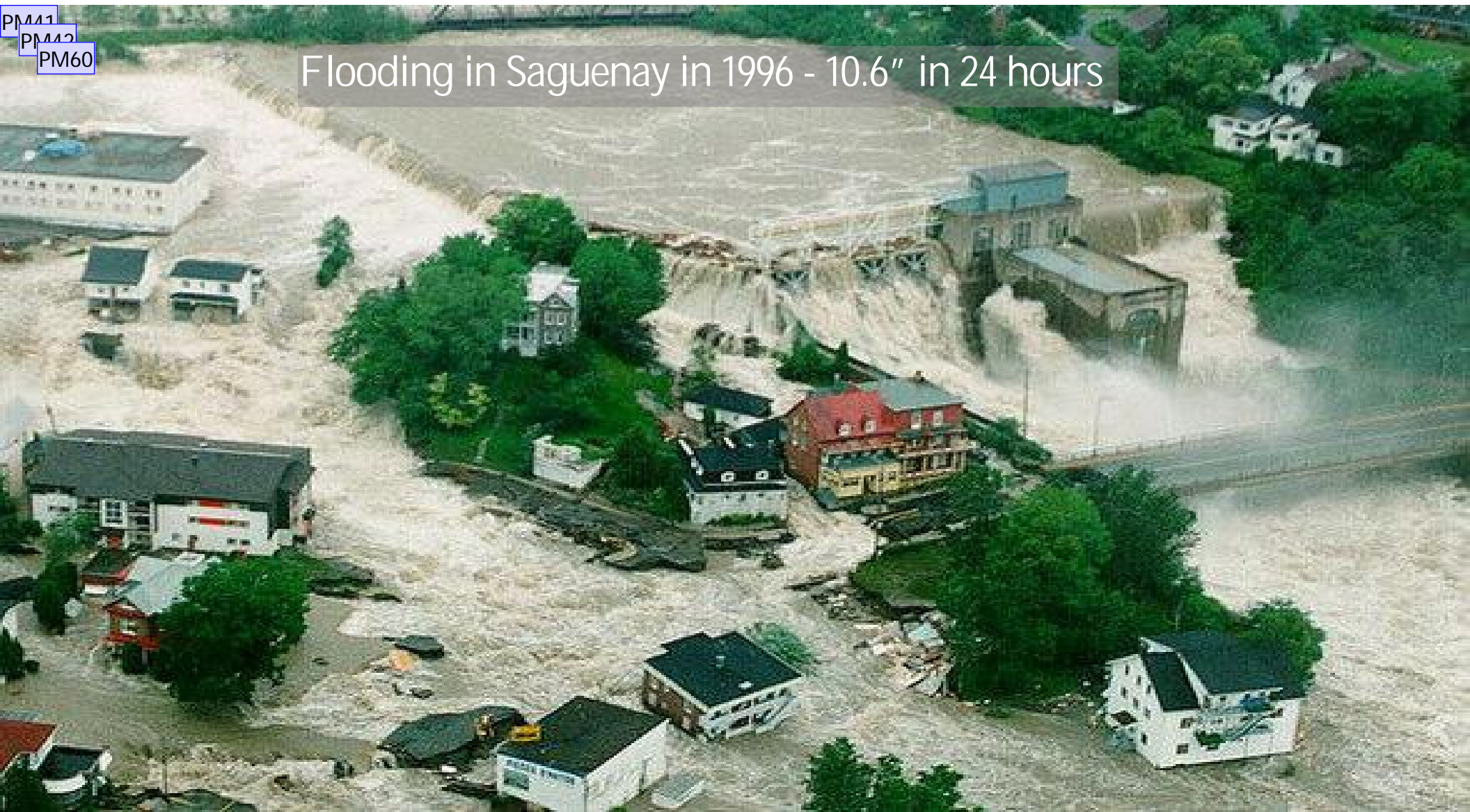


PM37 Content and slide needs approval from marketing/legal
Patricia Matthews, 8/8/2021

PM58 **image purchased from iStock, Louisiana**
Patricia Matthews, 8/17/2021

PM41
PM42
PM60

Flooding in Saguenay in 1996 - 10.6" in 24 hours



PM41 **Content and slide needs approval from marketing/legal**
Patricia Matthews, 8/8/2021

PM42 **Photo permission needed**
Patricia Matthews, 8/8/2021

PM60 **Lyzanne to get credit**
Patricia Matthews, 8/20/2021

PM42
PM44

Flooding in Chestermere in 2015 - 9.6" in 5 hours



Photo by Twitter user Bjugdev

PM43 Content and slide needs approval from marketing/legal
Patricia Matthews, 8/8/2021

PM44 **photo permission needed**
Patricia Matthews, 8/8/2021

Gaining Predictability: CSA Resiliency Standards

DESIGN FOR RESILIENCE

Reliable | Resistant | Responsive | Redundant

WHAT IS THE SOLUTION?

CSA standards provide practical guidance on best practices for communities. Referencing standards in Engineering Plans, Land Plans (as an appendix), planning approvals processes or in any strategic planning document would promote public safety and potentially reduce flood damage

WHO BENEFITS?

- Municipalities • Consultants • Insurers • Developers
- Building Inspectors • Home Builders
- Business Owners • Water Utilities • Homeowners



- PM47 Content needs marketing/legal approval, photo previously approved
Patricia Matthews, 8/8/2021
- PM61 Content taken from E&BE slide presentation previously approved
Patricia Matthews, 8/20/2021

CSA Water Management Standards

Community Flood Resilience

- CSA W204:19, *Flood resilient design for new residential communities*
- CSA W210, *Prioritization of flood risk in existing communities* (in progress)

Stormwater Management

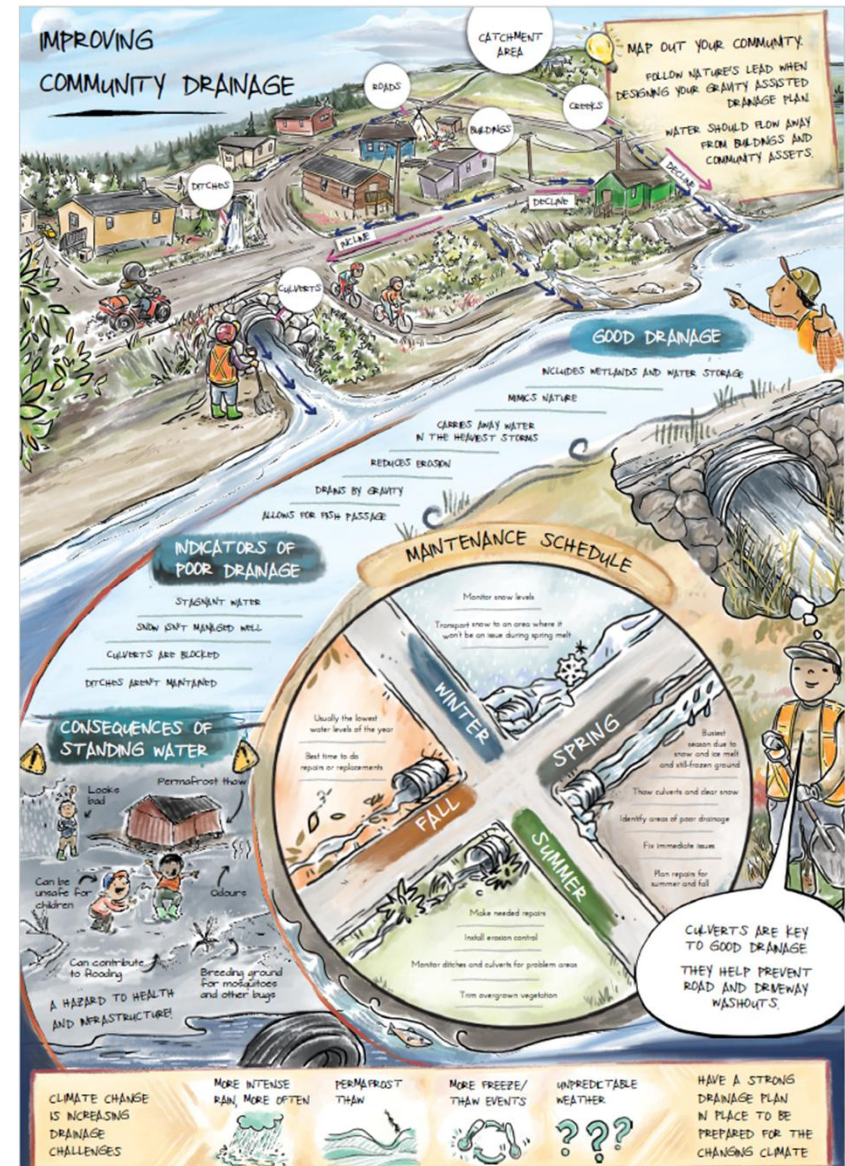
- CSA PLUS 4013:19, *Technical guide: Development, interpretation and use of rainfall intensity-duration-frequency (IDF) information: Guideline for Canadian water resources practitioners*
- CSA W211, *Management standard for stormwater systems* (in progress)

Bioretention

- CSA W200:18, *Design of bioretention systems*
- CSA W201:18, *Construction of bioretention systems*

Erosion and Sediment Control

- CSA W202:18, *Erosion and sediment control, inspection and monitoring*
- CSA W208, *Erosion and sediment control, installation and maintenance* (in progress)



PM48 **previously approved for AUMA/FCM**
Patricia Matthews, 8/8/2021

Climate Resilient Buildings and Infrastructure

Buildings

- **Increasing durability (CSA S478)**
- Preventing basement flooding (CSA Z800)
- Resilient building materials (CSA A440, CSA A123.26)
- Fire resilient planning for northern communities (CSA S504)
- High winds (CSA S505)
- Building Foundations (CSA Z240.10.1)

Infrastructure

- Canadian Highway Bridge Design Code (CSA S6)
- Wastewater Treatment Plants (CSA S900.1)
- Vulnerability of assets a focus for CSA

Electrical

- Canadian Electrical Code (Parts I, II, III)



PM49 **previously approved for AUMA/FCM**
Patricia Matthews, 8/8/2021

Training to Support the Climate Lens

Climate Lens has two components:

1. Climate change resilience assessment
2. Greenhouse gas (GHG) mitigation assessment

CSA training available for Climate Lens:

1. Climate change resilience assessment
 - § **CAN/CSA ISO 31000:2018** Risk Management for Climate Adaptation and Resilience
2. Greenhouse gas (GHG) mitigation assessment
 - § Using ISO 14064 Series

Municipalities can benefit by having employees trained in these assessments



PM50 **previously approved for FCM**
Patricia Matthews, 8/8/2021

LISA PRIME, FOUNDER PRIME STRATEGY & PLANNING INC.

“CSA provides important tools for community planning policy implementation through nationally recognized standards for building resilient communities. Planners can promote consistency for efficiency with actionable policy to address climate change through use of these standards.”

PM59

new quote, not yet approved

Patricia Matthews, 8/20/2021

Value of CSA Group Standards

Costs

- Reducing duplication, reduces municipal and provincial costs
- Minimal cost to municipalities for using standards
- Small & medium sized communities are not disadvantaged

Approvals

- Transparent requirements can reduce back and forth consultations
- Industry knows expectation and can more easily demonstrate their compliance
- Approving authorities can more easily verify whether what should have been done, has been done

Confidence

- CSA Group convenes technical experts from across Canada
- Members, from a variety of backgrounds not just one consulting firm, contribute to development of standards
- Outcomes are evidence-based and are consistently reproducible

PM51 previously approved for Ontario ministry of municipal affairs
Patricia Matthews, 8/8/2021

Key Asks

- **COLLABORATE** with CSA Group to explore opportunities for standardization in new and emerging areas that are important to municipalities
- **SUPPORT** standards development activities by referencing them in your key documents and processes
- **CHAMPION** the use of standards by making them a key criteria for approvals
- **PROMOTE** the importance of standards within regions and provinces for consistent, predictable outcomes among neighbouring communities

Standards can help support resilient communities, durable infrastructure, and build a stronger Canada

- PM52 **previously approved for Ontario ministry of municipal affairs- now with slight wording changes and deletions**
Patricia Matthews, 8/8/2021
- PM53 **will review with legal**
Patricia Matthews, 8/8/2021
- PM55 **removed the "increasing impact" arrow**
Patricia Matthews, 8/9/2021



Thank you.

Michael Leering

Director, Environment and Business Excellence Standards

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