

CLIMATE CHANGE AND EXTREME WEATHER RISK: IS CANADA PREPARED?



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Intact Centre on Climate Adaptation

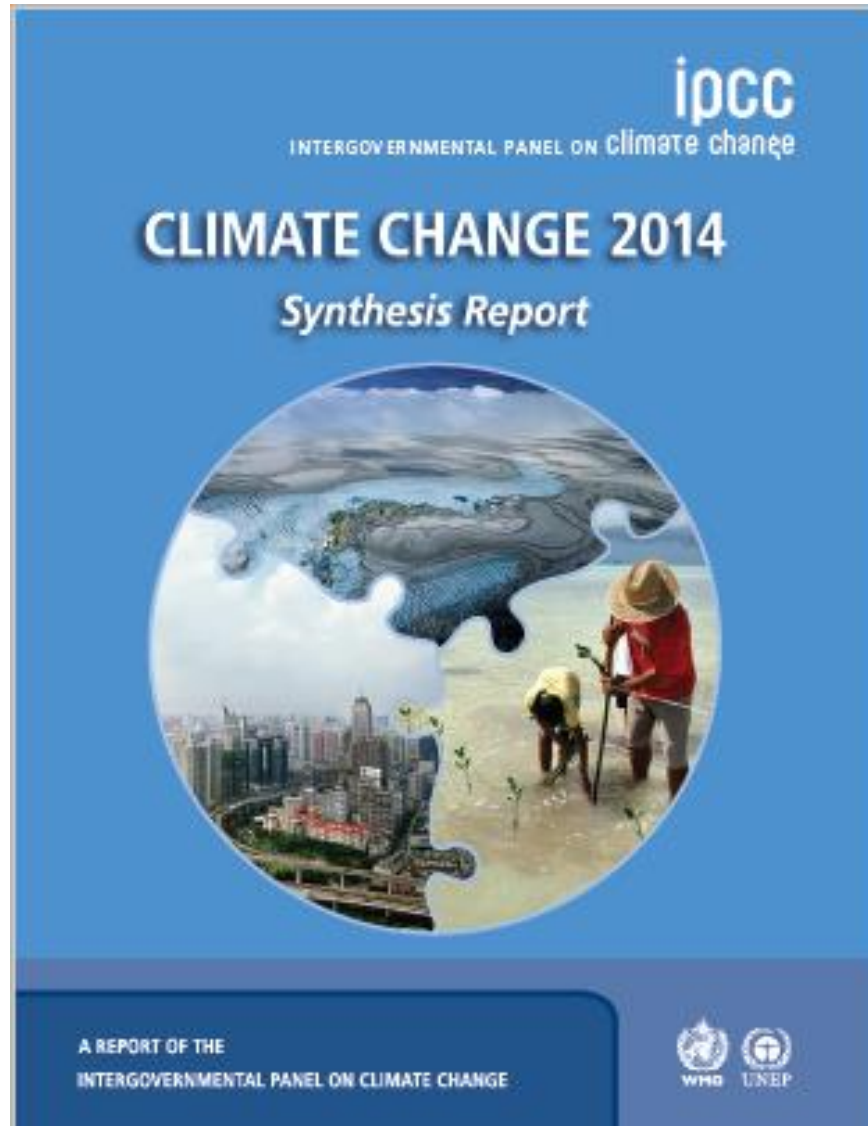
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February 25, 2020

1. Climate change is irreversible
2. Financial and social costs of extreme weather are increasing
3. Good news - Canada is developing guidance to limit risk
4. Profile practical means to limit extreme weather risk:
 - flood risk (home, community, commercial real estate)
 - fire
 - extreme heat
5. Conclusion

HUMAN INFLUENCE ON CLIMATE CHANGE AND EXTREME WEATHER

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ON CLIMATE ADAPTATION

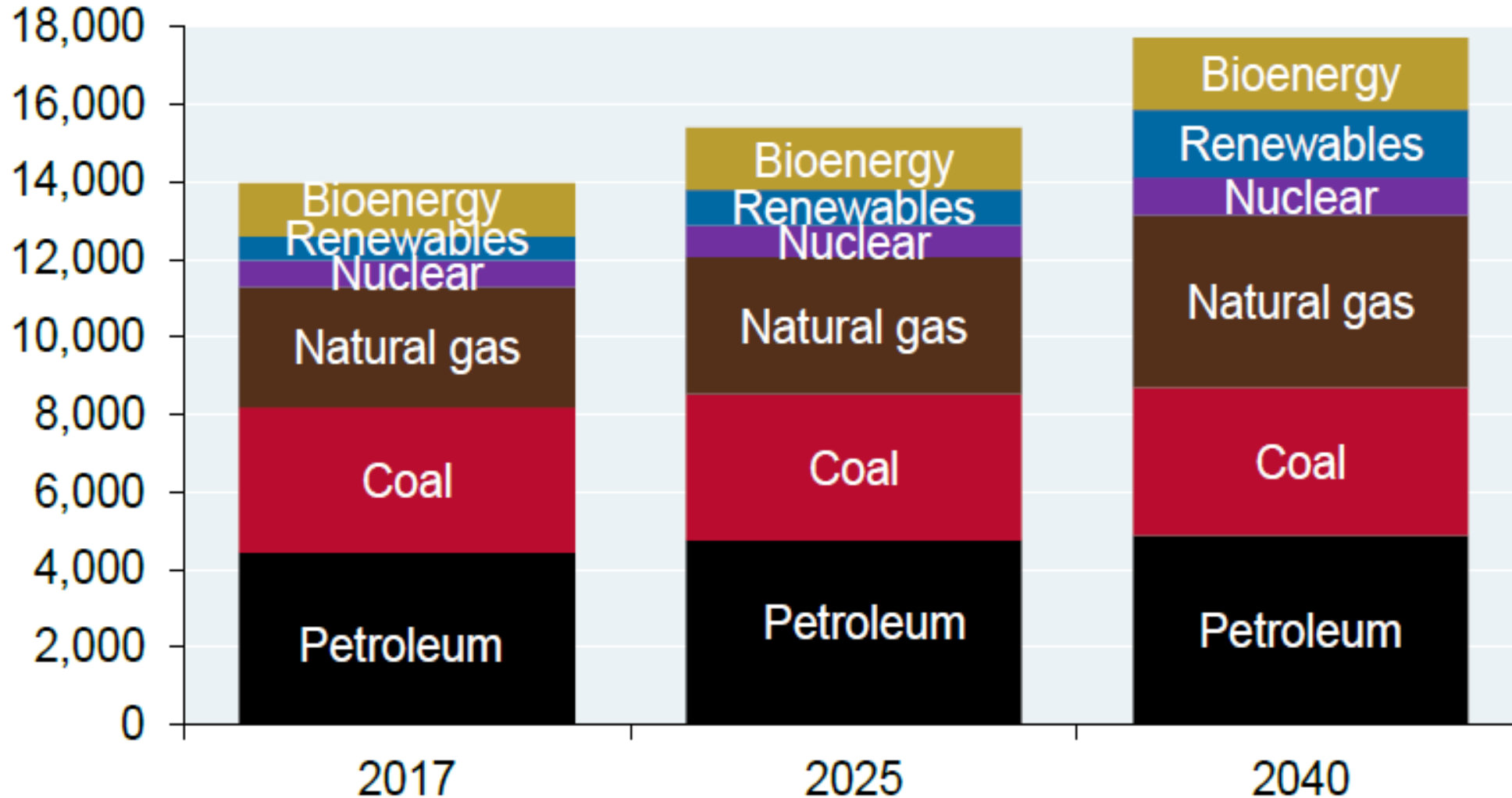


It is extremely likely that human influence has been the dominant cause of the observed warming since the mid-20th century...

IPCC 2014

WORLD ENERGY SUPPLY (Mtoe)

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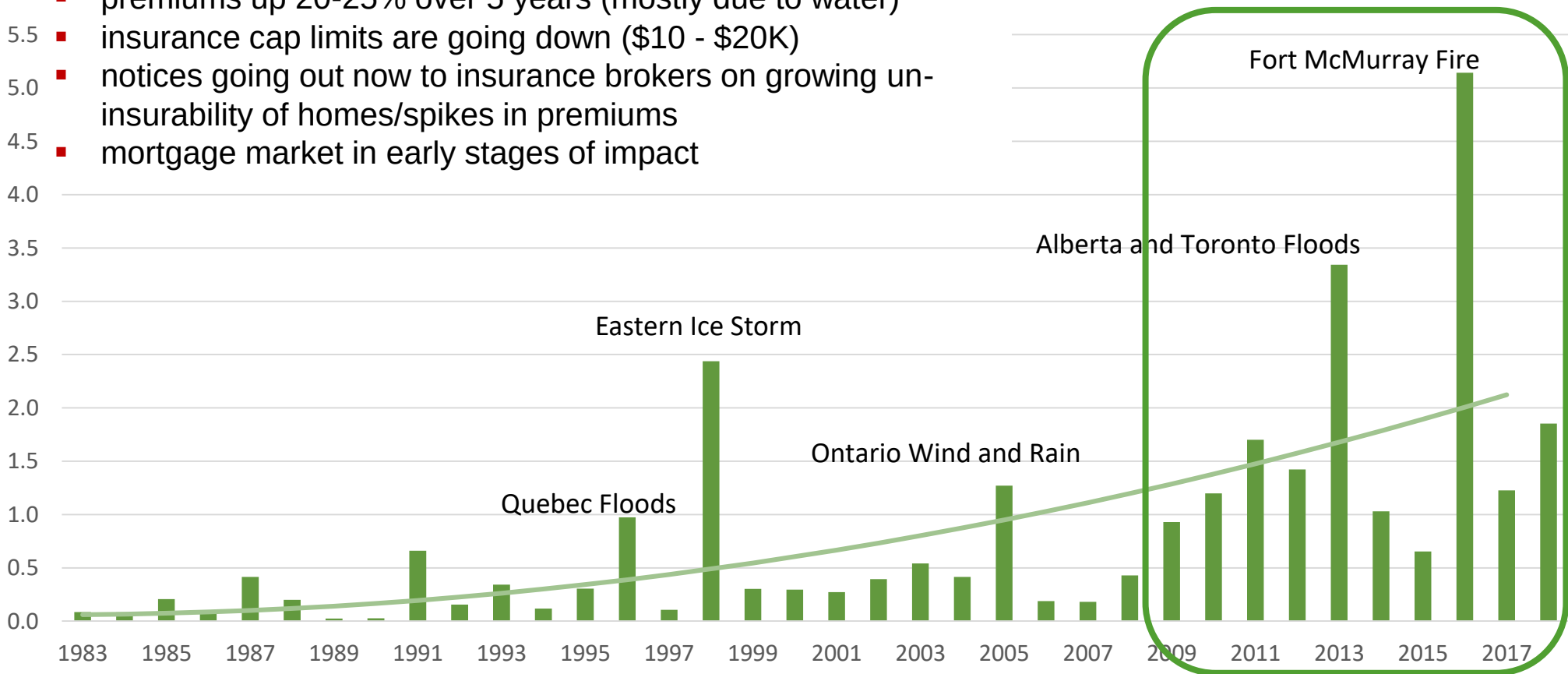


Source: International Energy Agency New Policies Scenario. 2018.

COSTS OF EXTREME WEATHER: CATASTROPHIC INSURABLE LOSSES (\$CAD)

- premiums up 20-25% over 5 years (mostly due to water)
- insurance cap limits are going down (\$10 - \$20K)
- notices going out now to insurance brokers on growing un-insurability of homes/spikes in premiums
- mortgage market in early stages of impact

\$ Billion



Loss + Loss Adjustment Expenses

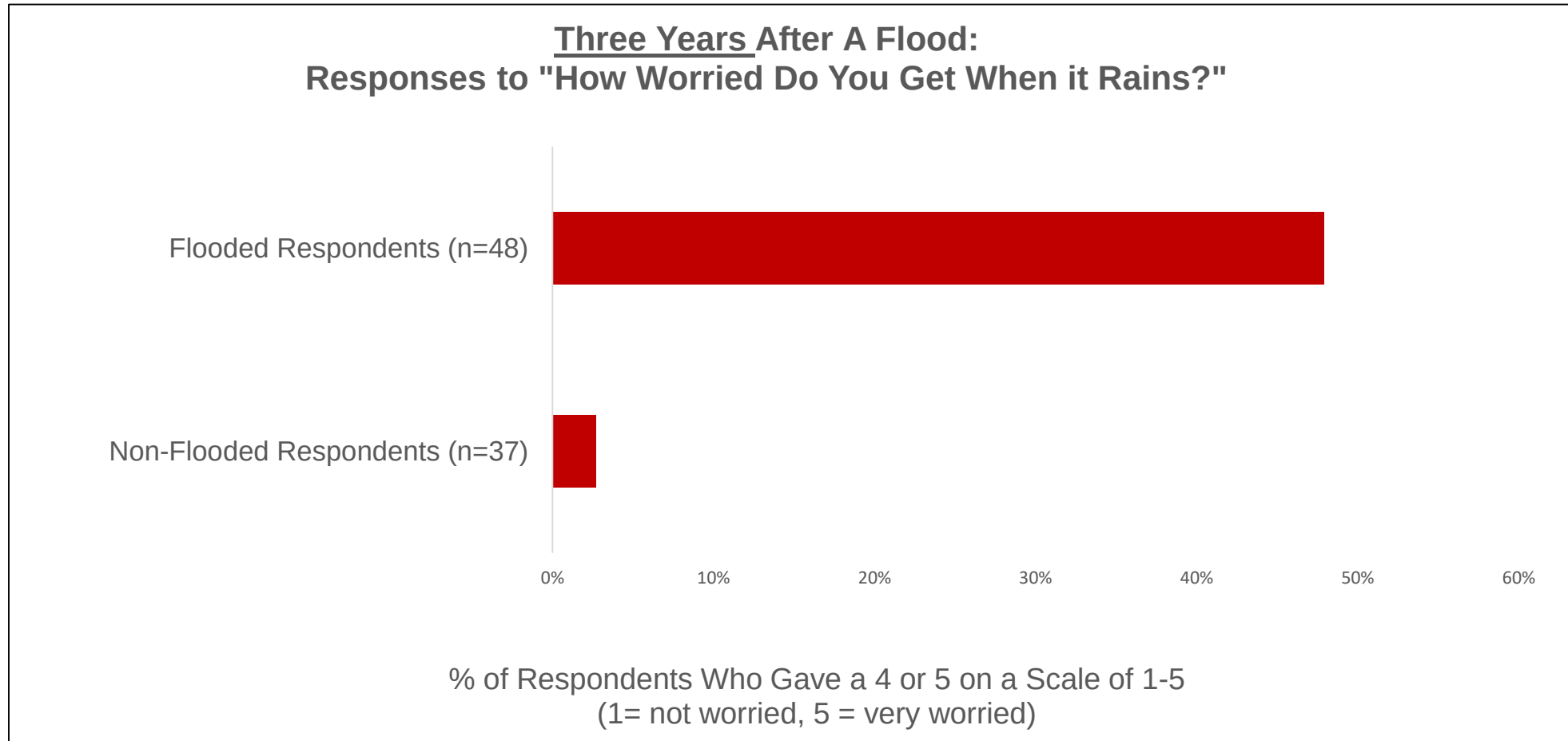
\$2017 - total natural-catastrophe losses normalized by inflation and per-capita wealth accumulation

Courtesy: Insurance Bureau of Canada

Note: Cost to government and homeowners 3-4X that of private insurers.

MENTAL HEALTH IMPACTS OF BASEMENT FLOODING

- *“It’s something you never want to experience again in your life”*
- *Average time off work following basement flood – 7.1 days*



GUIDANCE ON FLOOD RISK MITIGATION (SUPPORTED BY: NRC, SCC, CSA)

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**Home Flood
Protection
Guideline**



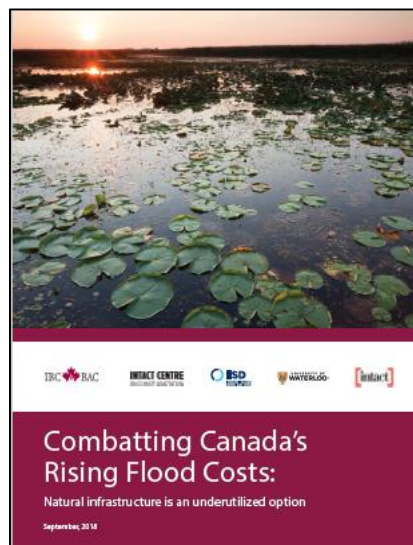
**New
Community
Design Flood
Guideline**



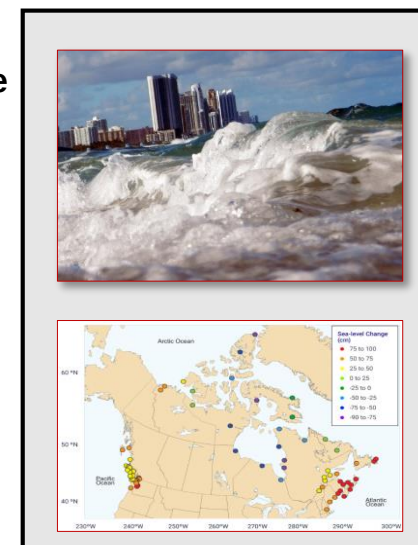
**Existing
Community
Flood
Guideline**



**Commercial
Real
Estate
Flood
Guideline**



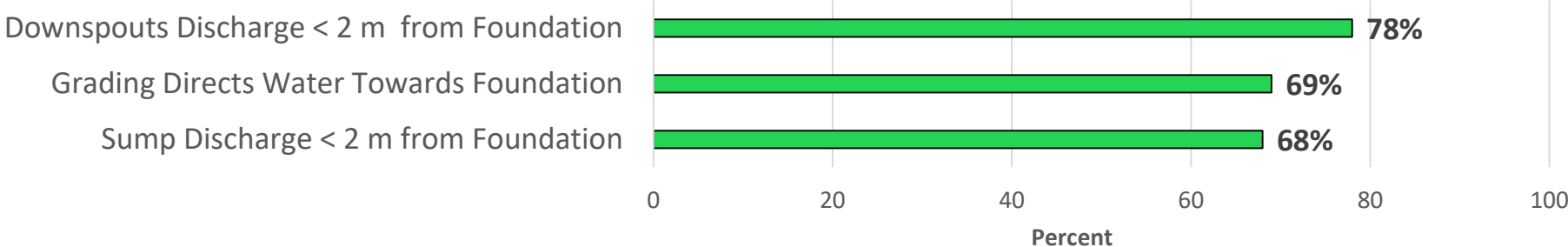
**Natural
Infrastructure
Guidance**



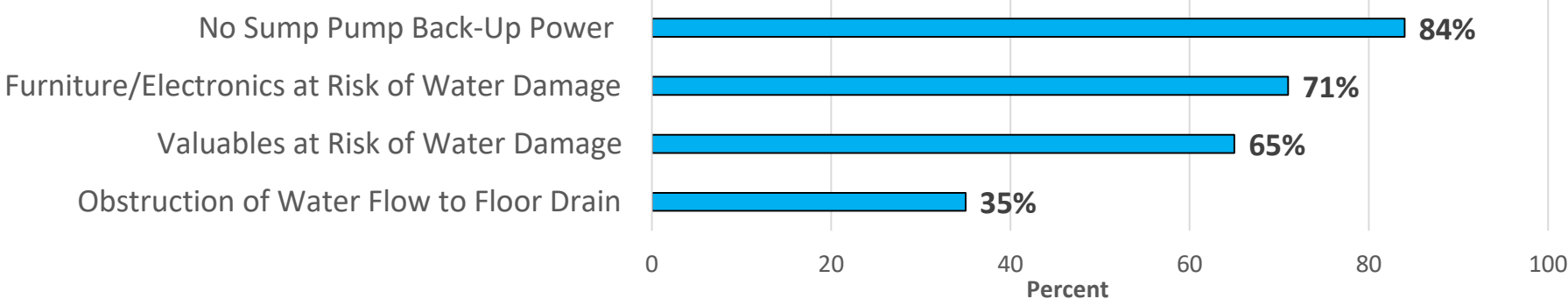
**Coastline
Flood
Resiliency
Guideline**

KEY FACTORS THAT AFFECT BASEMENT FLOOD RISK

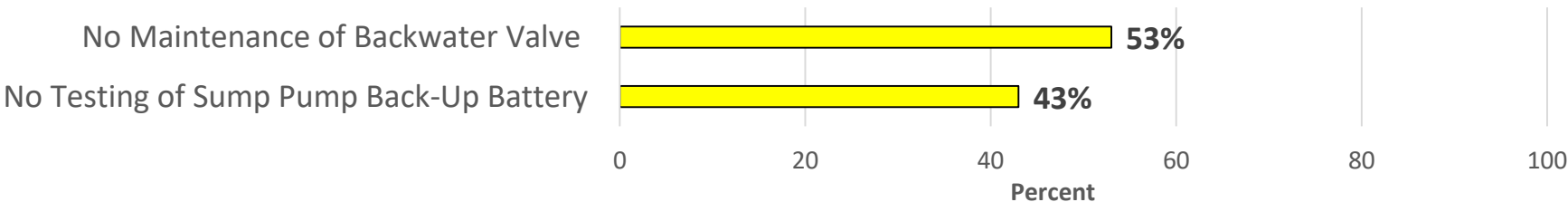
Top Flood Risks Recorded Outside the Home



Top Flood Risks Recorded Inside the Home



Top Self-Reported Maintenance Flood Risks Inside the Home



Step 1: Maintain What You've Got at Least Twice per Year

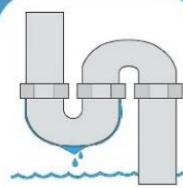
Do-It-Yourself
for \$0



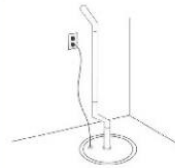
Remove Debris from
Nearest Storm Drain



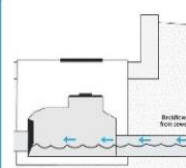
Clean Out Eaves
Troughs



Maintain Plumbing,
Fixtures and
Appliances



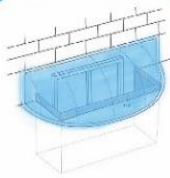
Test Your Sump Pump



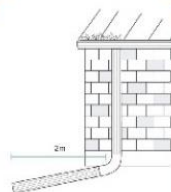
Clean Out Your
Backwater Valve

Step 2: Complete Simple Upgrades

Do-It-Yourself
for Under \$250



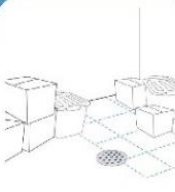
Install Window Well
Covers



Extend Downspouts
and Sump Discharge
Pipes at Least 2m from
Foundation



Store Valuables and
Hazardous Materials in
Watertight Containers or
Remove from
Basement



Remove Obstructions
to Basement Floor
Drain



Install and Maintain
Flood Alarms

Step 3: Complete More Complex Upgrades

Work with a
Contractor for
Over \$250



Install Window Wells
that Sit 10-15 cm
Above Ground and
Upgrade to Water
Resistant Windows



Disconnect Downspouts,
Cap Foundation Drains
and Extend Downspouts
to Direct Water at Least
2m from Foundation



Correct Grading to
Direct Water at Least
2m Away from
Foundation



Install Backwater
Valve



Install Backup Sump
Pump and Battery

Home Flood Protection Check-Up

Home flood
protection
is just a
click away!



Take a few minutes to find out how to reduce flood risk at your home and get a free, confidential report that summarizes what you are already doing well and what else you can do to protect your home!

Note: Following the flood risk reduction best practices outlined in this Check-Up does not guarantee the prevention of basement flooding.

Get Started

Created by:

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**UNIVERSITY OF
WATERLOO**

<http://homefloodprotect.ca/checkup/>

*By taking these steps, **Canadians could lower their annual premiums, anywhere from 5 to 15%.***

Intact Financial Corporation, 2019

EVERY INDUSTRY SECTOR HAS CLIMATE RISK

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B.C. wildfires hitting local tourism industry hard

By LINDA GIVETASH The Canadian Press
Wed., Aug. 30, 2017

High water levels threaten St. Lawrence shipping

Rains, then flooding, killing crops for many Ontario farmers

By KRISTIN RUSHOWY Queen's Park Bureau
Sun., Aug. 13, 2017



Fort McMurray wildfire: \$3.6B in damage, says Insurance Bureau of Canada

By Staff The Canadian Press

Syncrude Canada oil sands operation shut down, staff removed, due to Fort McMurray fire

Tropical Storm Harvey takes out 911 centers, cell towers, and cable networks

Centreville Amusement Park suffers \$8M loss in revenue due to flood-related damages

The park is now facing an estimated \$6 million in repairs and fixes

Ramona Shanahan - CBC News - Posted: Sep 02, 2017 8:00 PM ET | Last Updated: September 5, 2017

Vast boreal forest in Alberta threatened by climate change

Climate Change: The Unseen Force Behind Rising Food Prices?

Alberta insurance policies changing after \$1.7B in flood payouts

CityNews LOCAL VIDEO CONTACT US Q

IN PHOTOS: Flooding in the Eaton Centre

BY NEWS STAFF
POSTED FEB 16, 2015 10:18 PM EDT

This is the Looming Climate Change Disaster in Canada's North That No One is Talking About

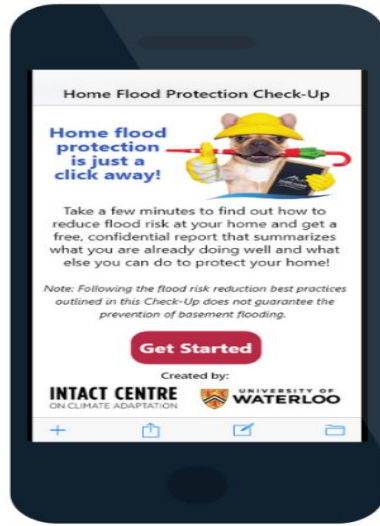
Pharmacy Supply Lines Are Still Shaking After Storm Passes

Many B.C. mining and forestry companies forced to scale back due to wildfires

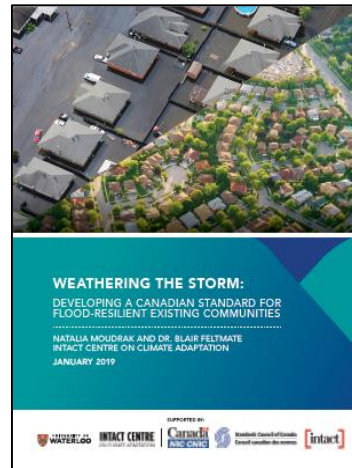
For Port of Vancouver, underestimating Pacific sea-level rises could come at a high price

CONCLUSION

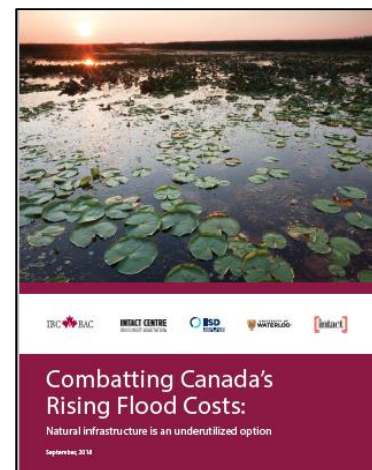
CANADA MUST MOVE FASTER ON ADAPTATION



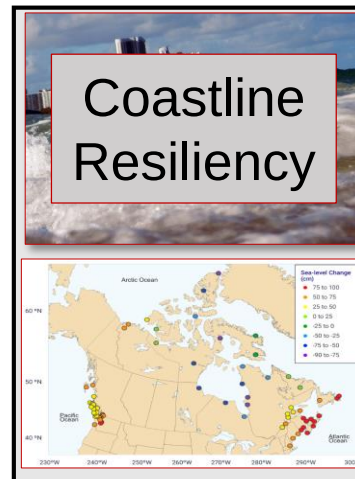
Home
Flood
Resiliency



New
Community
and Existing
Community
Flood
Resiliency



Retain
Natural
Infrastructure



Develop
Coastline
Resiliency
Guideline