



ResilienCity: Preparing for Extreme Weather

THE FOCUS

Extreme weather events such as flash floods and heat waves are becoming more frequent and pose a growing threat to the well-being of Greater Toronto and Hamilton Area (GTHA) businesses, people, and communities. **How might we reduce risk, increase preparedness, and enhance our ability to recover from extreme weather events?**

WHAT WE KNOW

Sources: Government of Canada; City of Toronto; Insurance Bureau of Canada; City of Toronto Medical Officer of Health.

Ontario's climate is changing faster than the global average, increasing the likelihood of extreme and unpredictable weather events in the GTHA such as ice and winds storms, flash floods, and heat waves.

By 2050...



4x MORE
HEATWAVES



EXTREME
TEMPERATURES



2x MAX DAILY
RAINFALL

- According to the Insurance Bureau of Canada, there are 1.7 million Canadian households at risk of river and surface water flooding. That's 17% of the population.
- Extreme heat contributes to 120 premature deaths in Toronto each year.
- Intense storms are overwhelming aging water infrastructure in many cities. After severe storms in April 2017, E-coli levels in Lake Ontario were 30 times higher than recommended concentrations for swimming and other water activities.

WHY IT MATTERS

Sources: National Round Table on the Environment and the Economy; Intact Centre on Climate Adaptation; RAINN Community Solutions; Zeuli et al.

The financial, environmental, and social costs of extreme weather events severely affect the region's economy and ecosystem, as well as people's everyday lives.

Economic Impact

The Intact Centre on Climate Adaptation found that while the average cost of extreme weather events in Canada will be \$5 billion a year by 2020 and \$43 billion a year by 2050.

Food Security

Extreme weather could disrupt Ontario's food system, leading to reduced supply and increased prices for consumers.

Environmental Damage

Runoff from extreme rain events can result in pollution, streambank erosion, and increased sediment, which damages rivers, fish habitats, and source water for drinking.

Financial Pressures

The average cost of a flooded basement is approx. \$40,000. Almost half of Canadians report that they would not be able to put together \$2,000 if an emergency arose in the next month.



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MYTHS

Sources: Insurance Bureau of Canada; Interdisciplinary Centre on Climate Change and Partners for Action; The Lancet Countdown.

"It's too costly to take action."

The Federation of Canadian Municipalities estimates that every \$1 billion invested in disaster mitigation saves \$6 billion in damages.

- The wind and rain storm that hit Hamilton and the Greater Toronto Area in May 2018 caused over \$500 million in insured damage.

"I don't need to worry about my home."

Many people incorrectly assume that they are not vulnerable to flooding, or that their home insurance covers flooding.

- Most home insurance policies do not cover overland flood damage. If you live in a flood plain, this kind of coverage may not be available to you at all. In one survey, only 6% of homeowners knew that they were located in a designated flood risk area.

"It's nothing we can't easily repair."

Many of the impacts are not matters of hard infrastructure.

- Several mental health effects associated with climate change-related events have been observed in Canada, including post-traumatic stress disorder, trauma, anxiety, and grief related to changes in the ecology where someone resides.

WHAT IS BEING DONE

CREW TORONTO

Founded in response to the December 2013 ice storm that left hundreds of thousands without power, CREW Toronto is working to identify and map the local people, institutions, and businesses that become the go-to people and places during an emergency, starting with two downtown Toronto pilot wards. These "shadow" first responders supplement the City's scarce first responder resources by providing immediate services in an emergency such as evacuation, shelter, first aid, and food provision.

Home Flood Protection Program

The Home Flood Protection Program is a flood risk reduction education program developed by the Intact Centre on Climate Adaptation at the University of Waterloo to help homeowners reduce their risk of basement flooding and minimize damage if flooding occurs. The program provides free online self-help resources and a custom, fee-for-service flood-risk evaluation.

100 Resilient Cities

In 2016, Toronto was selected as a member of the worldwide 100 Resilient Cities network, which supports the City's resiliency office to develop and adopt an urban resilience strategy that will lay out an adaptive response to climate-related weather shocks such as floods, heatwaves, blizzards, cold snaps, and ice storms.

GLOSSARY

Extreme weather event:

An event that is statistically rare. In the GTHA, these kinds of events include heat waves, ice storms, wind storms, and floods.

Extended heat event:

Extended Heat Warnings are issued if the forecasted temperature high is 31°C or higher with a humidex of 40 or higher and these conditions are expected to continue for 3 or more days.

Overland flooding:

Flooding that occurs when bodies of water overflow onto dry land or when stormwater management systems are overwhelmed.