Quarterly Review | Spring 2025
By Ingrid Sapona

Climate Change-related Catastrophes: Insurance Issues

This article looks at insurance issues related to catastrophic risks related to the changing climate.

Introduction

There is overwhelming scientific evidence that climate change is impacting the frequency and severity of many hazards around the world. For example, warming increases the risk of extreme rainfall, areas burned by wildfire, and the possibility of local severe wind events. These hazards account for the majority of catastrophe claims in Canada. Estimates are that the annual severe weather claims paid by insurers in Canada could more than double from 2020 to 2030, increasing from $2.1 billion to $5 billion a year. In 2024 Canada paid out $9 billion in claims.
[See addendum 1 for definitions]

The pace of warming in Canada is twice as fast as the global average and the extreme north of Canada is warming three times faster than the global average. In fact, according to the Canadian Climate Institute, Canada is warming faster than anywhere else on earth.

Over the past few years many parts of Canada have experienced major losses attributable to climate change. “Climate change more than doubled the likelihood of extreme fire weather conditions (high temperatures, low humidity, and drought conditions) in Eastern Canada in 2023, and made Québec's 2023 fire season around 50 per cent more intense. Heat waves make it easier for wildfires to start and spread. Intense heat makes lightning, the primary cause of wildfires, more likely to occur, and makes vegetation drier and more flammable, facilitating the spread of wildfires,” according to the Canadian Climate Institute.

In July 2024 thunderstorms hit Southern Ontario flooding homes, streets, and businesses, causing over $940 million in insured damages. A second set of storms in August also resulted in severe flooding that caused over $100 million in insured losses. A record-breaking hailstorm hit Calgary in August 2024 causing nearly $2.8 billion in insured losses.

Increasing losses related to climate change

Losses due to physical damage resulting from climate-related hazards will grow in years to come for a variety of reasons. For example, the exposure risk grows as the number of people who live, work, and play in zones of high climate risk increases. Increased urbanization results in a growing concentration of risk and an increased risk of correlated loss. Simply put, population growth translates to an increase in the number of covered structures and autos. The fact that new home sizes have doubled over the past 50 years also means more contents are at risk and the cost of contents has increased faster than the overall inflation rate.

Older structures are more likely to experience damage from extreme events. As well, aging critical infrastructure is increasingly vulnerable because power grids, sanitary sewers,

transportation systems, and so on were designed for more moderate weather events. Several decades of underinvestment in maintaining, modernizing, and expanding critical infrastructure also translates to increased physical damage risk.

Catastrophes present a variety of issues for the insurance industry, including:

- Catastrophe financing capacity
- Risk awareness
- Response challenges

[See addendum 2 for numbers]

Catastrophe financing capacity

Capacity relates to the ability to pay claims. To date, in Canada this has not been an issue because catastrophe financing has been well managed. Given the rise in catastrophe claims paid by the industry over the past few years, however, more reinsurance coverage may be necessary. Senior management in most insurance companies may find it more challenging to design and perhaps secure appropriate reinsurance programs.

Disaster losses in Canada are growing at about 9% annually, which is three times GDP, according to Glenn McGillivray, managing director for the Institute for Catastrophic Loss Reduction (ICLR). The risk of higher losses from climate-related catastrophes can be reduced by risk management that includes investment in proven and known protective measures.

Impact of investing in resilience on catastrophe financing

Investment in climate resilience is a core strategy for managing catastrophe financing over the longer term. Resilience solutions to catastrophe financing challenges ultimately need to involve homeowners, businesses, and builders empowered by information, directed by regulations and encouraged by financial incentives.

Adaptation and resilience efforts focus on reducing the vulnerability and exposure of human and natural systems to climate change impacts. Investment in resilience can result in fewer claims being triggered or meaningful reductions in damage. Insureds with homes that are resilient may benefit from reduced premiums and broader coverage.

Environment and Climate Change Canada believes that the rate of return on investments in improved resilience is very high, with benefit-cost ratios ranging from 2:1 to 10:1, and in some cases even higher.

The types of financial incentives the insurance industry could offer could include adding resilience when responding to claims. (The notion of build back better.) Pricing rewards offered to insureds who invest in resilience when they build, renovate, refurbish their property are another option.

Risk awareness

Policyholder awareness revolves around things like policyholder appreciation of potential risks relevant to their situation. It also relates to ensuring policyholders understand coverages options that are available, including risk-specific coverage and general coverage for things like additional living expenses in the event of a catastrophe.

Most Canadians are not aware of their exposure to loss and damage from flood, wildfire, and severe weather. The awareness gap is the first point Raymond Monteith, Senior Vice President, HUB Risk Services, makes when asked about policyholder awareness of climate-related risk.

Monteith cites a 2020 survey of Canadians living in designated flood risk areas that showed that only 6% of those surveyed knew they lived in a designated flood risk area. That statistic is perhaps understandable, given that 81% of those surveyed had never reviewed flood maps for their community. Furthermore, though climate change is expected to lead to more intense storms and flooding, the survey showed that 63% of respondents did not think the risk of flood to their home will change over the next 25 years. Another revealing point that came to light in the survey is that just over one-fourth of those surveyed reported that they had discussed flood coverage options with their insurance representative.

An awareness gap also sometimes exists in terms of the potential consequences of the risk. Monteith points to the Palisades fire in California as "a prime example of how people can live in a certain area and build in a manner that does not consider the hazards present and then be astounded when an event occurs and the results are catastrophic."

ICLR's McGillivray, speaking at a broker's convention in Banff this May, expressed frustration that despite the catastrophic 2024 fire in Jasper – just a three hour drive from Banff – homeowners and municipalities still do not seem motivated to build resilience into their properties and communities. "If we haven't learned from places like Jasper or Fort McMurray, I don't know what it's going to take," he said. Point to things like the many places around Banff where bark chips are used in landscaping, McGillivray thinks that homeowners must see the choice as one between sacrificing outdoor ambience for resilience efforts. But McGillivray thinks a home's visual appeal does not have to be sacrificed. "By combining smarter landscaping with fire-resistant materials like stucco or fibre cement, homeowners can protect their properties from embers – the primary cause of ignition – while maintaining curb appeal," he says.
[See addendum 3 for knowledge test]

The question of whether brokers, agents, and insurance companies have a responsibility to inform policyholders about their property-specific risk is open to debate. While information is available through public agencies (for example, agencies that develop maps and models and various communication tools), support and leadership from the insurance industry would help ensure Canadians are better informed of risks. The benefit to insurers and brokers of ensuring policyholders appreciate the increased risk of loss due to climate-related catastrophes includes the possibility of policyholders seeking expanded coverage, for example, business interruption that they might not have considered.

Compounding the concern regarding policyholder unawareness of their exposure to climate-related risks, most Canadians do not know what insurance protection they have (i.e., what losses

are covered), or the options available. There is little disagreement that it is the responsibility of the insurance industry to explain to insureds what coverages are in place and what coverage options are available. Such explanations should extend to caps, limits, and other conditions found in coverage for water damage, wildfire, severe wind, hail, and other perils.

Insurance professionals should also try to help insureds understand the extent to which provincial disaster assistance may respond in the event of a catastrophe. Though some may disagree that the industry has a role in explaining the nature and limits of government disaster assistance, more than half those surveyed regarding their flood risk indicated that if government disaster assistance programs were unavailable, they would purchase overland flood insurance. So clearly, it is beneficial for insurers to the help insured understand whether government assistance may be available.

Regarding climate risk resilience, HUB's Monteith, who leads HUB's Organizational Resilience practice, notes that the more prepared an individual or organization is, the more likely they are to be resilient. He finds often clients know that they can purchase coverage to mitigate some climate-related risk, but it's the retained risk that he is generally focused on providing support to clients to take action on.

"Awareness is key. It's great if a client is aware of their exposure and of how extensive it is and how disruptive an event might be. In this regard, we can help clients understand their exposure by applying models, for example," he says. "Awareness should inform preparedness – how prepared are you for dealing with a particular event and do you have a plan to respond to disruptions? It is also important to monitor changes in your environment. Is the hazard still there? Has it changed? For example, has the status of the flood or wildfire risk changed? We have lots of examples of hazards that used to be confined to a particular season – like wildfire or flood risk – that, very clearly, are changing."

As climate-related risks change, Monteith points out that brokers have a duty to remain informed of those changes in the risk environment so that they can provide clients with a comprehensive, accurate risk profile. For example, at HUB, part of the role of subject matter experts is to distribute their knowledge throughout the organization to ensure it is passed along to clients.

Catastrophe response challenges

It's estimated that 228,000 claims tied to climate-related disasters were filed in Canada in 2024. By comparison, in 2023 there were approximated 160,000 natural disaster-related claims. The fact that in 2024 disasters came in waves within a relatively short time added to the adjusting challenge.

"One of the main differences between adjusting in a catastrophe and regular adjusting is the shear volume of claims that have to be handled. The fact that each catastrophe event is different is also important to note and flexibility is really key," explains Kyler Hart-Moore, President of Laurin Adjusters, Ltd. "Adjusters have to be especially flexible in catastrophe situations because the day-to-day logistics can often be a challenge," says Hart-Moore. There might not be accommodations on site so you might end up sleeping in your car as you go from place-to-place,

he explained. Hart-Moore has also found that when working in a catastrophe situation, different communities will have different mentalities or personalities. “Some communities or individuals have a lower threshold for dealing with the stress post-disaster, while others accept it for what it is and look to move forward. A high degree of empathy and professionalism go a long way for adjusters, especially during these events” he said.

Another consideration particularly relevant to catastrophe adjusting is having to wait for evacuation orders to be lifted. The duration of evacuation orders varies quite a lot. For example, in a flood situation it may take a few days until flood waters recede and essential services are available. But in the case of a wildfire like Fort McMurray or Jasper the evacuation order can be on for three to four weeks.

Hart-Moore says that in some cases they are granted advanced access to the areas before people of the area can return. For example, with the Jasper fire a coach bus of insurance professionals had advanced access. “We were driven through for a visual tour – we could not get out of the bus – but we could see for ourselves the extent of the damage. Having advance access before the chaos of communities reopening is helpful,” he says. The chaos he refers to is attributable to the fact that often it’s not just policyholders returning. “Sometimes there are what I would call ‘devastation tourists’ who come in – they just are curious and want to see it. And then there are fly-by-night contractors who try to take advantage of people, which is really not good for folks who are in a particularly vulnerable state,” he said.

As independent adjusters, Laurin Adjusters typically deals with a number of different insurers, so they need to be familiar with the coverages and procedures of different insurers. “The procedures and coverages are fairly standardized but will always differ slightly. One positive industry trend we are starting to see is more insurance companies offering upgraded coverage under ‘build back better’ provisions so that the risks they insure are more resilient to such catastrophes in the future,” says Hart-Moore.

Conclusion

Despite numerous examples of devastating natural disasters that have occurred throughout the country, many Canadians remain unaware of their own exposure to climate-related risks. Failure to appreciate the risks means that people are not taking action to be climate resilient.

More needs to be done to make people aware that loss preventing investments and actions taken by homeowners, builders, and municipalities result in savings for governments, insurers, lenders, and future homeowners. A culture of climate preparedness would mean that Canadians could expect to return to their homes and businesses after the hazard passes with the confidence that most will experience little or no damage.

References

1. https://www.insuranceinstitute.ca/en/Insights-And-Publications/Catastrophe-Financing
2. https://climateinstitute.ca/news/fact-sheet-heat-waves/
3. https://theconversation.com/2023-was-the-hottest-year-in-history-and-canada-is-warming-faster-than-anywhere-else-on-earth-220997

4. https://www.ibc.ca/news-insights/news/august-hailstorm-in-calgary-results-in-nearly-2-8-billion-in-insured-amage
5. https://www.insuranceinstitute.ca/en/Insights-And-Publications/Cyber-risk?
6. https:/www.canada.ca/content/dam/eccc/documents/pdf/reports/report-update-national-adaptation-strategy.pdf
7. https://www.insuranceinstitute.ca/en/Insights-And-Publications/CanadianUnderwriterArticles/items/2025/05/13/First-Jasper-next-Banff-Why-the-town-could-be-the-next-to-burn
8. https://www.westlandinsurance.ca/news/from-climate-change-to-ai-preparing-for-the-future-of-insurance-claims-handling
9. https://www.insuranceinstitute.ca/en/Insights-And-Publications/CanadianUnderwriterArticles/items/2025/04/22/Could-Canadas-record-Cat-loss-spark-a-new-peril-definition
10. https://public.catiq.com/2025/01/13/canadian-insured-losses-from-catastrophic-events-total-can-8-5-billion-in-2024
11. https://uwaterloo.ca/partners-for-action/past-projects/canadian-voices-flood-risk-2020#:~:text=Key%20Findings%3A,flood%20maps%20for%20their%20community

Additional reference material

Addendum 1

Key Definitions
As Catastrophe Financing Implications for The Insurance Industry in Canada notes, "The United Nations defines **disaster** in social terms: 'A serious disruption of the functioning of a community or a society involving widespread human, material, economic or environmental losses and impacts, which exceeds the ability of the affected community of society to cope using its own resources'." While this is definition paints a useful picture, the U.N. does not define other key terms that are relevant for the insurance industry.

Here are some of the insurance industry definitions of terms used in this report:

- **Catastrophe**: A sudden, large loss.
- An **insurance claims catastrophe** is an event where insurance claims for the industry exceed $1 billion.
- A **catastrophic year** is one that has total insurance claims in excess of $3 billion across all measured events (large and small).
- A **mega catastrophe** is one with insurance claims in excess of $35 billion in the same year. A mega catastrophe is considered a systemic threat to the industry that would require a commitment by the federal government to work with the industry in response.

Peak versus Secondary Perils
In the world of catastrophe finance, peak perils are typically considered those caused by things like earthquakes and tsunamis, whereas secondary perils are those related to floods, wildfires, and hail.

But, given that in 2024 there was almost $9 billion in natural catastrophe losses in Canada, many of which were multi-billion-dollar events in themselves, some think it may be time to redefine, or re-think, the peril categorization. Jolee Crosby, Swiss Re CEO has noted, “The increasingly oversized nature of losses arising from ‘secondary’ perils means insurers and reinsurers should rethink what counts as a ‘peak’ peril.” Crosby says such a paradigm shift is important in terms of how risks are modelled, prices, and communicated.

Addendum 2

Catastrophic Insured Losses by the Number

In 2024 Canada experienced the largest loss year on record, with insured losses of $9 billion, exceeding 2016’s $6.2 billion, according to CatIQ (Catastrophe Indices and Quantification Inc.) CatIQ reports that on average, Canada has had 12 events per year that generate insured losses of over $30 million (CatIQ’s threshold for events it deems catastrophes). While 2024 was not unusual in the number of catastrophic events, one of the things that contributed to it being a record breaker is the fact that four events generated losses of $1 billion or more. Also noteworthy was the fact that four of the events – all of which now rank in the top 10 costliest events happened within the span of one month:

- Calgary’s Hailstorm (August 5, 2024) comes in as Canada’s 2nd costliest insured event ever
- Remnants of Hurricane Debby, which impacted Ontario and Quebec (Aug. 9-10, 2024) is the 3rd costliest
- Jasper wildfire (July 22-Aug. 17, 2024) ranks as the 9th most costly
- Southern Ontario flooding (July 15-16, 2024) ranks as the 10th most costly

Addendum 3

Test your resilience knowledge

Name a couple of ways of reducing the risks from the following:

1. Basement flooding
2. Wildfire damage
3. Hail damage
4. Wind damage to buildings/homes

Answers

1. Basement flooding:
   I. Installation of backwater valve
   II. Sump pump with a battery-powered backup
   III. Landscaping that directs rainwater away from building
   IV. Elevate valuable items in basement
2. Wildfire damage:
   I. Fire-resistant roofing, siding, decking
   II. Ensuring nothing combustible within 1.5 meters of home
3. Hail damage:
   I. Impact resistant asphalt shingle roofs
   II. No vinyl siding
4. Wind damage:

I. Buildings with premium roof
II. Hurricane ties or truss crews to connect to roof truss, supporting walls and foundation