Disaster resilient communities: Canada's insurers promote adaptation to the growing threat of high impact weather

by

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I am here today to share with you my vision for disaster resilient communities. Your participation today provides further evidence that the engineering community is a critical partner helping to build our society's capacity to cope and prosper in a world that is increasingly threatened by severe weather. My work has involved mobilizing the insurance industry which has recently been confronted by an alarming escalation in disaster damage claims. I believe that the engineering and insurance communities will play a critical and leading role, working with other stakeholders to determine our success in the reduction of Canada's vulnerability to high impact weather.

I would like to thank David Lapp and the Canadian Council of Professional Engineers for the invitation to speak today. The Canadian Council of Professional Engineers, the Institute for Catastrophic Loss Reduction and several other partners have been exploring strategies for adapting Canada's public infrastructure to best reflect ongoing change in the climate. The Council has established itself as a leader in the identification of engineering solutions to the threats posed by changes in the climate, including a special focus on infrastructure renewal. Through our Institute, Canada's insurers are promoting the concept of disaster resilience and community action. The insurance and engineering communities are both advocating increased spending on public infrastructure, and are committed to work with partners to build safer, prosperous and resilient communities.

Alarming damage

Storms and earthquakes can devastate communities. This is evident in New Orleans and elsewhere. Engineers lead the recovery and rebuilding efforts. Insurance companies pay for repairs and reconstruction. Engineers and insurers are very busy these days as disaster damage has been rising at an alarming rate. The insurance industry, for example, has been operating in Canada for more than 200 years but 75 percent of all disaster losses have occurred in the last ten years. The $5.4 billion ice storm in 1998 was Canada's most costly storm. The $500 million downburst last August was Ontario's most costly storm. The 2003 firestorm in Kelowna was Canada's most costly wild fire. The 2003 hurricane in Halifax was Canada's most costly wind storm. Many communities have recently been struck by flood, drought or heat wave events that were expected once a century, but some were struck two or three times within the past few years. In brief, several communities experienced severe weather events of increased in intensity and frequency.

This trend has also been evident in most other countries around the world. Adjusted for the effects of inflation, disaster damage claims paid by the global insurance industry increased from US$1 or 2 billion a year in the 1970s, to more than US$83 billion last year. This is a 60-fold increase in just thirty years. Six of the world's ten largest insurance losses occurred in the last two years. This is an alarming trend. It is not sustainable and urgently needs to be confronted.

Will the frequency and intensity of storms increase further? The Institute for Catastrophic Loss Reduction asked seismic and climate experts about hazard risks over the next fifty years. Seismic risks are stable, but more people are moving to vulnerable areas like Vancouver. The frequency and severity of damaging storms are increasing, and, again more people are moving to vulnerable areas. So there is a strong consensus that the risks will increase.

Will insurance companies restrict damage coverage? Insurance is a business. The cost of property insurance has increased in areas experiencing rising damage claims. In some areas, like Florida, the price of insurance increased significantly. Presently the industry offers coverage against most hazards, although one important exception is flood, as private insurers do not offer flood coverage to homeowners. The industry appears satisfied that this remains a viable business, other than the risk of flood damage, but evidence about the rate and extent of hazard damage will affect the role that the industry will play over time. Restricting coverage remains an option, but not a solution. The industry would prefer to contribute to solutions to the challenge of managing the risk of hazard damage.

Will communities be more resilient to damage from the hazards expected over the next fifty years? This is the critical question, and the answer needs to be yes. The knowledge exists to design and build safer communities, and this would be a solution to the problem. However, to realize this vision of resilient communities requires commitment, collaboration and resources.

Building resilient communities
I established the Institute for Catastrophic Loss Reduction in 1998. We are based at the University of Western Ontario. We provide a forum where Canada's insurers can work with other stakeholders to confront the alarming trend of rising disaster damage. Today I will share with you our early plans to promote disaster resilient communities. Canada's insurers are looking to partner with engineers and other stakeholders to champion this vision for safer living.

Three elements of our research and outreach program include:

1) safety research
2) public outreach
3) infrastructure renewal.

Let me describe our initial efforts in each of these areas.

1. Safety research
First, safety research: Canada's insurers are investing in a long-term, science-based research program that identifies best practices for the promotion of disaster resilience. Through the Institute for Catastrophic Loss Reduction, insurers have provided support to dozens of academic researchers who are working to identify best practices for disaster safety. This research deals with damage from wind, snow, ice, earthquakes, and a range of other hazards. It is also multi-disciplined, working with engineers, natural scientists and social scientists.

ICLR supports the initiative of the Canadian Council of Professional Engineers assessing the vulnerability of Canada's public infrastructure to change and variation in the climate. This is an important project demonstrating the commitment of the engineering community to identify lasting solutions to help society manage the growing threat of change in the climate.

Our Institute has also completed more than three dozen research projects to identify best practices for communities to advance disaster resilience. These projects range from earthquake vulnerability assessment in Vancouver, to wild fire and tornado safety in Alberta, flood damage reduction in Manitoba and Ontario, severe weather research in Quebec, and storm surge loss prevention in Atlantic Canada. This research program assesses warning programs, adverse impacts on health and property and hazard risk assessment. More than 50 engineers and scientists have participated in this effort, contributing to 300+ publications.

Our largest investment has been to support the ***Three Little Pigs Project*** at The University of Western Ontario. Coupled with the Boundary Layer Wind Tunnel Laboratory, Western has established a world-class research team and facility capable of testing full-scale wood framed houses under extreme loading. Canada's insurers provided seed money to the research team, leading to the construction of a $7 million state-of-the-art research facility. The research team can test scale model homes in the wind tunnel, then use the laboratory to test identical extreme load events on full-scale homes. These research facilities are unique in the world today.

Canada's insurers will use this research to shape the details of our ***Designed… for safer living*** program to inform homeowners about how to retrofit existing homes to improve disaster resilience, and to partner with homebuilders to influence construction of the next generation of homes. We are sharing our research findings with the U.S. insurance industry, so the information will influence their safer living program. We are also sharing this information with Canadian government agencies that are developing policies to deal with climate change, as the ***Designed… for safer living*** program represents an adaptive strategy to deal with the increasing frequency and severity of extreme weather events.

Home builders, the manufactured home industry, manufacturers and others in the home construction industry are becoming active participants in the research program. Improvements in disaster resilience should be jointly determined and founded on science-based research.

2. Public outreach
The second part of our ***Disaster resilient communities'*** program works to inform community leaders, homeowners and small businesses about disaster resilience through public outreach.

The Institute is a partner with the City of London working to help the city realize its vision to become the community best prepared for an emergency in Ontario. ICLR is part of a community panel in Hamilton seeking to understand why three 50 year storm events struck over an 18 month period, and design a program to inform homeowners about actions to reduce the risk of future storm damage. We are also supporting flood defense research in Winnipeg, London, and Waterloo; tornado safety outreach in Red Deer; and wild fire risk reduction in several communities in Alberta and British Columbia. We believe that local action to address local needs holds the greatest potential for building disaster resilience.

The Institute has also targeted some of our outreach efforts toward homeowners and small businesses. Working through the Institute, Canada's insurers are the only group in Canada providing comprehensive disaster loss prevention advice to homeowners and small businesses. We have identified actions that property owners should take to reduce the risk of injury and damage due to severe wind, hail, earthquakes, flood, wild fire and a number of other hazards.

Member insurance companies send this safety information to their policyholders. Most homeowners and small businesses in Canada have insurance, so this is a powerful means of sharing safety knowledge across the country. The Institute also makes this information available on our website. We attract more than one million visitors a year to our website. We have encouraged our member insurers to load this information onto their websites, or link to our site to share this information further.

Each spring the Institute retrofits a home and invites the media to share with Canadians the actions taken to make the home more resilient to local hazards. We made a home in London more resilient to tornadoes, a home in Halifax more resilient to hurricanes, a home in Vancouver more resilient to earthquakes, and this week we made a home in Ottawa more resilient to earthquakes and winter storms.

Later this year the Institute will launch the ***Open for business*** program seeking to work with small businesses to improve their capacity to cope with severe weather events. More than 25 percent of the businesses that close because of severe weather events never reopen. This risk can be significantly reduced through disaster planning. Our program identifies the critical elements a small business needs in a business continuity plan.

Canada's insurers are committed to sharing our safety and disaster loss prevention research, through collaboration with other stakeholders to promote disaster safety.

3. Infrastructure renewal
The third part of our program to build disaster resilience involves advocacy for infrastructure renewal. Canadian spending on public infrastructure is half the rate experienced during the 1950s. Other issues, like health care and interest on the public debt, have crowded out spending on infrastructure maintenance and expansion. Chronic under spending has been present for many years, and our aging systems leave Canadians vulnerable to many risks, including the threat of disruptions caused by severe weather.

Moreover, many systems in Canada were put in place several decades ago, designed to address conditions that have changed. Changes include a growing population, particularly in major urban centres, and change in the climate. Few systems were put in place anticipating the demands expected over the next few decades.

The insurance community has consistently advocated for increased spending on public infrastructure as an urgent national priority. Moreover, the Institute has proposed a $750 million federal fund to support local efforts to enhance disaster resilience. We are encouraged that the Manitoba government is working with the federal and municipal governments to build flood defense infrastructure along the Red River Basin. This includes a $665 million upgrade to Winnipeg's floodway. Also the British Columbia and federal governments have committed $1.5 billion to improve the resilience of schools to the threat of damage from a major earthquake. These are welcome initiatives, but Canada still needs a national strategy for disaster

reduction. Many other communities also need financial support if they are to improve their resilience to future storms.

While insurers continue to champion additional federal infrastructure funds to support municipal spending on disaster resilience, we also believe that ongoing public infrastructure spending and maintenance programs should be partially directed to enhance disaster resilience. The efforts of the Canadian Council of Professional Engineers hold great promise for the identification of specific actions that would ensure that public infrastructure spending will increasingly anticipate future weather risks.

Some communities have begun to integrate anticipated changes in severe weather into their infrastructure management program. Several provinces have modernized their emergency management legislation seeking to support community efforts to invest in disaster loss prevention, including the leadership of Canada's four largest provinces – Quebec, Ontario, Alberta and British Columbia. The federal government has provided some support for these efforts, most notably with the establishment of Infrastructure Canada. Consideration of a national disaster mitigation strategy has been underway for more than a decade. The federal government has also been considering a national strategy to support adaptation to climate change.

While the federal government is considering its role in the prevention of future severe weather damage, its current responsibility includes payment of damage claims. The 1970 federal / provincial agreement sets out that hazard damage paid by the provinces can be partially recovered from the federal government. The federal share rises for larger events, so the Government of Quebec likely recovered from the federal government 75 percent of the costs it incurred as a result of the 1998 ice storm. For a very large event, the federal government has agreed to pay up to 90 percent of the provincial costs. This agreement applies to damage not covered by private insurance, such as damage to public infrastructure and flood damage to homes.

A comprehensive study of US$3.5 billion in disaster safety infrastructure spending in the United States found that this investment prevented more than US$14 billion in economic losses. This represents a 300 percent return on investment. Another study found that the returns from the Winnipeg floodway were even higher. Increased spending on public infrastructure is a sound economic investment in public safety and economic prosperity, and the cost to the federal government will likely be more than fully offset by reduced damage payments.

Conclusion

Let me conclude. The climate is changing. The frequency and intensity of many storm events is rising. Damage to property has increased. The research warns that the situation will get worse.

A comprehensive strategy to address this challenge involves research, public education and increased investment in public infrastructure. The engineering community is assuming a leadership role in all three areas. The insurance community is also addressing research, public education and advocacy for increased spending on public infrastructure. Engineers and insurers are on the front lines when disaster strikes directing the recovery and rebuilding. Moreover, we know that many losses are preventable.

Some communities have begun to invest in disaster resilience education and infrastructure. Several provinces are supporting comprehensive emergency management at the local level. The federal government is considering its role to support this important work, and will be a welcome partner. Participation and leadership from the engineering community is essential if we are to realize a vision of building disaster resilient communities. Working together, Canadians can prevent severe weather events from becoming disasters. Thank you.

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