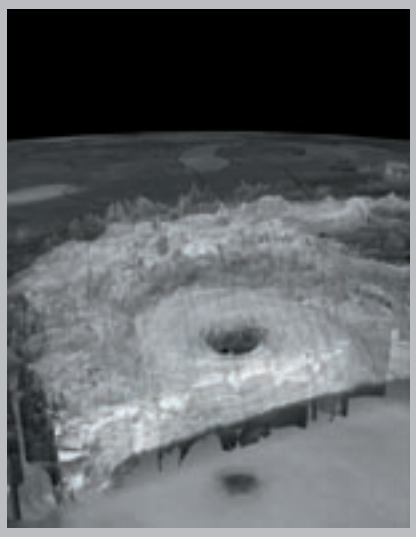
HOPE FOR THE BEST AND PREPARE FOR THE WORST: HOW CANADA'S INSURERS STAY A STEP AHEAD OF CLIMATE CHANGE

Paul Kovacs



As the occurrence and severity of extreme weather events have increased, so have the costs to insurance companies, which has put the insurance industry in the front lines of climate change and adaptation research. Canada is at the forefront of this burgeoning field, particularly through the work of the Institute for Catastrophic Loss Reduction, based at the University of Western Ontario. As the centre's Director, Paul Kovacs writes, at the same time that government spending on the sort of infrastructure upgrades that can make all the difference in a catastrophic event like Hurricane Katrina has dropped dramatically, the likelihood of such catastrophic events has risen, making innovation and preparedness major priorities for the industry with the most at stake.

À mesure qu'ont augmenté l'incidence et la gravité des phénomènes météorologiques, les compagnies d'assurance ont vu s'accroître leurs coûts et ont été propulsées malgré elles à l'avant-plan de la recherche sur les changements climatiques et l'adaptation au climat. Le Canada est lui-même à l'avant-plan de ce champ de recherche en plein essor, par le biais notamment de l'Institut de prévention des sinistres catastrophiques basé à l'Université Western Ontario. Mais comme l'écrit son directeur Paul Kovacs, les dépenses gouvernementales visant à renforcer les infrastructures en cas de désastres comme celui de l'ouragan Katrina ont radicalement baissé alors même qu'augmentaient les probabilités de telles catastrophes. De sorte que le secteur de l'assurance, l'industrie qui a le plus à perdre, a fait de l'innovation et de la préparation ses priorités absolues.

Insurance is the business of managing risk. One risk we've seen every day in the news recently is the risk of severe weather like Hurricane Katrina. In the early 1970s, the global insurance industry paid $2-$3 billion a year in claims for damage to homes and buildings as a result of severe weather. By 2004 this total increased to $40 billion. This year it will exceed $50 billion. Actions taken by the insurance industry to address climate-related perils provide lessons for society, as we all are learning to respond to the increase in severe weather. Insurers will tell you that the most important lesson from Hurricane Katrina is to hope for the best and always, always prepare for the worst. The insurance industry is the oldest and in most competitive financial industry in Canada and most other countries around the world. The primary focus of this trillion-dollar-a-year industry remains road safety, fire protection, and crime prevention; areas that account for 95 percent of the business. Disaster claims have grown from less than 1 percent of the business 30 years ago to almost 5 percent today. This alarming and pervasive growth has adversely impacted the financial strength of some insurers, even causing some companies to fail. But over the past decade or two the insurance industry has made great strides getting its house in order, offering important lesson for governments, industry and individuals.

The insurance industry has:

- Acknowledged that severe weather events are happening more frequently and with greater intensity – that there has been change in the climate and further change lies ahead
- Done its job with pride and professionalism, paying many billions of dollars of disaster claims to homeown-

ers and businesses experiencing loss due to insured perils
- Continued, for now, to cover most severe weather damage to homes and businesses despite the alarming increase in damage claims
- Embarked on a process that will increasingly price and underwrite insurance for extremes using models and science, in addition to traditional use of actuarial assessment of historic events
- Invested in loss prevention research, established research laboratories to test building design and construction practices, developed loss models, and supported behavioural and policy research
- Collaborated with the public, the construction and emergency management industries, government agencies and other stakeholders to promote disaster safety

What are extremes? Extremes are low probability, high consequence events. Climate extremes include hurricanes, flooding, tsunamis, tornadoes, wild fires, blizzards, heat waves, lightning and hail. It is rare for weather to cause injury or damage, but severe weather does occur. Extremes cause widespread loss and may include fatalities, injuries, property damage and significant economic disruption. For example, more than a quarter of small businesses that close due to severe weather never reopen. During the 1990s, severe weather caused 650,000 fatalities around the world. Disaster fatalities have been trending downward for more than a century in the developed world. Warning systems, building codes and safety knowledge are some of the factors contributing to the reduction in disaster fatalities and injuries in the United States, Japan and across Europe. In contrast, 90 percent of disaster fatalities occur in the developing world, including China, India and Bangladesh. In these countries, extremes are a serious threat to personal health and well-being.

Climate extremes caused a trillion dollars in economic and insured losses during the 1990s. Losses have doubled every five to seven years since the 1950s, and will more than double again this decade. The vast majority of property damage occurs in developed countries like the United States, Japan and across Europe. In developed countries most severe weather damage to homes and businesses is covered by insurance, while governments provide relief for flood damage and for the rebuilding of public infrastructure. Developing countries look primarily to international assistance to pay for damage to homes, businesses and infrastructure, owing to the near absence of a local insurance industry. The experience in Canada has been similar to other developed countries: few and declining fatalities, and large and rising damage to property. Over the past 10 years, Canada's insurance industry has experienced the most costly storm in Canadian history, the Quebec ice storm of 1998; the most costly wild fire, in British Columbia in 2003; the most costly hurricane, in Nova Scotia and Prince Edward Island in 2003; and Ontario's most costly storm in 2005. Canada's governments have faced unprecedented disaster relief costs with the 1996 Saguenay flood, the 1997 Red River flood, the 1998 ice storm, the 2001 and the 2003 flooding in Peterborough, the 2003 flooding in Edmonton, the 2003 firestorms in BC, the 2003 hurricane in Halifax, and the 2005 flooding in Alberta. There have been few fatalities, but there has been extensive damage to homes, businesses and infrastructure. And this year will be the worst on record for disaster losses in many communities across Canada.

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Extensive research has been conducted into why disaster damage is rising at such an alarming rate. Several factors have been identified, and there is a consensus that three elements account for most of the increase — more people and property at risk, aging infrastructure and changes in the climate.

For example, the number of people living in Vancouver doubled over the past 30 years, and property values increased much faster. Rapid population growth is also taking place in Toronto, Edmonton, Calgary, Ottawa and Canada's other large urban centres, accompanied by massive investment in new homes and businesses. Modern satellite, Doppler radar and communications technology can often be used to warn people to seek shelter before a hazard strikes, reducing the threat of fatalities. Homes and buildings, however, remain in harm's way. In developing nations, people and property are both at risk as there is seldom adequate warning, and little capacity to inform the population or to move them to safe shelter. The public infrastructure that helps society cope with severe weather has been

Two New Orleans residents peer out from the flooded ruins of their home. Many residents had no insurance, either on their homes or small businesses. Still, the insurance industry's global payout due to severe weather this year will reach $50 billion worldwide. The insurance industry, writes Paul Kovacs, must prepare for natural disasters by hoping for the best but expecting the worst.

eroding with age and neglect. For example, storm sewer systems in our major cities were put in place decades ago and were not designed to manage our current weather, let alone the challenge of tomorrow's hazards. Public infrastructure repair and maintenance is often accorded a low priority when governments determine their spending plans because these systems are out of sight and less visible than other calls on public spending. Measured as a share of overall economic activity, Canadian spending on public infrastructure is currently half that of the 1950s and 1960s. It is estimated that more than $60 billion is needed to modernize Canada's municipal infrastructure, and similar trends are evident around the world. Also, the climate has changed. There have been more extreme events, often with greater severity. Further change in the climate is coming. More and greater extremes will occur. For Canadians, this will include more and larger flash floods, heat waves, wild fires, coastal flooding, etc. The risk is rising that climate extremes will cause damage.

Insurance is a business. Prices reflect costs and risks assumed. Homeowners and businesses located in regions with higher risk of storm damage pay more for insurance, while those with lower risk pay less. There are more than 200 companies competing in the insurance market, Canada's most competitive financial industry. Competition keeps prices in check, while rising claims demand that prices be adequate to cover costs.

Rising damage caused by extreme events has increased international insurance claims 20-fold since the early 1970s. Claims in Canada have also risen dramatically. This adds to the price charged for coverage. **N**evertheless, disaster damage remains less than 5 percent of the total cost of providing insurance in Canada. The impact on overall prices has been relatively small in most regions. Traffic injuries, vehicle repairs, fire damage and theft remain much larger costs for insurance companies and are the

largest determinants of the price of insurance coverage. But cost trends for disaster claims are disturbing. Flood damage to homes is a major peril that is not insurable. Homeowners and businesses can purchase insurance protection against damage from most climate extremes, but not flood damage to homes. More than 95 percent of property owners do purchase insurance protection. Some day insurers may consider withdrawing coverage for some climate risks but, currently, prices cover industry costs, so this remains a viable business and an important tool for society's management of the risk of damage from climate extremes. Most flood damage occurs in coastal areas or on flood plains. Accordingly, the risk is not random, which is a key requirement for insurance coverage. Moreover, the risk of damage cannot be controlled by a property owner but requires a commitment from the community to invest in flood management infrastructure, which may include dams, dikes, levees or sea walls. In Canada, public relief programs respond to flood damage to homes. In the United States, the federal government operates a flood insurance/subsidy program. Private insurers do not insure flood damage to homes.

Insurance companies compete aggressively for customers, while often co-operating to promote loss prevention. Fewer vehicle collisions, urban fires, property thefts and disaster damage bring lower costs for insurers. In turn, competitive markets convert lower costs for insurers into lower prices for consumers. It is in the industry's interest to help Canadians reduce the risk of loss due to extreme weather. Change in the climate means an increase in climate extremes, but this does not mean that there must be more disasters. Society can take action to prevent severe weather events from causing fatalities and damage, thereby preventing hazards from becoming disasters.

Canada's insurance industry is pursuing a four-part strategy to promote disaster loss prevention:

- Quality research is needed to provide a foundation for successful loss prevention.
- Safety partnerships with industry, government and community organizations are essential.
- The insurance industry needs to better understand climate extremes to adapt its own practices.
- Public outreach provides Canadians with the knowledge to protect their families and property.

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In 1998, the insurance industry founded the Institute for Catastrophic Loss Reduction, now based at the University of Western Ontario, as an international centre of excellence to promote disaster safety research and outreach. More than 50 scientists and one 100 graduate students in universities across Canada participate in the Institute's research network. The research team includes members with training in engineering, climatology, hydrology, seismology, economics, geography, political science, sociology, health, and business. To date, the institute has completed more than $48 million in research projects, established three research chairs, and supported the construction of world-class research facilities. Initial findings have been shared through more than 350 scientific publications, two patent applications by research team members, dozens of articles and many public speeches. In brief, we have learned a great deal about disaster safety, and discovered that there is much more to learn. Collaboration is essential to confront the challenge of helping society to adapt to climate extremes. The Institute for Catastrophic Loss Reduction has established working partnerships between the insurance industry and disaster loss prevention organizations in the United States, Japan and Europe. The institute also collaborates regularly with organizations across Canada in private industry, government and the volunteer sector who are seeking to promote preparedness and loss prevention. The Institute's policy research is reflected in the modernization of emergency management legislation in Quebec, Ontario, Alberta and British Columbia. The insurance, construction and emergency management industries are applying aspects of the early research findings to improve their business practices and consumer outreach activities.

But the work has only begun, and much more needs to be done.

The institute has held more than 60 workshops for insurance leaders to help inform the industry about climate change. Researchers share and discuss their emerging findings directly with the industry to provide knowledge to support adaptation in

company practices. In turn, interaction with the industry improves the relevance and direction of research programs. The institute's unique combination of natural science, behavioural and policy research contributes to knowledge development with widespread potential. This has been evident in the industry's advocacy work to promote increased investment in public infrastructure, champion comprehensive emergency management, and establish a culture of disaster preparedness.

Recently, the institute has become involved in public outreach. This has included the Protecting our Kids program; retrofitting child care centres in Halifax, Toronto, London, Winnipeg and Vancouver; then inviting the media and parents to see a demonstration of specific actions that can be taken to protect a building from hazards in that community. Each May, the institute's Showcase Homes program retrofits a home and invites the media to share the safety knowledge with the public, including a tornado safety retrofit in London, a hurricane safety retrofit in Halifax and an earthquake safety retrofit in Vancouver. Soon, the Institute will launch the Open for Business program, setting out a continuity planning tool for small businesses to help them survive temporary closure due to an extreme event. And the Designed... For Safer Living program focuses on new homes, where a modest additional investment of ½ to 1 percent in the cost of a new home can significantly improve resilience to local extremes.

The institute works with the media to discuss loss prevention and public safety. It has also collaborated with insurance companies to develop and distribute more than half a million disaster safety brochures to homeowners.

Canadians can build disaster-resilient communities through local action. Individuals, businesses and other local organizations need to become better informed about the perils in their community. Hazard knowledge is a foundation for preparedness and loss prevention. What perils could injure your family and disrupt your business? What precautions should be taken before the threat strikes? What are the safest actions during the event? What should you do right after the hazard passes? These efforts should focus on your family, school, work and community organizations. Personal preparedness and knowledge are the most powerful tools to reduce the risk of loss. Preparedness efforts are the ideal time to focus on society's most vulnerable populations. We encourage people to plan to ensure that their families are safe and also to check on neighbours, starting with those with special needs, and to network with friends and neighbours to coordinate this effort. Planning during good weather will bring greater calm and clarity of thought when hazards strike.

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The trust in our civil society also requires that our support systems work. We must press our governments to build schools that will protect our children from earthquakes and storms, install storm sewers that carry heavy rains away from our homes and businesses, build road systems that are safe during extremes, enforce building codes for the construction of safe homes and buildings, and maintain power systems that are resilient to storm damage. The science of building disaster resilient public infrastructure is largely known. Citizens must press governments to establish disaster resilience as a priority. Over the past decade or two, the insurance industry has made great strides in getting its house in order. Governments, industry and individuals must now:

- Acknowledge the factc that severe weather events are happening more frequently and with greater intensity and learn about the perils that may strike where you work, live and play
- Prepare for the worst: retrofit homes and offices, build emergency kits, prepare business continuity plans, speak with family and co-workers about preparedness
- Demand action from governments to invest in disaster resilient communities through spending on public infrastructure, early warning systems and outreach
- Insist that safety actions be based on sound science and research

The insurance industry has learned to cope with the increase in climate extremes. The rest of us can, too. Together we can prevent hazards from becoming disasters. We can build resilient communities.

Paul Kovacs is executive director of the Institute for Catastrophic Loss Reduction and adjunct research professor of economics, University of Western Ontario.