

CATtales

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Inside this issue

ICLR's fall board meeting	2
Skin in the game	3, 5
Three 1-in-1,000 year floods in 2016	4/5
Workshop on Halton's basement flood mitigation program	6

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ICLR's fall board meeting Kathy Bardswick retires as Board Chair, new five-year plan approved

By Glenn McGillivray, Managing Director, ICLR

The Institute for Catastrophic Loss Reduction's fall board meeting held October 18 at Western University in London, Ontario marked Kathy Bardswick's last as Board Chair. The Co-operators announced in February of this year her intention to retire as President and CEO at the end of 2016 after 14 years in the role.

She has been a board member of ICLR since 2004 and took over from Toa Re's David Wilmot as Board Chair at the Institute's AGM in May 2007.

Kathy has held progressively senior roles within The Co-operators group of companies, culminating with her appointment as President and Chief Executive Officer of The Co-operators Group Limited on March 1, 2002. From 1998 to 2002, she served as Chief Operating Officer of two subsidiaries, The Sovereign General and L'Union Canadienne.

Under her leadership, The Co-operators has been recognized with a number of honours, including being listed among Aon Hewitt's 50 Best Employers in Canada; Corporate Knights' Best 50 Corporate Citizens in Canada; the Top 50 Socially Responsible Corporations by Maclean's and Sustainability; and in 2013 was ranked #1 on Corporate Knights' Most Sustainable Co-operatives in the World list. Kathy was named one of the 2014 Top 25 Women of

Influence by Women of Influence Inc.

She is a member of the board of the International Co-operative Alliance, is past Chair of the International Co-operative and Mutual Insurance Federation and currently serves as a member of its executive. In addition, Kathy is a board member of the Canadian Co-operative Investment Fund.

She is a steering committee member of the International Insurance Development Forum, a founding member of the Council for Clean Capitalism, and a member of the United Nations Inquiry into the Design of a Sustainable Financial System. ►



Kathy Bardswick has retired as Board Chair of ICLR. She will retire as President and CEO of The Co-operators at the end of 2016 after 14 years in the role.

She has provided leadership to The Conference Board of Canada as a member of the board and the executive committee, and served as Vice-Chair of the University of Guelph's Board of Governors.

At the meeting, the Institute's Board of Directors (see front cover, bottom left) elected Barbara Bellissimo, Senior Vice President of Desjardin General Insurance, as ICLR's new Board Chair, effective immediately. She will serve as the Institute's fourth chair since inception more than 19 years ago.

As Senior Vice-President for State Farm Canada, Barbara is responsible for managing both the sales and operations of a \$2 billion organization. She has held several influential senior leadership roles at State Farm in both the U.S. and Canada.

Barbara began her career in the insurance industry in 1986. Since then, she has led State Farm operations including holding senior roles in both the U.S and Canada in agency, marketing, underwriting, claims, IT and life/health.

She is currently contributing to the integration of State Farm's Canadian operations into Desjardins General Insurance Group, a transaction which positions the company as one of Canada's largest p&c insurance providers with annual gross written premiums of approximately \$3.9 billion.

Barbara holds a Bachelor of Arts from the University of Western Ontario, and is a Fellow Chartered Insurance Professional. She has been a board member of the International Women's Forum since 2008 and is a past board member for the Insurance Bureau of Canada and the Southlake Hospital Foundation in Newmarket, Ontario.



Barbara Bellissimo, Senior Vice President, Desjardin General Insurance, was appointed Board Chair of ICLR at its October 18 board meeting held at Western University in London, Ontario.

Five-year plan

The board also approved ICLR's five year plan, which sets out the Institute's research and engagement strategy for the period 2017 through 2021.

Over the plan period, ICLR will continue to focus on providing research that supports action by public and private sector decision-makers working to reduce the risk of loss and damage due to natural hazards.

The plan, previously centred around four hazards (water, earthquake, severe wind and wildfire) now includes a fifth hazard (hail).

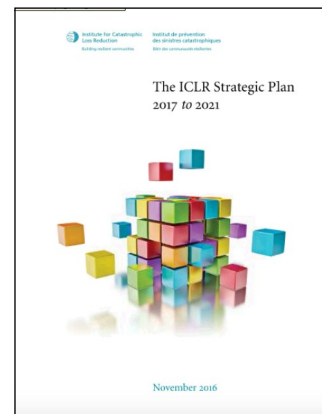
Over the next five years, the institute will address four priority issues:

- Guide actions to reduce the risk of basement flooding
- Champion the construction of disaster-resilient homes
- Support efforts to enhance the resilience of existing homes
- Identify options to expand the role of private insurance.

Across each of these four elements, ICLR will work to increase the efforts of Canadians to protect themselves from the risk of loss due to natural hazards. In particular, the Institute will work to develop a comprehensive tool to help homeowners measure their risk of damage, and provide advice on best practices for risk reduction.

The effective management of the risk of loss from severe weather, flooding, and earthquake will be a critical issue for the insurance industry and governments across Canada over the next five years.

ICLR has established itself as centre of excellence and a valued source of knowledge about best practices for risk reduction. The strategic plan sets out an ambitious research and engagement program for the Institute over the next five years, a program that ICLR is confident it can successfully complete given the Institute's performance over its first 19 years. **CT**



Skin in the game: Moral hazard and disaster risk reduction 3

By Glenn McGillivray, Managing Director, ICLR

Moral hazard can be found in many places but, ironically, much of it is created by the very existence of insurance. What's more, outside sources of moral hazard can affect insurance – and insurers – greatly (though usually indirectly).

According to The Financial Times Lexicon “Moral hazard arises when a contract or financial arrangement creates incentives for the parties involved to behave against the interest of others.”

Specific to insurance, moral hazard is “the chance that the insured will be more careless and take greater risks because he or she is protected, thus increasing the potential of claims on the provider. The concept can be extended to any contract... that by its existence could prompt a signatory to take unnecessary risks.”

Risk Management Principles and Practices, the textbook used for the CRM (Canadian Risk Management) designation explains: “Purchasing an insurance policy is another moral hazard incentive – some people might be inclined to behave differently once they enter into a contract that shifts the financial consequences of risk to another party.”

So, according to the concept of moral hazard, a driver may drive faster or make more risky moves knowing they are covered by insurance, or a home buyer may choose to live next to a river or beside the boreal forest, let's say, because they will be indemnified should a loss occur.

In another supreme irony, insurance-related moral hazard is not restricted to insureds. Insurers themselves can engage in morally hazardous behaviour if they are protected by reinsurance (i.e. the existence of reinsurance may incentivize an insurer to take risks it otherwise wouldn't take). Indeed scholarly



articles on moral hazard and reinsurance are many.

On the insurance side, moral hazard is primarily tempered through the use of deductibles. The deductible serves a couple of (related) purposes.

First of all, the deductible acts as a threshold – a minimum amount that a claim must exceed before a policy will respond.

Second, the deductible ensures that the party transferring the risk has ‘skin in the game’, a cost (albeit often relatively small) that must be borne by the insured before the policy responds.

Without the deductible tempering the behaviour of the party transferring risk, he or she may be inclined to file many claims on a regular basis – including small, frivolous claims, skewing the true purpose of insurance (which is to serve as a financial mechanism that protects against events that are of reasonably low probability but of medium to high impact). One need look no further than the Canadian healthcare system as a regime that is regularly inundated by users (often for frivolous

reasons) because there are no fees or deductibles.

The possibility of premium increases; the levying of caps and limits and use of other restrictive policy language; and the possibility of partial or complete cancellation of coverage can also act as mitigative mechanisms to discourage the regular filing of frivolous claims and lessen moral hazard.

On the reinsurance side, moral hazard is mitigated through two primary means.

The first is through regulation. In Canada, the Office of the Superintendent of Financial Institutions (OSFI) restricts the use of shell insurance companies (i.e. companies that pass off all risk to reinsurers), in large part to prevent extreme risk-taking behaviour. (Like the mortgage issuers that bundled subprime mortgages into securities and sold them to unsuspecting investors leading to the credit meltdown of 2008, insurers that cede all their risks to reinsurers likely wouldn't be overly particular about the quality of business they write.)

The second measure to

Three 1-in-1,000 year floods in 2016 so far. What's going on?!

By Jeri Xu, Swiss Re

Update: Since the original posting, there has now been another 1-in-1,000 year rainfall event (the 4th in 2016), this time in Louisiana.

This year we've witnessed a number of record-breaking floods. So far, three floods in the U.S. have been called 1-in-1,000 year events. At first glance, it can seem astoundingly improbable that such extreme events could all occur in a single year. Yet, tens of thousands of people were affected by these floods and some lost everything they had. In the face of such tragedy, it's good to remind ourselves what a 1-in-1,000 year event means in the context of the flood peril. What exactly defines a 1-in-1,000 year flood? Is it the amount of rainfall? River gauge height? Flow rate? To help provide some context, let's take a look at the 1-in-1,000 year events that have occurred this year.

A few months ago in mid-April, massive amounts of rain fell in the Houston area – northwest Harris County, as well as neighboring Fort Bend and Waller counties. Most of the rainfall occurred within a day, resulting in flash flooding that caused eight deaths and over 7,000 damaged buildings.

In June, West Virginia had record amounts of rainfall, causing 23 deaths and destroying 1,200 buildings. Total recovery may take years, and even now, residents are still displaced and businesses are still closed, leaving many people unemployed.

Most recently, on the evening of July 30, parts of Howard County, Maryland experienced extreme rainfall within a short period of time. The flooding damaged over 250 buildings, killed two people, and over 120 people had to be rescued. At the heart of the flash flood was Ellicott City where the



most rainfall occurred and much of its downtown has been destroyed. In the aftermath of the storm, devastating pictures show Main Street covered with debris, cars piled up, and storefronts cleared out by the floodwaters. Efforts to clean up and rebuild have just started, and businesses are closed indefinitely.

Calling the event a "1-in-1,000 year occurrence" helps quantify the significance and rarity of the event. Let's clarify a few points. First, a 1-in-1,000 year event suggests a probability: such an event is expected to occur with 0.1% likelihood. Over a thousand years, you would expect to have one event, but there could be more than one, or even none. Second, a 1-in-1,000 year event is usually specific to a given region. If we had a model for each of the (roughly) 3,000 counties in the US, statistically we might expect to see three "1-in-1,000" events each year. Finally, in these three cases, the 1-in-1,000 return period refers to the amount of rainfall over a given duration, as opposed to a measure of damages which is usually how underwriters and insurers look at these events.

NOAA's Atlas 14 allows you to point to a specific location in the US and track down the precipitation frequency by

duration. In the case of Ellicott City, the measured rainfall on July 30 was six inches within a two hour time period. The 1-in-1,000 year rainfall for a two hour duration is 5.45 inches. Since the actual amount of rain surpassed this mark, the event could be called a 1-in-1,000 year or greater rainfall event. The significance of this flood was the intensity of the rainfall. Because the six inches of rain in Maryland fell within such a short time period, the water was not able to drain quickly enough. Combined with the fact that the city is at the bottom of a hill, the resulting property damage was amplified.

The same method can be followed to determine the return period for the West Virginia flooding. In Lewisburg, Greenbrier County, over nine inches of rain fell within 24 hours. Atlas 14 suggests that for a 24-hour duration, the 1-in-1,000 year rainfall is 7.2 inches. Rainelle, another city in Greenbrier that incurred a lot of damage, had 7.5 inches of rain in 24 hours, and the 1-in-1,000-year rainfall for that location is 7.17 inches. The data for both these cities suggests the West Virginia rainfall was a 1-in-1,000 year occurrence. ►

Unfortunately, NOAA is still preparing the Atlas 14 precipitation map for Texas, which is expected to be released in 2018. The flood in April has no single return period associated with it, because the flooding affected a vast area in differing degrees, and there were multiple components that contributed to the flood. First, there were record amounts of rainfall, over a foot in a day in some areas. The return period can vary significantly by location. According to Harris County's flood report, as it was measured over a 12-hour period, the rainfall in the eastern parts of the flooded regions were considered to occur with 1 in 50 year probability, while western regions experienced rainfall with a probability of 1 in 1,000+ years. As an extreme example, the city of Pattison, TX had over 23

inches of rain that fell within 14.5 hours and can be considered a 1 in 10,000 year occurrence for that location. Second, the rainfall raised the elevation of several streams which overflowed and magnified the flooding. The flood report shows that certain river gauge elevations reached levels considered to happen with 1 in 500 year frequency. While the overarching 1-in-1,000 year label was applied to the whole event, the reality is more nuanced.

In the beginning we entertained the likelihood of three significant floods each associated with the term "1 in 1,000 year event" happening in one year. The chance of all three happening is not as rare as we might have thought – it is definitely not one in a billion (or 1/1,000 cubed). The actual answer is not so simple, but we

now know that a flood return period is tied to a specific occurrence (e.g. the rainfall intensity of 6 inches in 2 hours) in a given location (e.g. Ellicott City, MD) in a given year. The chance that you'll see some event of similar magnitude in any city or county in the U.S. is a lot bigger, because there are numerous combinations of regions and possible rainfall intensities.

So now that we know these events are not as rare as one might think, ask yourself this: are you prepared? **CT**

Thanks to Swiss Re for permission to reprint this piece from *Open Minds* (originally posted on 08/12,2016).

Skin in the game cont...

mitigate moral hazard in reinsurance actually came from reinsurers themselves as several years back these companies made the switch away from proportional to excess-of-loss covers. With a proportional cover, the insurer and reinsurer share a pre-determined proportion of liabilities, meaning the insurer could be more inclined to write riskier business. The move to excess covers, where the reinsurer only takes on a loss that exceeds a specified limit, helped lessen unnecessary risk-taking and gave insurers more 'skin in the game'.

Unfortunately for (re) insurers and society at large governments, too, often engage in morally hazardous behaviour. We see it in the area of natural disaster risk reduction – particularly on the flood side – on an all-too-regular basis.

Allowing individual houses or entire subdivisions to

be built in high-risk flood zones knowing that provincial disaster assistance and private insurance is there in the event of a flood loss, and allowing homes to be rebuilt in the same place and in the same way after a flood event both constitute a form of moral hazard.

Many of the decisions made after the 2013 Alberta flood (eg. offering voluntary – and not mandatory – buyouts of flood-affected properties) and the recent decision to allow rebuilding of homes lost to the Fort McMurray wildfire on a flood plain are good examples of governments behaving in a morally hazardous manner.

Just as insureds have 'skin in the game' through deductibles and other measures, local governments need a financial disincentive to act in this manner. At present, municipalities face far more upside risk than downside risk

when it comes to approving building in high-risk hazard zones. When the bailout comes from elsewhere, there is no incentive to make the right decision – the lure of an increased tax base is all too great .

Reducing natural disaster losses in Canada means breaking the cycle – taking a link out of the chain of events that leads to losses.

Local governments eager for growth and the tax revenue that goes with it need to hold some significant portion of the downside risk in order to give them pause for thought. Enough, at least, so they may think twice about making risky decisions that put people and property directly at risk.

The unnecessary risk-taking, passing of the buck and washing of the hands must stop. **CT**

ICLR workshop on Halton's basement flooding mitigation program planned for November 25

ICLR will be hosting a workshop in late November on the basement flooding mitigation program in Ontario's Halton Region.

Recovering from the Flood: Halton's Basement Flooding Mitigation Program will be held on Friday, Nov. 25 in ICLR's boardroom at 20 Richmond St. E., Suite 210, in Toronto. The workshop, part of the institute's Friday Forum series, will run from 10 a.m. to 11:30 a.m. EST. Attendees will also have the opportunity to participate remotely via Webinar.

An "intense storm" that delivered more than 200 millimetres of rain over an eight-hour period in areas of the City of Burlington during the afternoon and evening of August 4, 2014. The result was pure devastation to thousands of residents and businesses in Halton Region. Over 6,000 calls were received by the city, with more than 3,500 relating to basement flooding.

Although basement flooding cannot truly be avoided, especially with greater intensity storms occurring more frequently, reducing the number

of flooded homes as well as preventing sewer backup during smaller storm events may be possible. However, this requires action from municipalities as well as homeowners.

As a result of the August 2014 flood, Halton Region developed an "aggressive and comprehensive program to mitigate the risk of future basement flooding from sewer backup that includes both public side and private side work." This presentation will discuss the flooding event as well as provide an insight into Halton Region's current basement flooding mitigation program.

The speaker will be John Duong, manager of systems planning and customer service in the public works department at the Regional Municipality of Halton. Duong graduated with a



civil engineering degree and Master's degree from McMaster University in Hamilton, Ontario. He worked as a consultant for over five years before making the switch to the municipal field, where he has been for the past 11 years. [CT](#)

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Mission
To reduce the loss of life and property caused by severe weather and earthquakes through the identification and support of sustained actions that improve society's capacity to adapt to, anticipate, mitigate, withstand and recover from natural disasters.

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