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## ICLR calls for recommitment to the Canadian Wildland Fire Strategy

May wildfires that forced the evacuation of residents and destroyed almost 400 lots in Slave Lake, Alberta have resulted in a call for the federal government to move forward with funding for the 2005 Canadian Wildland Fire Strategy (CWFS).

Brian Stocks, wildfire scholar and president of Stocks Wildfire Investigations Ltd., urged the government to re-commit to the CWFS while giving a presentation on the Slave Lake wildfires in Toronto on May 26. Stocks gave his presentation at an Institute for Catastrophic Loss Reduction (ICLR) news conference.

"Hopefully, given what's going on in Alberta now, there will be some momentum towards a [federal and provincial] ministerial meeting dealing with wildland fire," Stocks said. "The plan is ready. You don't have to develop a plan. It's done."

Stocks was referring to the CWFS, developed about two years after the 2003 wildfires in British Columbia. The fires caused about \$200 million in insured property damage.

Under the auspices of the Canadian Council of Forest Ministers (CCFM), ministers of all provinces, territories and Natural Resources Canada supported funding of the CWFS in 2005. At that time, the ministers agreed to a 50-50 split of the costs to implement the strategy, which was to receive \$230 million annually for up to 10 years.

The strategy focuses on four objectives:

- Public education and policy/risk analysis related to wildland fires.
- Support for FireSmart programs designed to reduce risks associated with the interface between wildland and urban areas.
- Emergency preparedness and response capability.
- Multi-disciplinary innovation intended to bolster decision support systems.

Stocks said the federal government has not stepped up with its share of the funding. Therefore, the strategy has only been implemented on a piecemeal basis.

"The federal government needs to step up and take an active role in that," said Stocks. "We're asking them to take ►"



preventative action when it comes to wildfires.

"You might have to spend less in disaster relief in the future if you spent a little more on disaster prevention proactively [now]."

### **Models don't yet allow researchers to link local wildfire incidence with global climate change patterns**

Stocks noted in the discussion that climate change models are still too rudimentary to be able to link global climate change with the wildfire incidence in specific parts of Canada. Stocks worked with the Canadian Forest Service for 40 years. He is currently also an adjunct professor of fire science at the University of Toronto.

He said reporters often ask him if wildfires in Canada are the result of climate change. Stocks said the broad nature of current global climate models, called "general circulation models," makes it difficult to determine the specific impact of climate change at local or

regional levels.

"General circulation models...look at global weather, how the climate looks around the world," said Stocks. "And when you are doing that, they are over large areas. So when they resolve something, we call it a low-resolution alternative, because it applies to all of Northern Canada or all of Eastern Canada, for example.

"But there are regional-scale differences when we use these general circulation models, so what happens then? We're not any better than the lowest resolution product. Because general circulation models are more global in nature, it's hard to drill right down and say, 'Here's what the problems are in Northern Alberta.'"

Stocks said researchers are able to estimate future fire activity based on future climates that general circulation models can predict. For example, drilling down as far as the general circulation models can go, researchers "see significant increases in fire activity, particularly in West-Central Canada and in British Columbia,"

he said.

"We're able to show some trends in terms of increasing fire severity and fire activity in certain regions of the country, but we can only go so far as the resolution of the general circulation models that are used to project future climates.

"We are unable, at this point in time, to narrow climate change down as a cause for a particular fire or even during a particular fire season, because we don't have that degree of resolution."

Stocks opened the talk with a presentation and graphic analysis of satellite imagery from several sources and vantage points to illustrate the extent and nature of the wildfires in the Slave Lake area on Sunday May 15, with emphasis on the extreme fire behaviour exhibited in a short time between the fire escaping and it entering the town of Slave Lake. 🐾

*Thank you to Canadian Underwriter for permission to reprint this item.*

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## ICLR produces video on basement flooding

ICLR has produced a four minute video to showcase measures homeowners can take to reduce the risk of basement flooding in their homes.

Based on the Institute's *Handbook for reducing basement flooding*, the video highlights 20 measures homeowners can take to limit instances of water entering their basements. These include:

Option 1: Talk to your municipal government about basement flooding  
Option 2: Inform your municipal government about basement flooding that you've experienced  
Option 3: Hire a licensed plumber to conduct a detailed plumbing investigation on your home  
Option 4: Check your insurance policy, or talk to your insurance broker or insurance provider about basement flood coverage

Option 5: Avoid pouring fats, oils and grease down household drains  
Option 6: Keep storm sewer grates clear  
Option 7: Seal cracks in foundation walls and basement floor  
Option 8: Considerations for overland flood entry-points  
Option 9: Reduce home water use during heavy rainfall events  
Option 10: Maintain eavestroughs and downspouts  
Option 11: Avoid storing items directly on the basement floor  
Option 12: Downspout disconnection, extension and splash pads  
Option 13: Lot grading, backfilling and swales  
Option 14: Weeping tiles, sump-pits and sump-pumps  
Option 15: Mainline, normally open backwater valve  
Option 16: Maintain sewer laterals  
Option 17: Severance of storm sewer lateral  
Option 18: Considerations for reverse sloped driveways

Option 19: Window wells and window well covers  
Option 20: Avoid remodelling or finishing basements

The video can also be used by insurers and brokers to learn about such measures so they can better inform homeowners on mitigative actions that can be taken to prevent basement flooding.

The video can be accessed from a link found at [www.iclr.org](http://www.iclr.org), or directly at

<http://www.youtube.com/watch?v=9PMaiWCGOEQ> 🐾



# ICLR retrofits Hamilton house to reduce the risk of basement flooding

On May 4, the Institute for Catastrophic Loss Reduction (ICLR), with support from the City of Hamilton, retrofitted a Hamilton home to reduce the risk of basement flooding.

In 2004, 2005, 2006 and 2009, Hamilton experienced heavy rainfall events that resulted in significant urban flooding damages. The City is not alone, as Toronto, Ottawa, Sarnia, Thunder Bay, Peterborough, Saskatoon, Montréal, Edmonton, Calgary, Moncton and many others have also experienced damaging urban flooding events over the past few years.

"Basement flooding, caused by overland water flows, infiltration and sewer backup, is a major concern for many urban municipalities in Canada," said ICLR's Executive Director Paul Kovacs. "With the increase in the frequency and intensity of rainfall events, along with urbanization and aging infrastructure, more homeowners are experiencing basement flooding. What's more, the proliferation of finished basements means that individual damage figures can be quite high. Effective management of flood risks requires investment and upgrading of municipal sewer infrastructure -- along with educated homeowners who take action to prevent flooding. Protecting properties from flooding is a shared responsibility. This retrofit

demonstrates a number of ways that property owners can help guard against it."

Since September 2009, the City of Hamilton has had in place a Protective Plumbing Program (3P) which provides financial assistance and guidance to residential property owners respecting improvements to household plumbing in order to protect their properties from basement flooding as a result of sewer surcharging. The Protective Plumbing Program (3P) has been initiated to provide guidance and financial assistance to residential property owners seeking to undertake improvements to their homes that will reduce the potential for basement flooding, says Dan McKinnon of the City of Hamilton's Water and Wastewater Operations.

Property owners can undertake improvements to their homes by completing any of the following: installation of backwater valves, sump pump installation in conjunction with a backwater valve, or disconnecting downspouts. When completed as per program guidelines, permit fees will be reimbursed above the \$2,000 maximum grant under the program. Sewer lateral repairs also require a permit and inspection and would also be reimbursed above the \$2,000 maximum grant for those eligible under the program. More information on the City of Hamilton's Protective Plumbing Program (3P) can be found at <http://www.hamilton.ca/CityDepartments/PublicWorks/WaterAndWasteWaterDev/ProtectivePlumbingProgram.htm>

Among its many resources, ICLR has issued a "Handbook for Reducing Basement Flooding," a publication that addresses the concerns of homeowners, local governments and insurance



Homeowner Mary Lou Tanner; Director of Hamilton's Water and Wastewater Operations Dan McKinnon; and ICLR Executive Director Paul Kovacs.

companies of the increasing instances of basement flooding. The booklet provides comprehensive information on how to mitigate flood risk for individuals and communities. It contains 20 measures that homeowners can take to reduce their risks and their neighbourhoods' risk of basement flooding. Many of the measures are simple and relatively inexpensive -- for example, downspout disconnection, and sealing any cracks in foundation walls and basement floors. 🐾



A natural gas-fired generator was installed to ensure that the home's two sump pumps have a dedicated power supply in the event of a disruption.



ICLR complemented actions already taken by the homeowner with additional measures, such as the installation of window wells and well covers.

## Involving homeowners in urban flood risk reduction

### A Case Study of the Sherwood Forest Neighbourhood, London, Ontario

Homeowners and residents who can take action to reduce their risk of experiencing damages and can limit their homes' impact on sewer and stormwater management infrastructure have important roles in urban flood mitigation. Many municipalities in Canada have developed comprehensive programs designed to increase homeowner involvement in urban flood reduction including education campaigns, and subsidy and grant programs. Municipalities have also applied by-laws and policies to require basement flood mitigation measures in homes and insurers are beginning to incentivize risk reducing plumbing measures for home insurance policyholders. Despite the important role of homeowners in urban flood mitigation, there has been very little research investigating public perceptions of urban flood risk. This study complements earlier ICLR studies to help fill this research gap.

This study investigated basement flood perceptions and mitigative behaviours of residents in the Sherwood Forest neighbourhood of London, Ont. Though the Sherwood Forest area is relatively new and serviced by a separated sewer system, considerable sewer backup flood risk exists largely due to foundation drain connections to the sanitary sewer system. This study investigated several aspects of homeowner knowledge and behaviour related to urban flood reduction and revealed many opportunities for both the City of London and insurers to increase homeowner knowledge and home-level action for urban flood reduction.

Similar to previous urban flooding surveys, respondents in this study had limited awareness of sewer backup insurance coverage. Almost half of the respondents could not indicate if

they had sewer backup insurance. One third of respondents also did not know whether or not their home had a backwater valve. Inability to indicate the existence of backwater valves has implications for insurers, specifically on the reliability of sewer backup questionnaire responses for new business. The City of London had taken various measures to inform residents in the Sherwood Forest area of flood risk and city programs for flood risk reduction, including information mailings, surveys, brochures and public meetings. However, many respondents reported that they had not read or received any City of London information on flooding and many respondents had not heard of the City's basement flood reduction subsidy program. Further, a considerable proportion of respondents who experienced sewer backup flooding and the majority of respondents who experienced clean water flooding did not report their flood experiences to the City.

Open-ended responses indicated that residents were concerned about flood risks associated with sump pumps. If there is the perception that sump systems lead to flooding, the City may experience difficulty in encouraging the use of sump systems as a means of flood reduction. Uptake of mitigative adjustments was relatively low, and very few respondents reported having installed sump pump systems or backwater valves on their own. Further, a considerable proportion of respondents reported having experienced infiltration flooding; a type of flooding that is largely not addressed in current City of London education materials.

There are opportunities for the City of London to partner with the insurance industry to address several of the

abovementioned issues, specifically addressing resident uncertainty about sewer backup insurance coverage and in identifying which residents have experienced sewer backup in the past. Government sponsored inspections may also help address homeowner uncertainty about flood reduction measures in their home. To increase lot-level flood reduction, the City may choose to implement stronger means of incorporating mitigation measures into homes, including by-laws or policies requiring backwater valves in all new homes. Requiring mitigation in all new homes could also help address uncertainties created by climate change.

Results from this study indicated that residents, by far, preferred information from the City rather than from their insurer/broker. However, as insurance brokers and insurers often serve as first point of contact for homeowners who experience a basement flood event, insurers and brokers may serve as an essential conduit for City information. Respondents preferred information distribution via handbooks and brochures mailed to homes and websites. A large proportion of respondents reported that they would like to receive information from City websites; however, only a small number had reported accessing the City's existing website. More aggressive information distribution methods may be required to increase resident uptake of city information. While only a small proportion of residents reported having read City information about basement flooding, almost two thirds indicated that they would like to receive more information about basement flood reduction from the City.

The full study can be downloaded at [www.iclr.org](http://www.iclr.org) 

## ICLR moves offices at UWO

By Greg Oulahen, Research Associate  
Institute for Catastrophic Loss Reduction

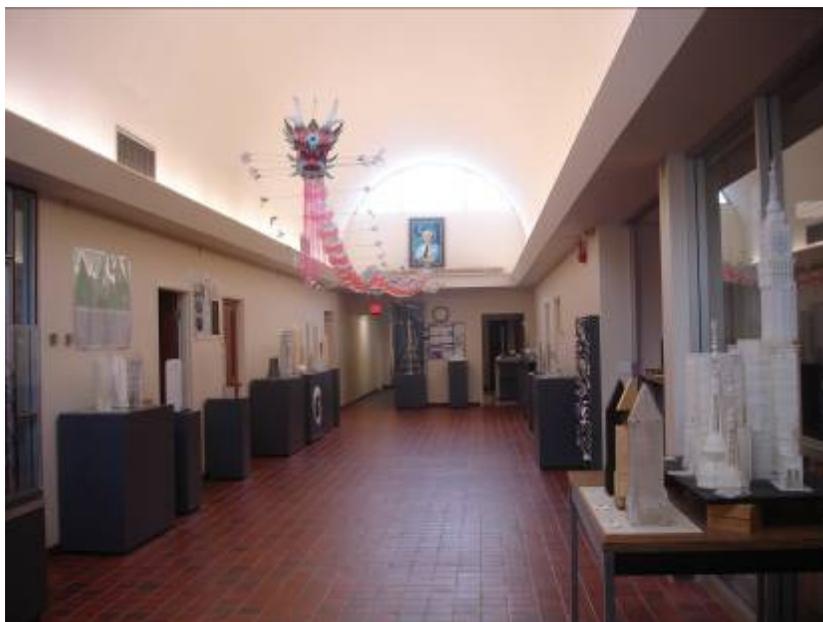
ICLR has a new home at the University of Western Ontario. In early March, the Institute moved its UWO campus office from 1491 Richmond Street to the Boundary Layer Wind Tunnel Laboratory (BLWTL). The office at 1491 Richmond Street had been converted from one of the original farm houses on the Westminster College property at UWO, formerly the site of the London Hunt and Country Club. The relocation to the BLWTL brings ICLR staff and research team members physically closer to research partners in the department of civil and environmental engineering, as well as research associates in other nearby departments located centrally on campus. It is eagerly anticipated that working alongside like-minded researchers will create additional opportunities for collaboration and result in a fruitful exchange of ideas. Professor Greg Kopp, Research Director at the BLWTL and Canada Research Chair in Wind Engineering, agrees: “We are excited to now share a working environment with ICLR and look forward to increased interaction, information flow, and

the mutually beneficial identification of research and policy gaps in order to increase the resilience of homes and communities.”

The BLWT has been a powerful force in the field of wind engineering since it was founded in 1965 by the late Alan Davenport, who was also instrumental in establishing ICLR. In this way the move is a bit of a homecoming for ICLR. Since its inception, engineers at the BLWTL have been influential in theoretical advancements in the field of wind engineering and international leaders in consulting on wind effects on buildings and bridges. Dr. Davenport and engineers at the BLWTL have tested many of the tallest and longest structures built around the world, including the CN Tower, World Trade Center, Sears Tower and Confederation Bridge, to name but a few well-known North American examples. The BLWTL has been something of a Mecca for wind engineers concerned with safety and integrity of large structures. “In fact, a few budding as well as established wind engineers did visit the BLWTL during its zenith

years” notes Dr. Nicholas Isyumov, Consulting Director of the BLWTL. UWO’s wind engineering program has since expanded to also include the Insurance Research Lab for Better Homes, a facility for full-scale testing of environmental loading on houses, and the soon-to-be completed Wind Engineering, Energy and Environment (WindEEE) Dome, a \$23.6 million hexagonal wind tunnel that will reproduce the dynamics of complex wind systems.

At the BLWTL, ICLR’s space includes private offices, rooms for hosting meetings and seminars, and work areas to accommodate graduate students. ICLR has been affiliated with the University of Western Ontario since 1999 and this productive partnership has driven a wide scope of research to reduce losses from environmental hazards. There is a lot of exciting research and new initiatives going on at Western these days and ICLR is proud to be in the midst of it all. 🐾



The lobby of the BLWTL contains engineering models of some of the most famous bridges and buildings constructed worldwide over the last several decades. The models are used to test for aerodynamic characteristics, structural loading, cladding and component resilience, as well as for human comfort in building motion and pedestrian level wind environment, among other things.

Manitoba Premier Greg Selinger announced July 4 that two leading engineering consulting firms have been hired to urgently develop options to reduce water levels on Lake Manitoba and Lake St. Martin.

He also announced significant enhancements to the province's historic 2011 Flood Building and Recovery Action Plan.

Leading hydro-technical and geotechnical firms AECOM and Manitoba's KGS Group have been contracted to provide specialized engineering advice and to work with provincial government engineers to rapidly develop viable solutions that will lower water levels on Lake Manitoba and Lake St. Martin.

The province will test new techniques for mitigating storm damage by implementing wave-breaking trial projects to be evaluated by engineering consultants in the coming months, the premier said.

The premier and provincial officials also provided details of new enhancements to the Building and Recovery Action Plan including expanding permanent flood protection.

The Manitoba government is launching the 2011 Individual Flood Proofing Initiative to help homeowners, businesses and farms with financial assistance to implement permanent flood protection such as building dikes or raising structures.

For the first time, the program is also being expanded to provide support to cottage owners. Property owners will be eligible for a government contribution of 86 per cent toward projects up to \$100,000 for homes, businesses and farms, and up to \$40,000 for cottages.

A total of \$75 million will be allocated over five years to support over 1,200 projects, the premier said.

The Manitoba

government is increasing the financial assistance available to families whose homes have been damaged by this year's flood under the province-wide Disaster Financial Assistance (DFA) Program and the special Lake Manitoba Financial Assistance Program. Maximum payouts for primary residences are being increased to \$240,000 under DFA and \$270,000 under the Lake Manitoba program.

In addition, the province will waive program co-payments where permanent flood protection is undertaken, making it easier for families to protect themselves for the future.

It is expected that direct financial assistance paid to families under DFA and the special programs for Lake Manitoba and the Hoop and Holler Bend area will total approximately \$45 million this year.

The Manitoba government is also introducing a special Provincial Property Tax Relief Program to provide tax relief to property owners who have seen significant damage from this year's record flooding.

The province will maintain revenues for local municipalities by covering 2011 municipal and school taxes for families for the period of time from when their property was damaged through to the end of year. Municipalities will be asked to identify flood-affected properties that qualify for this tax relief. This program is expected to total approximately \$2.3 million.

The premier also noted that he has asked Flood 2011 Building and Recovery Action Plan appeals commissioner Ron Bell to recommend guidelines for a fair and reasonable buyout program to deal with extreme cases where damage to property has been so severe that it is either physically impossible to rebuild or economically

unfeasible to do so.

"With each flood, we take the time to learn from our experience with the water. This year's flood is the largest in our recorded history and our approach will be no different," said Selinger. "We'll keep working with First Nation and municipal leaders to learn from the flood and develop smart, practical solutions to reduce water levels and get families the help they need."

The province has begun compiling an overview report of the ongoing 2011 flood including lessons learned and planned improvements for the future. The report is expected to be available later this year, depending on the flood's progression. 

# 42 million displaced by sudden natural disasters in 2010

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Over 42 million people across the world were forced to flee due to disasters triggered by sudden onset natural hazards in 2010, according to a new study by the Norwegian Refugee Council (NRC)'s Geneva-based Internal Displacement Monitoring Centre (IDMC). In 2009, 17 million people were displaced by such disasters, and 36 million in 2008.

"The scale of displacement is enormous. Every single number in this report is a person whose life is severely affected, and it is vital that those women, men and children who are being displaced by the impact of climate change and natural hazards receive the assistance and protection they need", said NRC Secretary General Elisabeth Rasmusson at the launch. "This report provides us with evidence of the extent and urgency of the problem that we cannot ignore. We must increase collaborative efforts to prevent displacement by natural disasters, and do a better job of protecting those displaced."

## Over 90 per cent climate-related

The number of natural disasters reported has doubled from around 200 to over 400 a year over the past two decades. In 2010, over 90 per cent of disaster displacement within countries was caused by climate-related hazards, primarily floods and storms.

"The intensity and frequency of extreme weather events is increasing, and this

trend is only set to continue. With all probability, the number of those affected and displaced will rise as human-induced climate change comes into full force", said Rasmusson. "The humanitarian community will have to be better prepared to respond to large-scale natural disasters and the displacement that follows. The way that the international response system is set up today, we cannot do so adequately."

## Mega-disasters displace most

The huge numbers, and the variations between years, were largely due to the impact of the largest "mega-disasters" such as the massive floods in India in 2009, and in China and Pakistan in 2010, as well as the earthquakes in Chile and Haiti. In Pakistan in mid-2010, at least 11 million people were forced to leave their home areas, and had their homes and livelihoods destroyed by the flood waters. During the same period, flooding in China which covered a huge area of the southern provinces, as well as some in central and even the north displaced over 15 million people.

## Asia worst hit region

Countries on all continents were affected by the increase in natural disasters, including many smaller nations in which disasters displaced a large proportion of the population. However, Asia is by far the worst hit region, and

countries in south and southeast Asia, including India, the Philippines, Bangladesh and Indonesia as well as China and Pakistan, had among the largest numbers displaced.

The figures in the report refer to the number of people newly displaced during each year, and do not consider how long they remain displaced. The ability of governments and the international community to respond to such displacement, to protect displaced people effectively, and to enable them to eventually achieve a durable solution to their displacement, will also determine the future scale of the crisis.

The Internal Displacement Monitoring Centre (IDMC) was established by the Norwegian Refugee Council (NRC) in 1998, upon the request of the United Nations Inter-Agency Standing Committee. It is a leading source of information and analysis on internal displacement worldwide. 

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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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