



Swiss Re



Making flood insurable in Canada

Preliminary results out of research project done by
ICLR & Swiss Re

Making flood insurable
ICLR Friday Forum
April 17, 2009

April 2009

Flood research study partners

■ ICLR

- core financial support from Canada's insurers
- more than 30 senior hazard safety researchers
- affiliated with the University of Western Ontario
- founded in Toronto in 1998
- building disaster resilient communities and homes

■ Swiss Re

- a leading and highly diversified global reinsurer
- operates through offices in more than 25 countries
- founded in Zurich, Switzerland in 1863
- services enable risk-taking essential to enterprise

Agenda

- **The current situation does not address consumers needs**
- Why is flood an important topic?
- Flood insurance: An international perspective
- A possible solution for Canada
- Implementation requires a long-term commitment



Risk transfer for homeowners currently not available in Canada

- Inconsistent coverage situation
 - Sewage covered, but not river flood
 - Commercial risks can be insured, private risks not
- Consumer not aware of the situation
- Pre-funding is better than post-funding
 - Faster recovery after major disaster

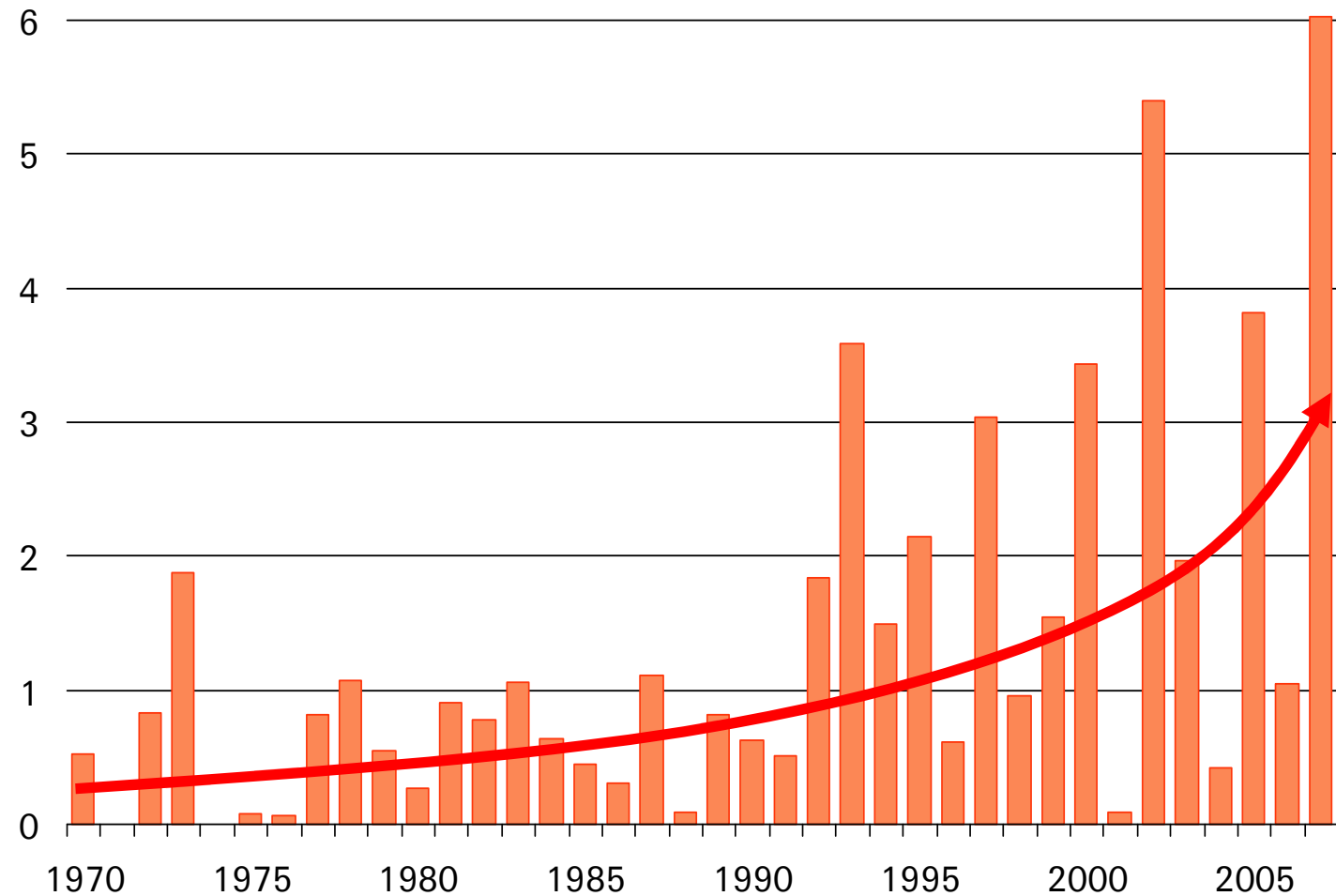
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Global flood insurance payments are on the rise

USD bn, at 2007 prices





Flood led to some of the biggest historic losses in Canada

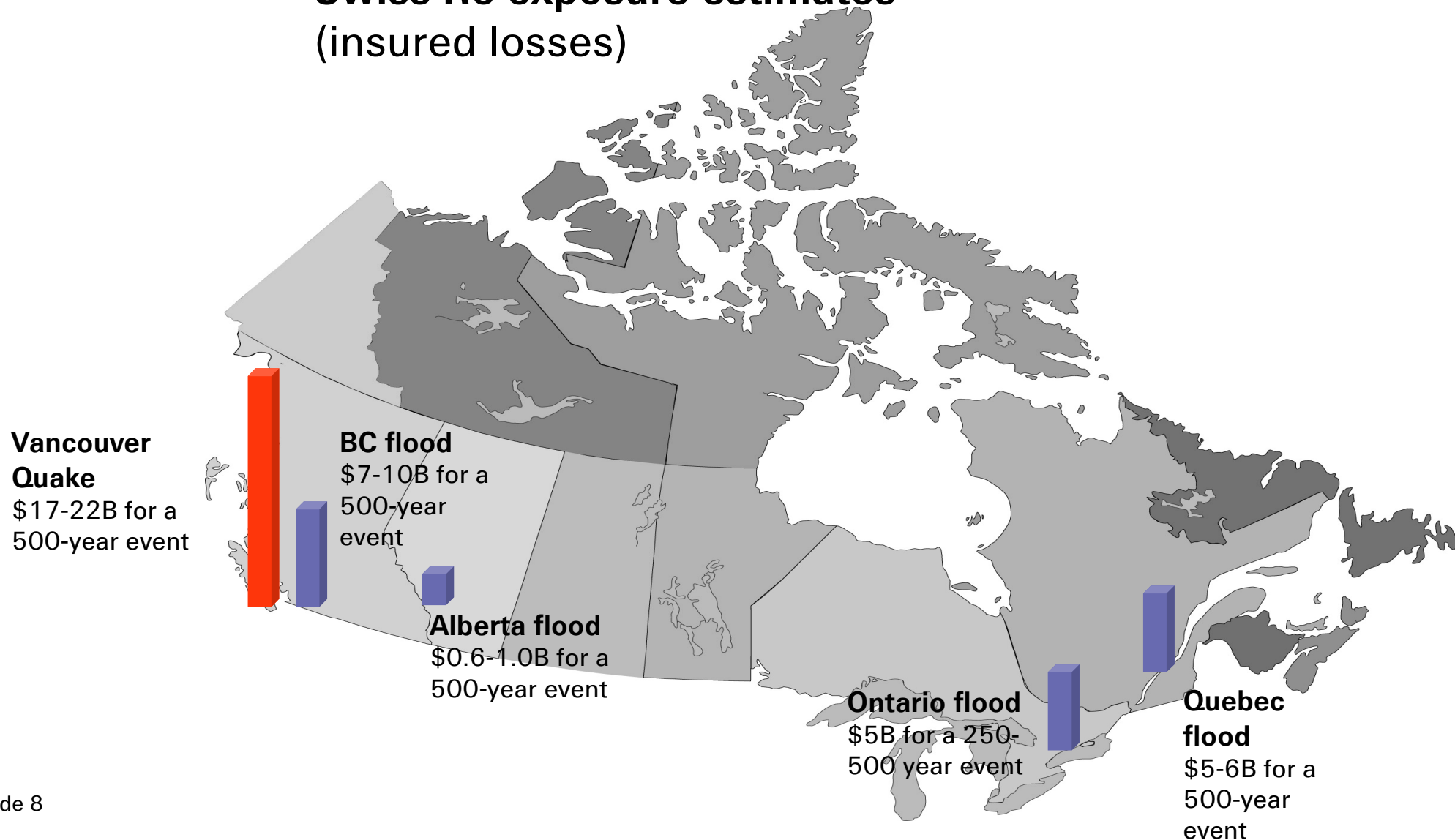
Year	Location	Type of event	Economic loss (CAD m)*
1980	Prairie provinces	Drought	10,021
1998	Ontario to New Brunswick	Freezing Rain	8,427
1931	Prairie provinces	Drought	7,807
1988	Prairie Provinces to ON	Drought	7,056
1979	Prairie provinces	Drought	5,612
1954	Toronto, southern ON	Hurricane	5,392
1948	Fraser River BC	Flood	5,171
1950	Winnipeg MB	Flood	4,652
1984	Prairie provinces	Drought	3,640
1996	Saguenay QC	Flood	2,699

* in "2008 dollars", i.e. trended to 2008
 Source: Canadian Disaster Database



There are several highly exposed flood areas in Canada

Swiss Re exposure estimates (insured losses)



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Global research shows four flood insurance models

- Private and compulsory
 - Examples: Great Britain and Switzerland
- Private and optional
 - Example: Germany
- Public and compulsory
 - Examples: France and Spain
- Public and optional
 - Example: USA



Flood insurance—Great Britain

Organisation

public ———— ■ private

Coverage

compul. ■ ———— optional

Penetration

low ———— ■ high

Premium

low ■ ———— high

- ▶ Private insurance in place for most homeowners
 - ▶ Natural perils bundled with fire since 1961
 - ▶ Changes since 10/2002, exclusion for 1/75 year risks
- ▶ Most flood risks are covered
- ▶ Industry statement of insurability, 2002 and 2007
- ▶ State guarantees for quality flood maps, adequate flood defence, and effective land use
- ▶ Pricing reflects risk differentiation
- ▶ Small deductible (GBP 50)





Flood insurance – Germany

Organisation

public ———— ■ private

Coverage





compul. ———— ■ optional

Penetration

low —■— high

Premium

low —■— high

- ▶ Private flood insurance can be added as optional cover 
- ▶ Most flood risks covered but storm surge excluded 
- ▶ Little differentiation of prices based on exposure (industry is pressing for a change) 
- ▶ Prices are affordable but most do not buy coverage 



Flood insurance – France

Organisation

public —■— private

Coverage







compul. ■— optional

Penetration

low —■— high

Premium

low —■— high

- ▶ CatNat: since 1982 private sponsorship, state regulated 
- ▶ Compulsory coverage of all natural perils except storm; however, storm coverage included in all policies 
- ▶ High premium surcharge for CatNat of 12% 
- ▶ Everyone pays the same price, no risk differentiation and no incentive to protect homes 
- ▶ Modest deductible of € 250 
- ▶ Event declaration is pre-condition for indemnity 



Flood insurance – USA

Organisation

public ————— private

Coverage

compul. ————— optional

Penetration

low ————— high

Premium

low ————— high

▶ Public flood insurance program since 1968



▶ The most expensive program in the world



▶ Hazard zonation used to determine premium rates



▶ Few homeowners buy flood insurance



▶ Generally voluntary; compulsory in flood prone areas



▶ Small deductible (USD500)



▶ Limited cover (USD250,000 building / USD100,000 contents)



▶ Currently more than USD17 billion in public debts



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Three requirements must be fulfilled for insurability

- Mutuality
- Assessability
- Economic feasibility



A possible solution for Canada (I)

Scope of cover

Include all water-related losses (flash-, river flood, mud flow, dam break, storm surge, coastal flooding)

- ▶ Increases transparency for policyholder and eliminates coverage discussions after events

Coverage

Compulsory

- ▶ Ensures large enough pool and affordable premium

Very high risk homes

Might be uninsurable and would be either pooled or covered by the government

- ▶ Definition of "very high risk homes" is still to be made. In the UK, homes within the 1/75 year flood plain are not insured privately



A possible solution for Canada (II)

Premiums & deductibles

Sufficient deductibles (0.5-3% deductibles of TIV, increasing with higher exposure)

Risk adjusted rates, affordable premium well below CAD 100 on average per year

- ▶ Helps land-use steering and encourages loss prevention by homeowners
- ▶ Makes the cover affordable to the public



The proposed solution is based on a partnership

Homeowners

- ▶ Take preventive action to minimize risk of damage
- ▶ Participate in losses via significant self-retention

Insurance industry

- ▶ agrees to automatically provide flood cover
- ▶ exception: homes located in areas of very high risk
- ▶ the price of insurance reflects risk assumed

Government

- ▶ raises risk awareness of the population
- ▶ considers flood risk for regional planning and provides overall flood management
- ▶ produces quality flood maps
- ▶ guarantees investment in flood control works

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Current state of flood maps differs vastly by province (I)

Province	Responsibility for Flood Hazard Mapping	Type of Map and Accessibility	Updating Procedure	Action Taken
BC	<p>The Province has largely led and funded mapping, but downloaded that responsibility to municipalities in 2004</p> <p>Municipalities and NGOs are partnering with the Province to develop floodplain maps</p>	<p>Large online database of scanned hand drawn maps from the FDRP program</p> <p>Online digital map of floodplains across the province</p> <p>Online database of new floodplain maps for the Lower Fraser Valley</p>	<p>No clear timeframe for map updates as municipalities struggle with the downloaded responsibility for flood mapping</p> <p>Flood models and maps are updated following unpredicted events and flood threats</p>	<p>Ten-year, \$100 million British Columbia Flood Mitigation Program</p> <p>\$49 million to improve B.C.'s ability to adapt to climate change</p>
Alberta	<p>Municipalities are responsible for floodplain mapping</p>	<p>Online digital map of floodplains across the province</p>	<p>Municipalities must update floodplain maps every 5 years</p> <p>Updating does not often happen due to financial and personnel constraints</p>	<p>Province is working at completing floodplain mapping for the remaining 21 municipalities</p>



Current state of flood maps differs vastly by province (II)

Province	Responsibility for Flood Hazard Mapping	Type of Map and Accessibility	Updating Procedure	Action Taken
Ontario	<p>Development and approval of floodplain mapping occurs at the local level.</p> <p>CA's are responsible for managing the efforts of municipalities for floodplain mapping.</p>	<p>Paper maps are of "good quality" but have not been digitized.</p> <p>Maps are accessible to the public for a fee – not available online.</p>	<p>Municipalities/ CA's often require landowners to update or extend floodplain maps as part of approvals process for land development.</p>	<p>MNR provides (limited) funding to CA's for floodplain mapping studies.</p> <p>Over 270 communities mapped as part of FDRP.</p>
Quebec	<p>Provincial government provides support to municipalities in defining flood-risk areas and controlling floods.</p>	<p>Flood maps and near real-time monitoring tables (updated every 15 minutes) are available online.</p>	<p>Municipal responsibility to maintain and update floodplain mapping.</p>	<p>Recent investment by provincial government in (near) real-time monitoring of flow rates and levels of several waterways and making this information available to the public online.</p> <p>Over 250 communities mapped during FDRP.</p>

Flood maps need to be updated

■ British Columbia

- Mapping is not yet complete for the whole Fraser Valley

■ Alberta

- Mapping is not yet complete for communities identified as having a flood risk
- Maps are supposed to be updated every 5 years, but rarely are

■ Ontario

- Most flood maps are of “good quality” but have not been digitized and are not accessible online
- Some differences in approach to mapping and land use management across the province

■ Quebec

- Flood maps and near real-time monitoring tables (updated every 15 minutes) are available online



Implementation requires a long-term commitment

- Provincial governments need to step up their efforts regarding flood risk assessment
- Insurance industry needs to design and price the product
- Regulation needs to be established
- But the timing is right, today water contributes more to the loss ratio than fire

What does it take to make flood insurable in Canada?