CONSIDERATIONS FOR A NATIONAL FLOOD INSURANCE PROGRAM IN CANADA

ICLR FRIDAY FORUMS
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1. RESEARCH PROJECT
About

- **Canadian flood risk-sharing models in the face of climate change;**
  - With M. Bourdeau-Brien (Laval), J. Thistlethwaite (Waterloo) and D. Henstra (Waterloo);

- **Research partnership:**
  - Public Safety Canada (PS) and Insurance Bureau of Canada (IBC);
  - >$600K over 3 years, funded by NSERC Alliance, PS PDCP and IBC;
I. RESEARCH PROJECT
Timeline

- **Follows** from the work of the Task Force on Flood Insurance and Relocation;

  - **2022-2023** Actuarial and financial analyses under the present climate;
    - Work from Gabriel Morin and Jacob Chenette;
    - Papers under preparation;

  - **2024-2025**: Revisit actuarial and financial analyses for future climates;
    - Under way;
OUTLINE

1. Research project;
2. Financial management of flooding in Canada;
3. Flood risk in Canada;
4. Annual costs of a mature plan;
5. Capitalization of a new plan;
6. Moving towards flood resilience (Conclusion);
2. FINANCIAL MANAGEMENT OF FLOODING IN CANADA
A shared responsibility

- **Municipalities**: land use planning, maintenance of infrastructure;
- **Provinces**: oversight of municipalities, flood mapping (with municipalities), disaster financial assistance (DFA);
- **Federal**: financial support to provinces and municipalities through various programs: National Disaster Mitigation Program (NDMP), National Adaptation Strategy and Disaster Financial Assistance Arrangements (DFAA);
- **Insurers**: sell flood insurance to homeowners;
2. FINANCIAL MANAGEMENT OF FLOODING IN CANADA
Who pays for what in case of flooding?

- Disaster victim
  - Insurance company
  - Reinsurance company
  - Provincial DFA prog.
  - DFAA (PS)
2. FINANCIAL MANAGEMENT OF FLOODING IN CANADA
Financial assistance from FPT governments

- **Provincial DFA:**
  - Last resort financial assistance to homeowners and municipalities;
  - Protect home hours prior to flooding, or repair, rebuild, etc. in case of flooding;
  - Triggered by province (emergency measures);

- **DFAA:**
  - Financial assistance to provinces (and territories) in case of major event;
  - Cost-sharing formula between province and federal based on population (establishes province’s financial capacity);
2. FINANCIAL MANAGEMENT OF FLOODING IN CANADA

Private insurance market

- Overland flood insurance and sewer backup not covered in basic homeowner’s insurance ➔ Sold as optional rider;
- Overland flood insurance added since 2015-2016 approx. while sewer backup existed for a while;
- Take-up rate of 60% for comprehensive coverage;
- Risk-based pricing:
  - Affordable for low to medium risk;
  - Not offered or not affordable or inadequate coverage (low limit) for those at high risk;
2. FINANCIAL MANAGEMENT OF FLOODING IN CANADA
Recent initiatives

- **Task Force on Flood Insurance and Relocation**
  - Public Safety Canada and CMHC;
  - *Report* (August 2022);
- **Federal Budget** (March 2023)
- National Flood Insurance Program
  - Reinsurance Crown corporation;
  - Insurance subsidy program;
3. FLOOD RISK IN CANADA
Canadian exposure information | Inputs

- Location and property characteristics for each Canadian home;
- **Statistics Canada – 2021 Census**: information on number of dwellings, dissemination areas/blocks geometries;
- **DMTI Spatial – Address points**: location (lat/lon) of Canadian addresses;
- **Opta – Aggregate exposure information**: aggregate property characteristics such as reconstruction costs, basement info, etc.
3. FLOOD RISK IN CANADA
Canadian exposure information | Steps

1. Assign appropriate number of each dwelling type from StatsCan 2021 Census per DA;
2. Locate (lat/lon) each property with DMTI Address Points;
3. (Randomly) Assign property characteristics with Opta;
3. FLOOD RISK IN CANADA

Canadian exposure information | Assumptions

- Focus on buildings Code 1-4 from StatsCan:
  - Single-detached house, semi-detached house, row house, apartment or flat in a duplex;
  - MDU, mobile homes and other dwellings are all excluded;
  - About 10M homes (9.9M exactly);
- Assign first floor elevation (FFE) of 1 ft if no basement, 3 ft if basement;
- 90% of 10M homes in Canada have basement;
3. FLOOD RISK IN CANADA

Flood model

- Provided by KatRisk
  - Fluvial and pluvial flooding;
- Use Canadian exposure information as input;

Output:
- Average annual loss (AAL) for each of 10M homes;
- Probabilistic event set at near location level (aggregated per DB);
### 3. FLOOD RISK IN CANADA
AAL and breakdown per province

<table>
<thead>
<tr>
<th>Province</th>
<th>AAL</th>
<th>95th (20-yr)</th>
<th>99th (100-yr)</th>
<th>99.9th (1000-yr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>NL</td>
<td>9,980</td>
<td>33,537</td>
<td>170,458</td>
<td>1,103,169</td>
</tr>
<tr>
<td>PE</td>
<td>2,393</td>
<td>8,045</td>
<td>53,672</td>
<td>233,458</td>
</tr>
<tr>
<td>NS</td>
<td>18,696</td>
<td>81,235</td>
<td>344,208</td>
<td>1,319,062</td>
</tr>
<tr>
<td>NB</td>
<td>34,607</td>
<td>168,067</td>
<td>583,519</td>
<td>1,440,537</td>
</tr>
<tr>
<td>QC</td>
<td>387,746</td>
<td>1,851,210</td>
<td>6,192,698</td>
<td>18,375,956</td>
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<tr>
<td>ON</td>
<td>407,830</td>
<td>1,821,714</td>
<td>6,817,956</td>
<td>21,929,873</td>
</tr>
<tr>
<td>MB</td>
<td>94,376</td>
<td>296,351</td>
<td>2,204,828</td>
<td>7,560,879</td>
</tr>
<tr>
<td>SK</td>
<td>41,888</td>
<td>205,897</td>
<td>656,589</td>
<td>2,157,271</td>
</tr>
<tr>
<td>AB</td>
<td>153,114</td>
<td>597,351</td>
<td>2,939,708</td>
<td>9,632,539</td>
</tr>
<tr>
<td>BC</td>
<td>268,147</td>
<td>1,258,974</td>
<td>3,537,292</td>
<td>9,675,858</td>
</tr>
<tr>
<td><strong>Canada-wide</strong></td>
<td><strong>1,418,776</strong></td>
<td><strong>5,707,636</strong></td>
<td><strong>13,227,199</strong></td>
<td><strong>33,826,713</strong></td>
</tr>
</tbody>
</table>

in thousands $
3. FLOOD RISK IN CANADA
Distribution of AAL per homeowner

Flood risk heavily **concentrated** in few homeowners

- 39% of risk in top 1%
- 78% of risk in top 10%
3. FLOOD RISK IN CANADA

Distribution of AAL per homeowner, broken down by province

<table>
<thead>
<tr>
<th>Prov.</th>
<th>AAL ($)</th>
<th>Number of residential properties (thousands)</th>
<th>Overall</th>
<th>AAL per property ($)</th>
<th>AAL per property ($)</th>
<th>Number of residential properties (count and %)</th>
<th>Number of residential properties (count and %)</th>
</tr>
</thead>
<tbody>
<tr>
<td>NL</td>
<td>9 979 697</td>
<td>145,6</td>
<td>68,55</td>
<td>5 667</td>
<td>3,89%</td>
<td>608</td>
<td>0,42%</td>
</tr>
<tr>
<td>PE</td>
<td>2 393 293</td>
<td>51,0</td>
<td>46,90</td>
<td>1 697</td>
<td>3,33%</td>
<td>108</td>
<td>0,21%</td>
</tr>
<tr>
<td>NS</td>
<td>18 695 706</td>
<td>317,8</td>
<td>58,83</td>
<td>12 135</td>
<td>3,82%</td>
<td>924</td>
<td>0,29%</td>
</tr>
<tr>
<td>NB</td>
<td>34 606 557</td>
<td>263,5</td>
<td>131,33</td>
<td>18 370</td>
<td>6,97%</td>
<td>3 058</td>
<td>1,16%</td>
</tr>
<tr>
<td>QC</td>
<td>387 745 587</td>
<td>2 232,9</td>
<td>173,65</td>
<td>229 683</td>
<td>10,29%</td>
<td>28 495</td>
<td>1,28%</td>
</tr>
<tr>
<td>ON</td>
<td>407 830 054</td>
<td>3 780,4</td>
<td>107,88</td>
<td>287 734</td>
<td>7,61%</td>
<td>26 466</td>
<td>0,70%</td>
</tr>
<tr>
<td>MB</td>
<td>94 375 643</td>
<td>343,8</td>
<td>274,48</td>
<td>98 559</td>
<td>28,66%</td>
<td>6 007</td>
<td>1,75%</td>
</tr>
<tr>
<td>SK</td>
<td>41 888 106</td>
<td>322,3</td>
<td>129,96</td>
<td>29 000</td>
<td>9,00%</td>
<td>2 242</td>
<td>0,70%</td>
</tr>
<tr>
<td>AB</td>
<td>153 114 154</td>
<td>1 213,3</td>
<td>126,19</td>
<td>98 745</td>
<td>8,14%</td>
<td>9 687</td>
<td>0,80%</td>
</tr>
<tr>
<td>BC</td>
<td>268 147 480</td>
<td>1 146,3</td>
<td>233,92</td>
<td>202 326</td>
<td>17,65%</td>
<td>20 796</td>
<td>1,81%</td>
</tr>
</tbody>
</table>
4. ANNUAL COSTS OF A MATURE PLAN

Assumptions

- 2020 reference year;
- **Loss costs:**
  - Average annual insured losses (AAIL): building and contents after deductible and limit;
  - Additional living expenses (ALE): 30%;
- Loss adjustment expenses (ALAE and ULAE): 10%;
- (International) Reinsurance: to be computed from event set;
- Overhead, commissions, and other fixed expenses: $400M;
4. ANNUAL COSTS OF A MATURE PLAN
Reinsurance

<table>
<thead>
<tr>
<th>Threshold (annual losses above given percentile are reinsured)</th>
<th>Pure reinsurance premium (as a % of AAIL)</th>
<th>Approx. gross reinsurance premium (as a % of AAIL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>90%</td>
<td>30%</td>
<td>45-60%</td>
</tr>
<tr>
<td>95%</td>
<td>20%</td>
<td>30-40%</td>
</tr>
<tr>
<td>99%</td>
<td>6%</td>
<td>9-12%</td>
</tr>
<tr>
<td>99.5%</td>
<td>4%</td>
<td>6-8%</td>
</tr>
<tr>
<td>99.9%</td>
<td>1%</td>
<td>1.5-2%</td>
</tr>
</tbody>
</table>
# 4. Annual Costs of a Mature Plan

Full participation (Numbers in thousands of $)

<table>
<thead>
<tr>
<th>Deductible Limit</th>
<th>5K</th>
<th>10K</th>
<th>25K</th>
<th>5K</th>
<th>10K</th>
<th>25K</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>300K</td>
<td>300K</td>
<td>300K</td>
</tr>
</tbody>
</table>

**Components of the loss costs**

- **Building and contents (AAIL)**
  - 5K: 1,195,665
  - 10K: 1,084,969
  - 25K: 880,494
  - 5K: 1,086,739
  - 10K: 976,043
  - 25K: 771,568

- **Additional living expenses (ALE)**
  - 5K: 358,700
  - 10K: 325,491
  - 25K: 264,148
  - 5K: 326,022
  - 10K: 292,813
  - 25K: 231,470

**Total loss costs**
- 5K: 1,554,365
- 10K: 1,410,460
- 25K: 1,144,642
- 5K: 1,412,761
- 10K: 1,268,856
- 25K: 1,003,039

**Loss Adjustment Expenses (LAE), including Allocated and Unallocated (ALAE and ULAE)**
- 5K: 155,436
- 10K: 141,046
- 25K: 114,464
- 5K: 141,276
- 10K: 126,886
- 25K: 100,304

**Reinsurance premium (with loading of 50%)**
- 5K: 110,814
- 10K: 99,689
- 25K: 77,655
- 5K: 98,939
- 10K: 87,456
- 25K: 65,665

**Overhead, commissions and other fixed expenses**
- 5K: 400,000
- 10K: 400,000
- 25K: 400,000
- 5K: 400,000
- 10K: 400,000
- 25K: 400,000

**Total annual costs for mature plan without margin**
- 5K: 2,220,616
- 10K: 2,051,195
- 25K: 1,736,762
- 5K: 2,052,976
- 10K: 1,883,197
- 25K: 1,569,007

**Total annual costs for mature plan with 10% safety margin**
- 5K: 2,442,677
- 10K: 2,256,314
- 25K: 1,910,438
- 5K: 2,258,274
- 10K: 2,071,517
- 25K: 1,725,908
4. ANNUAL COSTS OF A MATURE PLAN
Risk profiles – Different participation / ceding patterns

<table>
<thead>
<tr>
<th>% of h/o</th>
<th>Best risk</th>
<th>Worst risk</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>AAL ($K)</td>
<td>% of $</td>
</tr>
<tr>
<td></td>
<td>0,25%</td>
<td>78</td>
</tr>
<tr>
<td></td>
<td>0,50%</td>
<td>153</td>
</tr>
<tr>
<td></td>
<td>0,75%</td>
<td>231</td>
</tr>
<tr>
<td></td>
<td>1,00%</td>
<td>313</td>
</tr>
<tr>
<td></td>
<td>2,00%</td>
<td>644</td>
</tr>
<tr>
<td></td>
<td>5,00%</td>
<td>1 801</td>
</tr>
<tr>
<td></td>
<td>10,00%</td>
<td>4 083</td>
</tr>
<tr>
<td></td>
<td>20,00%</td>
<td>9 019</td>
</tr>
<tr>
<td></td>
<td>80,00%</td>
<td>217 079</td>
</tr>
<tr>
<td></td>
<td>90,00%</td>
<td>305 673</td>
</tr>
<tr>
<td></td>
<td>95,00%</td>
<td>388 636</td>
</tr>
<tr>
<td></td>
<td>98,00%</td>
<td>606 613</td>
</tr>
<tr>
<td></td>
<td>99,00%</td>
<td>858 891</td>
</tr>
<tr>
<td></td>
<td>99,25%</td>
<td>957 709</td>
</tr>
<tr>
<td></td>
<td>99,50%</td>
<td>1 075 594</td>
</tr>
<tr>
<td></td>
<td>99,75%</td>
<td>1 219 577</td>
</tr>
<tr>
<td></td>
<td>100,00%</td>
<td>1 413 395</td>
</tr>
</tbody>
</table>

- We did the same with AAIL (with deductibles and limit);
- We also investigated affordability thresholds;
5. CAPITALIZATION OF A NEW PLAN

Background

- Model **cash flow uncertainty** for 30 years to determine how much to set aside and the size of Federal interventions (capital injections, backstop);

- **Determinants**: deductible and limit, risk profile of homeowners, safety margin, investment policy, inflation, political and financial risk tolerance, spatial dependence;

- **Cash flows** (with inflation accounted for):
  - (+) premiums, investment returns, reinsurance payouts;
  - (-) claims, reinsurance premiums, LAE, commission, overhead, etc.;
5. CAPITALIZATION OF A NEW PLAN
Effect of policy terms under full participation

Required capital (in millions) for fixed ruin probability (left column) for various policy terms

<table>
<thead>
<tr>
<th>Probability</th>
<th>Limit Deductible</th>
<th>None 5K</th>
<th>300K 5K</th>
<th>None 10K</th>
<th>300K 10K</th>
<th>None 25K</th>
<th>300K 25K</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.5%</td>
<td>None</td>
<td>58 073</td>
<td>49 396</td>
<td>53 628</td>
<td>45 440</td>
<td>41 450</td>
<td>35 767</td>
</tr>
<tr>
<td>1.0%</td>
<td>5K</td>
<td>47 607</td>
<td>40 569</td>
<td>43 633</td>
<td>39 386</td>
<td>34 573</td>
<td>29 641</td>
</tr>
<tr>
<td>1.5%</td>
<td>5K</td>
<td>41 868</td>
<td>36 338</td>
<td>37 880</td>
<td>34 137</td>
<td>29 904</td>
<td>26 831</td>
</tr>
<tr>
<td>2.0%</td>
<td>5K</td>
<td>38 635</td>
<td>33 468</td>
<td>34 373</td>
<td>30 692</td>
<td>27 556</td>
<td>24 255</td>
</tr>
<tr>
<td>2.5%</td>
<td>5K</td>
<td>35 802</td>
<td>30 885</td>
<td>32 285</td>
<td>28 367</td>
<td>25 354</td>
<td>22 626</td>
</tr>
<tr>
<td>3.0%</td>
<td>5K</td>
<td>33 596</td>
<td>28 978</td>
<td>30 257</td>
<td>26 444</td>
<td>23 628</td>
<td>20 623</td>
</tr>
<tr>
<td>4.0%</td>
<td>5K</td>
<td>29 814</td>
<td>25 870</td>
<td>26 765</td>
<td>23 587</td>
<td>21 283</td>
<td>18 166</td>
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<tr>
<td>5.0%</td>
<td>5K</td>
<td>27 089</td>
<td>23 383</td>
<td>24 414</td>
<td>21 311</td>
<td>19 221</td>
<td>16 727</td>
</tr>
</tbody>
</table>

Other assumptions:
- Full participation;
- Reinsurance at 99-th percentile;
- Safety margin: low (+10%);
- Mean return: 6% or 3% above inflation with vol of 15%
5. CAPITALIZATION OF A NEW PLAN
Effect of risk profiles – Fixed ruin probability of 1%

Required capital (in millions) for 1% ruin probability for various policy terms and risk profiles

<table>
<thead>
<tr>
<th>Risk profile</th>
<th>Limit</th>
<th>Deductible</th>
<th>None</th>
<th>300K</th>
<th>None</th>
<th>300K</th>
<th>None</th>
<th>300K</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>5K</td>
<td>5K</td>
<td>10K</td>
<td>10K</td>
<td>25K</td>
<td>25K</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Full participation</td>
<td>47 607</td>
<td>40 569</td>
<td>43 633</td>
<td>39 386</td>
<td>34 573</td>
<td>29 641</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BEST 90%</td>
<td>12 072</td>
<td>11 718</td>
<td>8 455</td>
<td>8 577</td>
<td>3 528</td>
<td>3 522</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BEST 99%</td>
<td>30 768</td>
<td>28 105</td>
<td>26 159</td>
<td>25 483</td>
<td>17 558</td>
<td>17 105</td>
<td></td>
<td></td>
</tr>
<tr>
<td>WORST 1%</td>
<td>18 430</td>
<td>13 967</td>
<td>18 353</td>
<td>13 939</td>
<td>16 998</td>
<td>13 392</td>
<td></td>
<td></td>
</tr>
<tr>
<td>WORST 10%</td>
<td>36 558</td>
<td>31 213</td>
<td>35 613</td>
<td>30 658</td>
<td>31 033</td>
<td>26 467</td>
<td></td>
<td></td>
</tr>
<tr>
<td>WORST 25%</td>
<td>41 924</td>
<td>35 931</td>
<td>40 073</td>
<td>35 139</td>
<td>33 527</td>
<td>28 381</td>
<td></td>
<td></td>
</tr>
<tr>
<td>WORST 50%</td>
<td>46 222</td>
<td>39 574</td>
<td>42 858</td>
<td>38 587</td>
<td>34 476</td>
<td>29 529</td>
<td></td>
<td></td>
</tr>
<tr>
<td>WORST 75%</td>
<td>47 518</td>
<td>40 523</td>
<td>43 628</td>
<td>39 373</td>
<td>34 572</td>
<td>29 640</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Other assumptions:
- 1% ruin proba.
- Reinsurance at 99-th percentile
- Safety margin: low (+10%);
- Mean return: 6% or 3% above inflation with vol of 15%
5. CAPITALIZATION OF A NEW PLAN
Capital injections | Number and size

Distribution of the number of capital injections over 30 years

Distribution of the total injected amounts over 30 years
## 5. CAPITALIZATION OF A NEW PLAN

Impact of spatial dependence | Aggregate loss distribution (millions of $)

<table>
<thead>
<tr>
<th></th>
<th>Percentiles</th>
<th></th>
<th>Conditional Tail Expectation</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>95%</td>
<td>99%</td>
<td>99,90%</td>
<td>95%</td>
</tr>
<tr>
<td>KatRisk (Baseline)</td>
<td>5 708</td>
<td>13 227</td>
<td>33 826</td>
<td>10 874</td>
</tr>
<tr>
<td>Independence</td>
<td>3 290</td>
<td>5 620</td>
<td>11 459</td>
<td>4 901</td>
</tr>
<tr>
<td>Moderate tail dependence</td>
<td>5 980</td>
<td>14 012</td>
<td>31 940</td>
<td>11 256</td>
</tr>
<tr>
<td>Heavy tail dependence</td>
<td>6 212</td>
<td>32 192</td>
<td>92 789</td>
<td>23 012</td>
</tr>
</tbody>
</table>
Key takeaways from actuarial analyses

- Annual recurrent costs of $1.7 to $2.4B depending on policy terms (deductible and limit) under full participation;
- Initial capitalization very sensitive to both policy terms and risk profile due to high concentration of risk in the top 10% / 1%;
- Trade-off between high/low initial capital vs low/high capital injections;
- Special care to top 1% of homeowners with 40% of risk ➔ Relocation?
6. MOVING TOWARDS FLOOD RESILIENCE (CONCLUSION)
Current state of affairs (January 2024)

- Through Budget 2023, the Government of Canada announced $31.7 million in funding for Public Safety Canada and the Canada Mortgage and Housing Corporation to work with the Department of Finance Canada to stand-up a low-cost flood insurance program.

- The program will consist of a federal reinsurance product and affordability subsidy, aimed at protecting households at high-risk of flooding and without access to adequate insurance.

- This is a priority file for the federal government. In terms of next steps, the government will engage with provinces and territories and with industry on establishing the national flood insurance program.

- In parallel to the work on flood insurance, the Department of Finance Canada and Public Safety Canada intend on engaging with industry and other stakeholders on solutions to earthquake insurance and other evolving climate-related insurance market challenges.
6. MOVING TOWARDS FLOOD RESILIENCE (CONCLUSION)

Crown reinsurance corporation

- Powerful tool for financial management of flooding in Canada
  - Foster pooling of risks from natural hazards: flooding now, earthquakes tomorrow?
  - Support insurers, provinces and municipalities for risk management;
  - Depoliticize post-disaster recovery;
  - Encourage best behaviors;
  - Autonomous and viable in the long-run;
  - Fair actuarial funding with Federal backstop;
  - Modelling and expertise to stakeholders;
6. MOVING TOWARDS FLOOD RESILIENCE (CONCLUSION)
Challenges ahead | Climate change

- Climate change will likely put pressure on flood insurance;
- Pluvial vs fluvial flooding
  - Warming atmosphere ➔ Extreme precipitation and severe droughts;
  - Snowmelt dynamics, rain-on-snow;
  - Heavy rain episodes (Summer 2023);
  - Regional discrepancies;
- Balance investments in mitigation and adaptation;
  - Build back better, update and maintain infrastructure;
Municipalities are responsible of land use planning;

Federal pays for major and catastrophic flood events;

Provinces and municipalities have limited incentives to reduce flood risk;

Housing crisis will put pressure on FPT and municipalities to build more and quickly;

Funding scheme could help address moral hazard issues;
Hazard:
- High-resolution DTM not available everywhere;
- Low density of hydrometric and weather stations in some areas;

Exposure:
- Building footprint (often incomplete), property characteristics, first floor elevation;

Vulnerability: linking losses to property characteristics (damage curves)
- Few studies;
- Most data for overland flooding with provinces (and insurers);
Mathieu Boudreault: boudreault.mathieu@uqam.ca

Short summary: Seeing Beyond Risk (Newsletter of the Canadian Institute of Actuaries);