Disaster Losses and Integrated Risk Management

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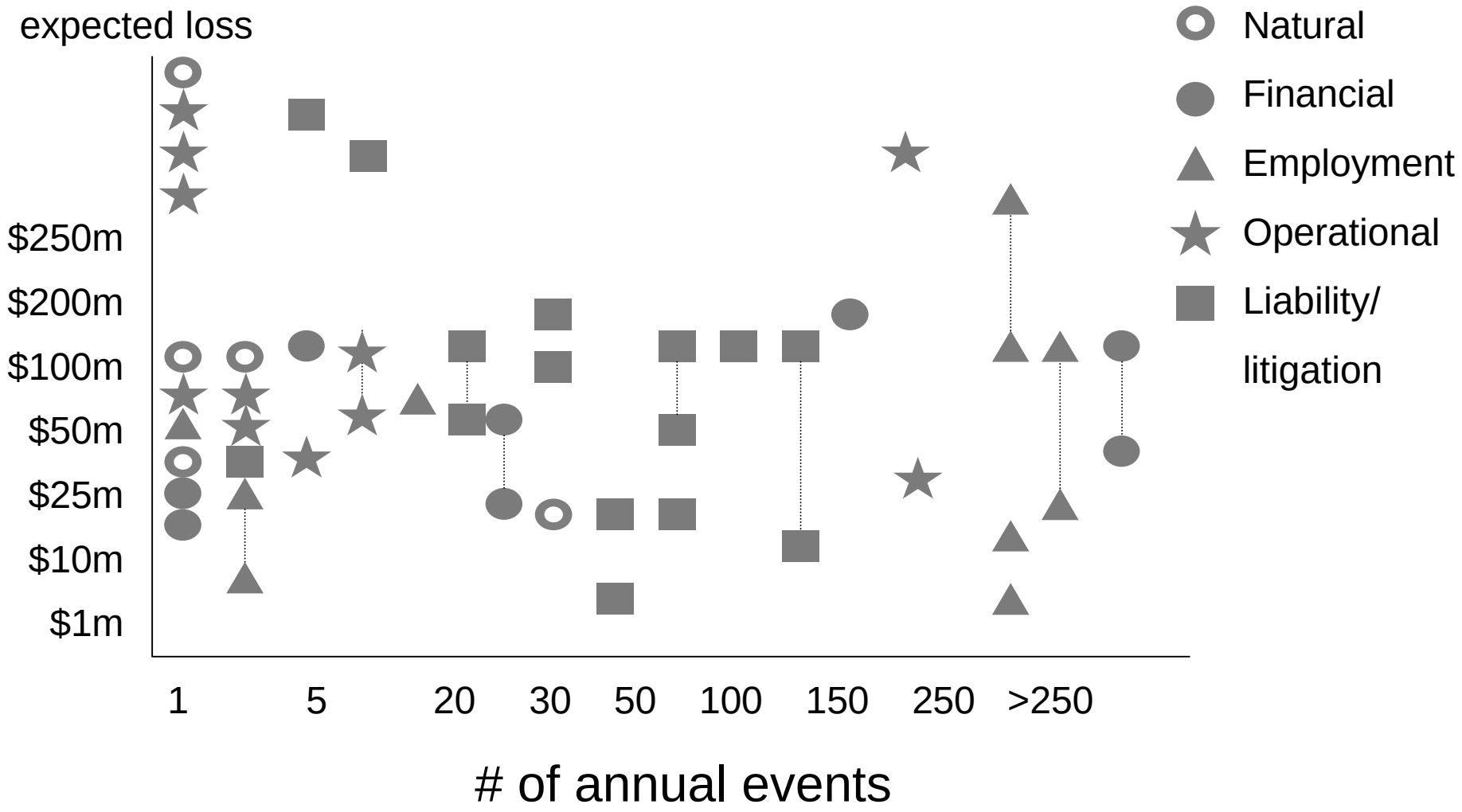
Integrated risk management

- Emerging tool
- Comprehensive approach
- Can be used by most organizations
- Includes natural disaster risk

Risk map for Microsoft



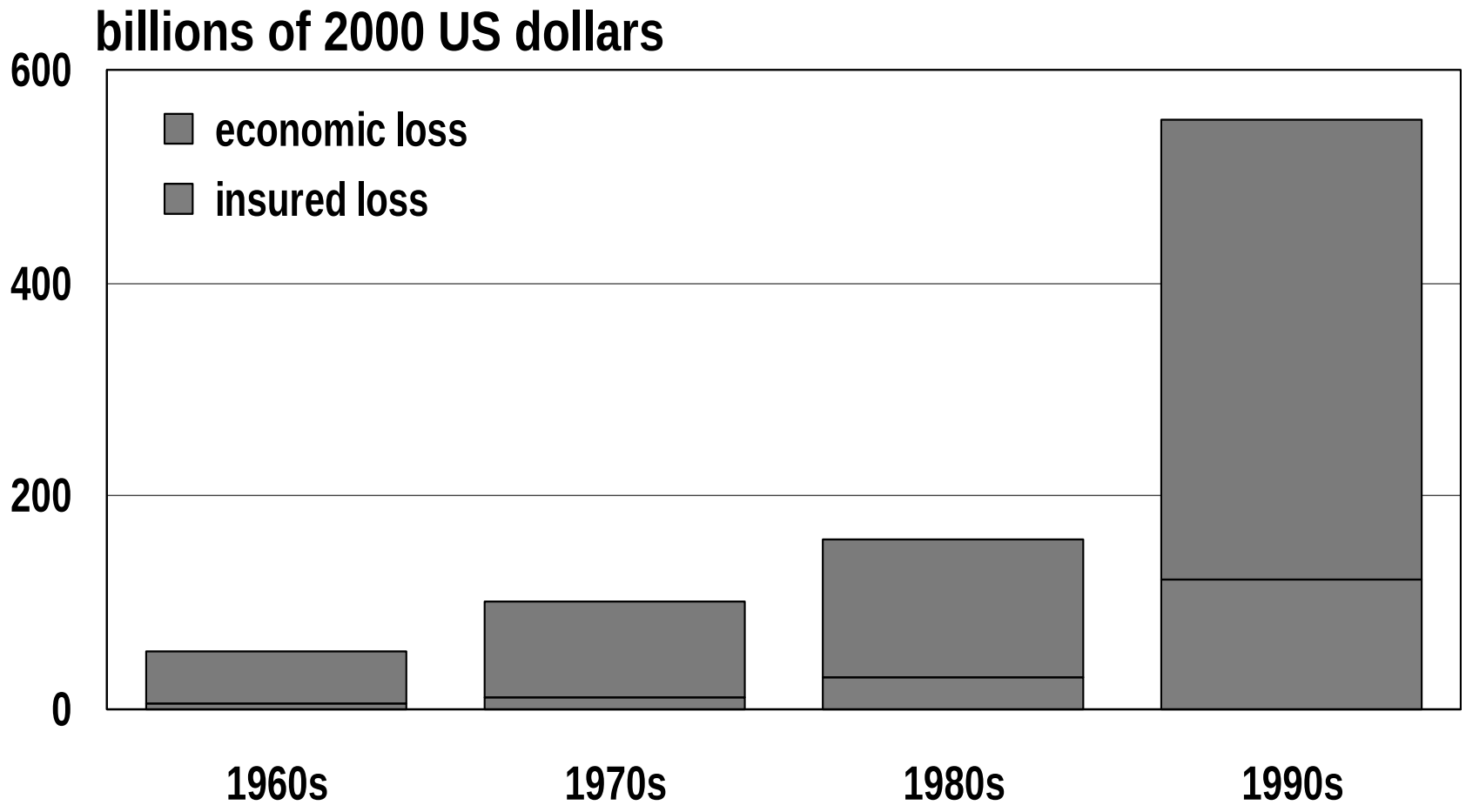
Source: ICLR, based on data from the Conference Board of Canada

Disasters are a serious threat

- 2,800 events during the 1990s
- 500,000 people killed
- 2 billion people displaced
- US$700 billion damage

Source: ICLR, based on data from the International Red Cross

Global natural disaster losses



Source: ICLR, based on data from Munich Re

ICLR

- In response to this trend the insurance community created ICLR
- Mitigation focus – reduce community vulnerability
- Reduce loss of life and property caused by severe weather and earthquakes

ICLR priorities

- Build safer communities
- Establish safety partnerships
- Enhance industry awareness
- Promote consumer awareness

ICLR successes

- Two research chairs at the University of Western Ontario and a chair in Extreme Weather at McGill University
- Funded research projects at universities across Canada
- Conference and workshop series

ICLR publications

- Disaster mitigation and preparedness in a changing climate
- Natural disasters and public health issues
- Flood management in Canada at the crossroads
- The media and public trust in natural disasters
- Storm surge in Eastern Canada: Forecasting and mitigation

ICLR research underway

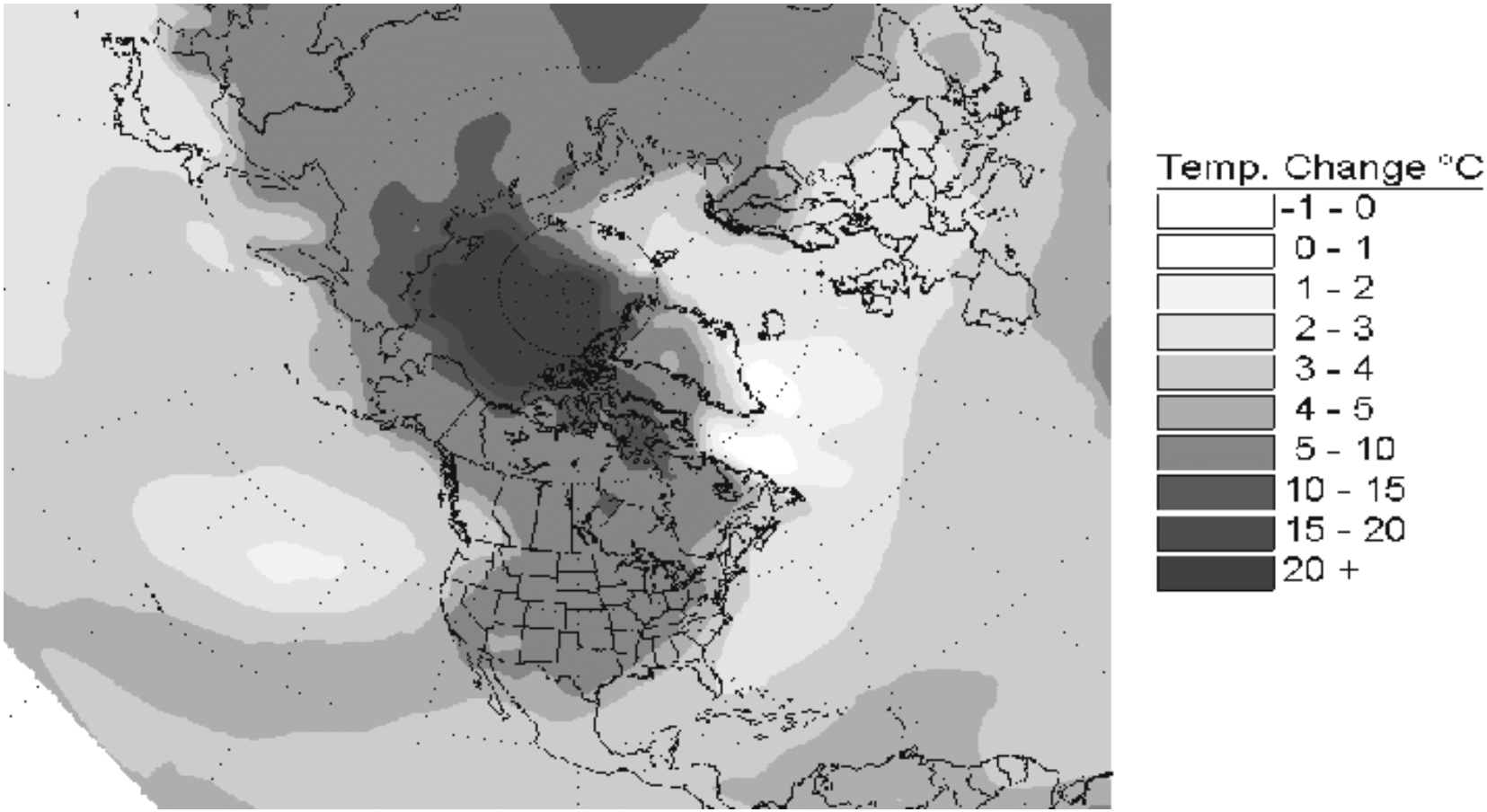
- Numerical simulations of high intensity winds
- A wind loading case study for a residential building
- Impact of increased climate variability on building code provisions
- System reliability of frame structures
- Floodplain regulation

Why are losses are rising?

- ***The climate is changing***
- Aging infrastructure
- More people and property at risk

Projected winter temperature change

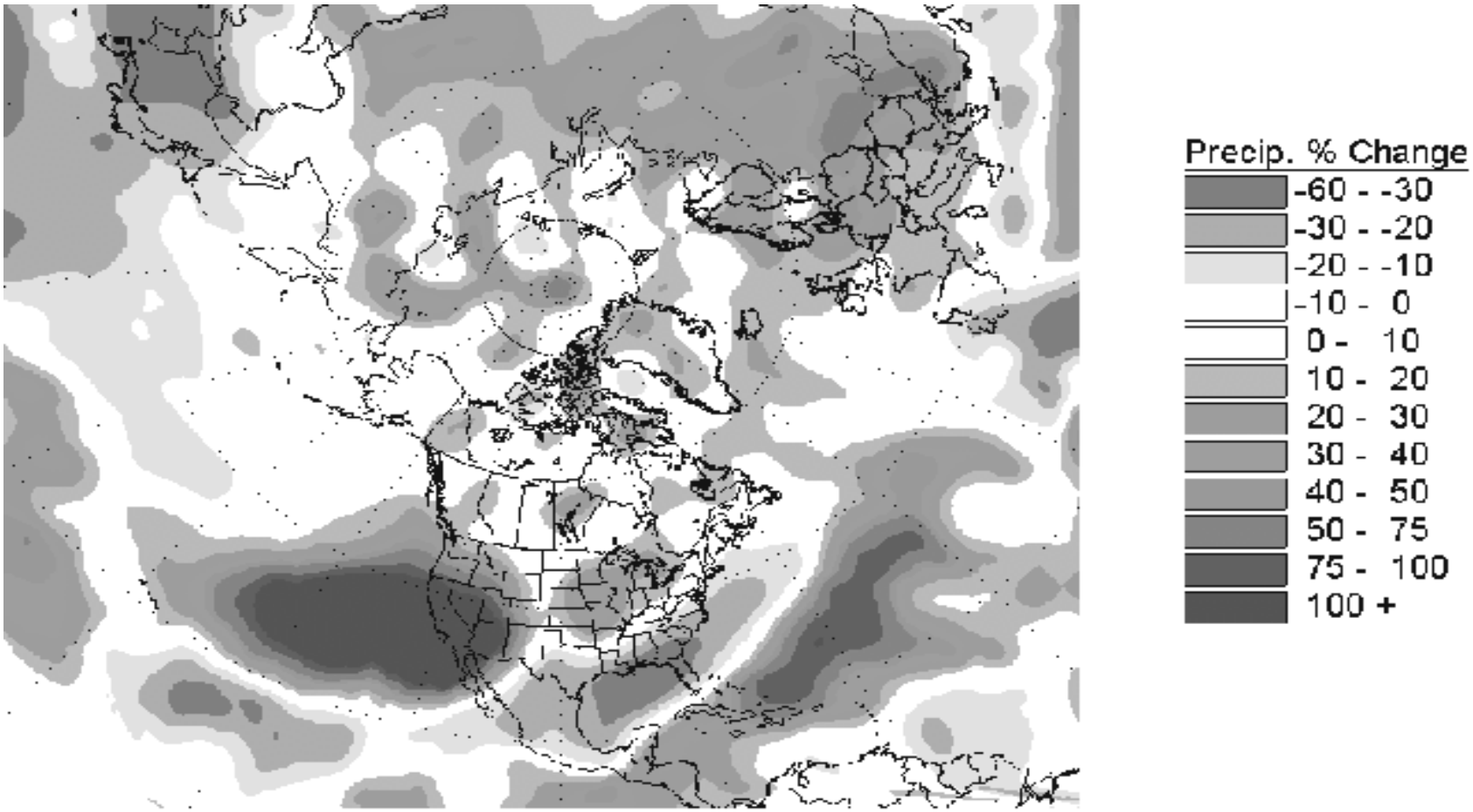
between 1975-1995 and 2080-2100, Canadian Climate Change Model



Source: Meteorological Service of Canada, Environment Canada.

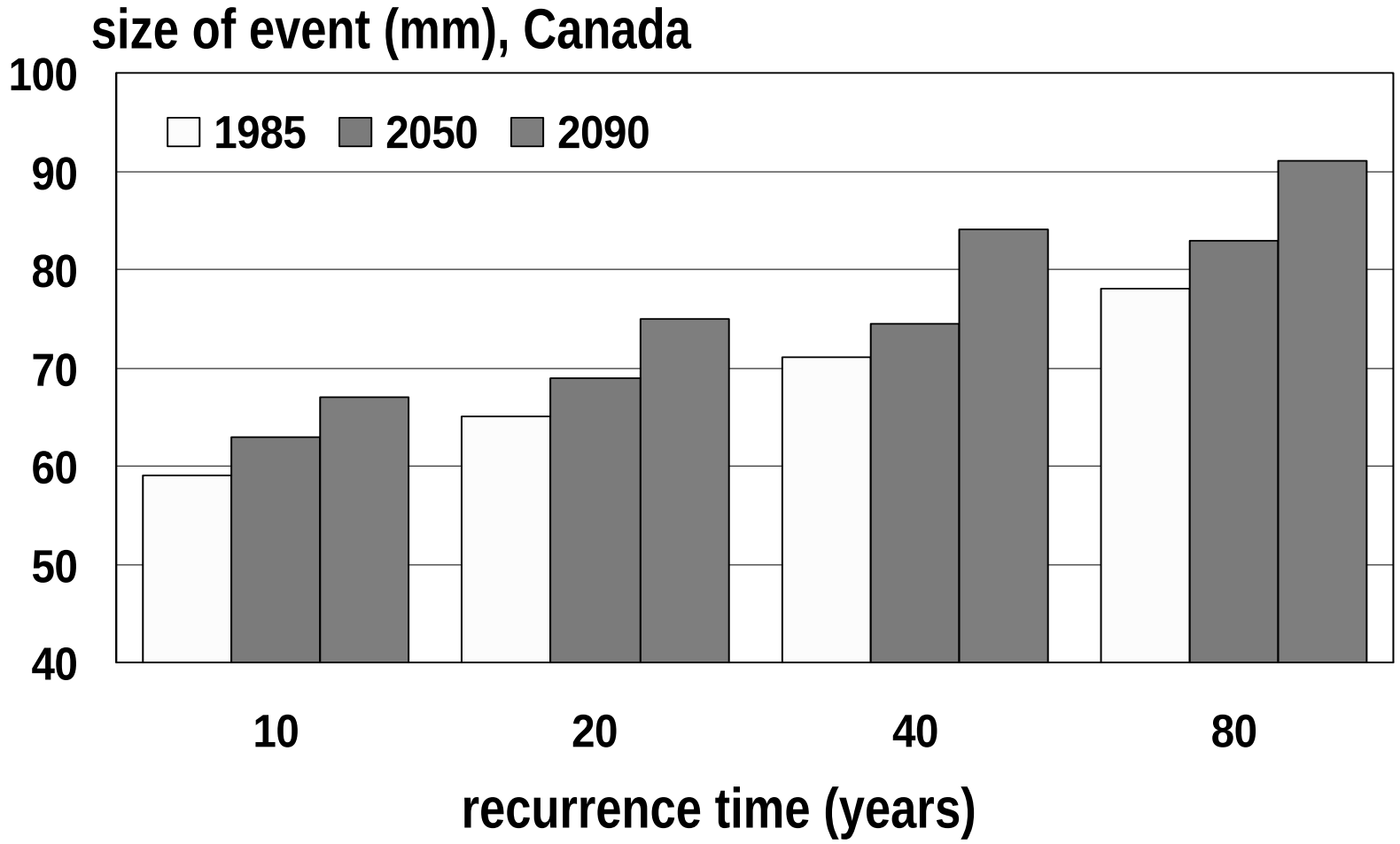
Projected winter precipitation change

between 1975-1995 and 2080-2100, Canadian Climate Change Model



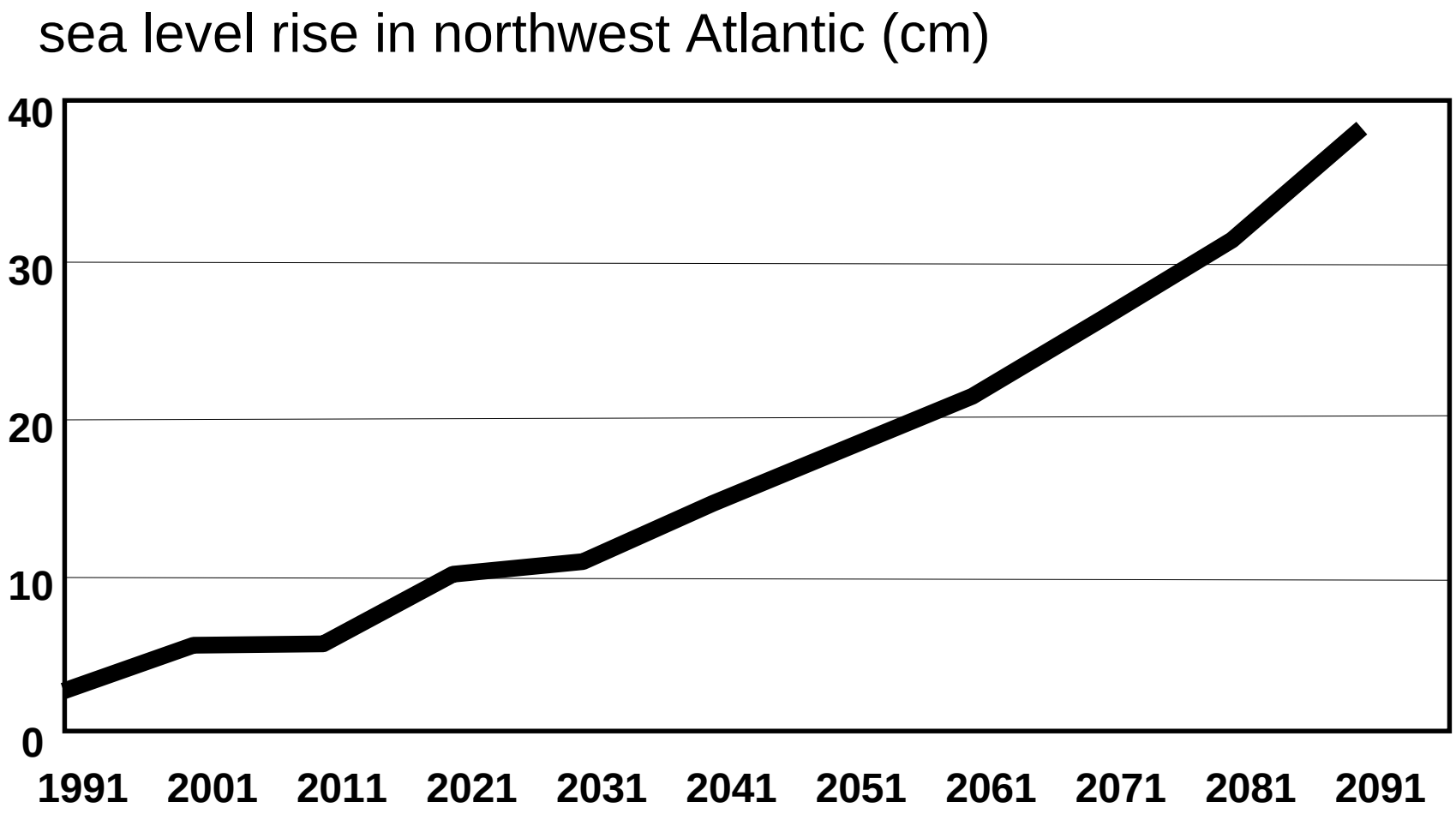
Source: Meteorological Service of Canada, Environment Canada.

Projected extreme precipitation



Source: Kharin and Zweirs (2000)

Projected sea level change

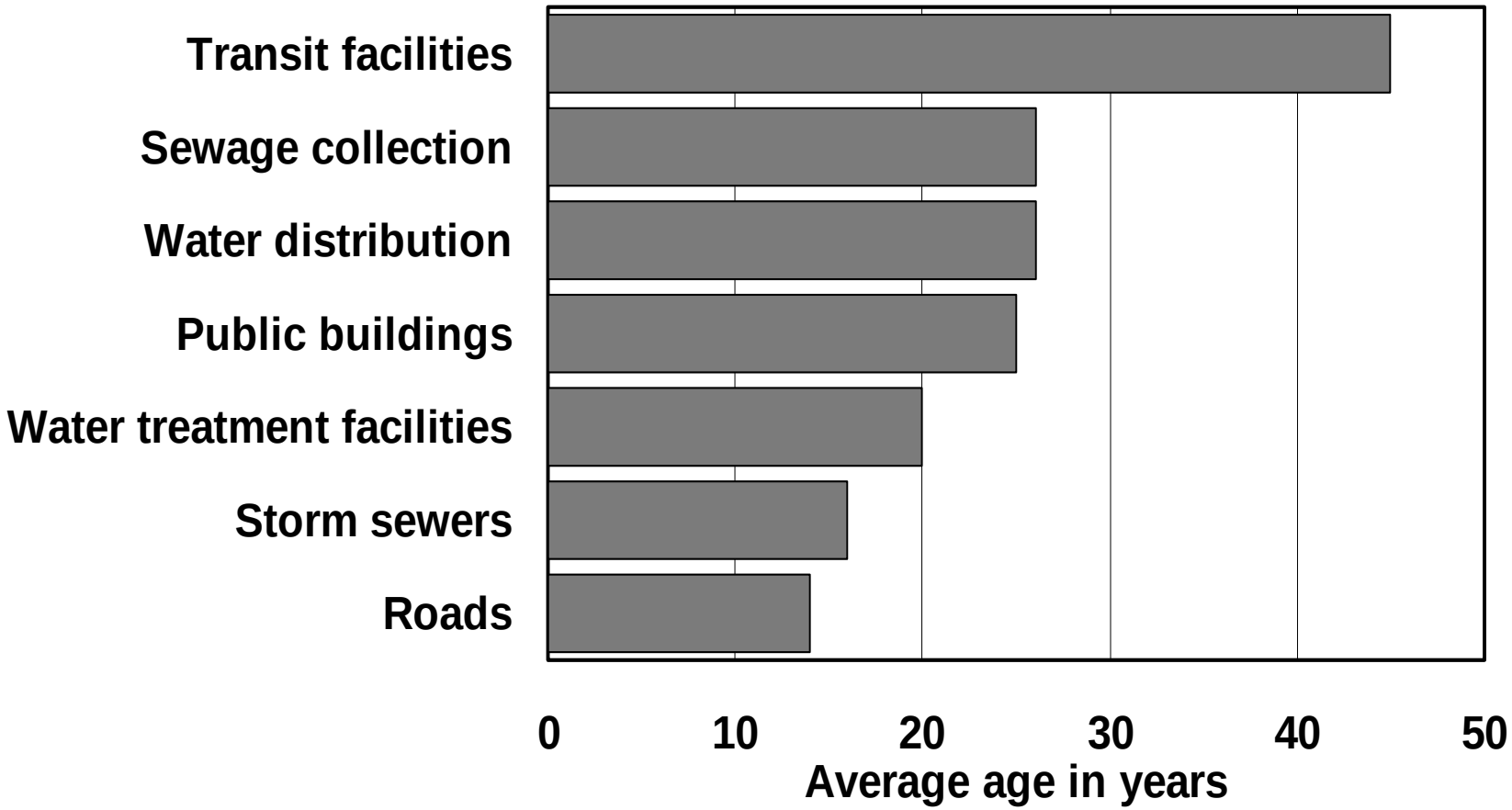


Source: Canadian Climate Change Model

Why losses are rising

- The climate is changing
- ***Aging infrastructure***
- More people and property at risk

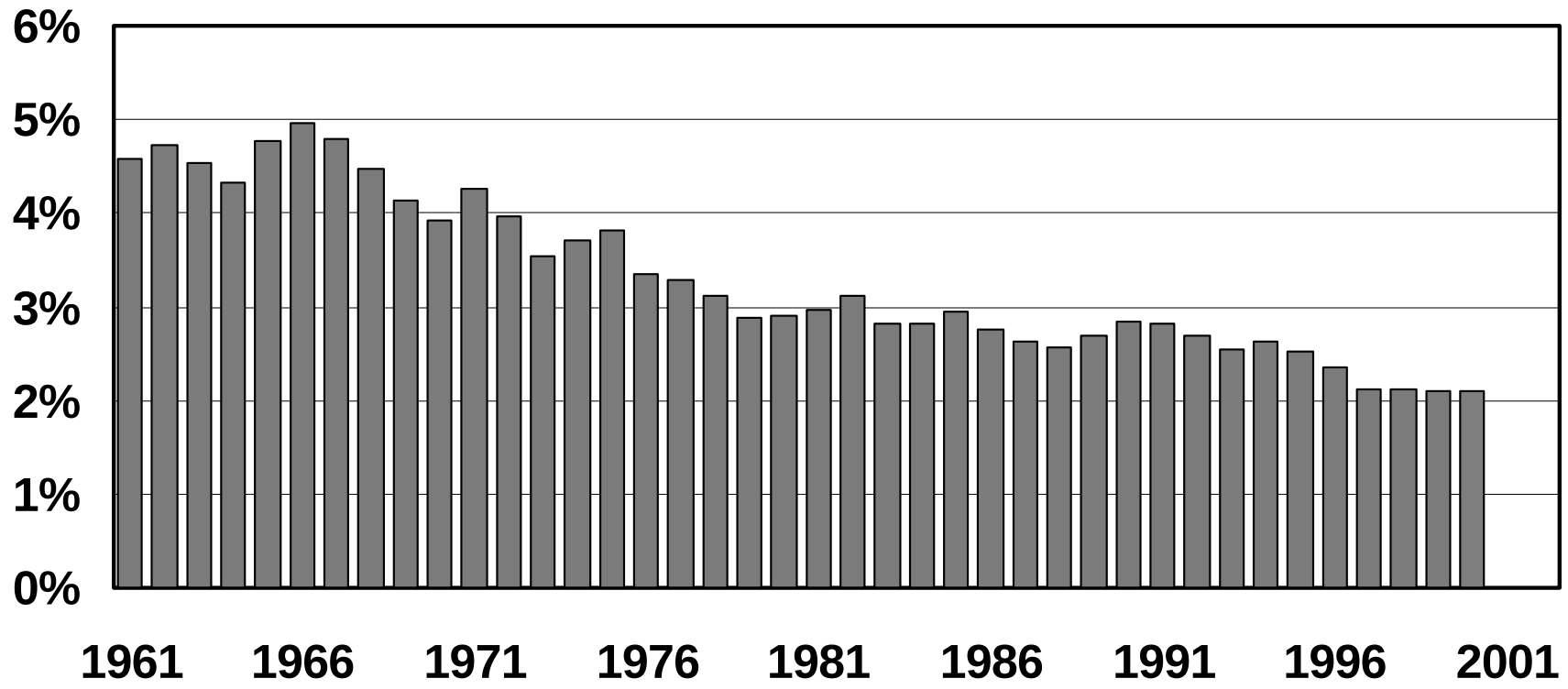
Aging infrastructure



Source: ICLR, based on data from the Federation of Canadian Municipalities

Infrastructure spending

Canadian public investment/GDP

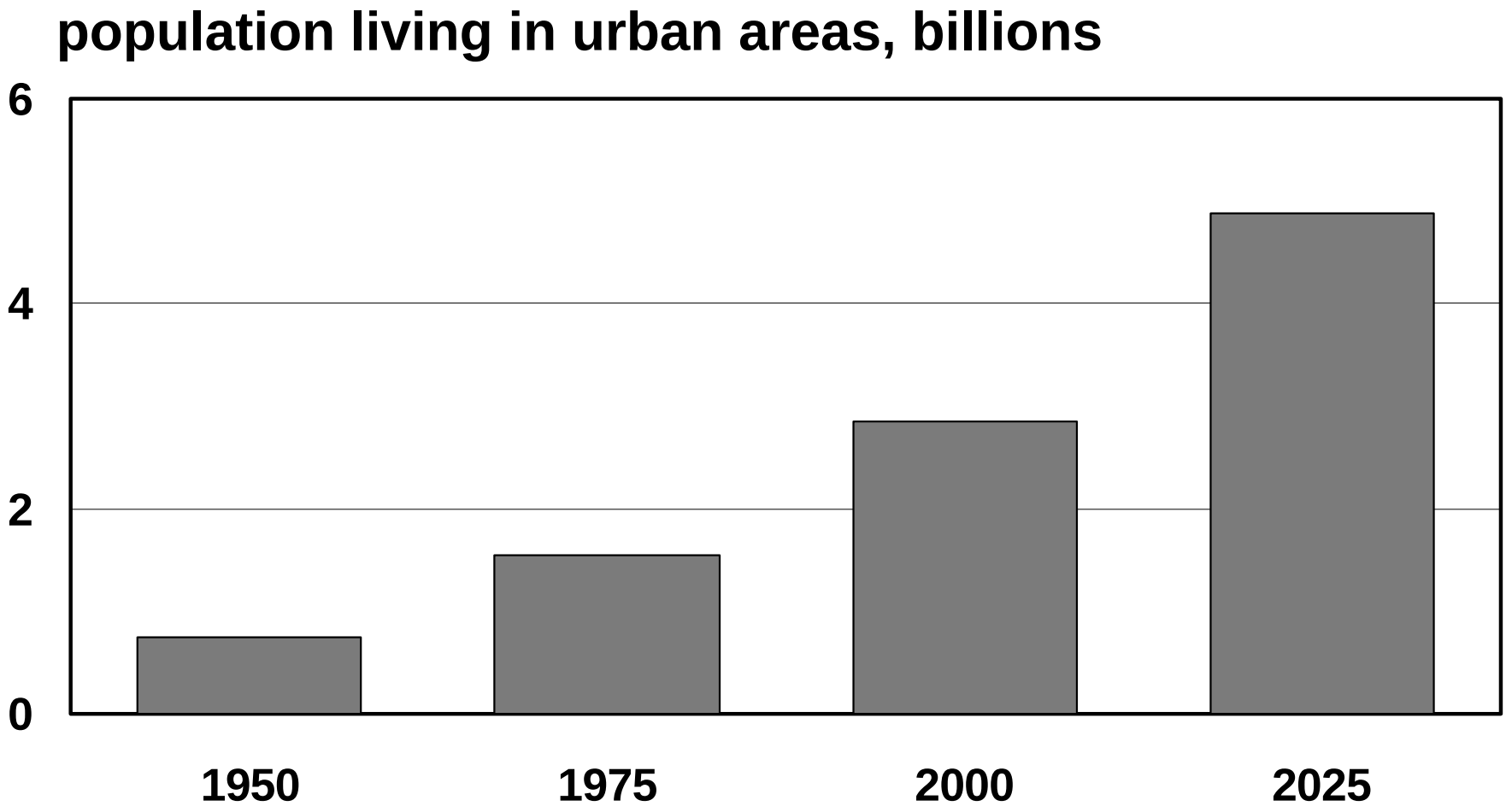


Source: ICLR, based on data from Statistics Canada

Why losses are rising

- The climate is changing
- Aging infrastructure
- ***More people and property at risk***

Global urban population



Source: ICLR, based on data from the United Nations

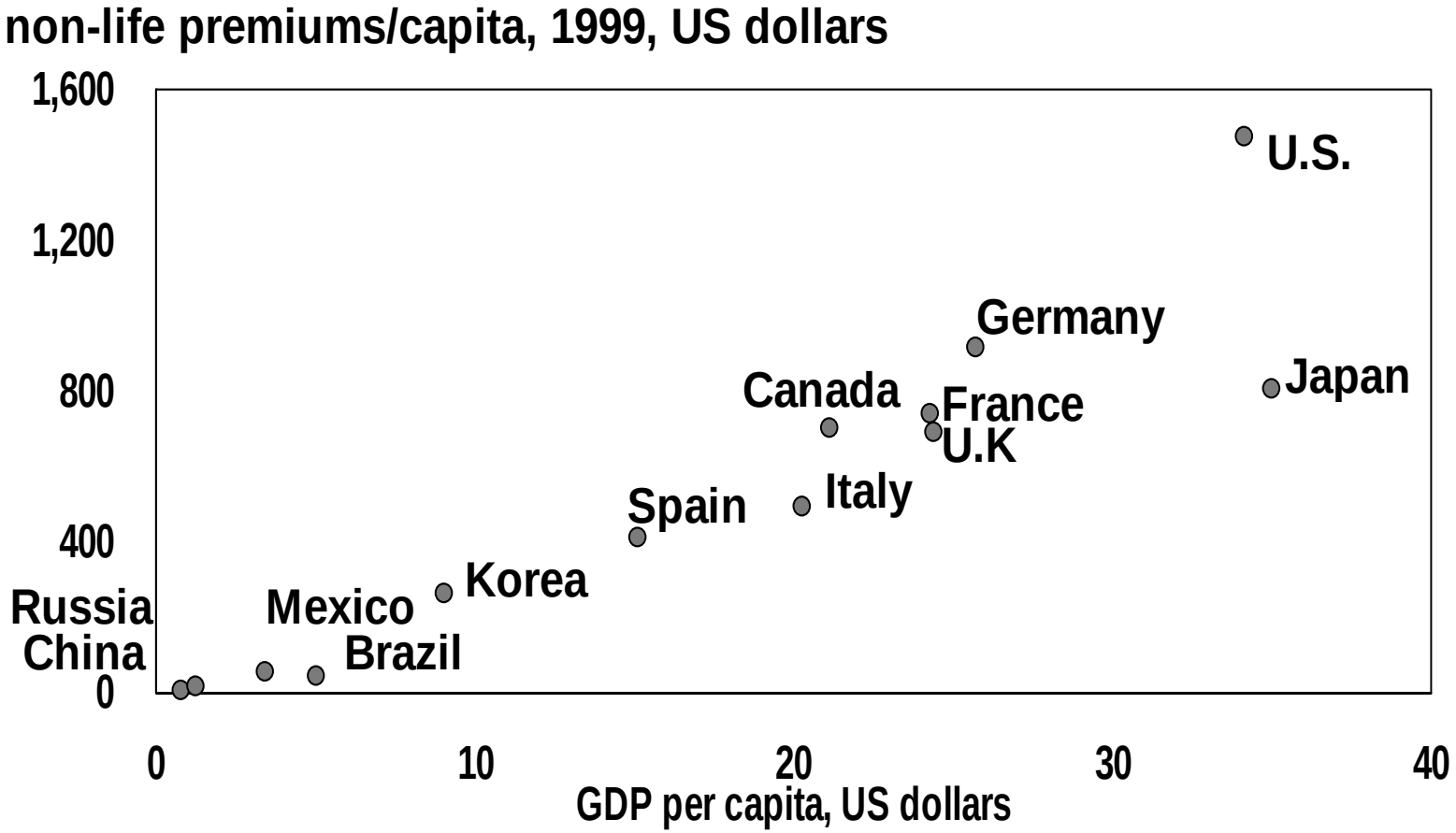
What can be done?

- Risk transfer
- Loss prevention

Risk transfer

- Purchase insurance
- Disaster relief

Use of insurance



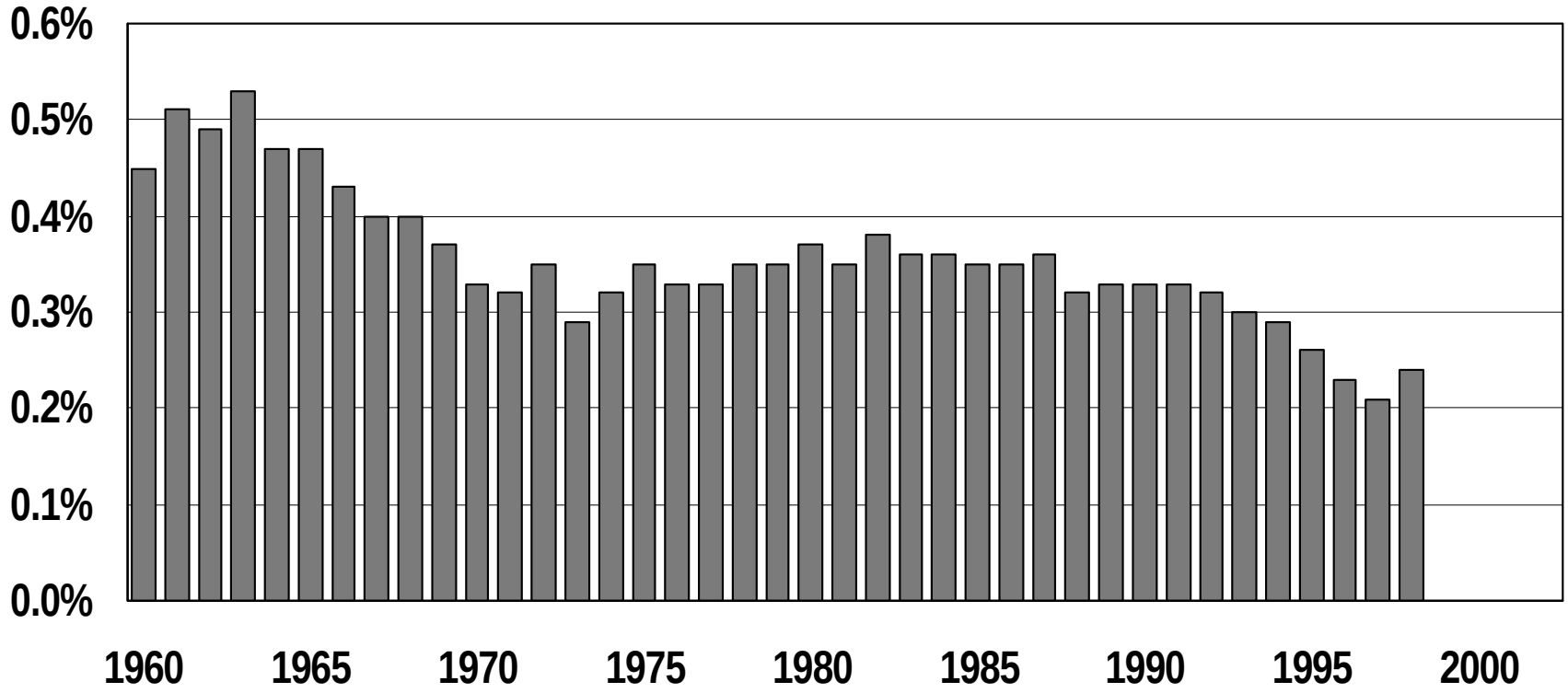
Source: ICLR, based on data from Swiss Re

Insurance requirements

- Large population at risk
- Small number expected to experience loss
- Random occurrence

Official development assistance

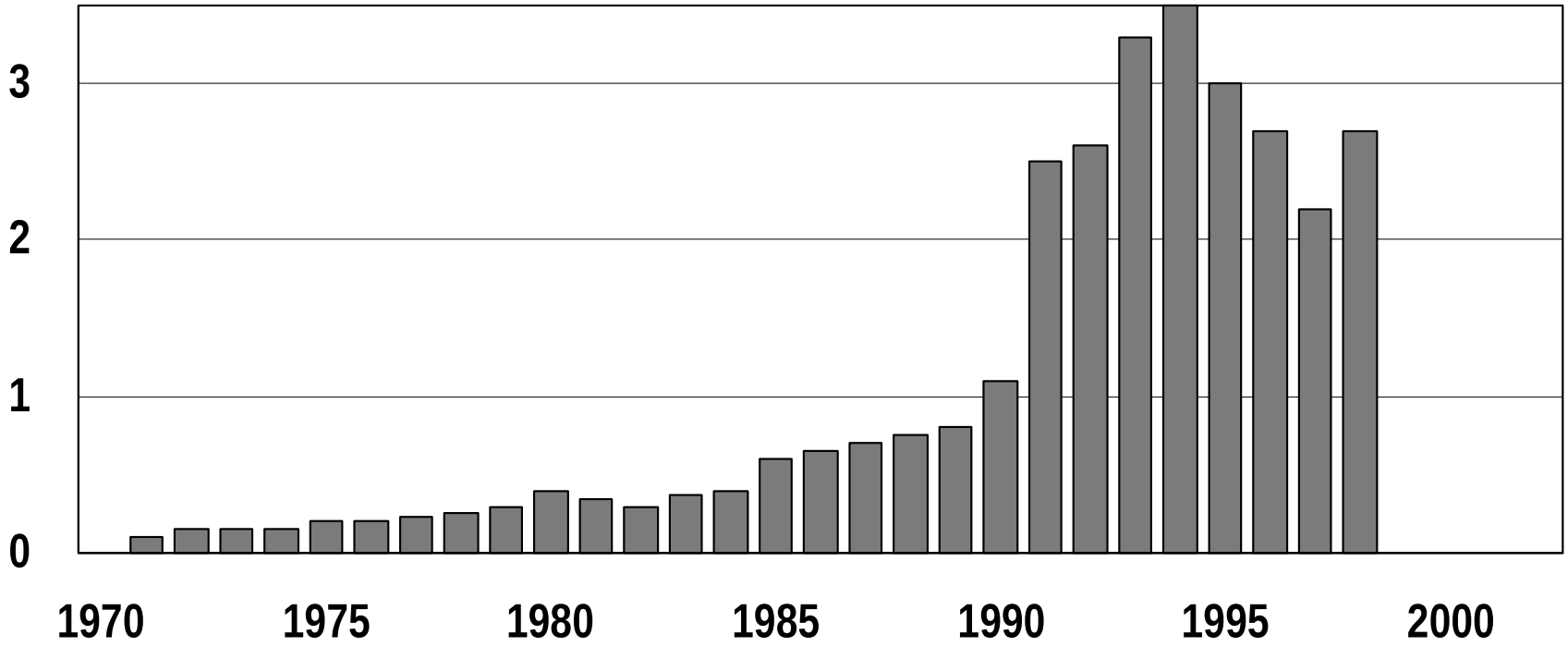
percent of OECD's DAC donors' GNP



Source: ICLR, based on data from International Red Cross

Emergency relief

Emergency relief from DAC countries, billions of US dollars



Source: ICLR, based on data from International Red Cross

Loss prevention

- Structural measures
- Non-structural measures
- Public awareness

Structural measures

- Dams, levees, seawalls and other engineered structures can be effective mechanisms for protecting communities.
- Caribbean Disaster Mitigation Project
  - Funded by OAS and OFDA
  - 5 year project with structural components: housing retrofits, building standards, hazard assessment and risk mapping

Non-structural measures

- Land use planning
- Building codes
- Warning systems
- Plantings can reduce beach erosion
- Healthy marshes can help manage flood risk

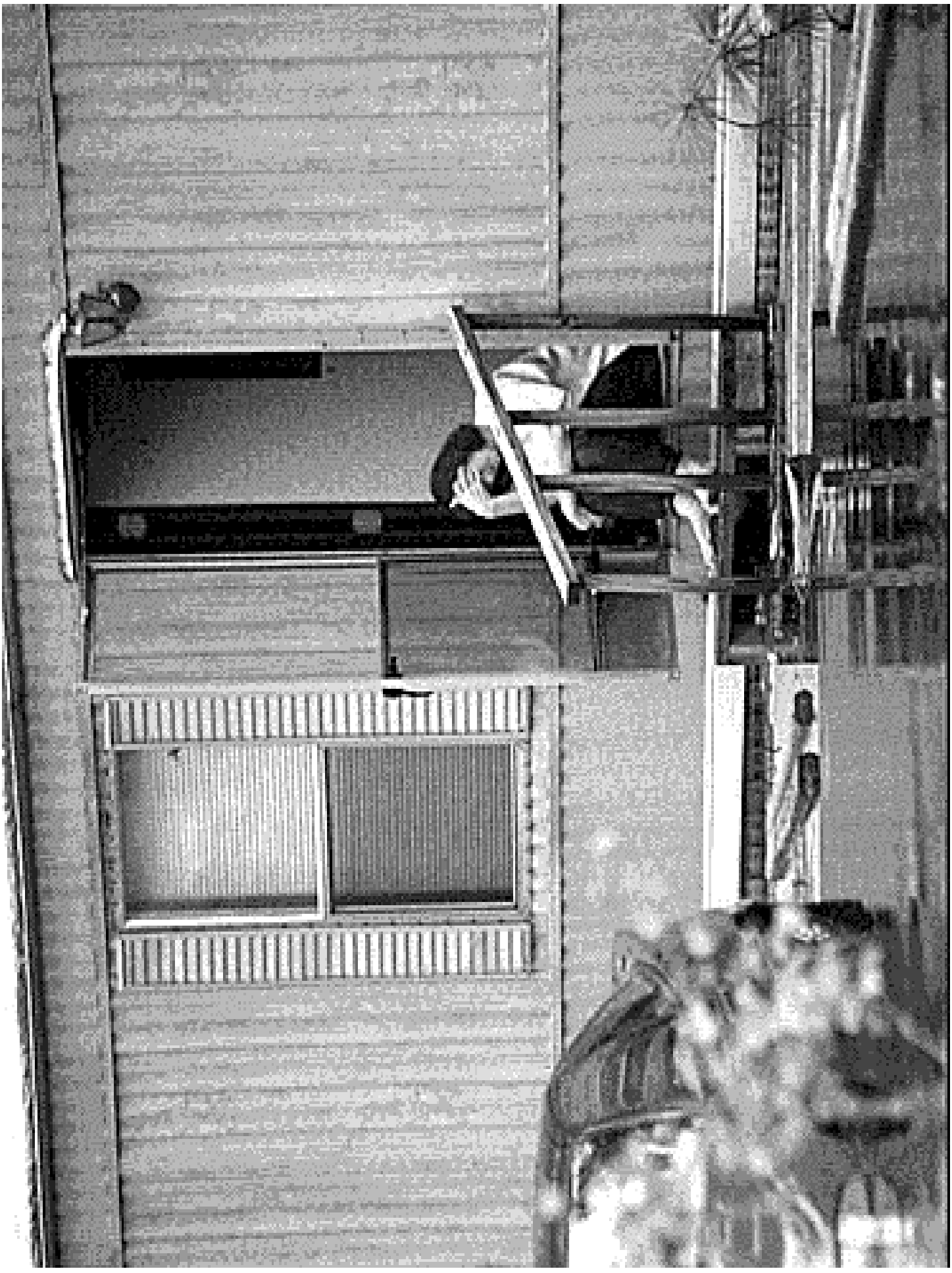
CIDA non-structural projects

- CARICOM Fisheries Resource Assessment
  - focuses on community involvement and education to strengthen fisherman organization
  - Includes information on hurricane warnings and preventative steps fishermen can take

- Organization for Cooperation in Overseas Development
  - Volunteers to Eastern Caribbean to assist in disaster planning activities

Public awareness

- Informed families and businesses are best able to manage nature’s hazards
- Establish a culture of preparedness
- Conducting forums similar to this are essential for knowledge sharing among the industry



Building resilience

- Action today will improve our resilience tomorrow through the building of safer homes and structures