

# SANDFORD FLEMING FORUM

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Future Proofing: How Resilience Planning  
Supports the Future Functionality and  
Value of Fixed Assets and Infrastructure



UNIVERSITY OF TORONTO  
FACULTY OF APPLIED SCIENCE & ENGINEERING



Southern Harbour



# Risk Nexus

Knowledge | Expertise | Results



A network of specialist advisors and expert resources **delivering risk management strategy, solutions and risk finance programs** that protect and enhance the value of our clients' assets.



# PERSPECTIVES ON FUNDING RESILIENCE:

An aerial night photograph of a flooded street. A white bus is driving through the water, its headlights illuminating the scene. Streetlights line the road, and their reflections are visible on the water. The background shows trees and buildings under a dark blue sky.

Who is  
Responsible?



# Perspectives On Funding Resilience

Scope | [Disclaimer](#)

## Scope:

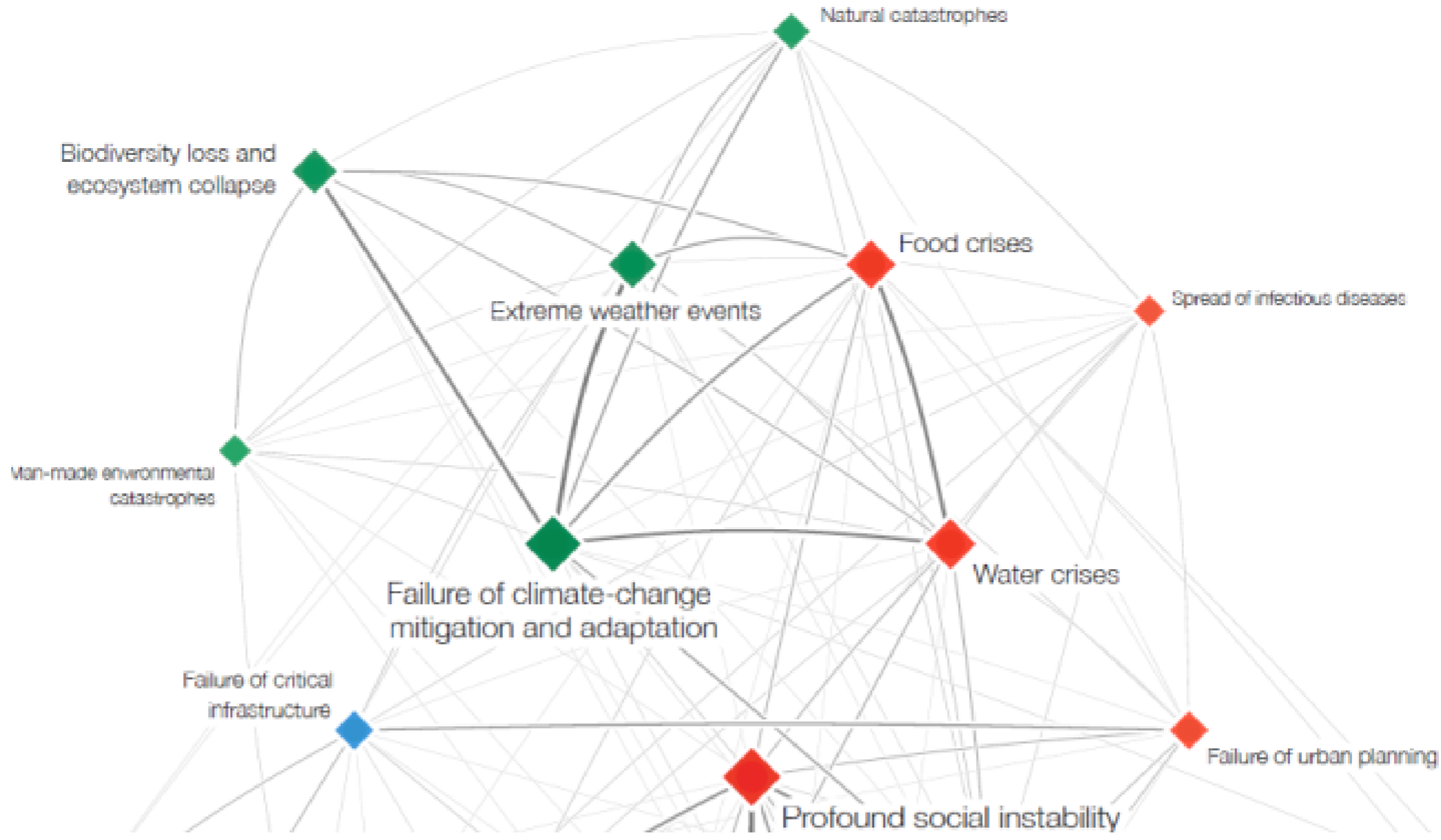
- Catastrophic Losses (Natural vs. Man-Made)
- Insurability of Losses
- Reliance on Critical Infrastructure
- Investment in Infrastructure

## Disclaimer:

- All information used in this presentation is publicly available.

# Perspectives On Funding Resilience

Zurich/WEF Global Risks Report 2016



# Who is responsible for funding losses?

Catastrophic Events Are On The Rise *Nature Is A Formidable Opponent*

## 2015 Disasters In Numbers:

(Source: UNISDR)

- 346 Reported Disasters
- 22,773 People Dead
- 98.6 Million People Affected
- US\$ 66.5 Billion In Economic Damage
- US\$ 35 Billion Insured

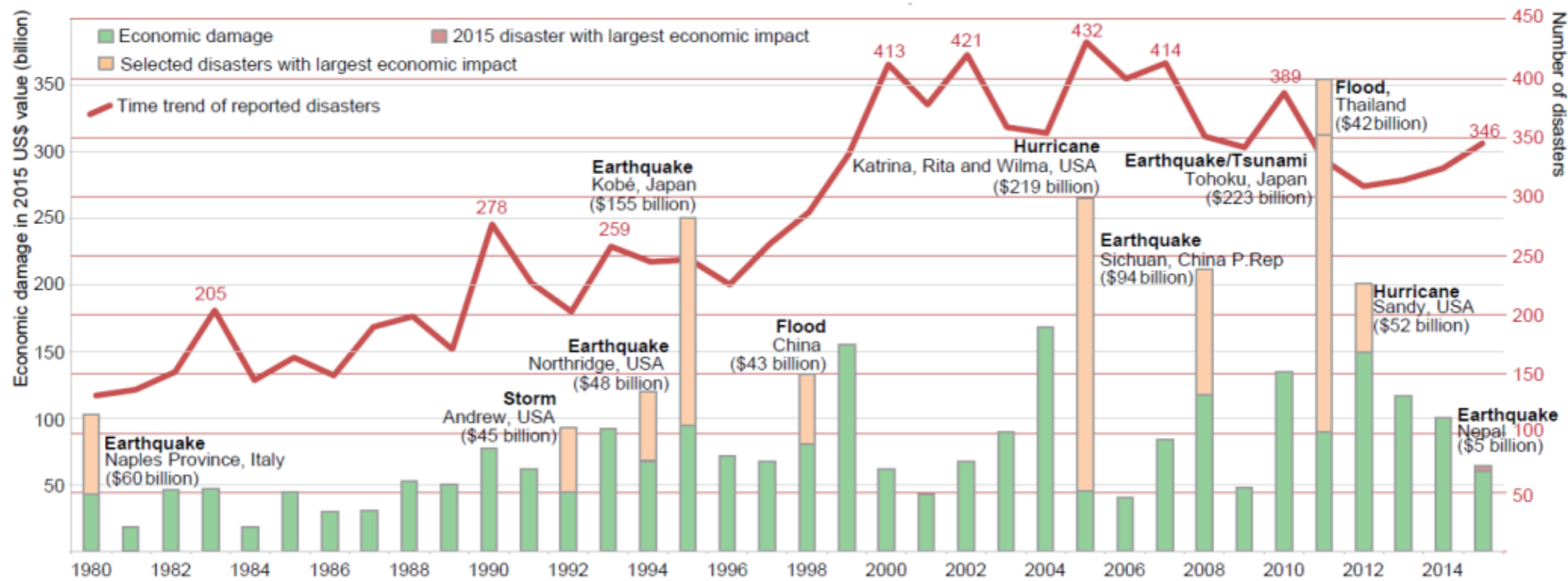
Frequency and severity of natural catastrophic Losses is on the rise...

# The Cost of Loss Is Also Rising

Catastrophic Events Are On The Rise *Nature Is A Formidable Opponent*

## Comparing present to past

Annual reported economic damages and time trend from disasters: 1980-2015



Source: International Disaster Database [www.emdat.be](http://www.emdat.be)

# Who is responsible for funding this?

Catastrophic Events Are On The Rise *Nature Is A Formidable Opponent*

Yet...

- Insurers are reporting gains in 2015 due to lower than expected losses! Why?

➤ *Increased Cost of Loss = Increased Insurance Premiums*

*"So, paradoxically, the upward march in loss costs has made insurance companies far more valuable..."*

— Warren Buffet in his 2016 letter to investors & shareholders of Berkshire Hathaway



# Who Is Affected?

We Are All Victims *When Our Socio-Economic Frameworks Fail*



Total % of companies experiencing "catastrophic loss", 1980 - 2014	
Sector	
All sectors	40%
Consumer Discretionary	43%
Consumer Staples	26%
Energy	47%
Materials	34%
Industrials	35%
Health Care	42%
Financials	25%
Information Technology	57%
Telecommunication Services	51%
Utilities	13%

Source: FactSet, J.P. Morgan Asset Management.

# Who is responsible for funding recovery?

Catastrophic Events Are On The Rise **Nature Is A Formidable Opponent**

- We often rely on insurance to finance recovery and replace the physical and financial losses caused by catastrophic events.
- Our governments also rely on a complex funding mechanisms to fund and pay for losses to critical infrastructure
  - **Debt, Bonds, Insurance, Tax Revenue, Provincial And Federal Emergency Funding, Public-Private Partnerships and Direct Investment.**



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# Funding Losses vs. Funding Resilience

Insurance **Does Not Equal Resilience**

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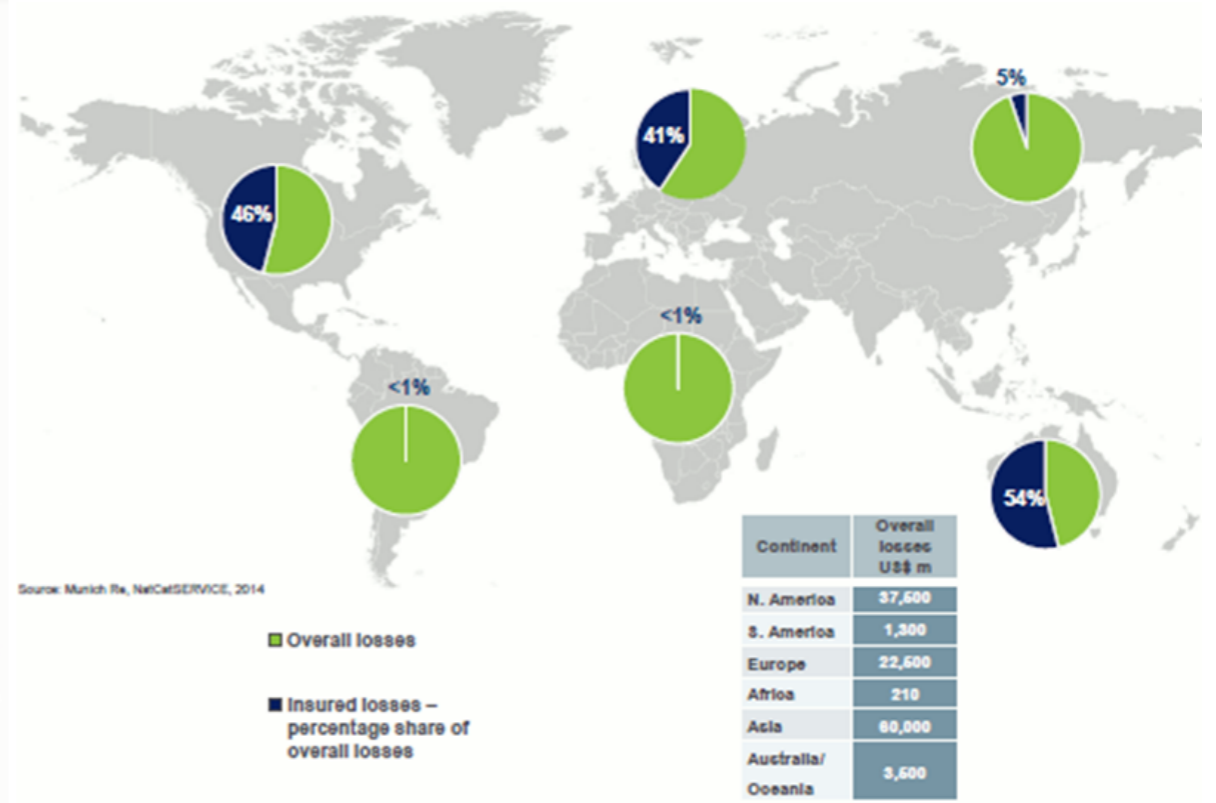
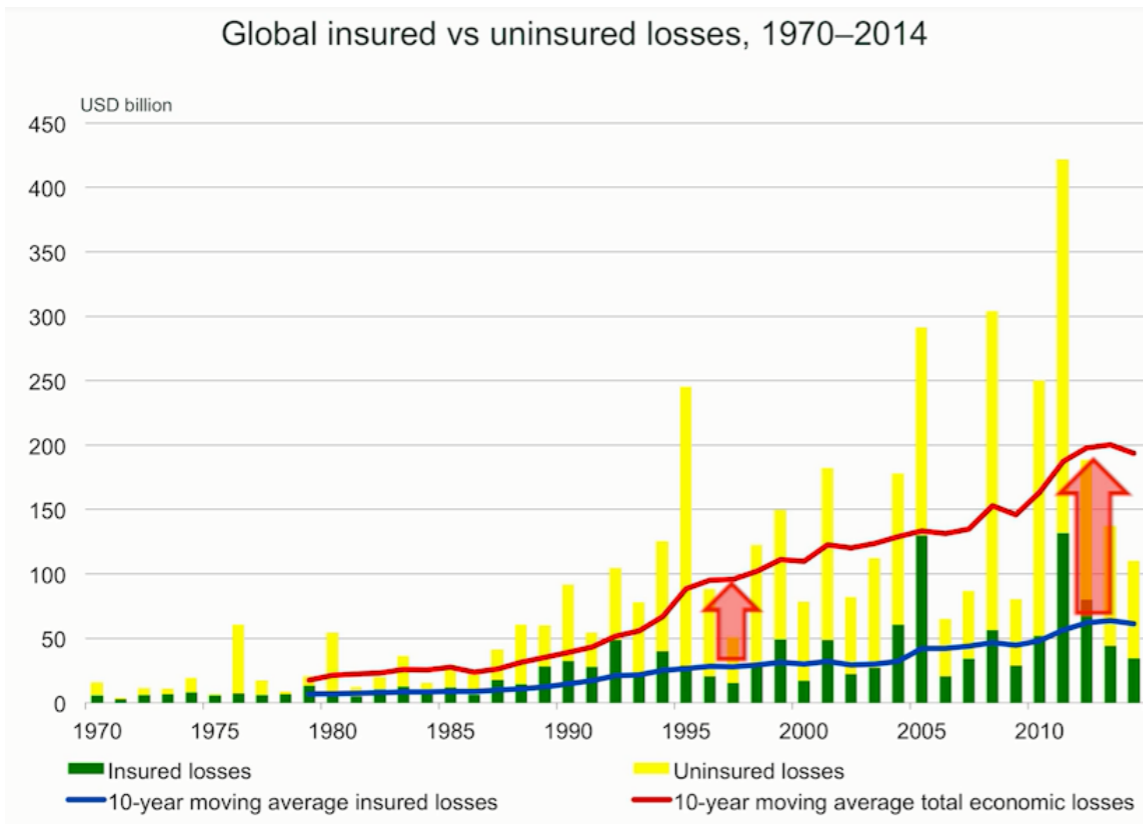
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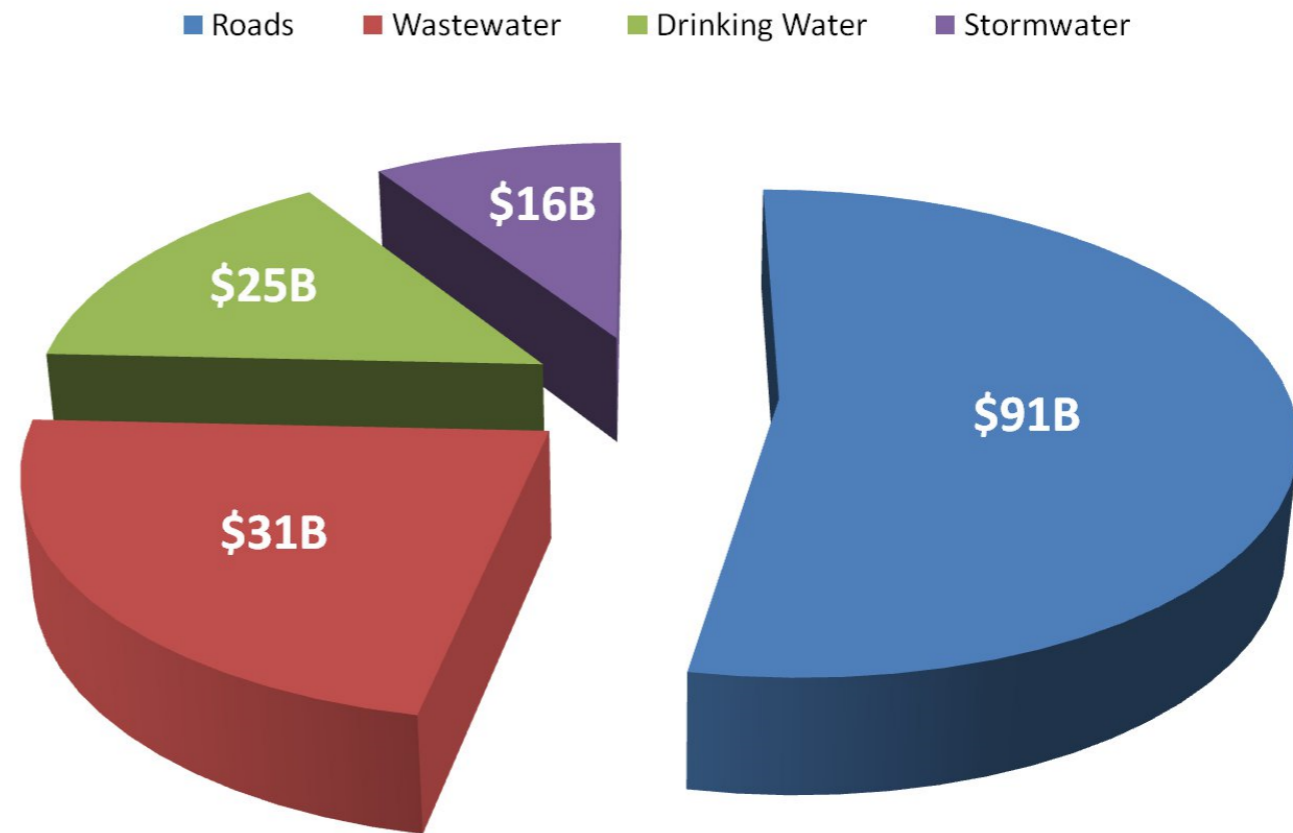


# Funding Losses vs. Funding Resilience

Critical Infrastructure **Investment in Resilience**



## Canada's \$172B Infrastructure Gap



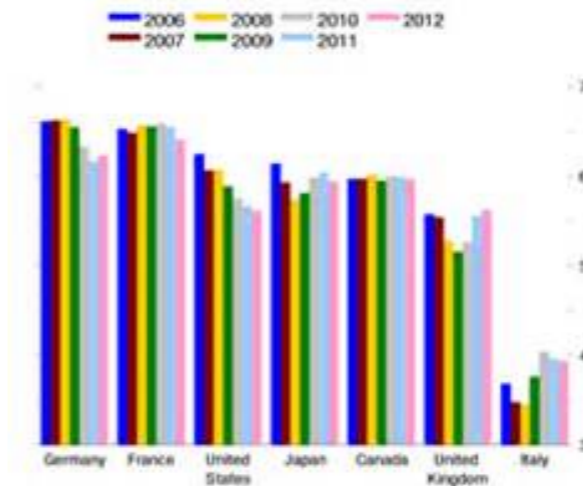
source: [http://canadainfrastructure.ca/downloads/Canadian\\_Infrastructure\\_Report\\_Card\\_Highlights\\_EN.pdf](http://canadainfrastructure.ca/downloads/Canadian_Infrastructure_Report_Card_Highlights_EN.pdf)

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**Figure 1. Overall Quality of Infrastructure in G7 Economies**  
(Scale, 1-7; higher score indicates better infrastructure)



Sources: World Economic Forum, Global Competitiveness Report survey; and IMF staff calculations.  
Note: The G7 comprises Canada, France, Germany, Italy, Japan, the United Kingdom, and the United States.

## INVESTING IN INFRASTRUCTURE - OUR NATION'S ECONOMIC ENGINE

**BETWEEN NOW AND 2020, THE INVESTMENT SHORTFALL WILL GROW TO \$1.1 TRILLION.**

\$1.66T CURRENT NEED | **\$1.1T GAP** | \$2.75T FUTURE NEED

**AGING AND UNRELIABLE INFRASTRUCTURE WILL INCREASE COSTS BY**

**\$1.2 TRILLION FOR BUSINESSES** | **\$611 BILLION FOR HOUSEHOLDS**

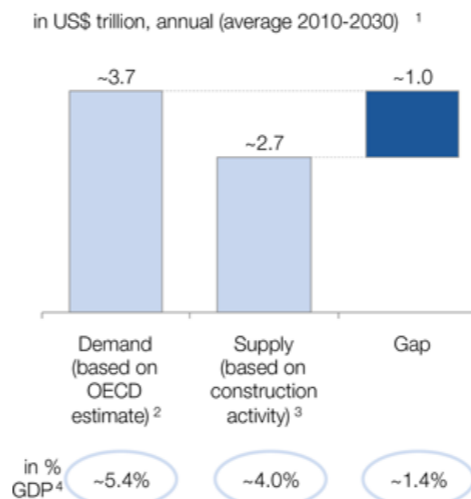
**BY INVESTING AN ADDITIONAL \$157B PER YEAR THROUGH 2020, WE CAN PREVENT:**

- \$3.1 Trillion** loss in GDP
- \$1.1 Trillion** loss in total trade
- \$3,100** per year drop in personal disposable income per household
- \$2.4 Trillion** drop in consumer spending
- 3.5 Million** job losses

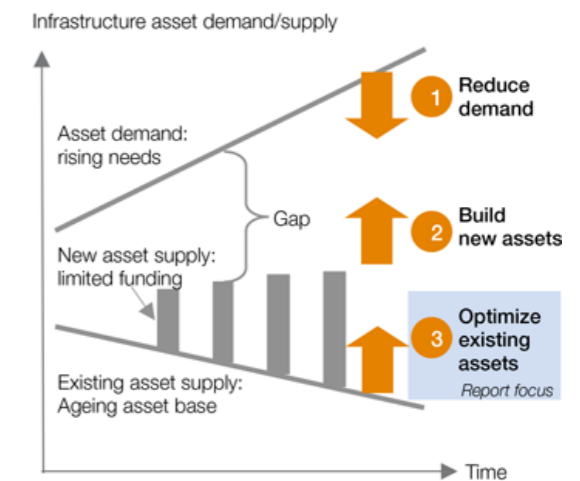
Learn more at [asce.org/failuretoact](http://asce.org/failuretoact) | **ASCE**

The infrastructure gap can be narrowed via three levers

### The global infrastructure gap

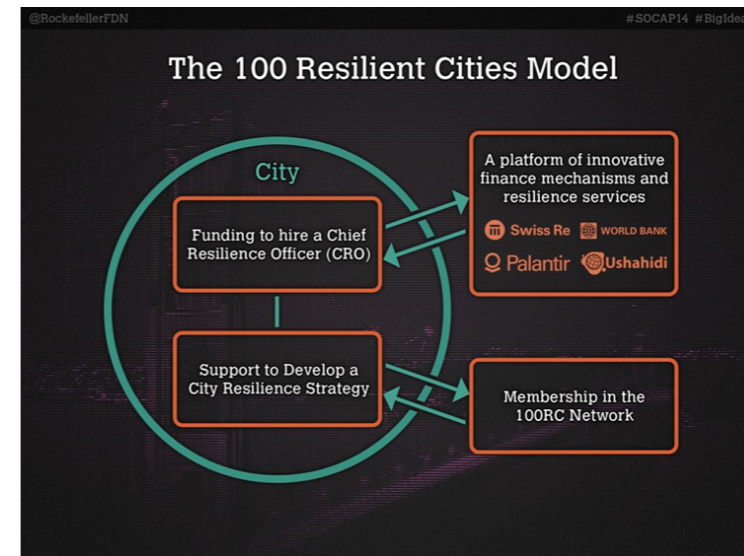
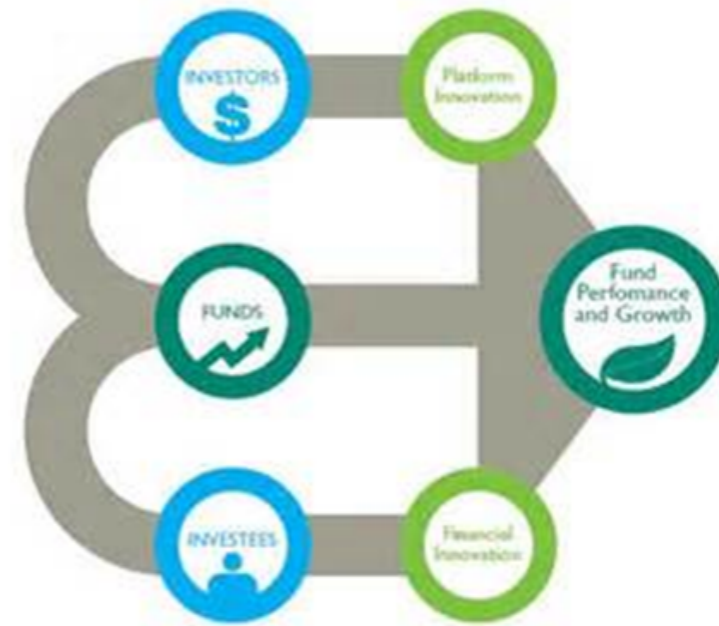
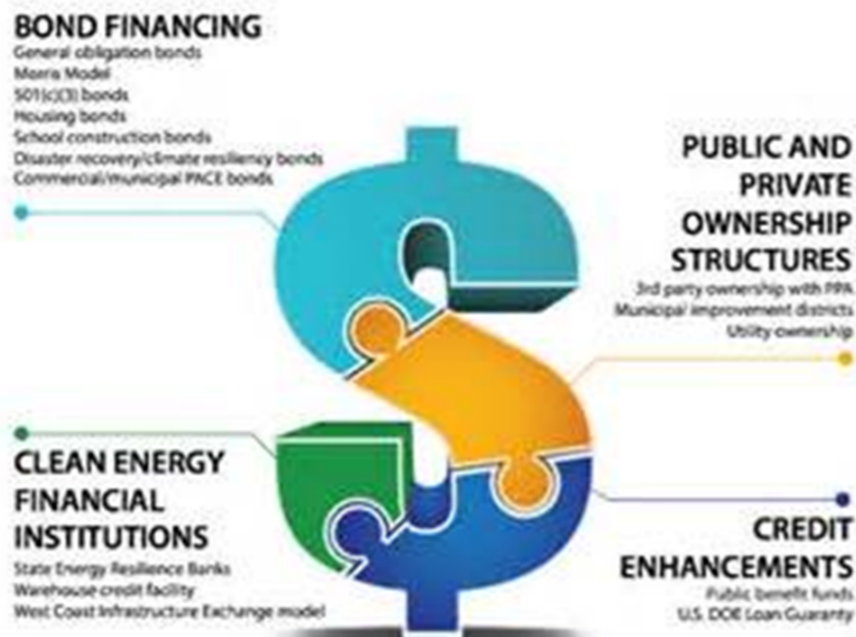


### Three levers to close the gap



# Funding Losses vs. Funding Resilience

Insurance **Does Not Equal Resilience**





# Funding Infrastructure Resilience

CPPIB | Closing The **Infrastructure Gap**



CPPIB ownership: 32%  
 Investment: C\$1.05 billion  
 Date of investment: 2006  
 AWG owns 100% of Anglian Water Services, the 4th largest UK water & sewerage business. It supplies 1.2 billion litres of drinking water to 4.4 million customers, addition to wastewater services to 6.1 million customers throughout the east of England.

CPPIB ownership: 48%  
 Date of investment: 2009  
 Arqiva is the owner and operator of the national infrastructure that supports television, radio and wireless communications in the UK

CPPIB ownership: 34%  
 Investment: £1.62 billion  
 Date of investment: 2015  
 Associated British Ports is the UK's leading port operator, with a unique network of 21 ports across England, Scotland and Wales. Ports include Immingham, the UK's busiest port, and Southampton, the nation's second largest and Europe's most efficient container port, as well as the UK's number one for cars and cruise.

# Funding Resilience

CPPIB | Closing The **Infrastructure Gap**



Location: Chile

CPPIB ownership: 49.99%

Investment: C\$1.14 billion

Date of investment: 2012

Grupo Costanera is the largest urban toll road owner and operator in Chile with a portfolio of five toll roads in and around the Santiago region. Four of the urban roads (Costanera Norte, Noroiente, AMB, and Vespucio Sur) serve the densely populated Santiago Metropolitan region, where limited transportation alternatives exist. The remaining road, Litoral Central, connects Santiago to the west coast of the country.



Larsen & Toubro India Development Projects Limited

Location: Chennai, India

Investment: US\$332 million

Date of investment: 2014

L&T IDPL is one of the largest Infrastructure development companies in India and operates the country's largest private toll road concession portfolio, spanning more than 2,000km. In addition to roads, the IDPL portfolio consists of a metro rail asset and an electricity transmission project. IDPL's assets connect some of the most important cities, ports, and economic corridors in India.

# Funding Resilience

CPPIB | Closing The Infrastructure Gap



## Highway 407

Location: Greater Toronto Area, Ontario, Canada

CPPIB ownership: 40%

Investment: C\$4.1 billion

Date of investment: 2010

Highway 407 is the first all-electronic open-access toll highway in the world. It traverses the Greater Toronto Area (the "GTA"), the largest urban centre in Canada. As part of the integral transportation network of Toronto, Highway 407 currently stretches 108 km from the west to the east of the GTA and directly connects to seven other large freeways – Queen Elizabeth Way ("QEW"), 403, 401, 410, 427, 400 and 404.



Since 1999, Borealis has been investing in infrastructure assets on behalf of OMERS, one of Canada's largest pension plans.

OMERS has approximately 450,000 members and net assets in excess of \$72 billion.

In 2010, OMERS led an initiative to assemble a capital pool to acquire multi-billion dollar infrastructure assets with the capacity to generate **large and sustainable cash flows** over the long term.

The Global Strategic Investment Alliance (GSIA) was officially formed in 2012.

The GSIA brings together **like-minded, long term, global institutional investors** in pursuit of attractive, **large-scale infrastructure assets** mainly in **North America and Europe**.

Current members of the GSIA include a consortium led by Mitsubishi Corporation, Pension Fund Association of Japan, Government Pension Investment Fund and the Development Bank of Japan, Morgan Infrastructure Fund I, LP, and OMERS. The total capital committed to the GSIA is **US\$12.58 billion**.

AN OMERS WORLDWIDE COMPANY



### Tank & Rast

Location: Germany

Investment date: 2015

Tank & Rast ("T&R") is the owner and the landlord of over 90% of motorway service areas ("MSAs") on the German Autobahn network. **Founded in 1951 as a state-owned entity and privatised in 1998**, T&R's network includes c. 400 sites located on all major motorway routes throughout Germany and visited by c. 500m visitors each year – c. 350 fuel stations, c. 390 service stations, c. 390 restaurants and c. 50 hotels. The MSAs operate under long-term regulatory concession agreements granted by the German government.

### Chicago Skyway

Location: Chicago, Illinois, USA

Investment date: 2016

Through Skyway Concession Company LLC ("SCC"), Borealis is **party to a concession until 2104 to manage, operate and maintain the Chicago Skyway toll road ("Skyway")**. Skyway is a 7.8 mile (12.5 kilometer) toll road that forms a critical link between downtown Chicago and its south-eastern suburbs.

AN OMERS WORLDWIDE COMPANY



## Confederation Bridge

Location: Provinces of New Brunswick and Prince Edward Island, Canada

Investment date: 2003

Through an entity called Strait Crossing Development Inc., Borealis is party to **ownership of the long term concession-based lease agreement of the Confederation Bridge**, a 12.9 kilometer, two-lane, post tensioned concrete, toll bridge between New Brunswick and Prince Edward Island consisting of 64 bridge spans including several piers at 35 meter water depths. The bridge is the world's longest over ice covered waters and at its highest point is 60 meters above the water. It has won many engineering and construction methods awards.



# Funding Resilience

Investing In The **Infrastructure Gap**

Mark Wiseman, CEO CPPIB to McKinsey on Infrastructure Investment (2016)

“There’s a tremendous amount of capital right now that’s interested in investing. So it’s not a question of there not being a supply of capital. The question is, *“Can you, in your jurisdiction, compete for that capital effectively by reducing that idiosyncratic risk?” ...*”

“The target investment size for infrastructure investments is *between C\$500 million to C\$2 billion*, although given the right opportunity, the group will invest up to C\$4 billion in a single investment. ...We have a strong desire to be a significant shareholder with *meaningful governance* and often invest with likeminded partners whose interests align with ours.”

“...I think governments have to be focused on trying to *reduce that idiosyncratic risk by the nature of the concessions and the nature of the regulatory environment*, as much as they can.”



# Funding Resilience

Investing In The **Infrastructure Gap**

- Key Messages:
  - **INSURANCE DOES NOT EQUAL RESILIENCE**
    - Insurance is a facilitator to recovery
    - The protection gap is growing
    - The value of loss continues to increase
  - **THE GLOBAL INFRASTRUCTURE GAP IS A SYSTEMIC THREAT TO RESILIENCE**
    - The current models of investment are insufficient to close the infrastructure gap in the developed world:
      - Fixing the old is a lot less profitable than building new which makes emerging markets more appealing.
  - **GOVERNMENTS ARE COMPETING FOR DIRECT INVESTMENT DOLLARS FROM LARGE INSTITUTIONAL INVESTORS, WHO SEEK:**
    - Long term returns with low volatility (cash flow)
    - Stable regulatory & governance frameworks (zero volatility)
    - Large scale investment opportunities > \$500 million
    - Access to governance of the investment to reduce idiosyncratic risk and comply with fiduciary duties of the investor.
    - Access to large foreign partner investors and consortiums



# PERSPECTIVES ON FUNDING RESILIENCE:

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