



enhance
Partnership for Risk Reduction



Managing Natural Disasters in times of Climate Change

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Overview

- Brief 'warm-up': what do you know about climate change, natural disasters and global policy?
- The risk formula: disasters, people, assets
- The challenge of climate change
- Recent government initiatives
- Role of the private sector
- Use of natural disaster insurance across the world

Before we start...



- Name at least one global policy initiative negotiated this year that aims at addressing climate change, natural disaster, and poverty
- Guess the percentage of development aid that is spend on disaster preparedness and resilience.
- What was the most costly natural disaster?

Loss events worldwide 1980 – 2014

10 deadliest events

Date	Event	Affected area	Overall losses in US\$ m original values	Insured losses in US\$ m original values	Fatalities
12.1.2010	Earthquake	Haiti: Port-au-Prince, Petionville, Jacmel, Carrefour, Leogane, Petit Goave, Gressier	8,000	200	222,570
26.12.2004	Earthquake, tsunami	Sri Lanka, Indonesia, Thailand, India, Bangladesh, Myanmar, Maldives, Malaysia	10,000	1,000	220,000
2-5.5.2008	Cyclone Nargis, storm surge	Myanmar: Ayeyawaddy, Yangon, Bugey, Rangun, Irrawaddy, Bago, Karen, Mon, Laputta, Haing Kyi	4,000		140,000
29-30.4.1991	Tropical cyclone, storm surge	Bangladesh: Gulf of Bengal, Cox's Bazar, Chittagong, Bala, Noakhali districts, esp. Kutubdia	3,000	100	139,000
8.10.2005	Earthquake	Pakistan, India, Afghanistan	5,200	5	88,000
12.5.2008	Earthquake	China: Sichuan, Mianyang, Beichuan, Wenchuan, Shifang, Chengdu, Guangyuan, Ngawa, Ya'an	85,000	300	84,000
July - Aug 2003	Heat wave	Europe, esp. France, Germany, Italy, Portugal, Romania, Spain, United Kingdom	13,800	1,120	70,000
July - Sept 2010	Heat wave	Russia: Moscow region, Novgorod, Ryazan, Voronezh	400		56,000
20.6.1990	Earthquake	Iran: Caspian Sea, Gilan province, Manjil, Rudbar, Zanzan, Safid, Qazvin	7,100	100	40,000
26.12.2003	Earthquake	Iran: Bam	500	19	26,200

Source: Munich Re, NatCatSERVICE, 2015

Loss events worldwide 1980 – 2014

10 costliest events ordered by overall losses

Date	Event	Affected area	Overall losses in US\$ m original values	Insured losses in US\$ m original values	Fatalities
11.3.2011	Earthquake, tsunami	Japan: Aomori, Chiba, Fukushima, Ibaraki, Iwate, Miyagi, Tochigi, Tokyo, Yamagata	210,000	40,000	15,880
25-30.8.2005	Hurricane Katrina, storm surge	USA: LA, MS, AL, FL	125,000	62,200	1,322
17.1.1995	Earthquake	Japan: Hyogo, Kobe, Osaka, Kyoto	100,000	3,000	6,430
12.5.2008	Earthquake	China: Sichuan, Mianyang, Beichuan, Wenchuan, Shifang, Chengdu, Guangyuan, Ngawa, Ya'an	85,000	300	84,000
23-31.10.2012	Hurricane Sandy, storm surge	Bahamas, Cuba, Dominican Republic, Haiti, Jamaica, Puerto Rico, USA, Canada	68,500	29,500	210
17.1.1994	Earthquake	USA: CA, Northridge, Los Angeles, San Fernando Valley, Ventura, Orange	44,000	15,300	61
1.8-15.11.2011	Floods	Thailand: Phichit, Nakhon Sawan, Phra Nakhon Si Ayutthaya, Pathumthani, Nonthaburi, Bangkok	43,000	16,000	813
6-14.9.2008	Hurricane Ike	USA, Cuba, Haiti, Dominican Republic, Turks and Caicos Islands, Bahamas	38,000	18,500	170
27.2.2010	Earthquake, tsunami	Chile: Concepción, Metropolitana, Rancagua, Talca, Temuco, Valparaiso	30,000	8,000	520
23.10.2004	Earthquake	Japan: Honshu, Niigata, Ojiya, Tokyo, Nagaoka, Yamakoshi	28,000	760	46

Source: Munich Re, NatCatSERVICE, 2015

Risk = exposure + vulnerability + hazard

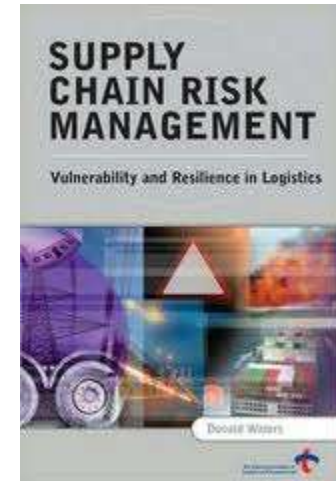
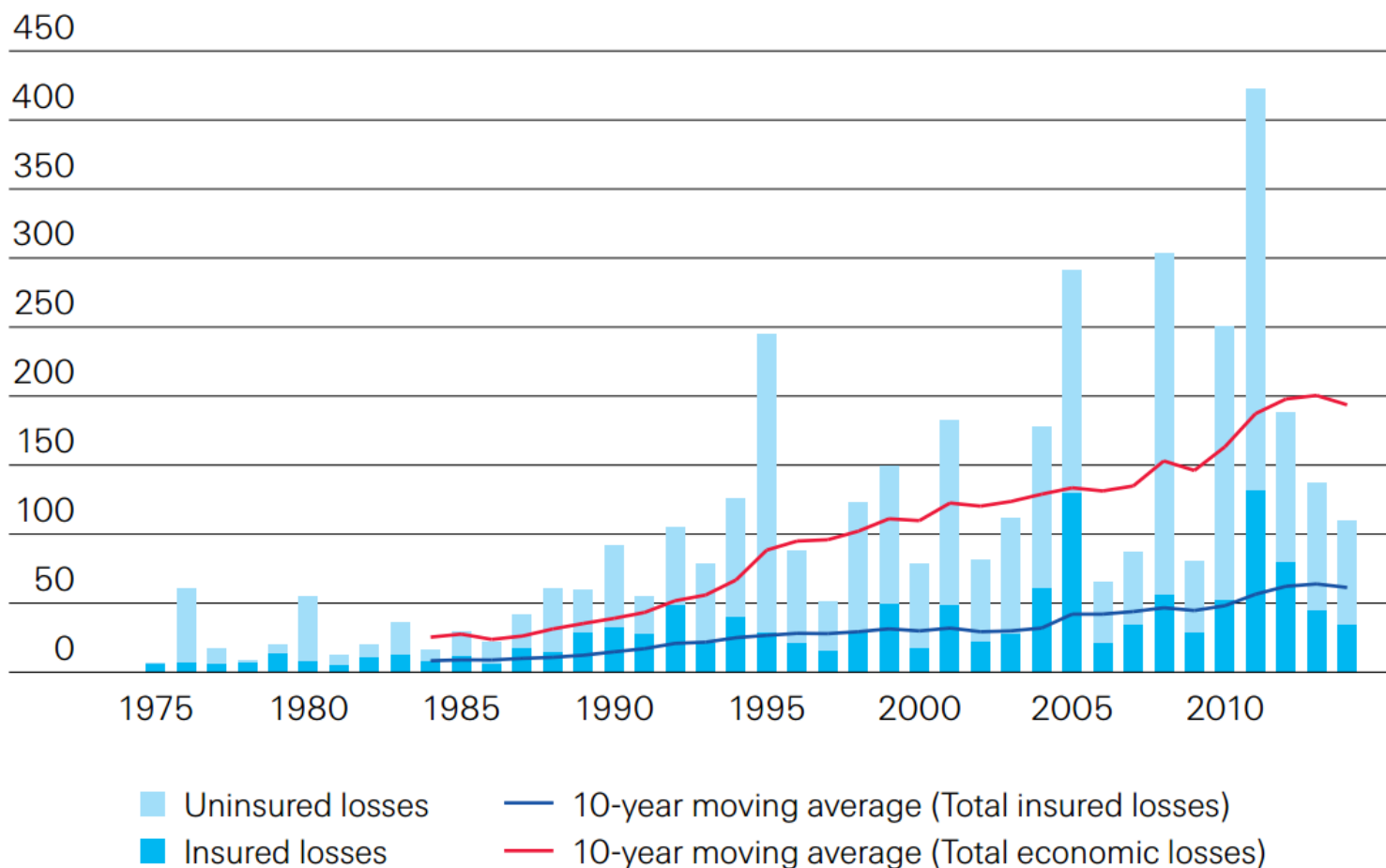


Photo sources: various, see author for details

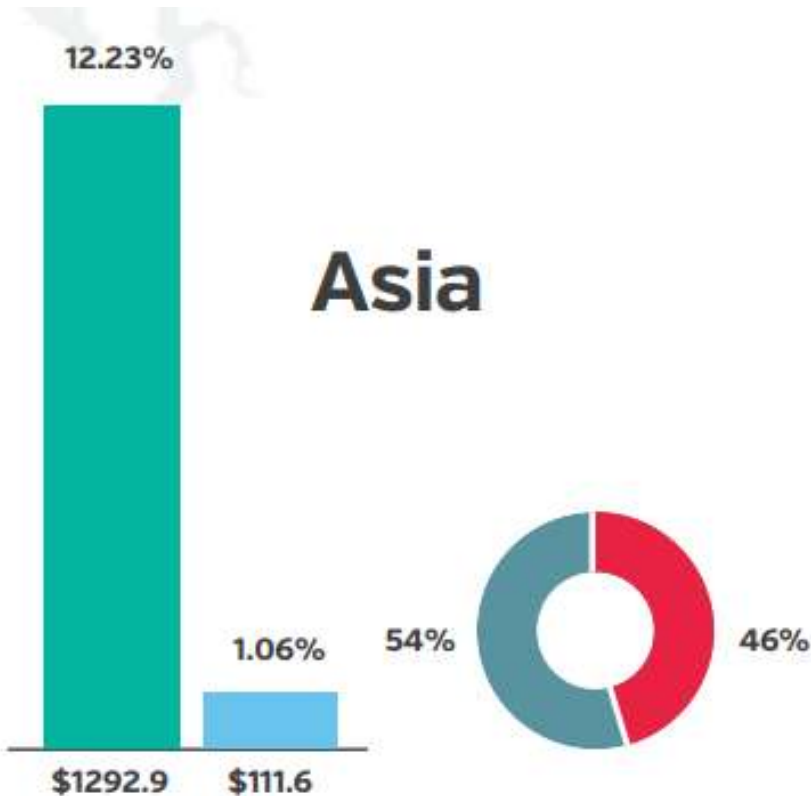
Natural catastrophes losses: insured vs uninsured 1975–2014, in 2014 USD billions



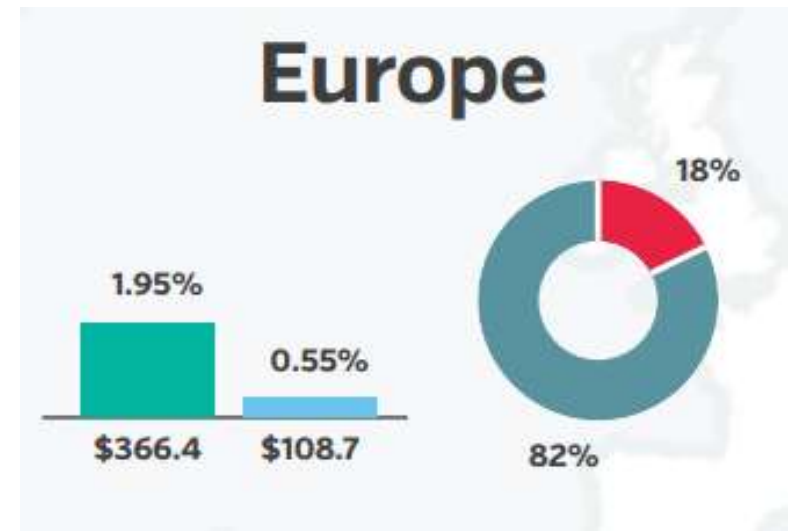
Source: Swiss Re Economic Research & Consulting and Cat Perils.

Disaster loss 1990-2012 as percentage of GDP

Asia



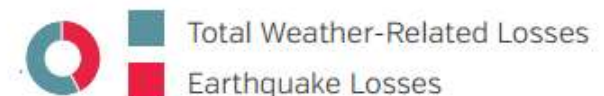
Europe



Percentage of 2010 GDP
in US\$ Billion



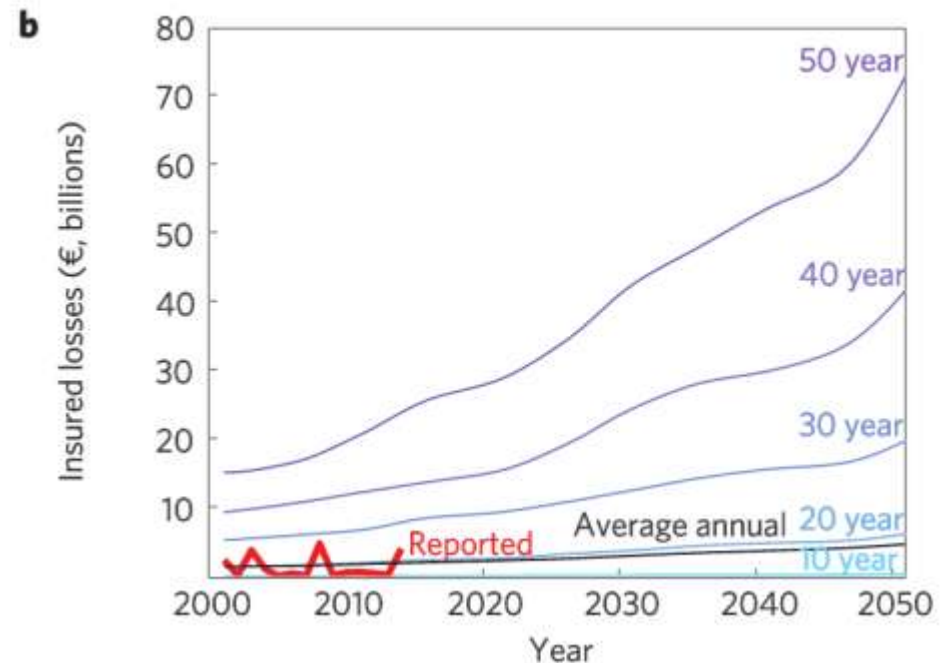
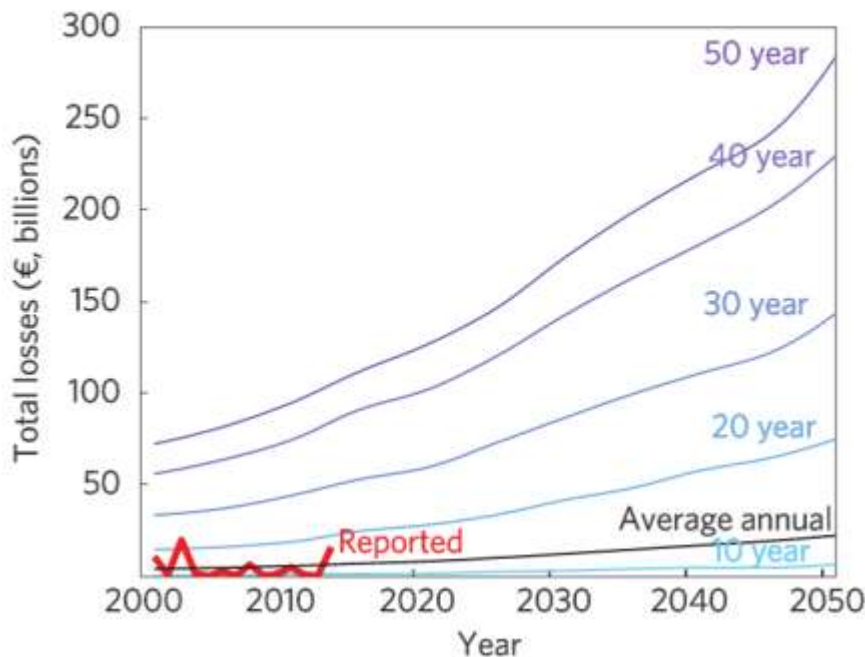
Weather-Related Losses
by Percentage



Source: GFDRR (2014) Financial
Protection against Natural Disasters

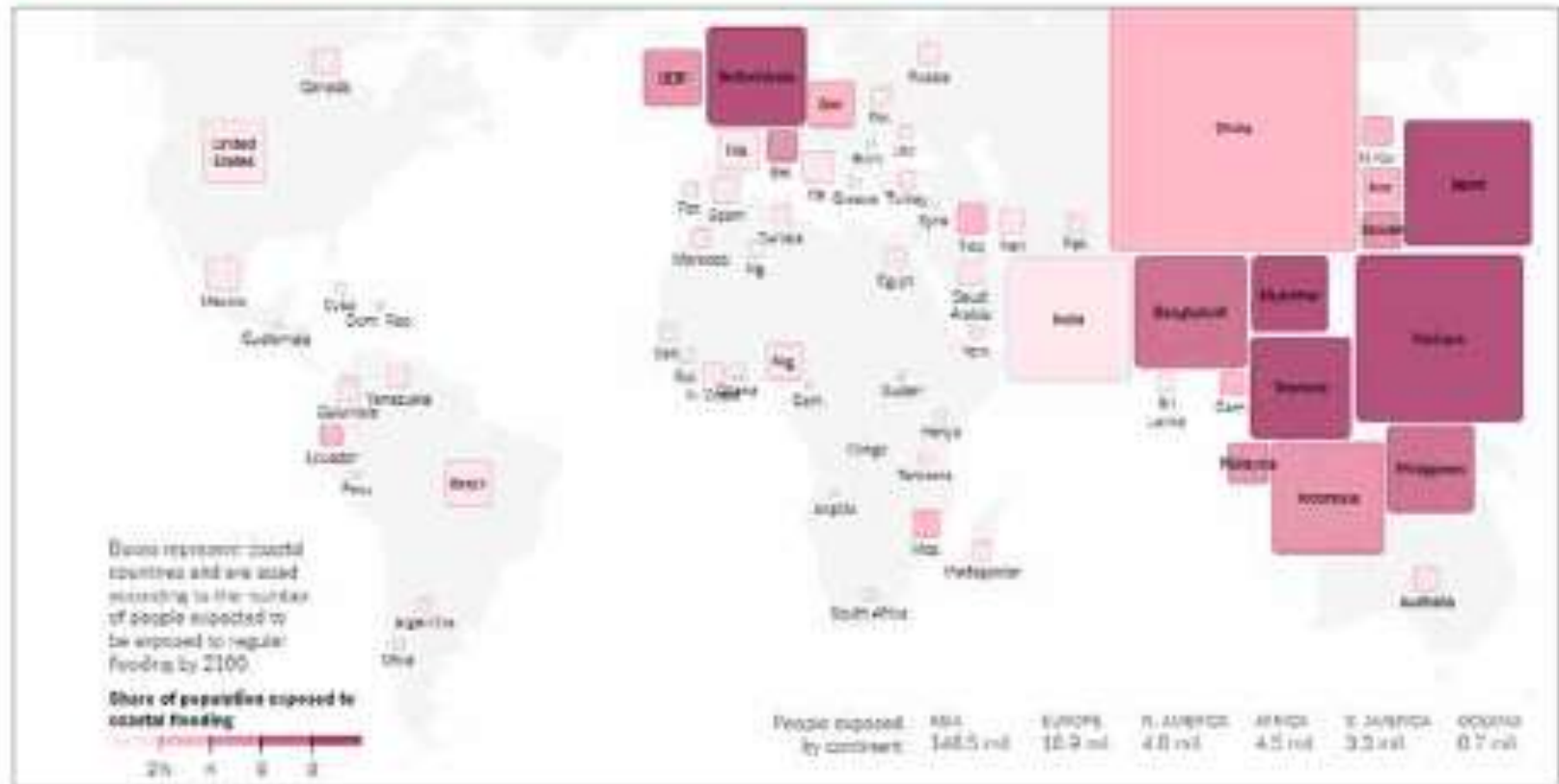
Climate change impacts

- Flood losses across the EU are expected to increase from €4.2bn per year (2000-2012) to €23.5bn by 2050.
- Insured losses are expected to increase from €1.6bn per year (2000-2012) to €4.6bn by 2050.



Present and projected flood losses for return periods across the EU from Jongman et al. (2014)

Figure 5: Share of population exposed to coastal flooding by 2100



Source: Aisch et al. (2014), based on a Climate Central study.

International Policy Initiatives

Three international framework agreements could signal paradigm shift in disaster and climate risk management policy:

- **The Sendai Framework for Disaster Risk Reduction (DRR (2015-2030))**

(Adopted at the Third World Conference on Disaster Reduction, Sendai, Japan, March 2015)

- **Transforming the World: The 2030 Agenda for Sustainable Development**

(Adopted at the 70th session of the UN General Assembly, NYC, USA, September 2015)

- **The United Nations Framework Convention of Climate Change's 21st Conference of Parties (UNFCCC COP21)**

To be adopted by Conference of parities at its 21st meeting (Paris, France)

China's efforts to manage natural disasters

Overall Policy:

Comprehensive Disaster Prevention and Reduction Plan (2011-15) – responsibility: National Committee for Disaster Reduction

According to the UN, the implementation of this Plan in China faces range of challenges: numerous government departments involved, convoluted coordination processes, long construction cycles and difficulties in fund raising.

Insurance is very common in the agriculture sector, but lagging in other sectors and for property owners. This has led to several efforts by public and private sector to set up a comprehensive nat cat insurance system.

Role of the private sector

- Delivering adaption and disaster resilience: The private sector is responsible for 70–85% of worldwide investment in new buildings, industry and critical infrastructure (UNISDR)
- Facilitating societal climate resilience
- Terminology matters: Companies unlikely to call it adaptation or disaster resilience – Resilience. Instead: Enterprise Risk Management, Business Continuity, Due Diligence, Supply chain management, Resource Efficiency

COMMENTARY:

Private-sector adaptation to climate risk

Swenja Surminski

A small but growing number of companies are addressing climate risks; however, a range of barriers limit wider private-sector adaptation efforts, particularly in developing countries.

Why insurance?

Insurance is understood to play a significant role in our ability to recover from natural disasters through its risk transfer role:

- Spreading and smoothing of risks
- Faster and more efficient recovery
- Certainty about post-disaster support
- Reducing immediate welfare losses and consumption reduction

See Hallegatte, S. (2012a) Perspective Paper Natural Disasters. Copenhagen Consensus: Copenhagen.

Available at: http://www.copenhagenconsensus.com/sites/default/files/Natural%2BDisasters_Perspective%2Bpaper%2B1.pdf

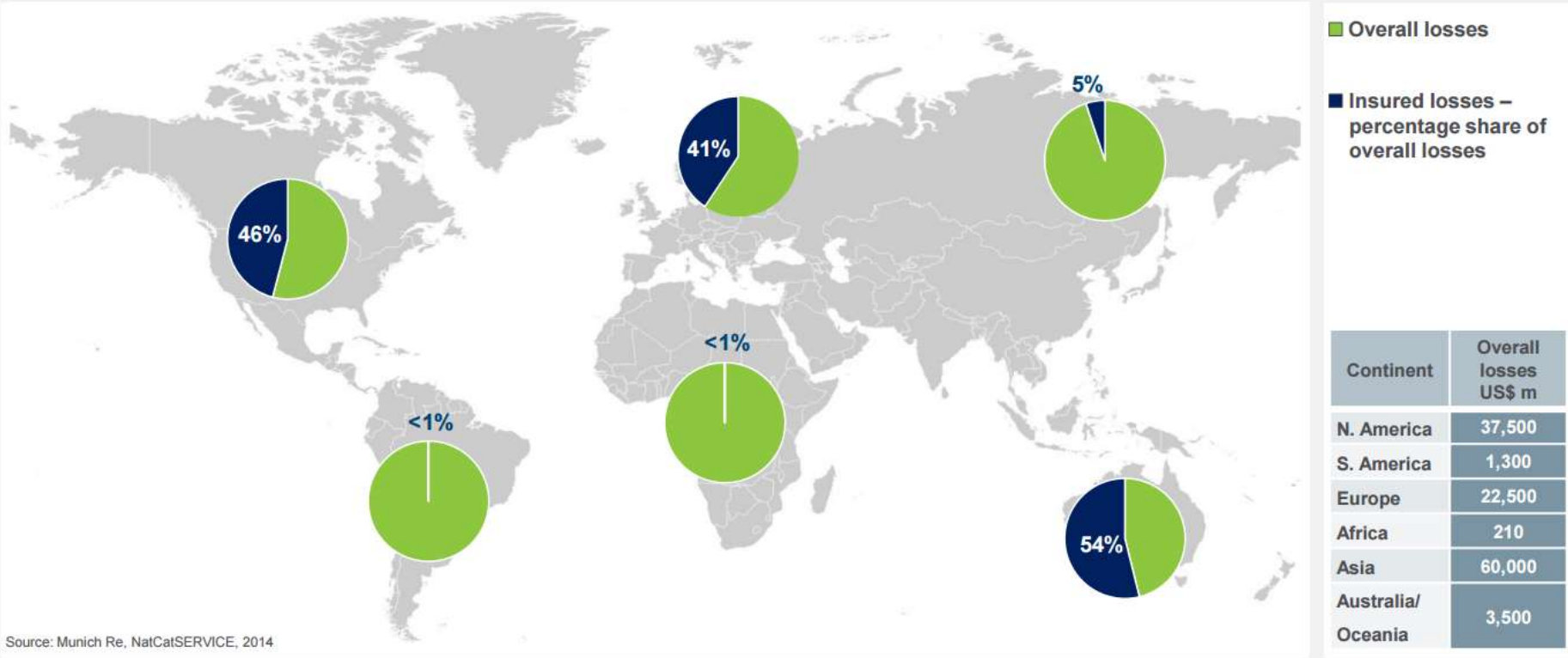
Can insurance also help us to prevent disasters and adapt to climate change through its influence on risk behavior?

Differences in insurance penetration for disaster risks

NatCatSERVICE

Loss events worldwide 2013

Overall and insured losses per continent



Types of disaster insurance



Source: GFDRR Staff.

Source: World Bank (2012) World Bank Group Disaster Risk Financing Business Lines.
The World Bank, Global Facility for Disaster Reduction and Recovery.

Risk transfer and risk management



Insurance can be used to reduce disaster risk:

- Incentives for resilience through terms and conditions
- Awareness-raising through information campaigns
- Price signals by moving to risk-based prices
- Partnership approaches, such as sharing of risk data, lobbying for public policy/building standards/regulation

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One example

PepsicoFrito Lay offer weather risk advice and index insurance as part of their contract farming (potatoes suppliers) in India



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UNFCCC's Private Sector Initiative (PSI)

Thank you for your attention.

For further information:

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