



Climate Change – Impact on Asia and possible adaptation measures

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The Geneva Association

- “*International Association for the Study of Insurance Economics*”
- Founded in 1973 in Geneva, today formed by a maximum of 90 CEOs from the most important insurance companies in the world
- Think-tank for the global insurance industry, voice on insurance and risk management issues, and partner to international institutions
 - Research the growing importance of insurance activities world-wide in all sectors of the economy
 - Identify fundamental trends and strategic issues linked to insurance
 - Develop and encourage initiatives concerning the evolution - in economic and cultural terms - of insurance, risk management and the notion of uncertainty in the modern economy
 - Organisation, co-organisation and sponsoring of conferences, seminars and lectures
 - Publication of several newsletters, the Geneva Papers and special books/reports

Climate Change – still a major risk

Pestilence, famine, war and death?

Will climate change unleash the four horsemen of the apocalypse?

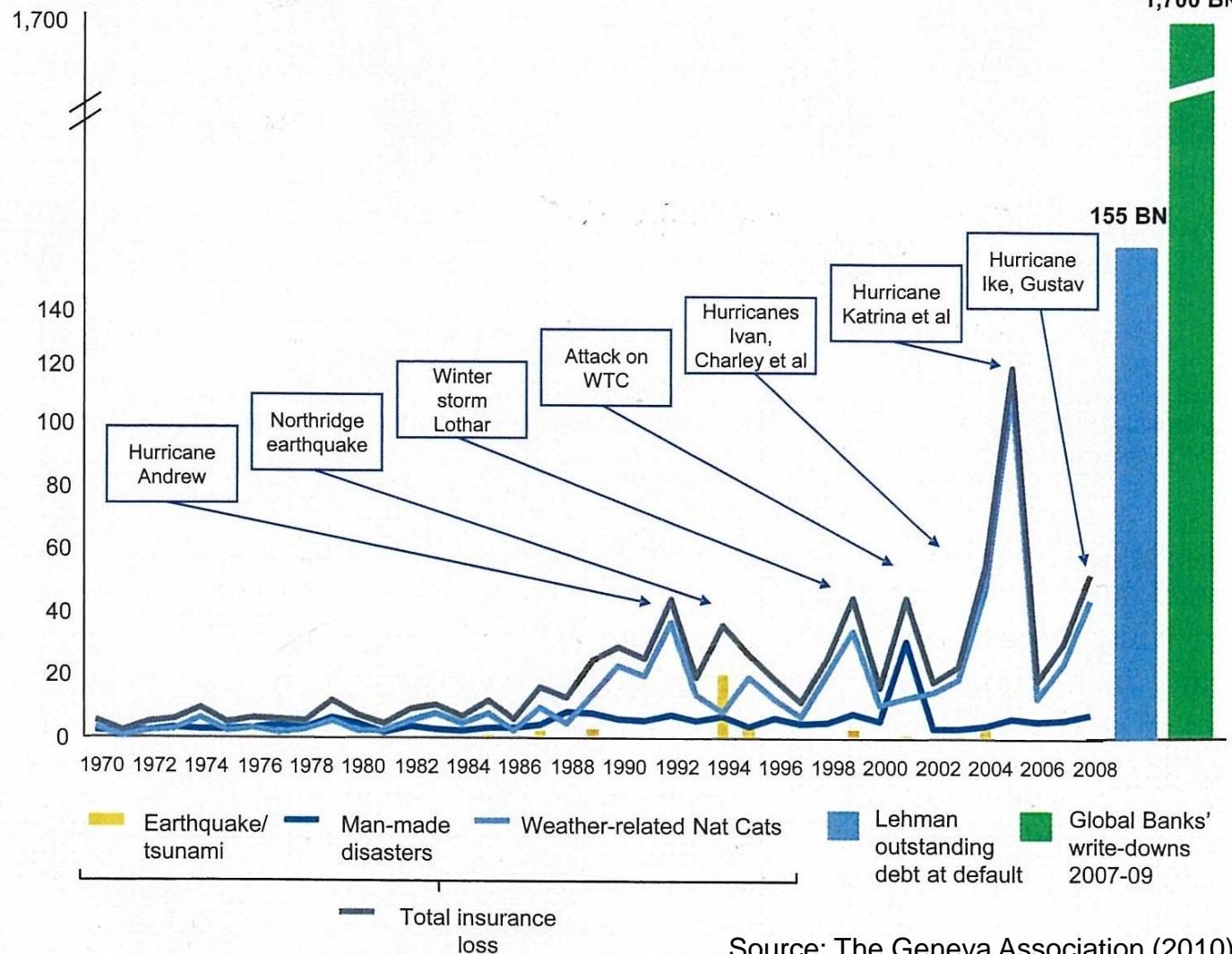


The 2012 WEF world risk report lists severe income disparity and chronic fiscal imbalances as this year's top risks.

Another group lists political turmoil in the Mid-East, severe global credit squeeze, social upheaval in China and India and a severe global recession emanating from Europe.

Man-made losses are dwarfing nature...

Insured catastrophe losses 1970-2008
(in USD BN, at 2008 prices)



Global banks' write-downs 2007-09 were **17 times** higher than the most expensive year for insurance (2005)

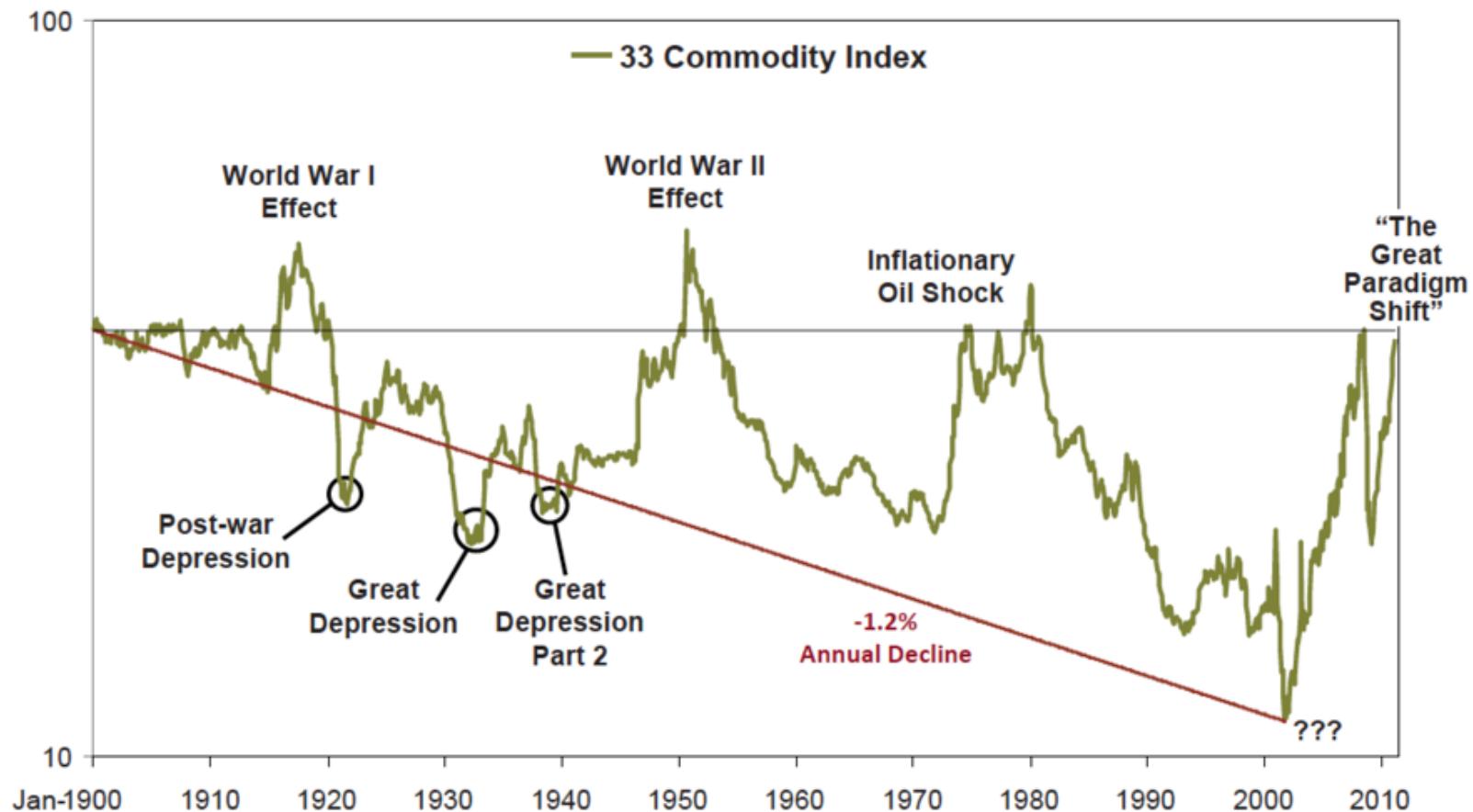
Global risks (and opportunities?)

Interconnectedness: modern risk analysis concerns less the specific nature of individual disasters and more the potential connections between them:

- Technical vulnerability: break-down of electricity grids, IT, telecom systems due to space weather (solar activity),
- **The resource price paradigm shift**, including increased energy and food prices?
- Mass migration of people in search of a better life,
- The human factor (technology accidents, Concordia),
- Social upheaval following reduced social protections, pensions and other national commitments.

2002: the end of 100 years of decreasing commodity prices

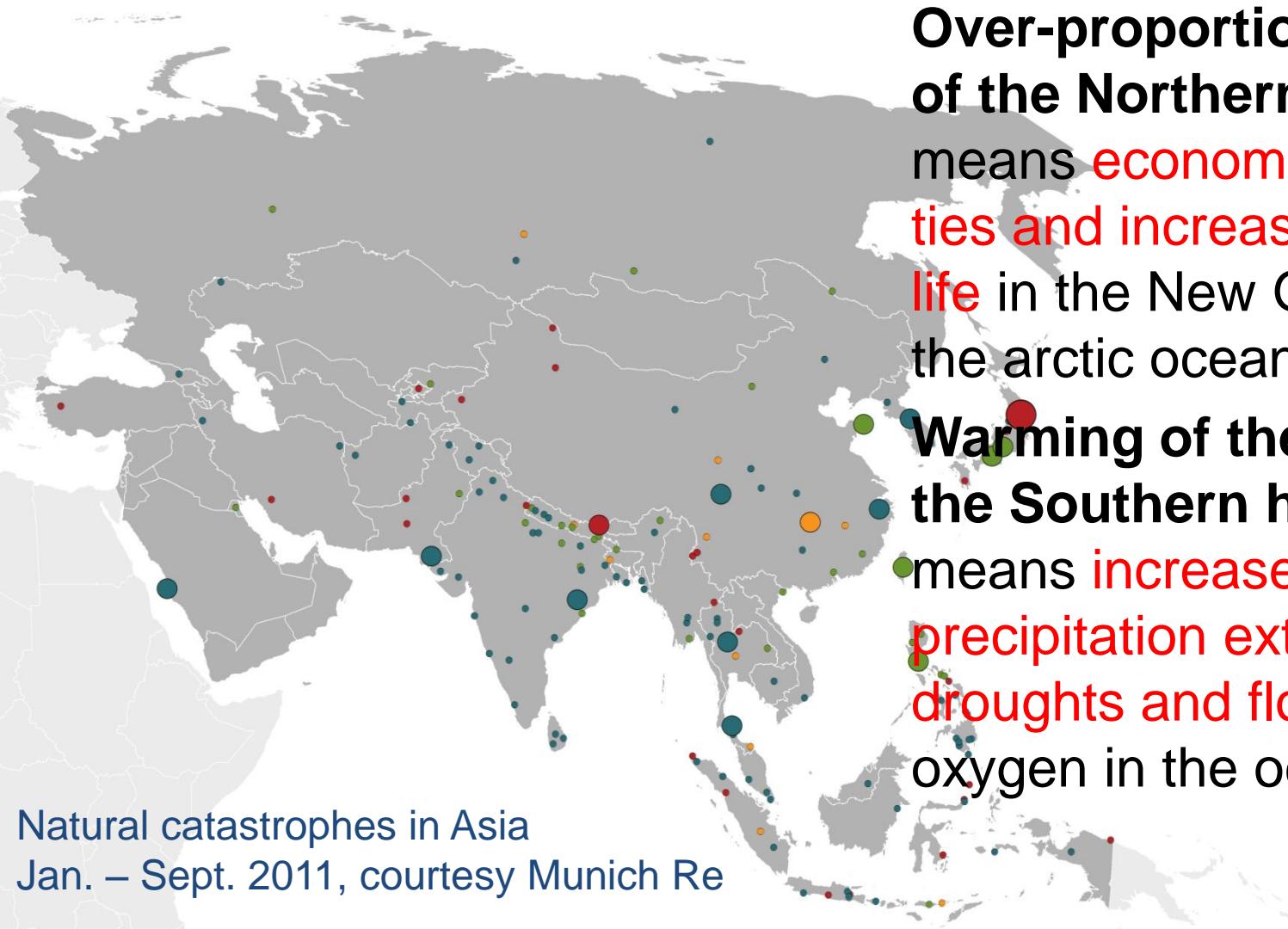
GMO Commodity Index: The Great Paradigm Shift



Note: The GMO commodity index is an index comprised of the following 33 commodities, equally weighted at initiation: aluminum, coal, coconut oil, coffee, copper, corn, cotton, diammonium phosphate, flaxseed, gold, iron ore, jute, lard, lead, natural gas, nickel, oil, palladium, palm oil, pepper, platinum, plywood, rubber, silver, sorghum, soybeans, sugar, tin, tobacco, uranium, wheat, wool, zinc.

The impacts of climate change divide Asia into a Northern and a Southern hemisphere

A split into North Asia and South Asia:



Over-proportional warming of the Northern hemisphere means **economic opportunities and increased quality of life** in the New Global North, the arctic ocean,

Warming of the oceans in the Southern hemisphere means **increased storms, precipitation extremes, droughts and floods**, a lack of oxygen in the oceans equal **less fish**.

Natural catastrophes in Asia
Jan. – Sept. 2011, courtesy Munich Re

Geopolitics: The New Global North includes Asia

The Arctic Ocean is the smallest of the World's five Oceans. Siberia (Russia) is Asia's part.

The Arctic Ocean is a major source for natural gas, oil, mineral ores, and fish.

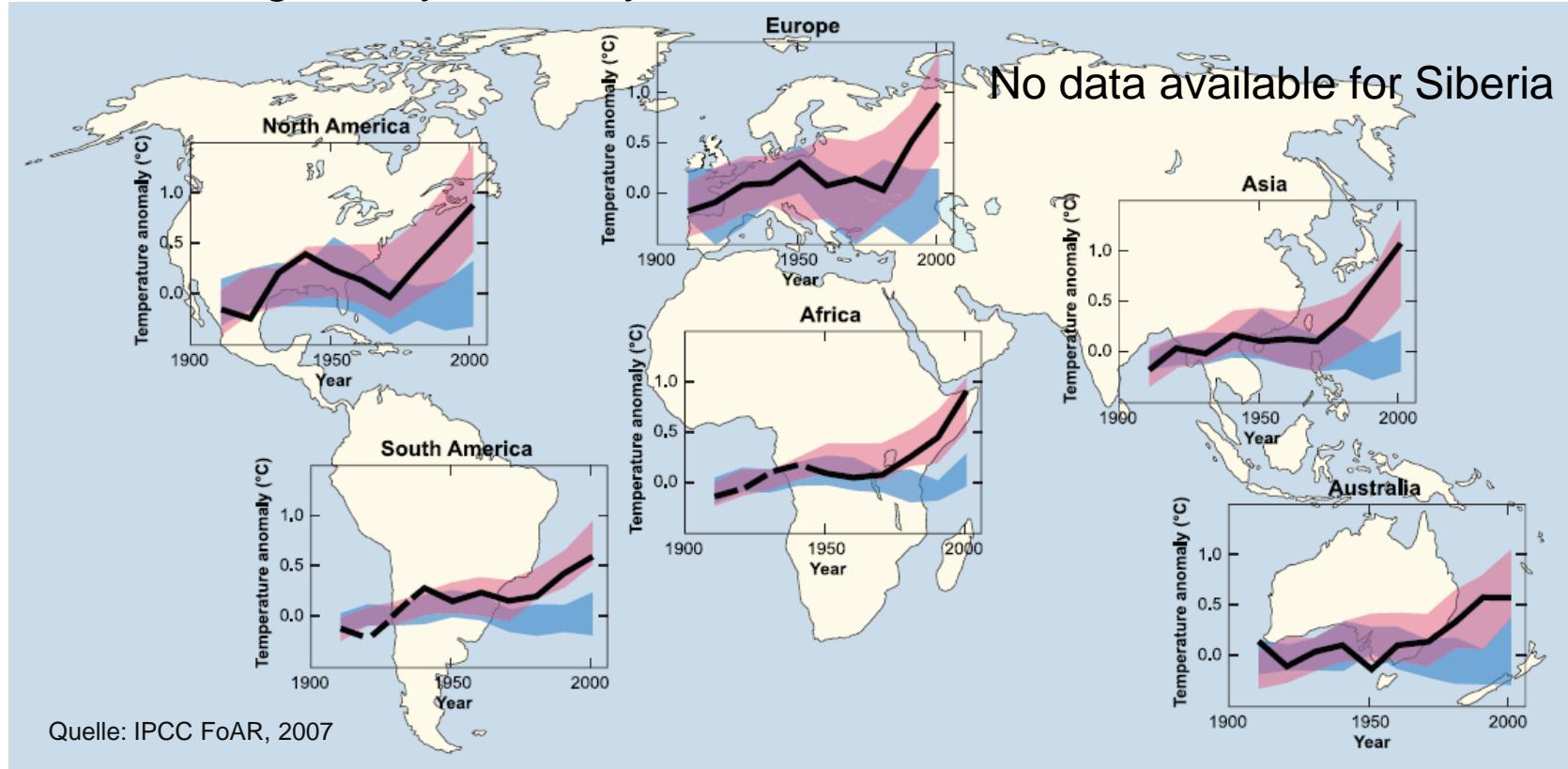
The Bering Strait (BS) leading to the Pacific shortens the shipping lanes to Asia by one third, compared to Suez / Panama Canal.

map: CIA The World Fact book



(South-East) Asia has been the continent with the largest temperature increases in the last 100 years.

data and diagram by courtesy of the NatCatSERVICE of Munich Re



models using only natural forcings

models using both natural and anthropogenic forcings

observations

©IPCC 2007: WG1-AR4

Black lines: decadal averages of observations

Blue band: 5-95% range 19 simulations from 5 climate models using only natural forcings

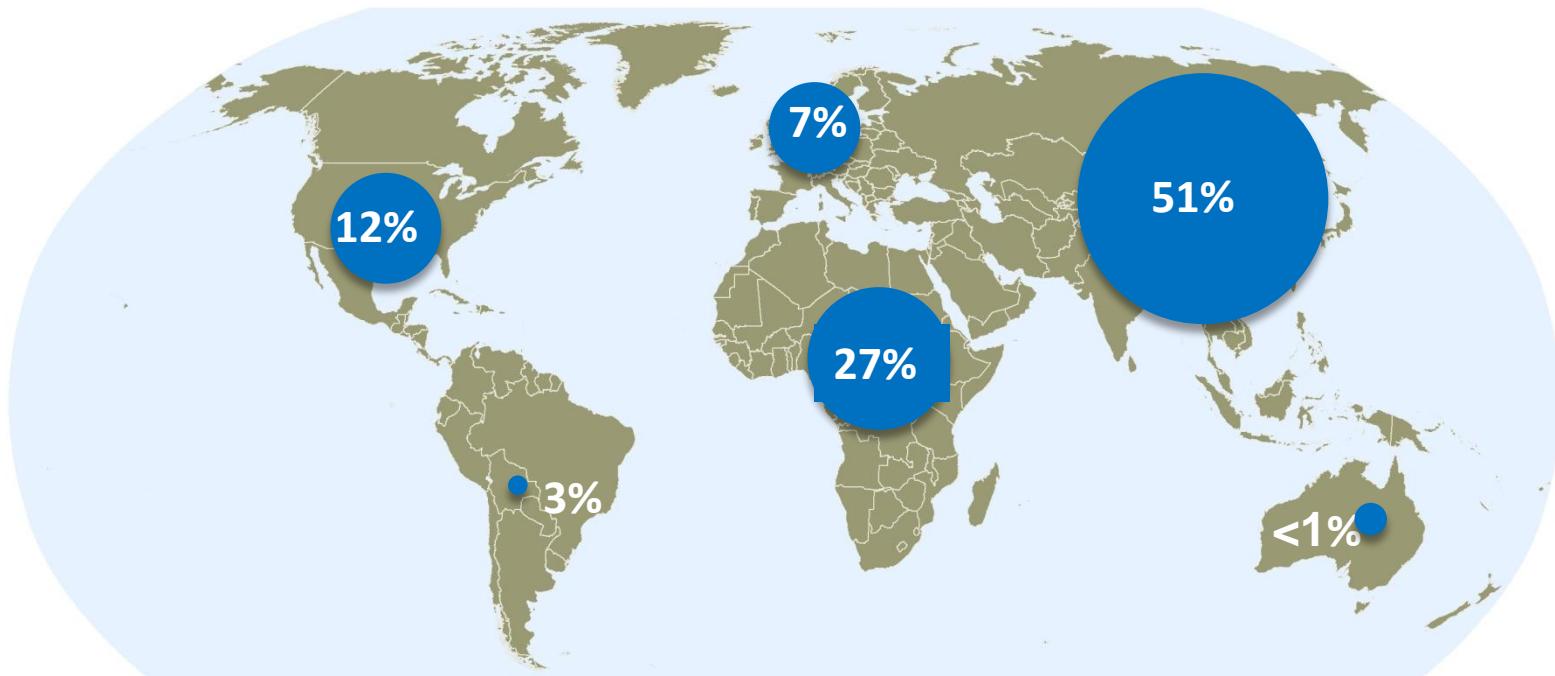
Red band: 5-95% range for 58 simulations from 14 climate models using natural and anthropogenic forcings

2011 – a year of extreme events, many in Asia

- Volcanoes, earthquakes and tsunamis,
- Extreme weather, floods, storms, mudslides,
- Technical interconnectedness in global manufacturing chains combined with just-in-time logistics,
- Growing vulnerability of infrastructures: telecom and energy, water and waste water, health and hospitals, food storage were all interconnected,
- Most exposed areas: coastal regions, flood plains, mountain areas.
- Asia has specific issues to tackle, such as a high fatality rate and a low rate of insured losses.

Natural catastrophes 1980 – 2010

2,275,000 Fatalities - Percentage distribution per continent

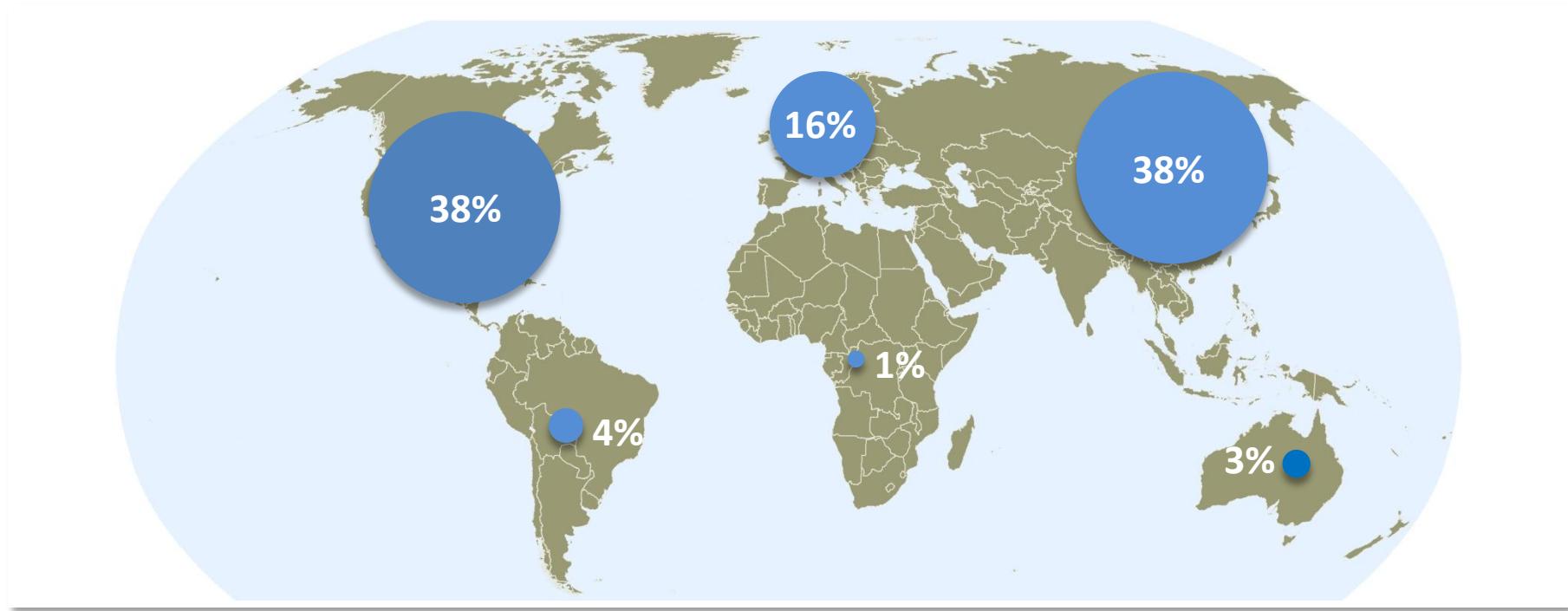


Continent	Fatalities
Africa	607,000
America (North and South America)	362,000
Asia	1,150,000
Australia/Oceania	5,620
Europe	150,000

Source: NatCatSERVICE Munich Re

Natural catastrophes 1980 - 2010

Overall losses US\$ 3,000bn - Percentage distribution per continent



Continent	Overall losses* [US\$ m]
Africa	43,000
America (North and South America)	1,265,000
Asia	1,150,000
Australia/Oceania	77,000
Europe	485,000

But NatCats losses have a different drain on the economy: in Asia, only 6% of losses are insured, in America 40%.

Source: NatCatSERVICE Munich Re

Climate Change Symptoms and Implications for Agriculture

Source: *Actual and Anticipated Effects of Climate Change on Food Security; Professor Paul Teng, Dean, Office of Graduate Studies & Professional Learning, National Institute of Education, Singapore; speaking at the 3rd CR+I Seminar, 18 Oct. 2011, Nanyang Executive Centre, NTU, Singapore*

- **Higher and more variable temperatures** (hot days, heat waves, etc.) → reduced crop yields and quality, reduced livestock productivity, forest fires,
- **Changed precipitation patterns** (river/stream flow changes, soil moisture status),
- **More extreme events** (droughts, floods, tropical cyclones, hurricanes, storm surges) → erosion, property and crop losses,
- **Sea level rise** (salt water intrusion, coastal inundation & farm land loss) → degradation of soil quality,
- **Glacier melt** – Increased flooding, followed by droughts,
- **Distorted (climate change) policies** (on agricultural trade).



(South-East) Asia challenges

- Population growth combined with move to mega-cities,
- More people to feed on a smaller surface of arable land opens opportunities for innovative plant production (GMOs) and food from the sea,
- Economic growth in manufacturing and services, often concentrated in industrial parks,
- Resource efficiency opportunities, such as the circular economy (PRoC's law 2008),
- Building communities resilient to extreme events.
- Many of the major insurance companies, such as Munich Re, Swiss Re, Tokio Marine & Nichido Fire Insurance, to name but a few, are developing specific approaches in areas including food and agriculture, flood control, life insurance.

Insurers' contribution to adaptation

- Expertise in risk management, particularly in areas such as risk and vulnerability assessment, putting a price tag on risk, and the design of risk reduction and risk transfer activities,
- Prioritising adaptation measures by enhancing adaptive capacity and advising on the cost effectiveness of resilience measures,
- Incentivising loss reduction by informing economic actors about the risks they face, advising them on risk mitigation options and providing them with existing insurance options for loss reduction,
- Developing new insurance products which cover risks affected by climate and weather events, such as human health, crop yields and animal diseases,
- Raising awareness among the many stakeholders of the insurance industry about the impacts of climate change, the adaptation needs of those most at risk, and the role that the insurance industry can play in advancing adaptation.

Adaptation challenges in private-public cooperation

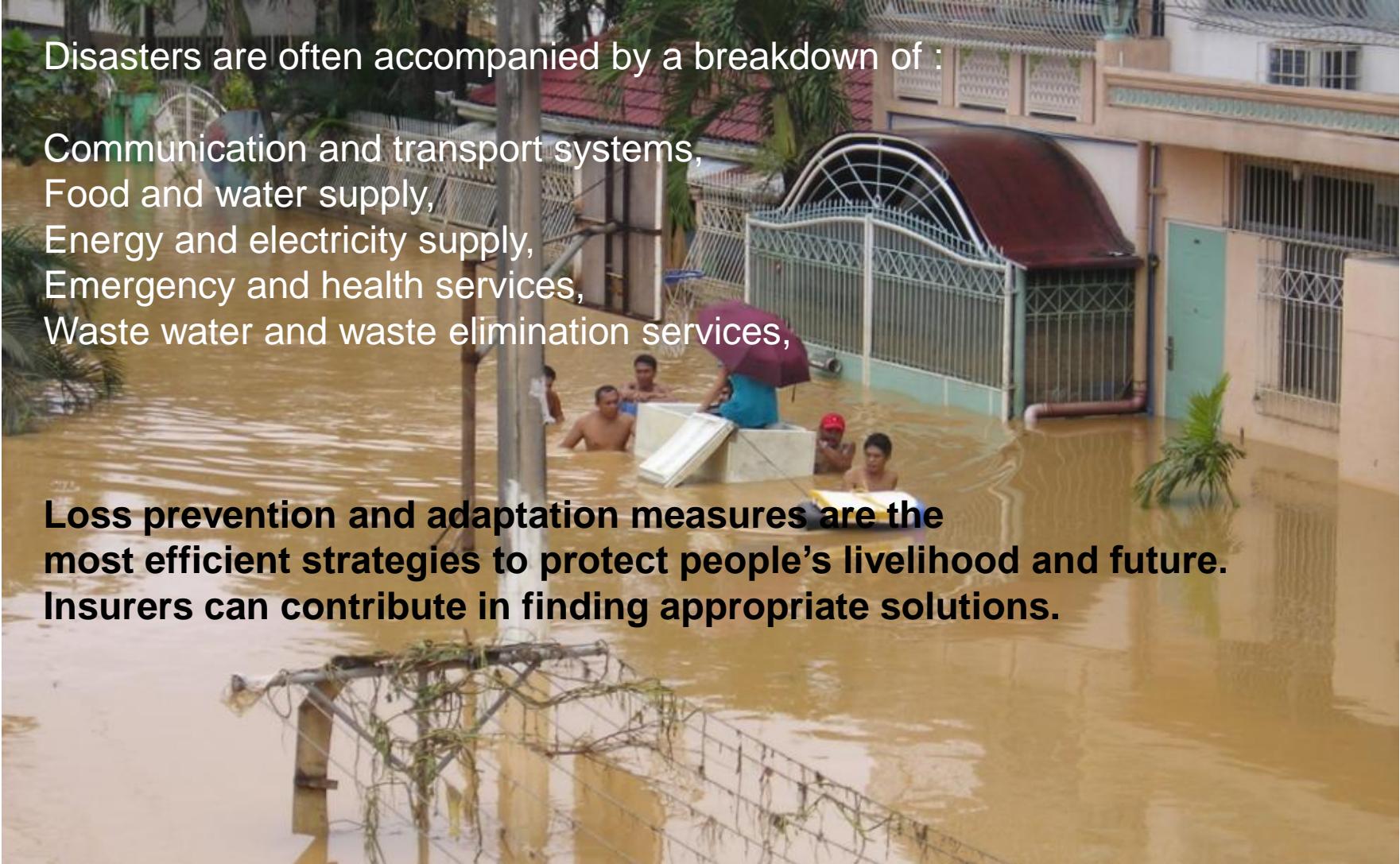
- Develop information tools supporting risk awareness and preventive measures, produced by major insurers, WMO,
- Develop risk reduction and post disaster management systems which are independent of the type of disaster:
educating the population, impose standards for resilient buildings, land use zoning (excluding new constructions in hazardous areas),
- River restoration, flood defences, recreating flood plains, defining & applying operation and maintenance processes,
- Planning and building disaster resilient infrastructures (health and safety, transport and communication),
- And not least financial safety nets including accident and disability cover for farmers and workers.

Post disaster management

Disasters are often accompanied by a breakdown of :

Communication and transport systems,
Food and water supply,
Energy and electricity supply,
Emergency and health services,
Waste water and waste elimination services,

**Loss prevention and adaptation measures are the most efficient strategies to protect people's livelihood and future.
Insurers can contribute in finding appropriate solutions.**





Thank you for your attention

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