

“Mainstreaming Adaptation into Development – An Insurance Perspective”

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Panel 4.3 Disasters, losses and damages

Agenda

- ▶ Climate Change Threats
- ▶ Catastrophic Events Increasing
- ▶ Insurance Industry Situation
- ▶ Global Warming
- ▶ Public Infrastructure Exposures
- ▶ Facility Infrastructure
- ▶ Supply Chain Vulnerability and Hardening
- ▶ Wrap Up

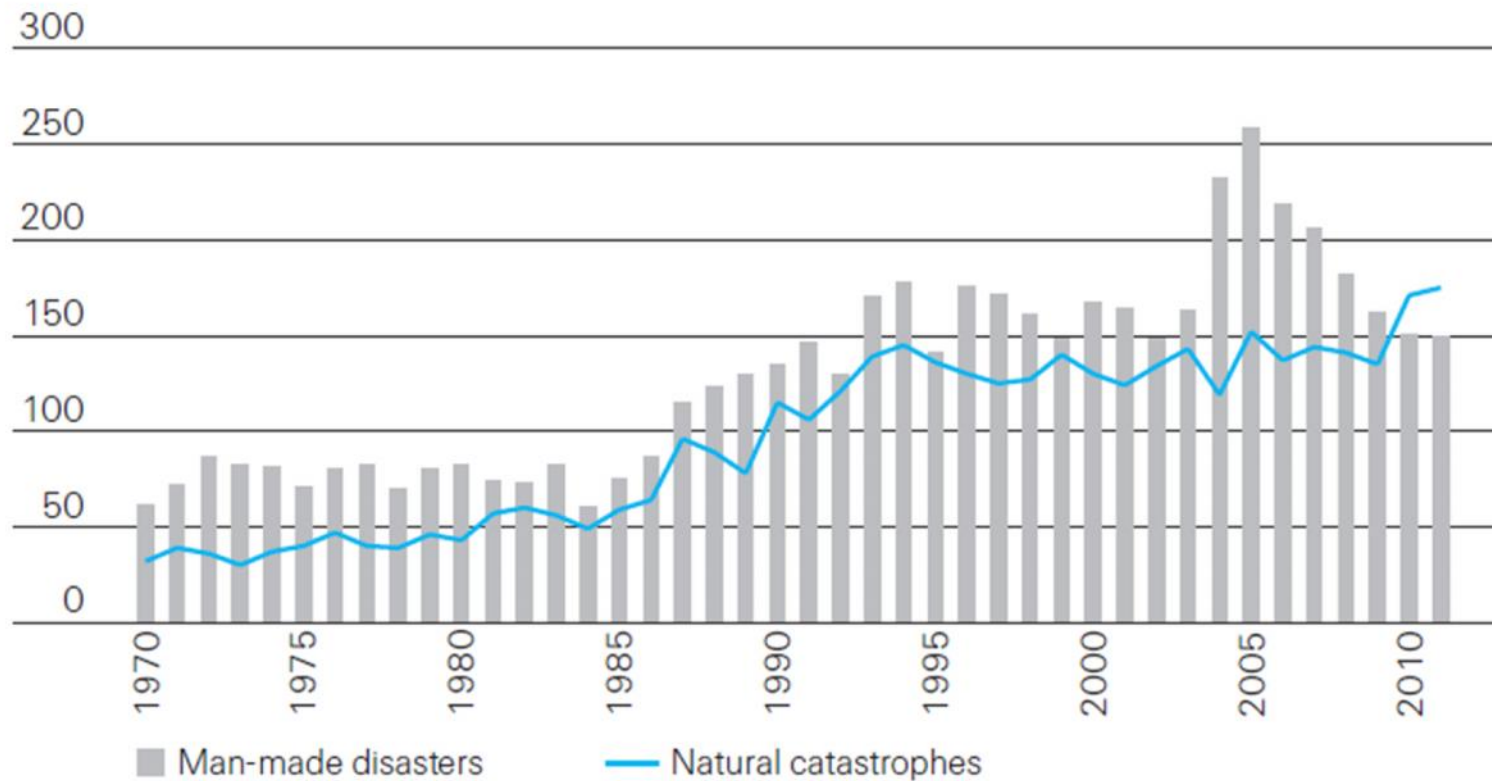


Threats A – Z

Avalanches	Jury Awards	Supply Chain
Blizzards	Karma	Tornadoes
Cold Spells	Lightning	Ultra Violet
Droughts	Monsoons	Volcanoes
El Nino	Northeasters	Windstorm
Flood	Outages	X-Factor
Global Warming	Plagues	Yellow Dust
Hurricane	Quarantine	Z?????
Infrastructure	Radiation	



No. of Events 1970 – 2011



Source: Swiss Re Economic Research & Consulting

2011 Catastrophe Losses

- ▶ 35,00 Victims
- ▶ \$370 billion in Economic Losses – largest ever
- ▶ 175 Natural Catastrophes out of 325
- ▶ \$110 billion Insurance Industry losses
- ▶ Only \$48 billion insured losses in 2010



Insurance Industry Actions

- ▶ Rising Insurance Costs and Premiums
- ▶ Updating Catastrophe Exposure Models
 - ReDrawing Flood Maps
 - Integrating Tsunami Risk
- ▶ Requiring Facility Engineering Studies
- ▶ Mandating Building Code Compliance
- ▶ Developing Own Stricter Building Standards
- ▶ Guiding Insureds on Latest Climate Data



Think Like Threat

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Global Warming

- ▶ Record Global Temperature Extremes
 - USA – 2012 Highest average temperature recorded
 - Arctic Ice Caps Melting – Glaciers Retreating
 - Record Cold Temperatures and Snowfalls
 - Rising Sea Levels
- ▶ Climate Change
 - Too Much Rain and Extreme Drought
 - Water Shortages
 - More Severe Windstorms and Tornados
 - Increased Spread of Disease



What can you do?

- ▶ Follow Global Warming (GW) Impacts
 - Threats are New
 - Threats Types are Not New
 - Threats are More dangerous
- ▶ Consider GW in Strategic Planning
- ▶ Engineering Review of Existing Facilities
- ▶ Physical Inspection of Facility Structure
- ▶ Upgrade New Construction Standards
- ▶ Reevaluate Renovation Standards



Infrastructure Losses

- ▶ Florida Hurricanes
- ▶ Great Chicago Flood – 1992
- ▶ Hurricane Katrina – 2005
- ▶ Thailand Floods – 2011



CELIA (1970) and ALLEN (1980)



Was Hurricane Andrew Unexpected?

YES?

NO?

Maybe?



ANDREW (1992)



Florida 2004 Hurricanes

Storm	Category	Date	Year	Intensity (knots)
Charley	4	Aug 13	2004	130
Ivan	2	Sept 5	2004	105
Frances	3	Sept 16	2004	105
Jeanne	3	Sept 26	2004	105



Credit Card Processing Center



Was the Great Chicago Flood Unexpected?

YES?

NO?

Maybe?



Great Chicago Flood – 1992

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Great Chicago Flood – 1992

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Was Hurricane Katrina Unexpected?

YES?

NO?

Maybe?



Hurricane Katrina – 2005



Was Hurricane Katrina Unexpected?

YES?

NO?

Maybe?



Infrastructure

- ▶ Review Threats to Your Business
- ▶ Review Infrastructure Maps
- ▶ Review Local Infrastructure Plans
- ▶ Attend Local Infrastructure Planning Meetings
Be Involved
- ▶ Keep Abreast of Local Infrastructure News
- ▶ Visit Infrastructure with Experts



Were Thailand Floods Unexpected?

YES?

NO?

Maybe?



Were Thailand Floods Unexpected?

- ▶ 2006, 2002, 1996, 1995, 1989, 1983
- ▶ Increased industrial/commercial construction
- ▶ Decrease in forest and agricultural lands
- ▶ Inadequate drainage systems
- ▶ Inadequate flood infrastructure
- ▶ Poor maintenance of existing infrastructure
- ▶ Flood prevention methods made to keep Bangkok dry were successful.



Poor Embankments + Dykes Breaches and Failures



- Not made of Concrete
- Not Continuous

Planning Questions Not Asked of Thailand?

- ▶ Can you guarantee us operational sustainability and business resiliency after a flood?
- ▶ What is your country's current flood management strategy and plan?
- ▶ What have you done to mitigate flood effects?
- ▶ What is your country currently doing to harden existing infrastructure?
- ▶ What is your government's response for a major disaster?
- ▶ What support can you provide us after a disaster?



Thailand Floods 2011

- ▶ \$45.7 billion losses– estimate by World Bank
- ▶ Major global disruption of supply chains for automotive and electronics industries
- ▶ 7510 industrial plants were damaged
- ▶ 9 Japanese auto companies halted production
 - 6000 vehicles were lost per day

Source: AON Benfield

Government Response

- ▶ Water Management and Flood Projects
- ▶ Floodways and Flood Diversion Channels
- ▶ Forest Conservation Programs
- ▶ Restoration and Construction of Dykes
- ▶ Construction of Reservoirs
- ▶ Convert Farmland for Flood Water Retention
- ▶ Discharge Water from Damns and Reservoirs

Source: AON Benfield



Was Japan Tsunami Unexpected?

YES?

NO?

Maybe?



Fudai – Survives 2011 Tsunami



Facility Infrastructure

- ▶ Review Schedule Maintenance
- ▶ Review Equipment Replacement Schedule
- ▶ Review Hazardous Equipment and Procedures
- ▶ Review Neighboring Exposures
- ▶ Review Current Building and Benchmark
- ▶ Build New Structures to Meet and Exceed Current Building Codes



Feng Shui

風水

- ▶ *Feng Shui* literally translates as "wind–water" in English.



Supply Chain Hardening

- ▶ Rank “Criticality” of Suppliers
- ▶ Determine Single Points of Failure
- ▶ Review BCM Plan and Questionnaire
- ▶ Review Latest BCM Exercise
- ▶ Visit Contractor Sites
- ▶ Add Climate Change Lens to All Above



Think Like Threat

- ▶ Look for opportunities to create a loss
 - How can I disrupt this operation?
- ▶ Review near miss incidents
- ▶ Visit Facility Renovation sites and review plans
- ▶ Visit new Construction sites.
- ▶ Constantly Check surrounding infrastructures
- ▶ Read news – identify macro trends



Questions

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