

Swiss Re



Coastal Recovery Commission

October 4, 2010

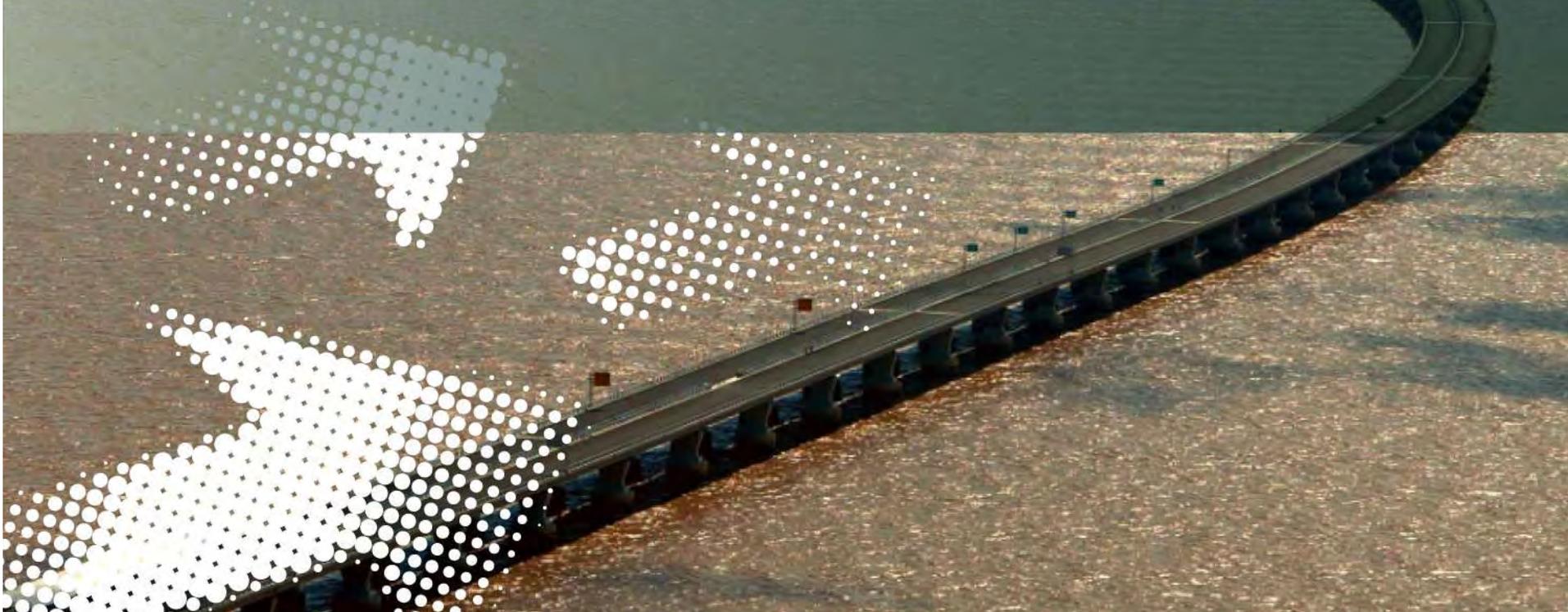


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Introduction & Objectives

Opening Thoughts

- This presentation is meant to kick-start discussion
 - Think of innovative ways to improve **coastal risk management** and improve **access to hurricane insurance**
- The presentation will aim to:
 1. Frame the challenge (globally & for Alabama)
 2. Offer some insight into insurance solutions from other countries
 3. Generate ideas on how to incentivize better risk management

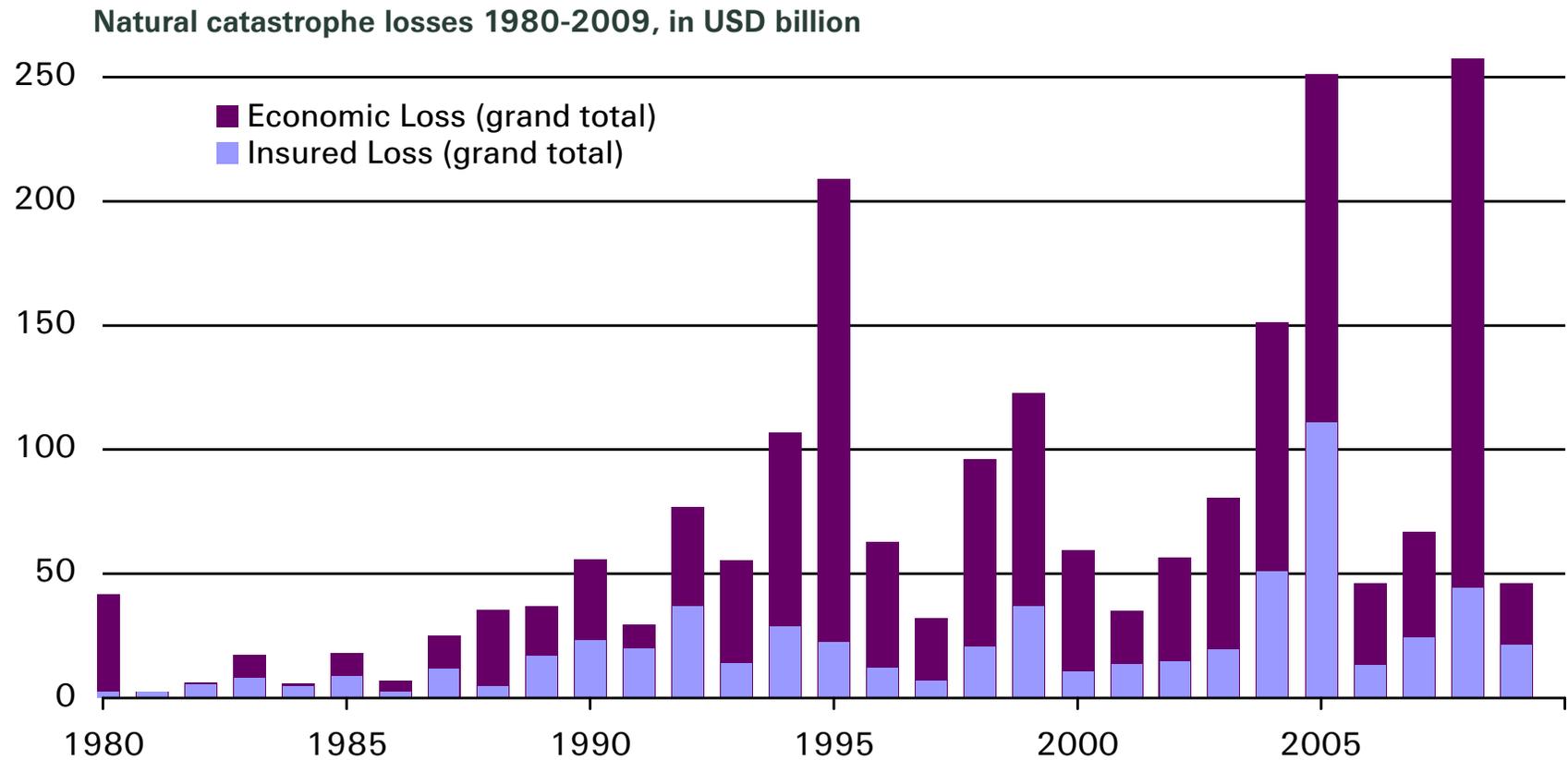
GOAL: Generate insurance and risk management solutions for coastal residents and businesses so as to create long-term economic growth



The Coastal Insurance Challenge

- What is the challenge mother nature poses before Alabama?

Massive gap between economic and insured losses

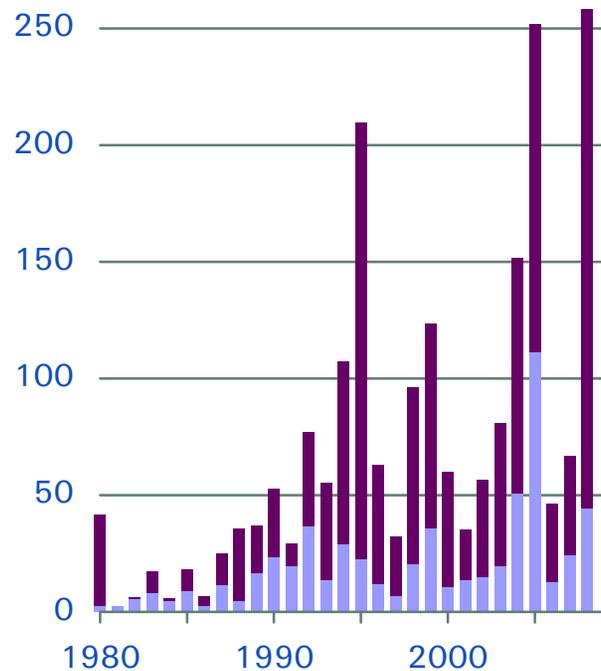


Note: Loss amounts indexed to 2009

Source: Swiss Re, sigma No 2/2010

Disasters place a significant burden on the public sector

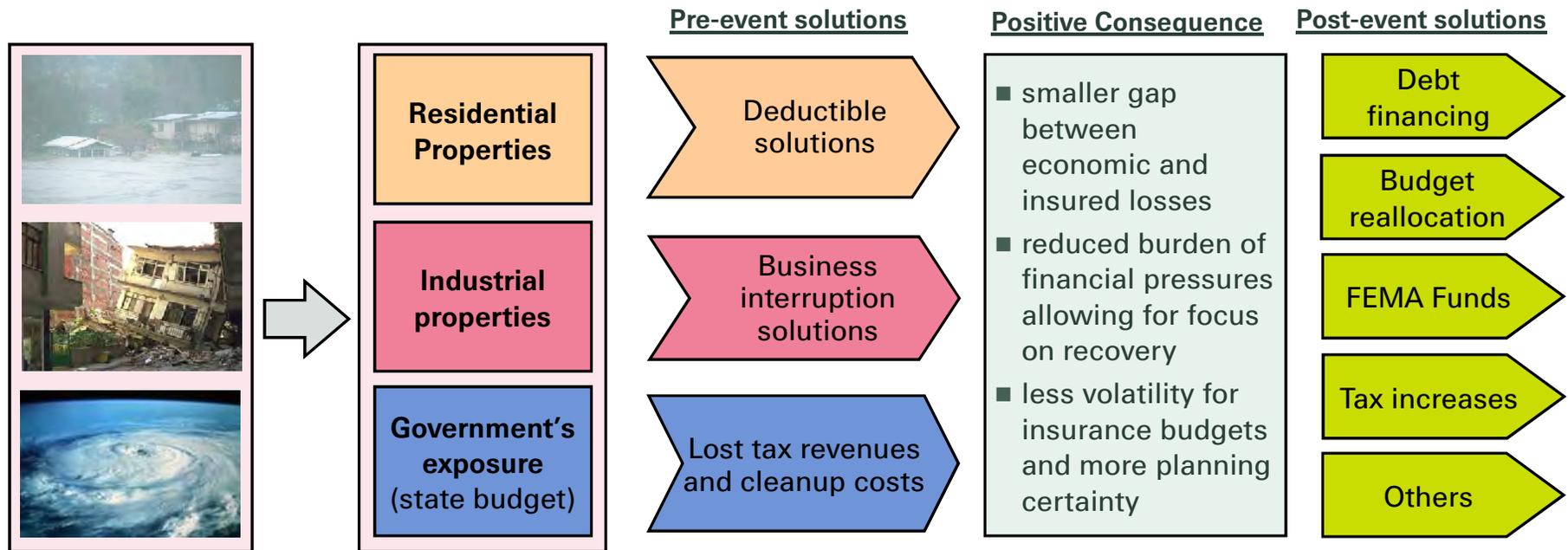
Natural catastrophe losses



- Despite prevention and mitigation efforts, we cannot fully insulate itself against extreme natural disasters
- The majority of economic losses from natural disasters ends up with individuals, corporations and governments, both on national and sub-national level
- We need to find a comprehensive way to cover the most critical "uninsured" losses that fall on coastal stakeholders:
 - Individuals: High deductibles for residential exposures
 - Commercial: Slow-paying or costly business interruption insurance
 - Government: Lost tax revenues and cleanup costs

Most importantly, we should tie availability and affordability of insurance to better risk management

Including ex-ante instruments into the overall disaster financing strategy

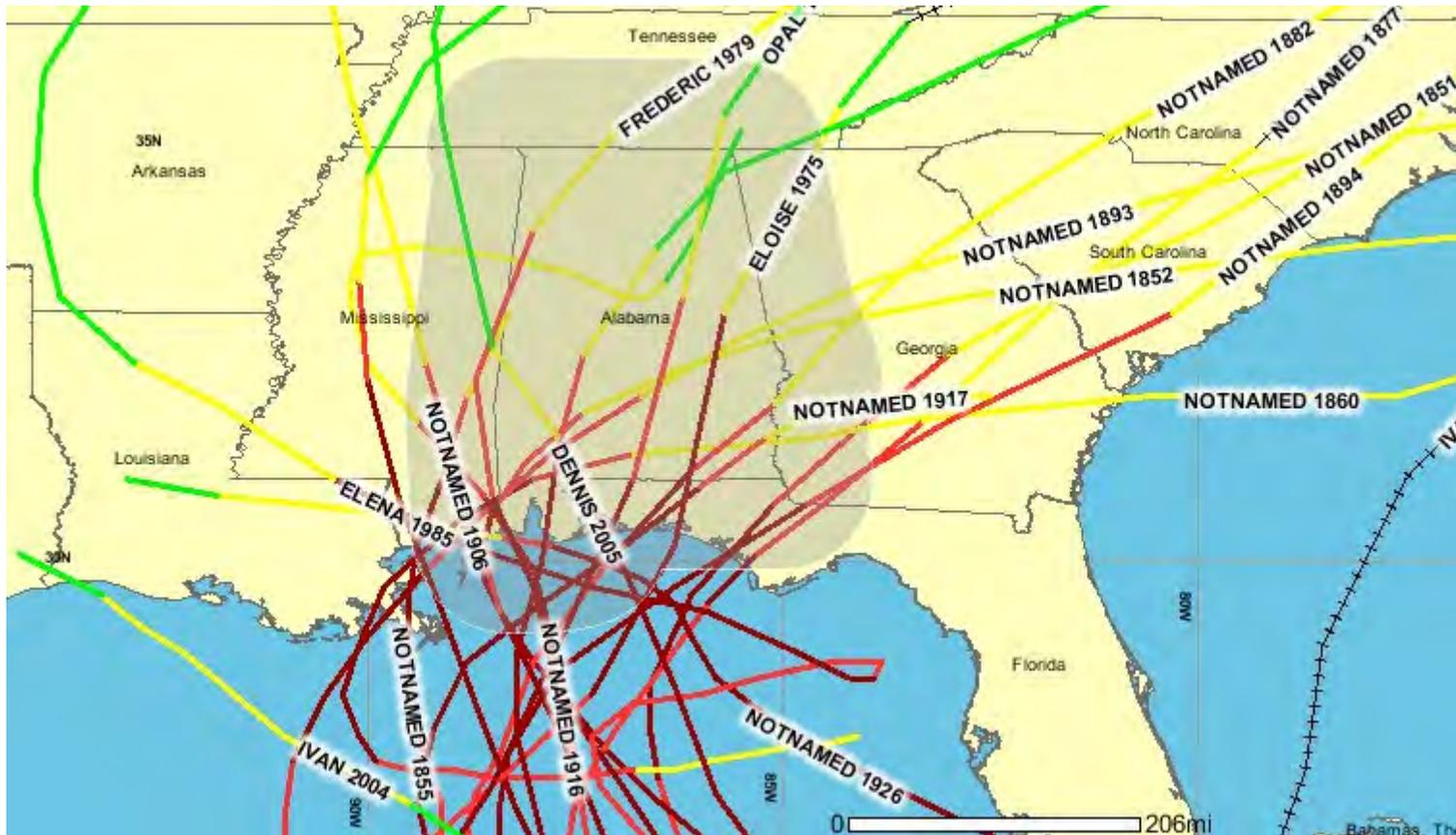


Combining pre-event solutions, enhanced risk management and post-event solutions will allow Alabama to better deal with the catastrophic events.



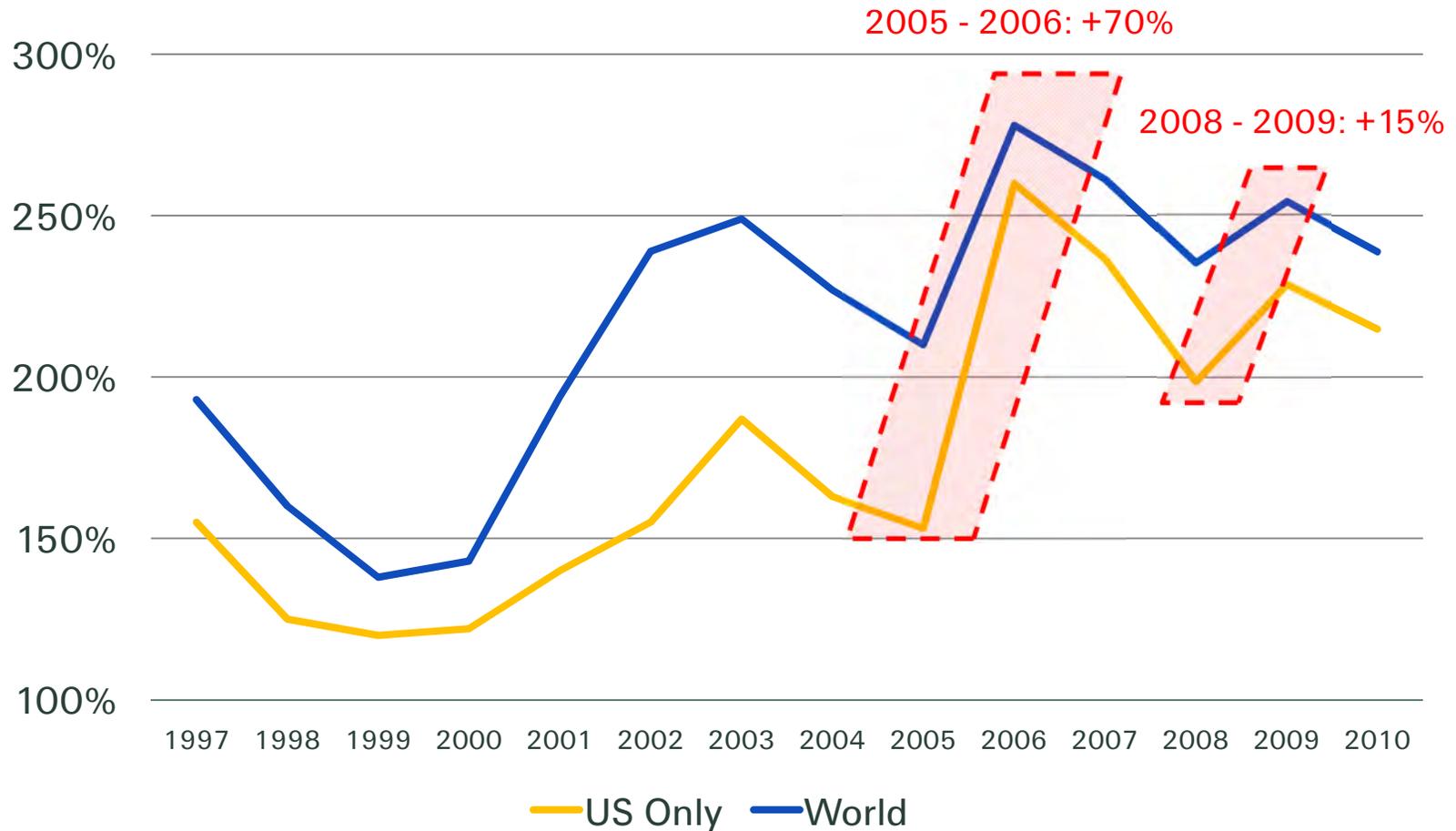
Category 3+ Hurricanes within 120 kilometers of Alabama (1851-2008)

Frequency of Category 3+ hurricanes within 120 kms: 1 every 10 years



Tracks courtesy of NOAA/CSC; Colors represent severity of event (i.e., Green = tropical cyclone; dark red = Category 4)

Post Hurricane Catastrophe Insurance Price Changes



Source: Guy Carpenter

Potential Exposure of Alabama

Return Period	Avg. Estimated Insurance Loss	Insurance Loss as % GSP ¹	Estimated Economic Loss ²	Economic Loss as % of GSP
5	50	0.0%	100	0.1%
10	715	0.4%	1,431	0.8%
15	1,691	1.0%	3,383	2.0%
20	2,591	1.5%	5,182	3.0%
25	3,369	2.0%	6,737	4.0%
30	4,064	2.4%	8,128	4.8%
35	4,705	2.8%	9,410	5.5%
40	5,308	3.1%	10,616	6.2%
45	5,883	3.5%	11,765	6.9%
50	6,433	3.8%	12,867	7.6%
100	10,743	6.3%	21,485	12.6%
250	16,480	9.7%	32,961	19.4%
500	21,296	12.5%	42,593	25.1%

1. Based on Gross State Product of USD 170 billion

2. Assuming standard ratio of Insured vs. Economic loss of 1:2



Solutions from other Countries

- What have other countries done to manage their catastrophic risk?

Public Private Partnerships

The effective reduction and financing of catastrophic risks requires a combined response by both private and public sector players

Public Sector

- Political and legal power to set framework conditions that facilitate adaptive responses by individuals, the public and the private sectors
- Typically operates under significant financial constraints. As costs of disasters rise, the ability of governments to cope with natural disasters will be stretched even further

Private Sector

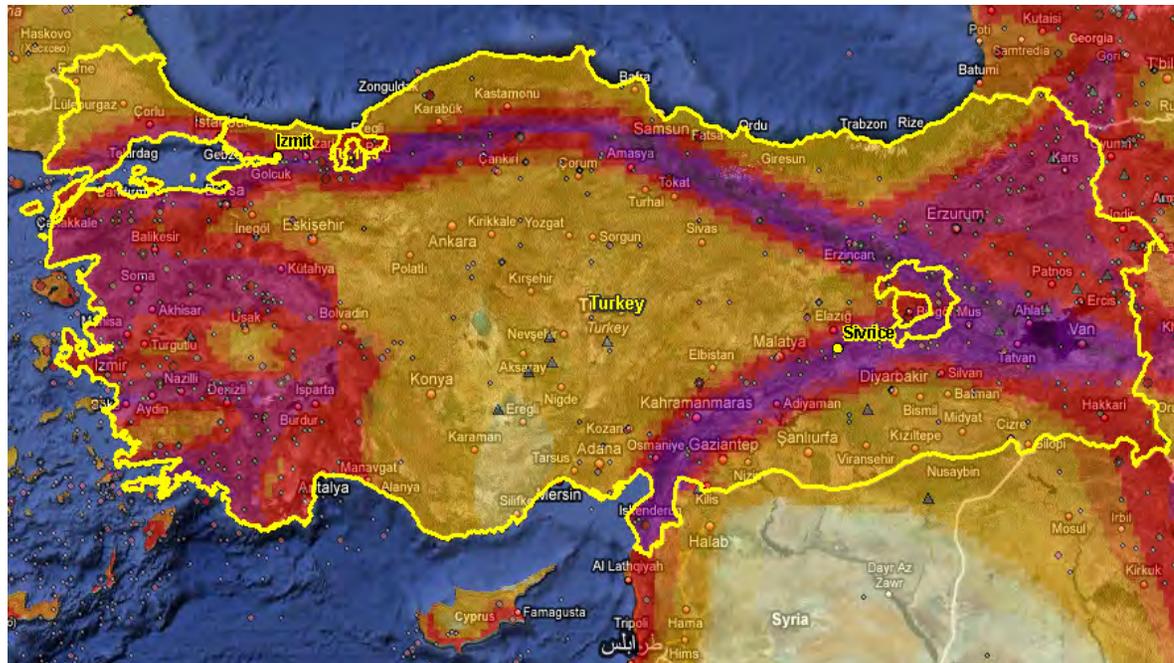
- Financial resources but lacks the power to set up the required frameworks
- Broad geographical diversification which is required to absorb these risks in a cost-efficient way
- Valuable knowledge and experience in dealing with catastrophe risk management

Role of Case Studies

- The following cases are examples from Swiss Re's global experience
 - As a leading partner for the management of catastrophic risk Swiss Re offers these cases as "food for thought"
- The goal is to generate new ideas that draw on success stories from other places with similar challenges
- Partnerships will be a key part of the success story so any solution will require help from:
 - Agents and brokers
 - Construction companies / builders
 - Insurance companies / reinsurers

Turkey

Major earthquakes since 1998



2003 Earthquake (6.4) Bingöl	
Total damage	N/A
Insured losses	N/A
Fatalities	176

2003 Earthquake (5.6) Izmit	
Total damage	N/A
Insured losses	N/A
Fatalities	170

2005 Earthquake (5.6) Bingöl	
Total damage	N/A
Insured losses	N/A
Fatalities	N/A

1998 Earthquake (7.9) Adana	
Total damage	N/A
Insured losses	N/A
Fatalities	144

1999 Earthquake (7.0) Izmit	
Total damage	USD 26 bn
Insured losses	USD 1.3 bn
Fatalities	20'000

1999 Earthquake (6.8) Düzce	
Total damage	USD 0.9 bn
Insured losses	USD 0.1 bn
Fatalities	834

Sources:
 Swiss Re geoPortal and
 Swiss Re Economic Research and
 Consulting (figures indexed to 2009)

Case study Turkey: Earthquake pool for residential dwellings

Solution features

- Insured Peril: Earthquake
- Insured assets: Private residential dwellings
- Significantly increased penetration of earthquake coverage in Turkey
- Limit of policy coverage: TLY 140 000; 2% deductible
Additional cover can be bought from private insurers.
- Inception: in 2000
- Funding: Compulsory premiums paid by homeowners

Involved parties

- Insurance supplier: TCIP/DASK, a legal public entity
- Operational manager: Eureko Sigorta
- Distributors: 30 local insurance companies and their agencies on behalf of TCIP/DASK
- Reinsurers: Swiss Re and other overseas reinsurers

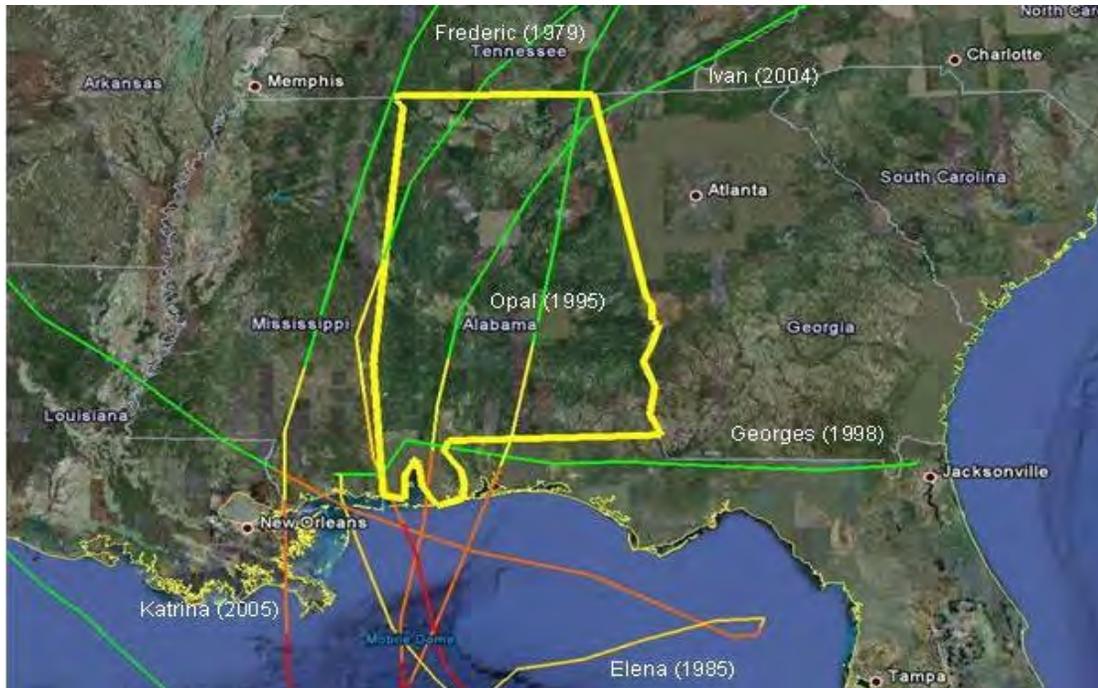
Background information

- The two major earthquake events in 1999 caused enormous economic losses and thousands of deaths
- This impact on the Turkish economy and government and the low earthquake insurance penetration forced the government to act. In 2000 it established a compulsory earthquake insurance scheme and created the Turkish Catastrophe Insurance Pool (TCIP/DASK)
- The purposes of the implemented scheme are among others (i) to limit the financial burden of an earthquake event on the government's budget, (ii) to ensure risk-sharing by residents, (iii) to promote standard building practices and (iv) to build reserves to finance future earthquake events



Alabama

Major events since 1979



1979 Hurricane Frederic	
Total damage	N/A
Insured losses	2.4 bn
Fatalities	N/A

1985 Hurricane Elena	
Total damage	N/A
Insured losses	1.3 bn
Fatalities	N/A

1995 Hurricane Opal	
Total damage	4.2 bn
Insured losses	3.5 bn
Fatalities	N/A

2005 Hurricane Katrina	
Total damage	153.8 bn
Insured losses	71.1 bn
Fatalities	1836

2004 Hurricane Ivan	
Total damage	24.9 bn
Insured losses	14.6 bn
Fatalities	124

1998 Hurricane Georges	
Total damage	9.2 bn
Insured losses	4.6 bn
Fatalities	600

Sources:
 Swiss Re geoPortal and
 Swiss Re Economic Research and
 Consulting (figures indexed to 2009)

Case study United States: Alabama – First parametric cover for a government in an industrialized country



Solution features

- Insured peril: Hurricane
- Payments to offset economic costs of hurricanes
- Parametric insurance: Transaction details not disclosed
- Trigger type: Disaster occurring within a defined geographic area ("box") along coast ("cat-in-the-box")
 - Trigger based on wind speed of hurricane eye as it passes through pre-determined box
 - Payout in as little as two weeks
- Time horizon: July 2010 – July 2013
- 1st parametric catastrophe risk transfer for a government in an industrialized country

Involved parties

- Insured: State Insurance Fund of Alabama
- Swiss Re: Lead structurer and sole underwriter

Background information

- Founded by the Alabama Legislature in 1923, The State Insurance Fund ("SIF") serves as Alabama's captive insurer for state assets
- The SIF operates like an insurance company by charging premiums based on loss exposure, issuing policies, and paying for losses.
- The SIF transfers risk to traditional markets, however, it retains a portion of its risk and is also exposed to fluctuating insurance prices, particularly after major hurricanes.
- To hedge against this price volatility and residual risk, the SIF decided to purchase a parametric insurance solution which pays if hurricane wind speed is above a fixed threshold.
- Thanks to the multi-year and parametric features, Alabama benefits from both a long-term fixed pricing as well as rapid payments after an event.



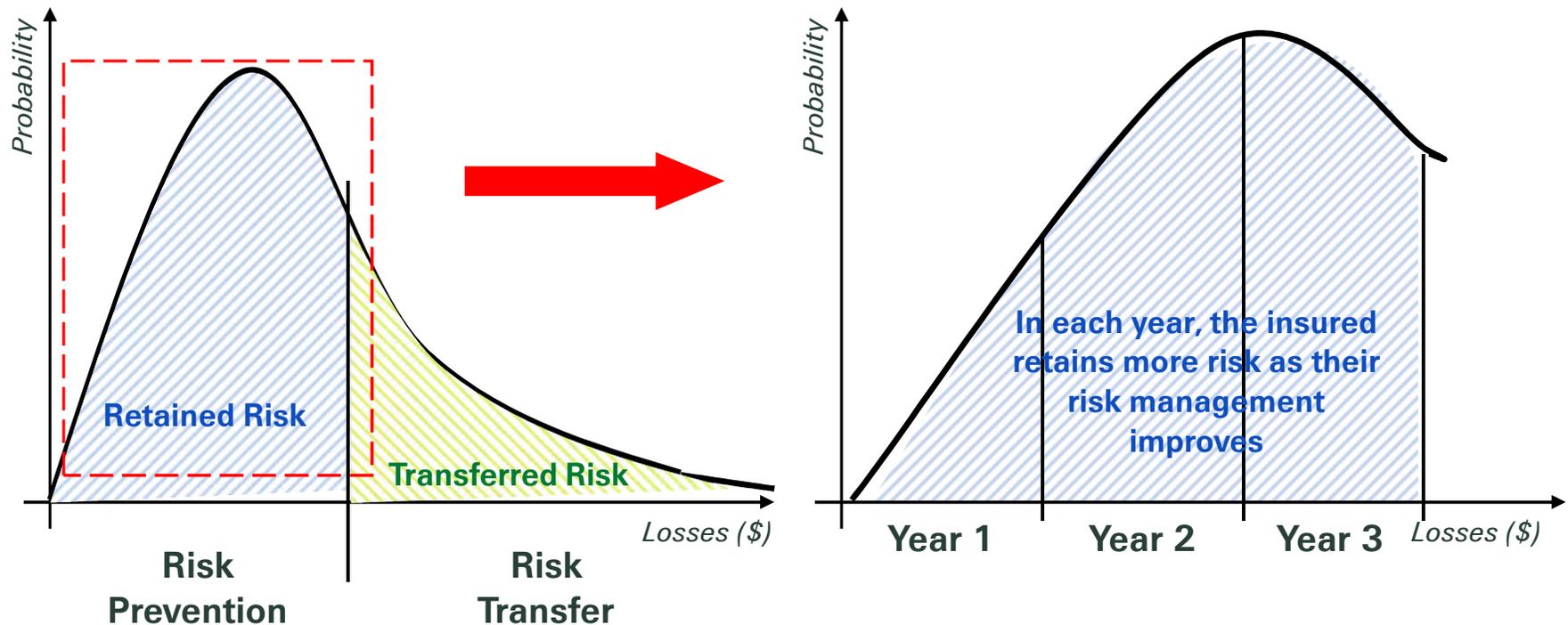
Wrapping Insurance with Risk Management

- How can we link risk prevention benchmarks to insurance prices?

Linking Risk Prevention and Risk Transfer

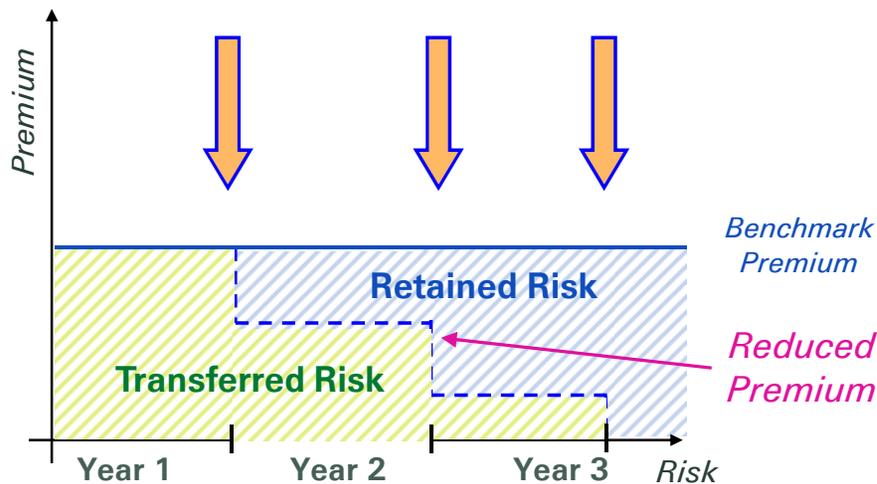
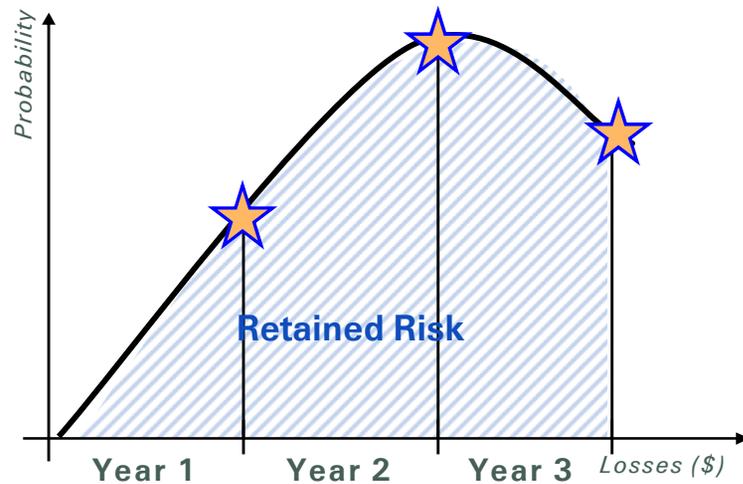
- As we are still exposed to natural disasters during the implementation phase of a prevention effort, the goal is to link prevention & insurance
 - **Risk transfer mechanisms can be used to protect the implementation phase**
- Successful implementation of mitigation or risk management solutions should be rewarded
- Concept: Use risk transfer (i.e., insurance solutions) to encourage Risk Prevention and Mitigation
 1. PROTECT during prevention implementation
 2. REWARD for prevention milestones met
 3. ENCOURAGE best practices

General Loss Curves



- Loss curves demonstrate that the most frequent losses have the lowest severity
- These losses can be avoided or reduced through disaster prevention and mitigation
- However, prevention and mitigation are not overnight processes
- Prevention and mitigation may take years to implement

Concept in Detail



- Insurance is provided at a pre-negotiated cost
- **If milestones are accomplished in subsequent years**
 - Less risk is transferred and the insurer also lowers the premium
- This rewards prevention while protecting the underlying insured
- It also replicates "best practice" (as found in complex industries)
 - Good risk management = Lower insurance premiums



State Risk Management

- How do we prevent or better prepare for the next catastrophe?

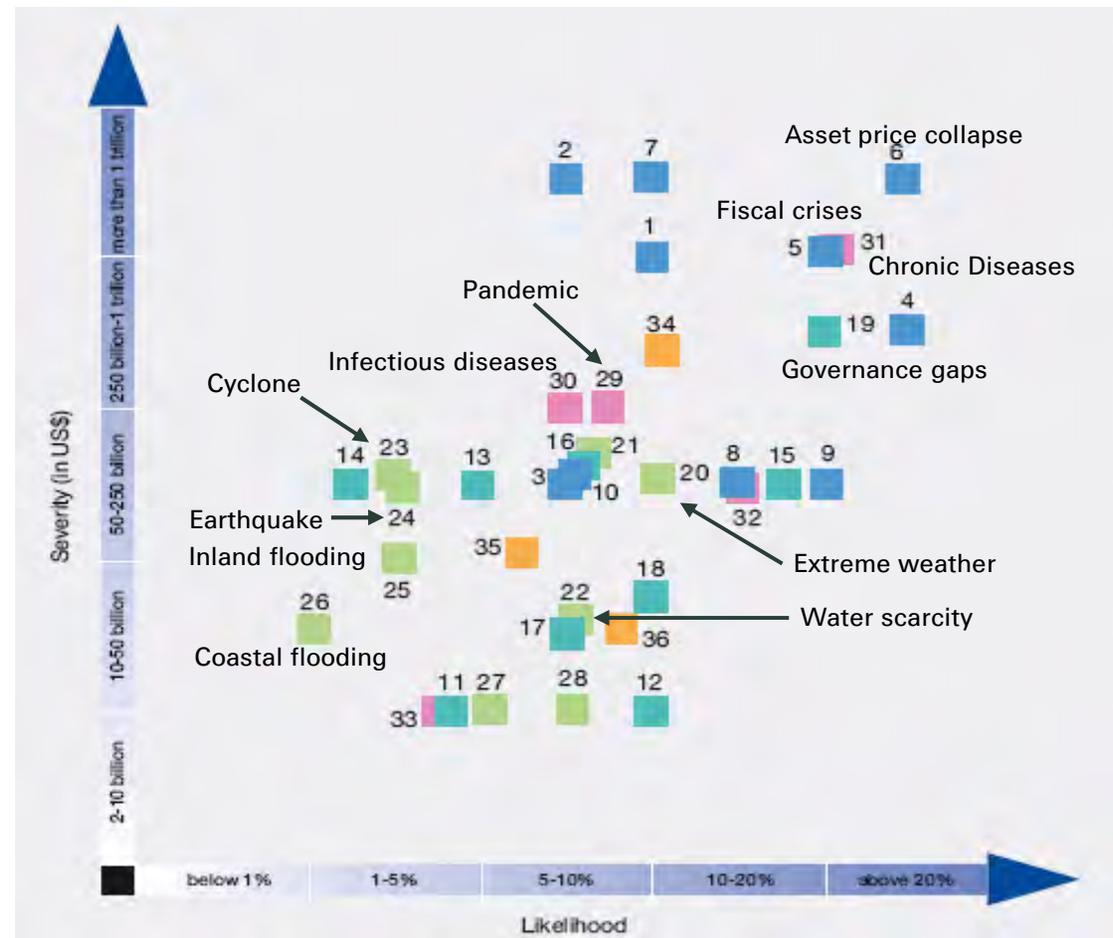
The public and the private sector are exposed to a broad variety of risks



Next 10 years

Risk categories

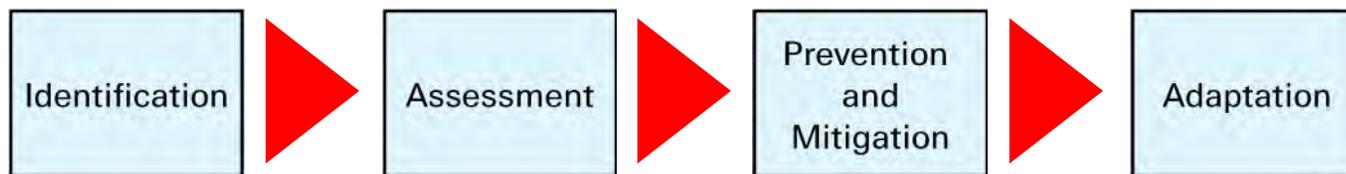
- Economic
- Geopolitical
- Technological
- Environmental
- Societal



Source: Global Risk Report 2010, World Economic Forum, January 2010

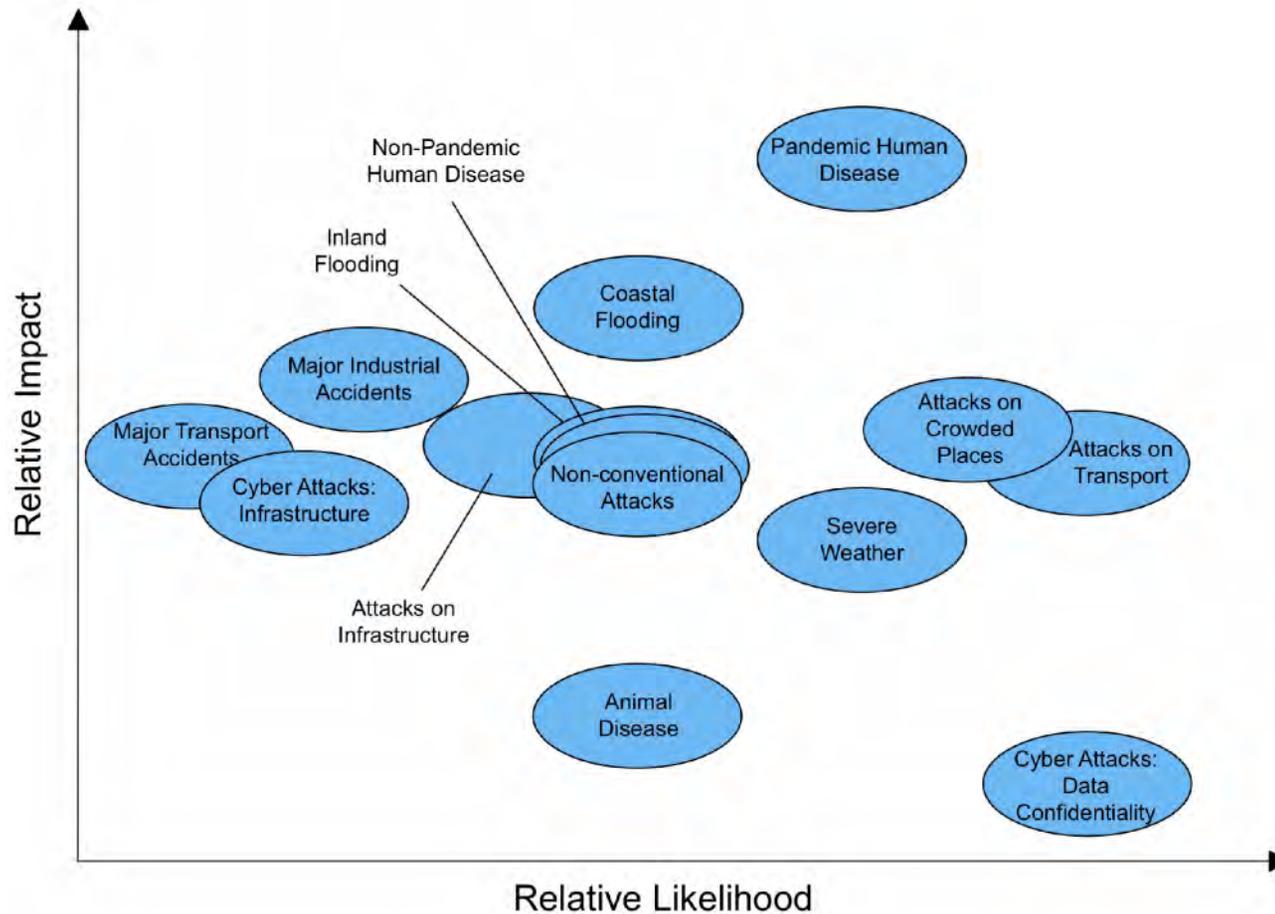
State Risk Management: Making Alabama more resilient

- All societies are becoming more vulnerable as the risks they face become more interconnected
- Integrated risk management approaches can help countries to identify and prepare for risks



- Such an all-hazard approach demands a high level of coordination across government, political and private sector bodies
- Alabama already has a Risk Manager to insure state assets
- A State Risk Officer would increase this role making it responsible for taking a holistic approach to risks before events occur and ultimately reduce the burden on the state

Example: The UK National Risk Register of Civil Emergencies



The National Risk Register is designed to increase awareness of the kinds of risks the UK faces, and encourage individuals and organizations to think about their own preparedness.

The register also includes details of what the Government and emergency services are doing to prepare for emergencies.

The National Risk Register was first published in 2008 and updated in 2010.

Source: United Kingdom Cabinet Office

A Chief Risk Officer for Alabama?

Objective

Optimal allocation of resources for systematic risk identification, assessment, mitigation and adaptation.

Tasks

- work jointly with (re)insurance industry to identify emerging risks
- establish frequency/severity risk landscape based on best scientific knowledge
- communicate risk landscape to policy makers and general public
- steer mitigation efforts towards biggest risks (either frequency or severity)
- manage a pool for mega risks which cannot be carried by (re)insurance industry alone

Benefits

- active private/public partnership including knowledge exchange
- much more risk knowledge at policy maker level and general public on key risks
- more rational mitigation strategies and usage of public funds
- less human, physical and economic damage
- higher economic growth since uncertainties about mega risks removed (eg terrorism)

Examples of innovations in country risk management

Canada



- Public Safety Canada
- Emergency Mgmt Framework

Japan



- Cabinet Office
- Basic Disaster Mgmt Plan

Netherlands



- Ministry of Interior and Kingdom Relations
- N'tl Safety & Security Strategy

United States



- Department of Homeland Security
- National Response Framework

Singapore



- Ministry of Finance, Strategic Planning Office, and others
- Whole of Government Integrated Risk Management
- Risk assessment & horizon scanning (national scenarios)

United Kingdom



- Civil Contingencies Secretariat (Cabinet Office)
- Civil Contingencies Act
- National Risk Assessments

Swiss Re



Thank you



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