

Climate Change and Extreme Weather Energy & Infrastructure Vulnerabilities

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What Stakeholders Told Us about Risk...



Economic	Geopolitical	Environmental	Societal	Technological
Asset price collapse	Corruption	Air pollution	Chronic diseases	CII breakdown
Extreme commodity price volatility	Fragile states	Biodiversity loss	Infectious diseases	Data / information security
Extreme consumer price volatility	Geopolitical conflict	Climate change	Economic disparity	Threats from new technologies
Extreme energy price volatility	Global governance failures	Earthquakes and volcanic eruptions	Food security	
Fiscal crises	Illicit trade	Flooding	Migration	
Global imbalances / currency volatility	Organized crime	Ocean governance	Water security	
Infrastructure fragility	Space security	Storms and cyclones	Demographic challenges	
Liquidity / credit crunch	Terrorism			
Regulatory failures	WMD			
Retrenchment from globalization				
China hard landing				

- High risk
- Medium risk
- Low risk

Stakeholders View Barriers to Security



- It is all about RISK ...

“We cannot accept any more risk in our business model...”

“We cannot accept political uncertainty ...”

“The new RISK must be borne by someone else ...”

But ...

- No common definition of **RISK**
 - risk of performance failure / under-delivery
 - too much rain / too little rain
 - too much wind / not enough wind
 - too much sun / not enough sun ...
 - insufficient trained human capacity, etc.

Insurance Industry Perspective Climate Change Risk Potential Coverages

Property Risks (commercial and personal lines)

- damage to structure
- damage to land
- infrastructure damage
- displacement
- etc.



Non-Traditional Risks (commercial)

- Natural resource damages
- Business interruption
- Trespass
- Loss of income
- Cultural resource damages
- Pollution
- Supply chain interruptions
- Reputational damage



Insurance Industry Perspective

Why Time is of the Essence...



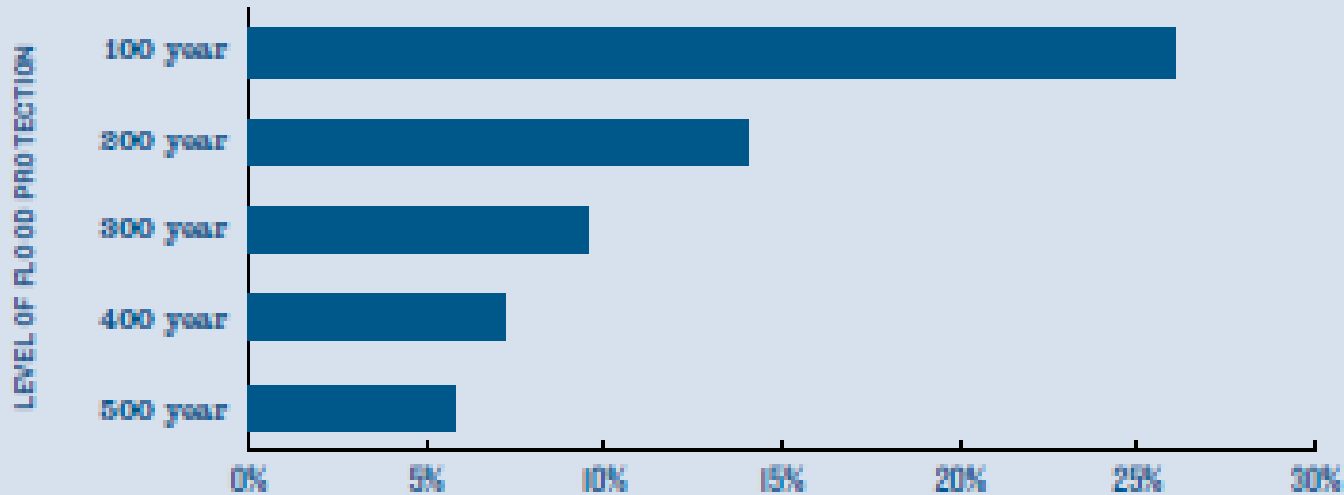
TABLE B ★ Estimated 5-Year Investment Needs in Billions of Dollars

CATEGORY	5-YEAR NEED (BILLIONS)	ESTIMATED ACTUAL SPENDING *	AMERICAN RECOVERY AND REINVESTMENT ACT (P.L. III-005)	FIVE-YEAR INVESTMENT SHORTFALL
Aviation	87	45	1.3	(40.7)
Dams	12.5	5	0.05	(7.45)
Drinking Water and Wastewater	255	140	6.4	(108.6)
Energy	75	34.5	11	(29.5)
Hazardous Waste and Solid Waste	77	32.5	1.1	(43.4)
Inland Waterways	50	25	4.475	(20.5)
Levees	50	1.13	0	(1.13)
Public Parks and Recreation	85	36	0.835	(48.17)
Rail	63	42	9.3	(11.7)
Roads and Bridges Discretionary grants for surface transportation	930	351.5	27.5 1.5	(549.5)
Schools	160	125	0**	(35)
Transit	265	66.5	8.4	(190.1)
	2.122 trillion***	903 billion	71.76 billion	(1.176 trillion)
Total Need****	\$2.2 trillion			

Why it is so important to get the predictions and investments right ...



FIGURE 4.1 ★ Likelihood of Levee Failure/Flooding Over a 30-Year Residential Mortgage



SOURCE National Committee on Levee Safety

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Insurance Industry Perspective Adaptation Tools



- Incorporate adaptation into their existing frameworks for regulating land use and development in their communities.
- Combine regulatory tools and market-based incentives to create politically palatable strategies.
- Reevaluate where to spend public funds and where to invest in public infrastructure.



Questions?

