Loss and damage from weather variability

The role of risk sharing and transfer

Joanne Linnerooth-Bayer
IIASA

Climate variability and climate change

Climate variability

Interactions between climate variability and climate change

Climate change

Outline

- Background on L&D from climate events (SREX)
- Questions expressed in submissions
- Risk transfer as part of L&D
- Risk transfer examples
  - Sovereign insurance
  - Insurance for low-income communities
  - Potential role of regional risk management facilities
  - Next steps

L & D from climate events

Estimates of annual losses (direct) have ranged since 1980 from a few US$ billion to above 200 billion (in 2010 dollars).

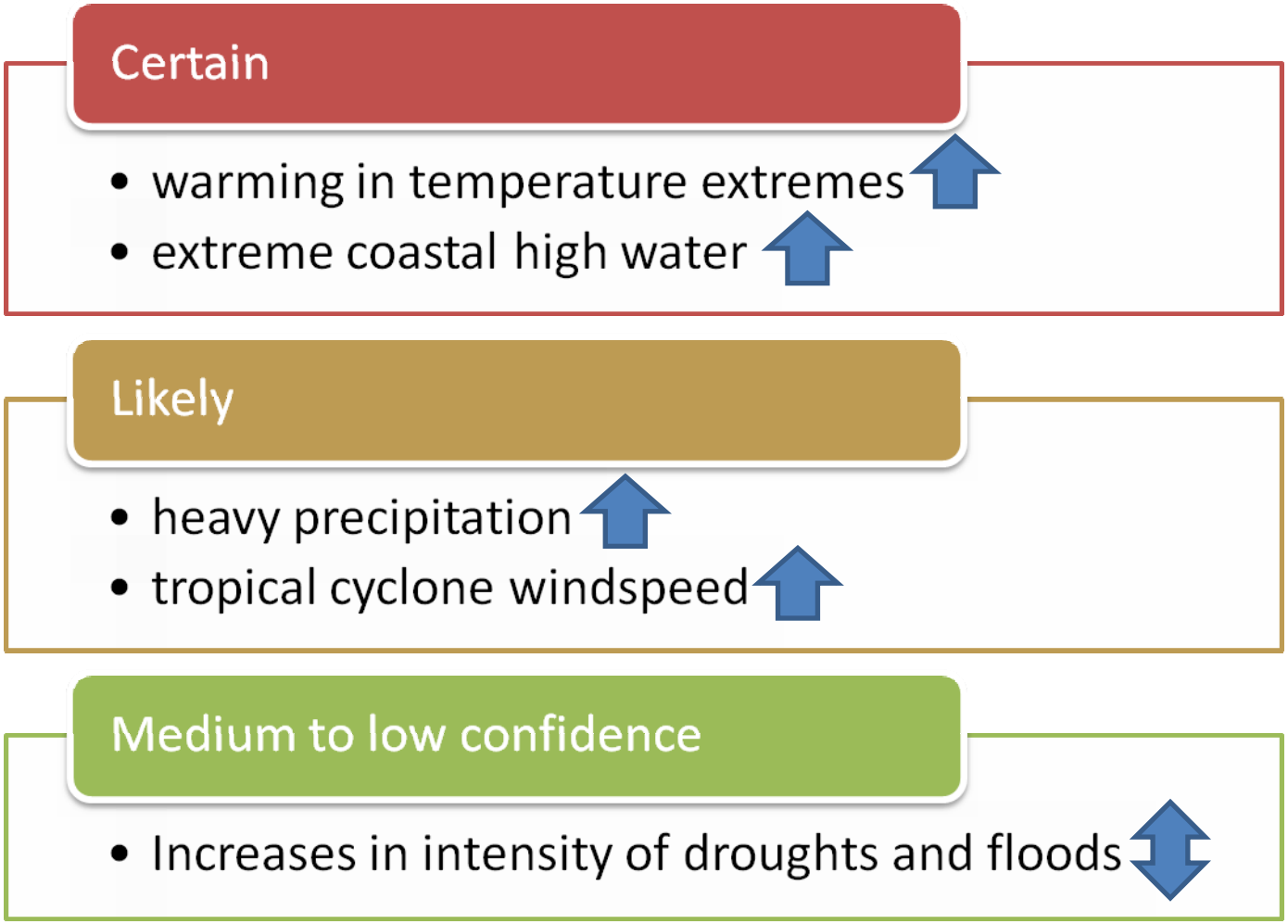
Does not account for:

- indirect economic losses
- cultural heritage
- ecosystem services
- human lives

IPCC SREX report 2012

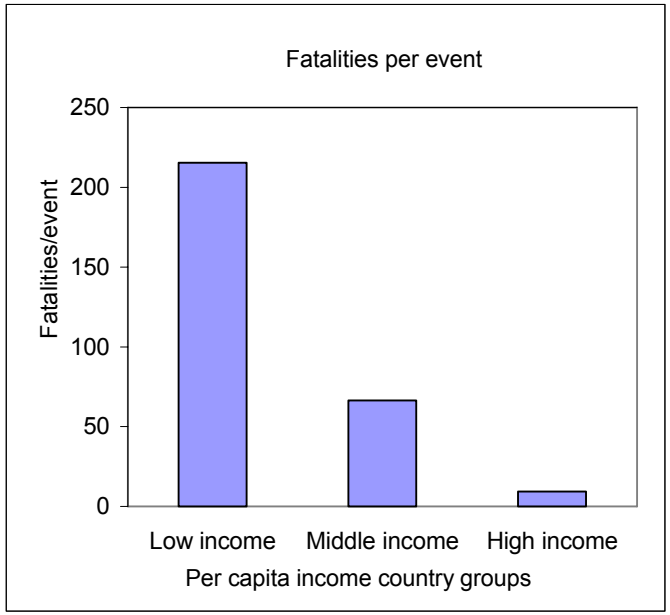
Projected changes in climate events

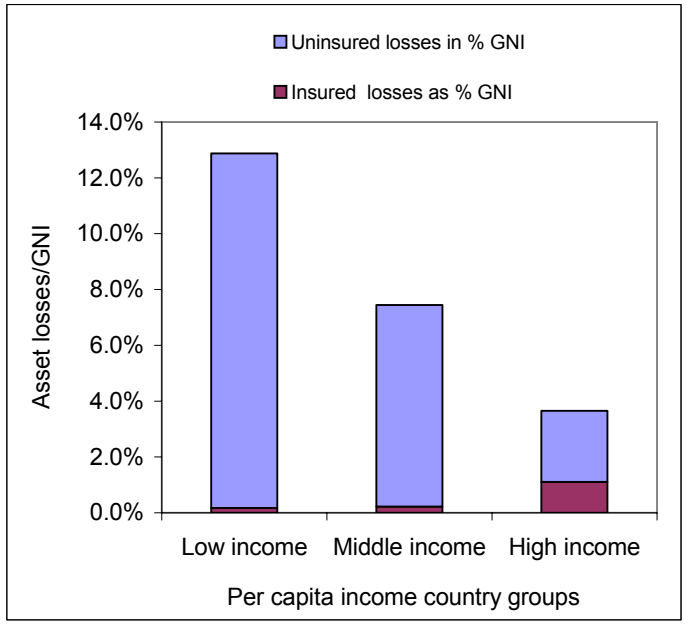
(Different emissions scenarios make little difference)



Srex 2012

Disaster losses across low, middle and high income countries





IIASA based on Munich Re data

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  - Low-income communities
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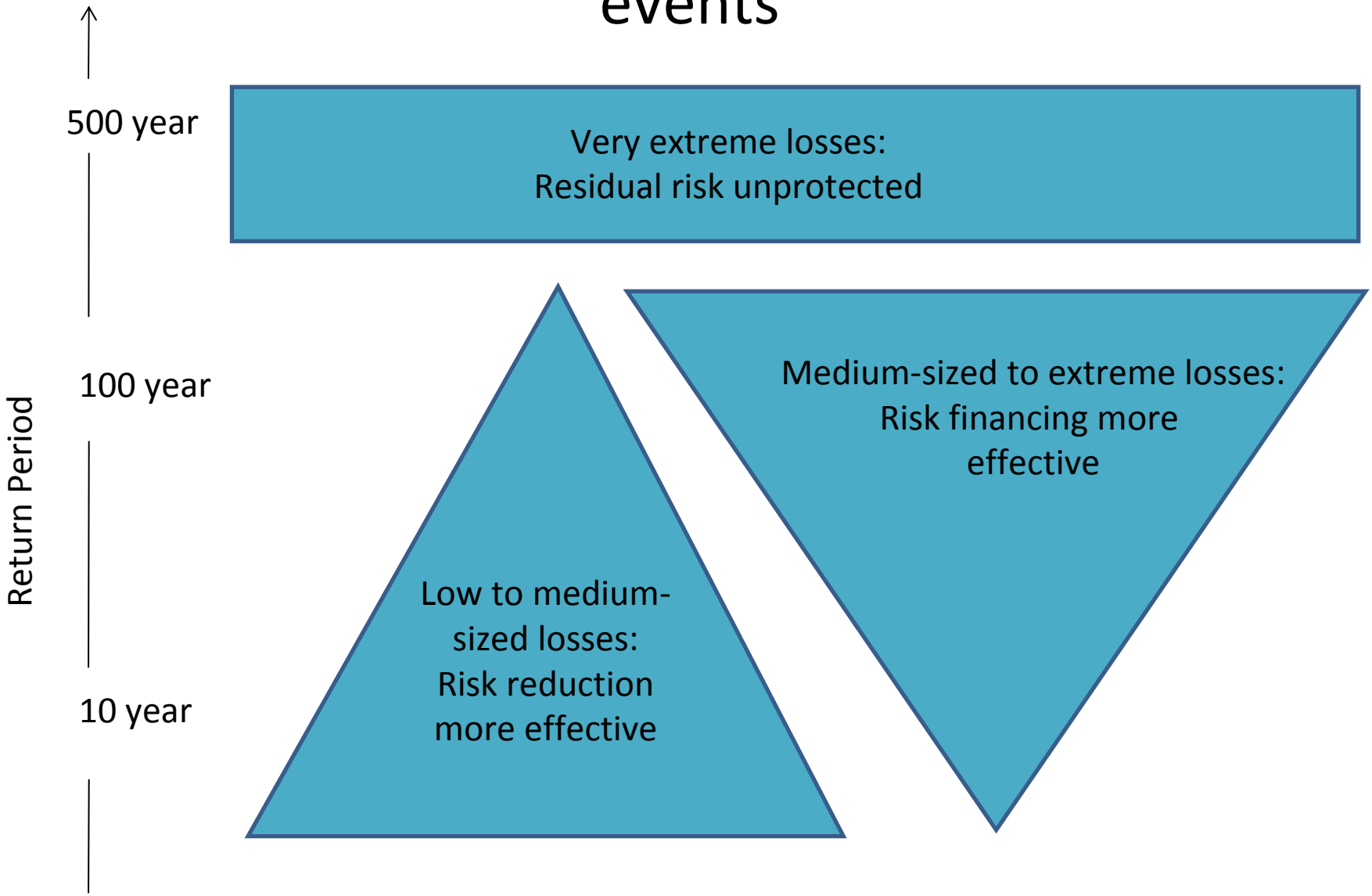
Concerns expressed in submissions

- Do not need a “one size fits all” global facility;
- Lack of sufficient data in vulnerable countries;
- Risk transfer (insurance) only a tool since it does not eliminate losses but only pools them;
- Limited role of insurance in loss prevention;
- Insurance puts burden on poor governments and individuals who pay premiums

Framing (re?) the L&D concept for climate events



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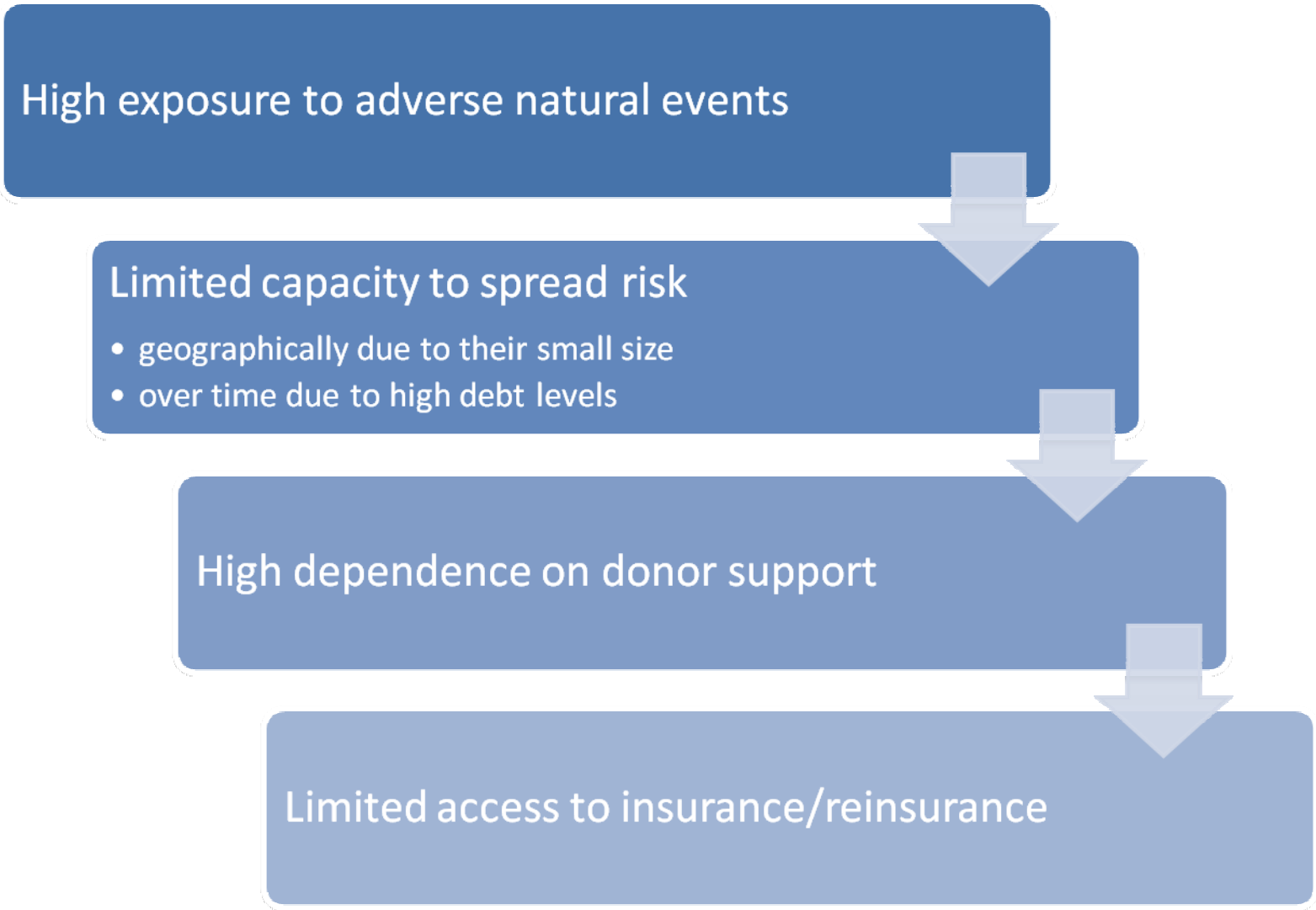
Why countries may need a regional pool?



Mexican Government Risk Transfer

Insurance

Catastrophe bond

- Successfully placed in the market in 2006/2010
- Index based: linked to physical trigger
- Total of 160 million USD protection

But, costs prohibitively high for most vulnerable countries

HARITA microinsurance in Ethiopia

- Scaled up from 200 (2009) to 13,000 (2011)
- Innovatively combines micro-insurance with DRR
- First payout 2011
- Strongly subsidized

Oxfam, Swiss Re, IRI, Rockefellar Foundation

Risk transfer as an instrument for poverty reduction and resilience

Eliminates catastrophic loss to livelihoods and assets

Enables risk taking and productive investment

Incentives for risk reduction (also disincentives, moral hazard)

These benefits come at a cost!

- Insurance is not advisable when agents have reliable lower cost alternatives for financing disaster reconstruction

Regional climate risk management facilities

- Risk reduction
- Risk financing
  - Pooling risks
  - Solidarity
  - Risk assessment
  - Technical assistance
  - Supporting informal insurance
  - Developing links to risk reduction

Public-private pooling arrangements

National programs

Public — **Private**

National reserve fund, eg Fonden

Turkish Cat Insurance Pool

Commercial insurance

Regional programs

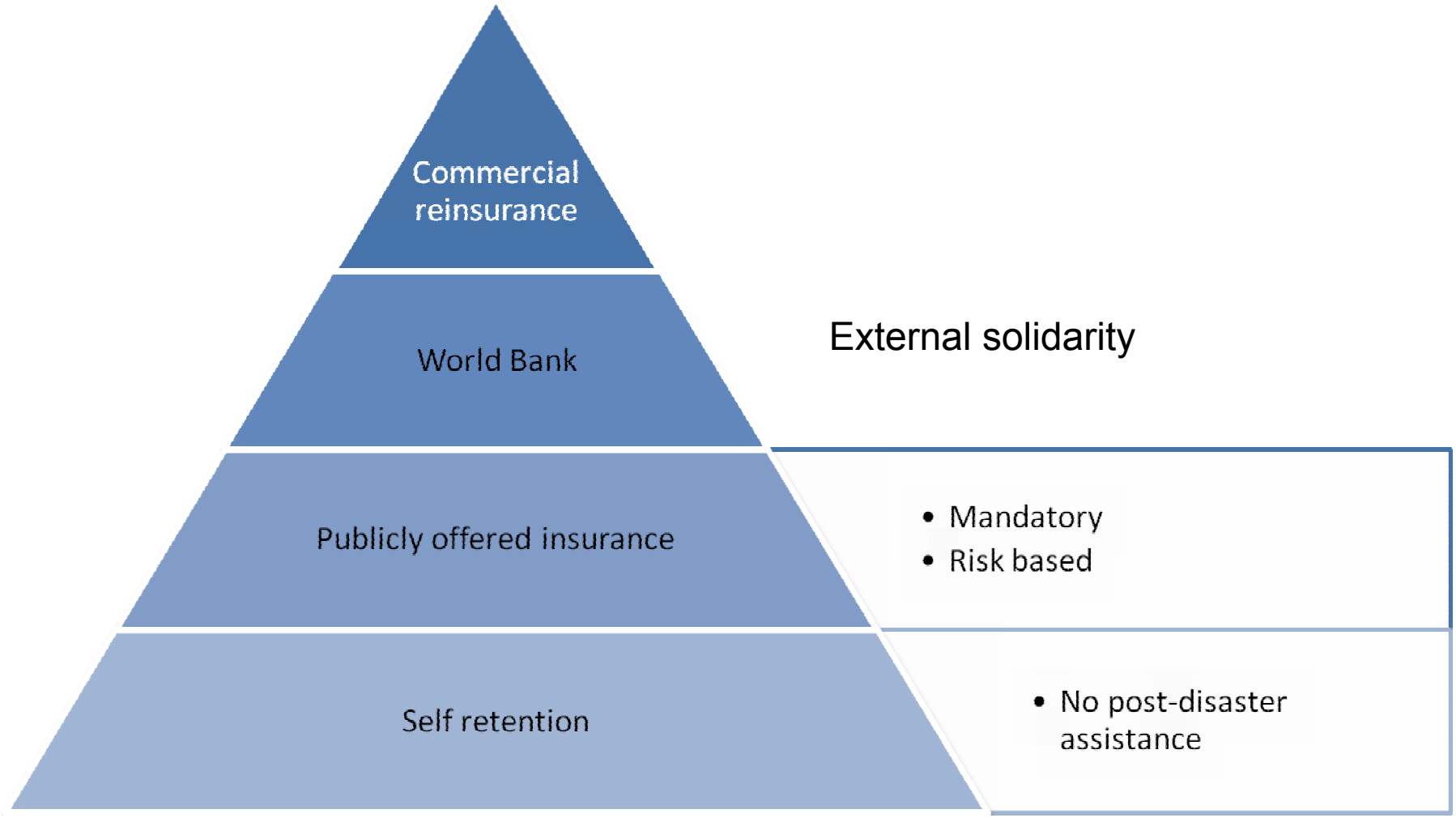
EU Solidarity Fund

Central European Catastrophe Risk Insurance Facility

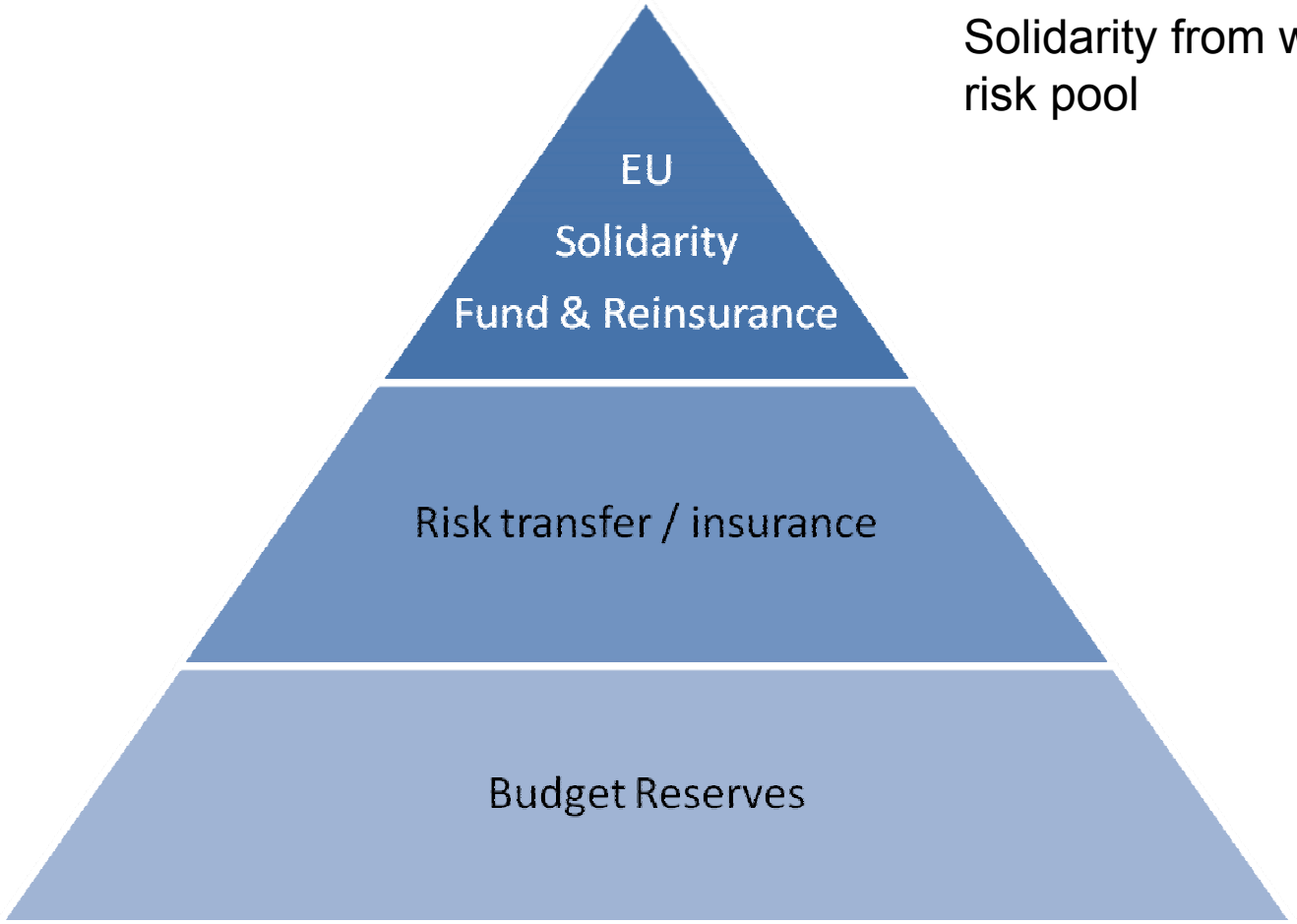
Caribbean Catastrophe Risk Insurance Facility

Commercial sovereign insurance

Turkey Catastrophe Insurance Pool



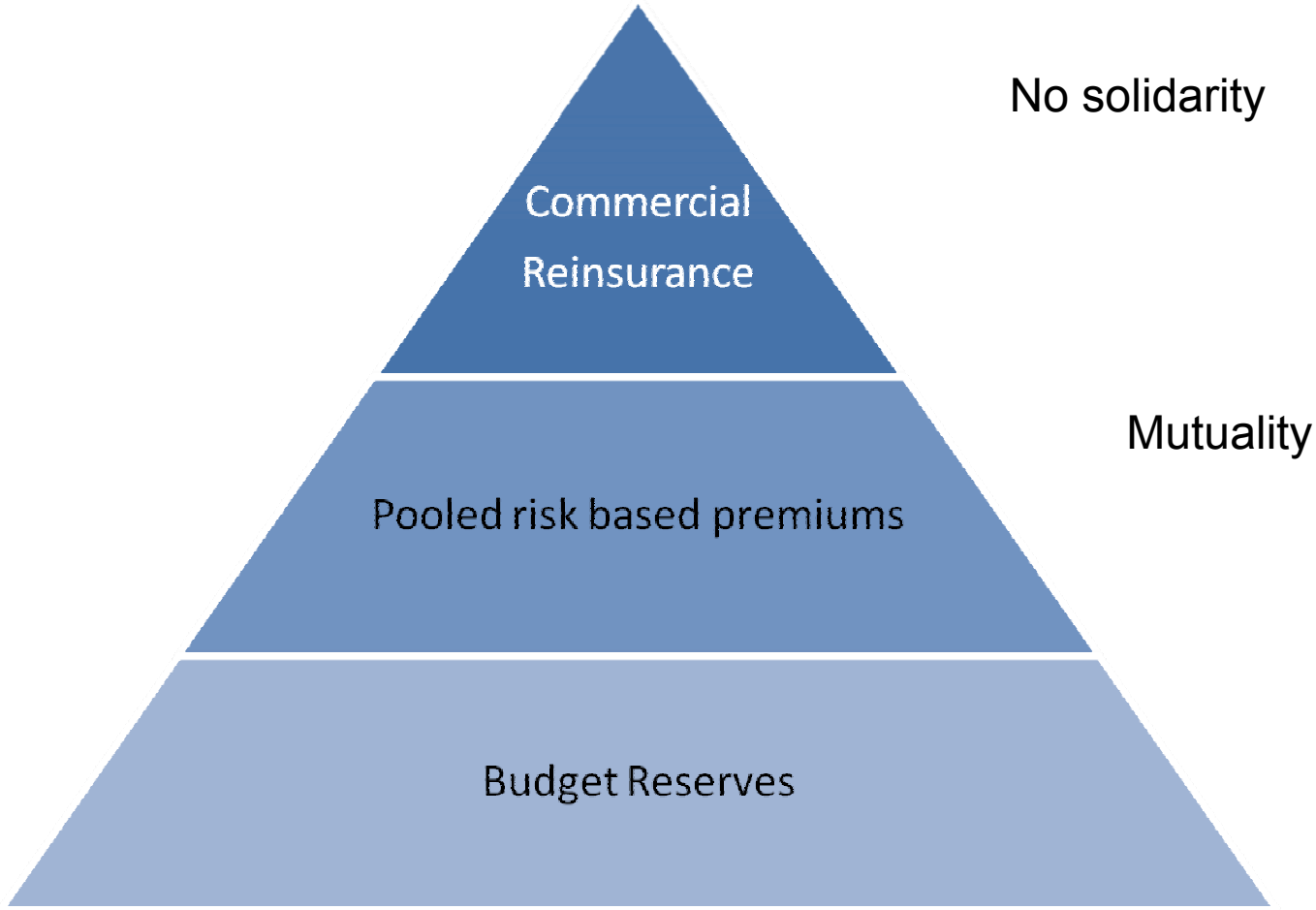
Southeast Europe catastrophe risk program



Solidarity from within risk pool

World Bank, 2011

Caribbean Catastrophe Risk Insurance Facility



World Bank, 2011

Design of a regional pool

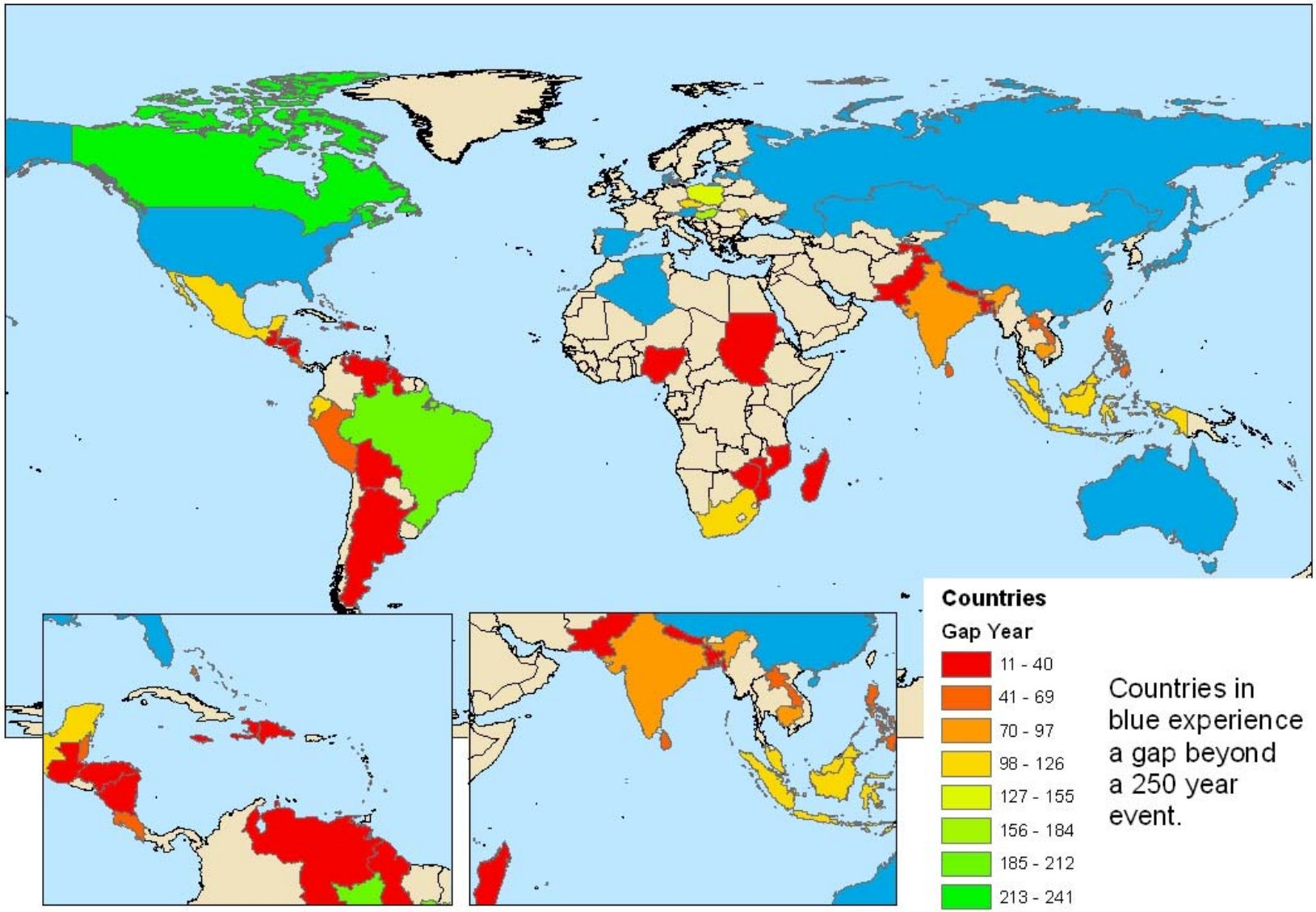
Solidarity from

–pool of vulnerable countries (E European)

–mutuality but little solidarity (Caribbean)

–developed countries (Turkey)?

Resource Gap Estimation



IIASA 2008

Suggested next steps

- Document experience with risk financing for most vulnerable;
- Assess experience with regional risk pools
  - Reducing risk premiums
  - Incentivizing risk reduction
  - Exchanging experience
  - Technical assistance

Climate variability and climate change

Climate variability	Interactions between climate variability and climate change	Climate change
		

Insurance in the wider spectrum of L&D

- Risk assessment enables risk management priority setting
- Can provide a transition to new climate states (e.g. creating certainty within which decision makers can operate)

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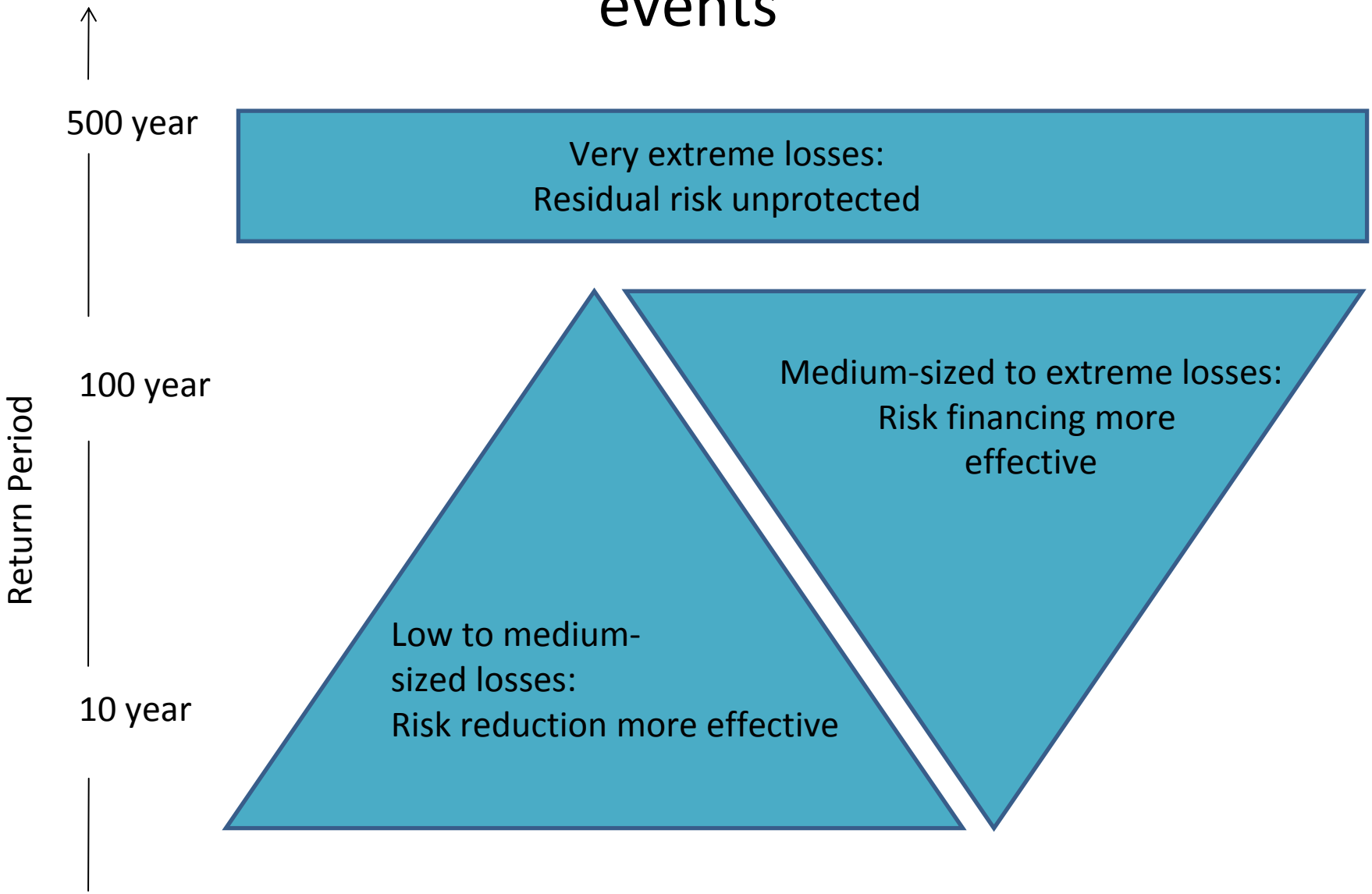
Examples of pre- and post-distaster loss and risk financing arrangements

	Mechanism	Households/business: Loss of assets and business interruption	Farmers: Loss of crops and livestock	Governments: Relief and reconstruction expenditure
Post -disaster (ex post) loss financing	Market and non-market	Sale of productive assets, emergency loans; public assistance	Sale of productive assets, emergency loans; public assistance	Taxes, diversions, loans from international financial instituti ons, aid
Pre-disaster (ex ante) arrangements	Non-market	Kinship and voluntary mutual arrangements, calamity funds	Kinship and voluntary, mutual arrangements storage, mutual funds	Reserve funds
	Risk financing: Risk pooling and sharing	**Insurance, catastrophe bonds, weather derivatives**	**Insurance, weather derivatives**	**Insurance, catastrophe bonds**

Framing (re?) the L&D concept for climate events



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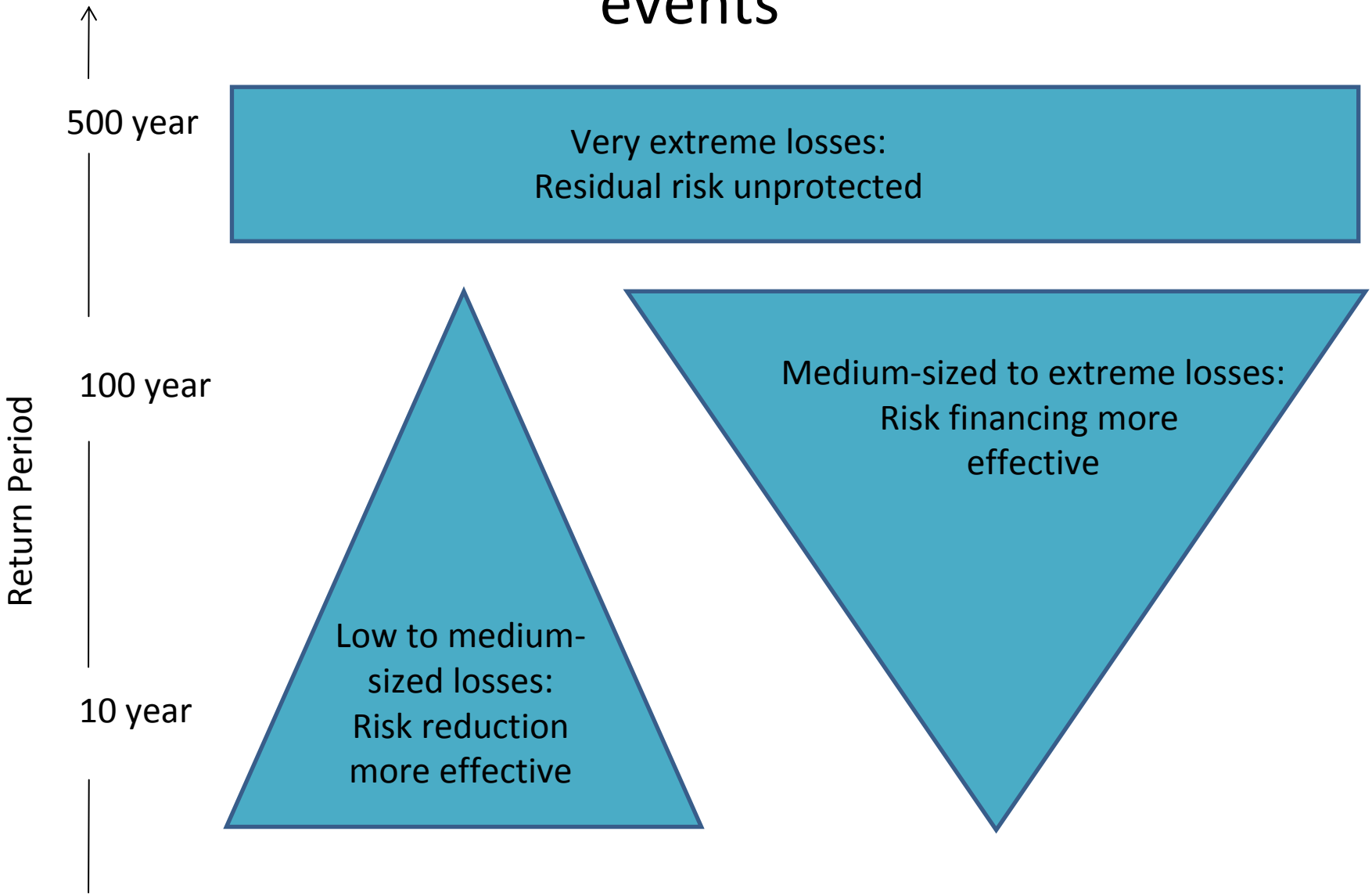


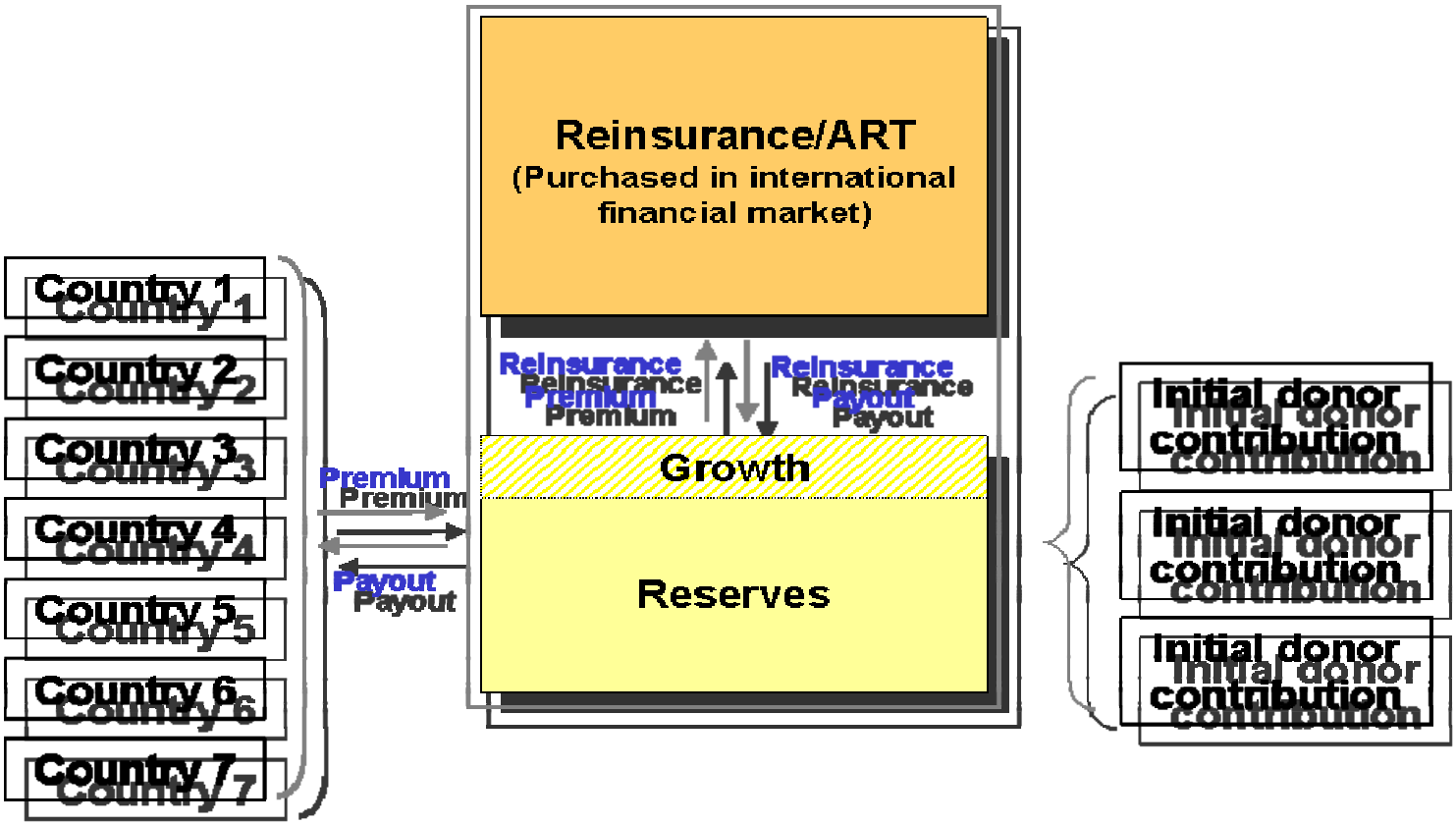
How much of these losses can be attributed to climate change?

L & D = hazard, exposure, vulnerability

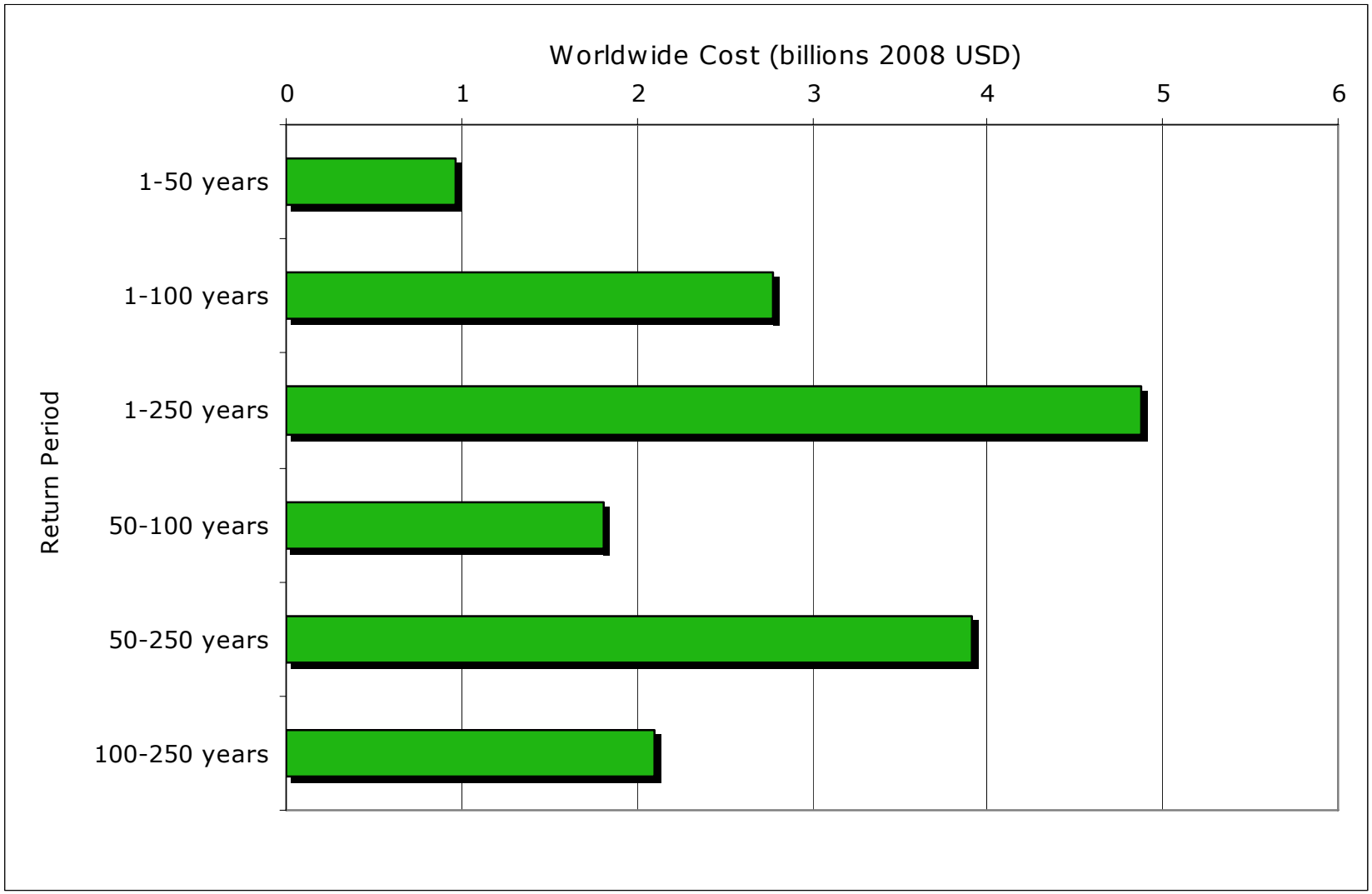
Increasing exposure of people and economic assets has been the major cause of long-term increases in economic losses from weather- and climate-related disasters (*high confidence). Long-term trends in economic* disaster losses adjusted for wealth and population increases have not been attributed to climate change, but a role for climate change has not been excluded (*high agreement, medium evidence).*

(IPCC SREX)

Caribbean Catastrophe Risk Insurance Facility



How much would it cost to absorb different layers of risk?



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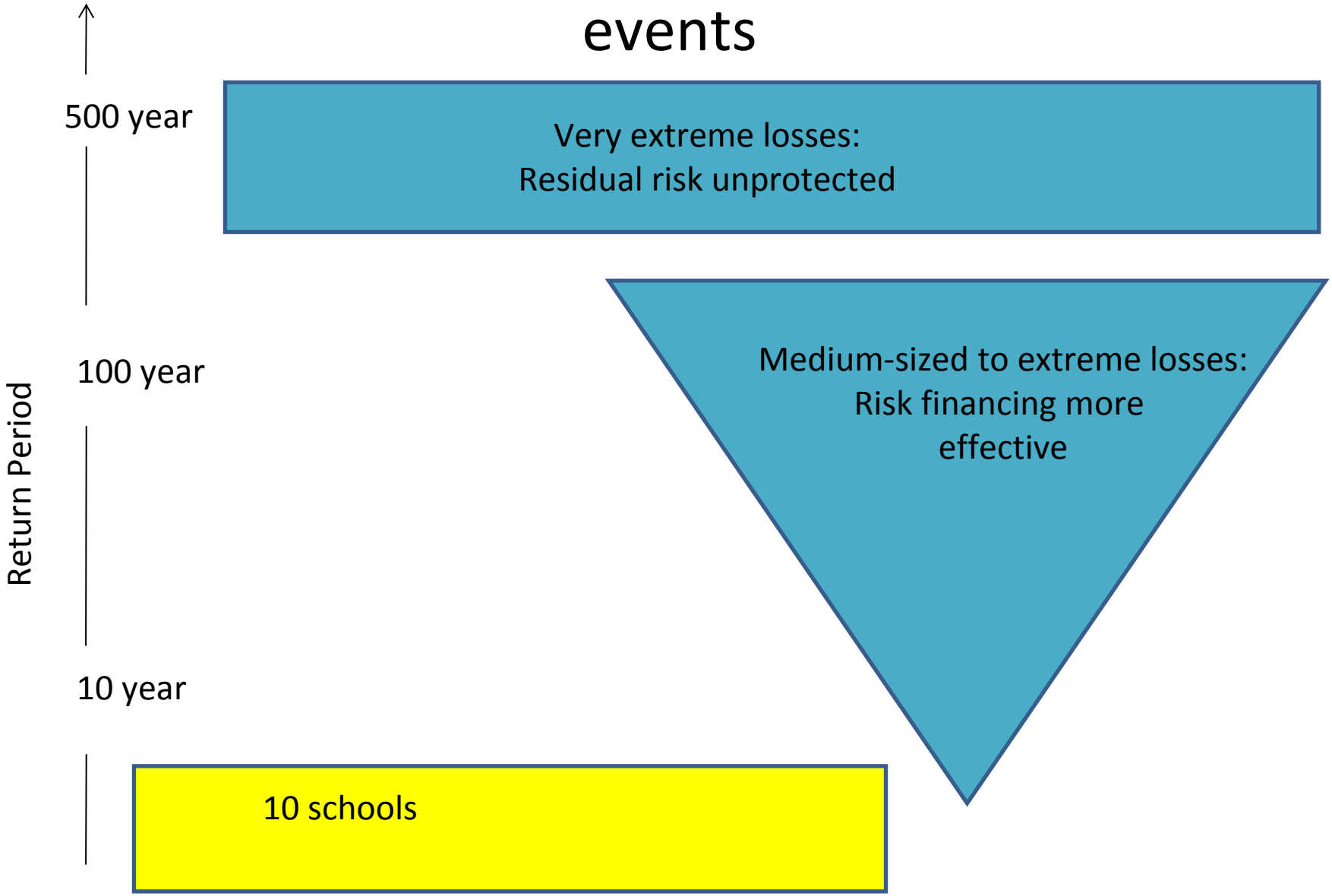
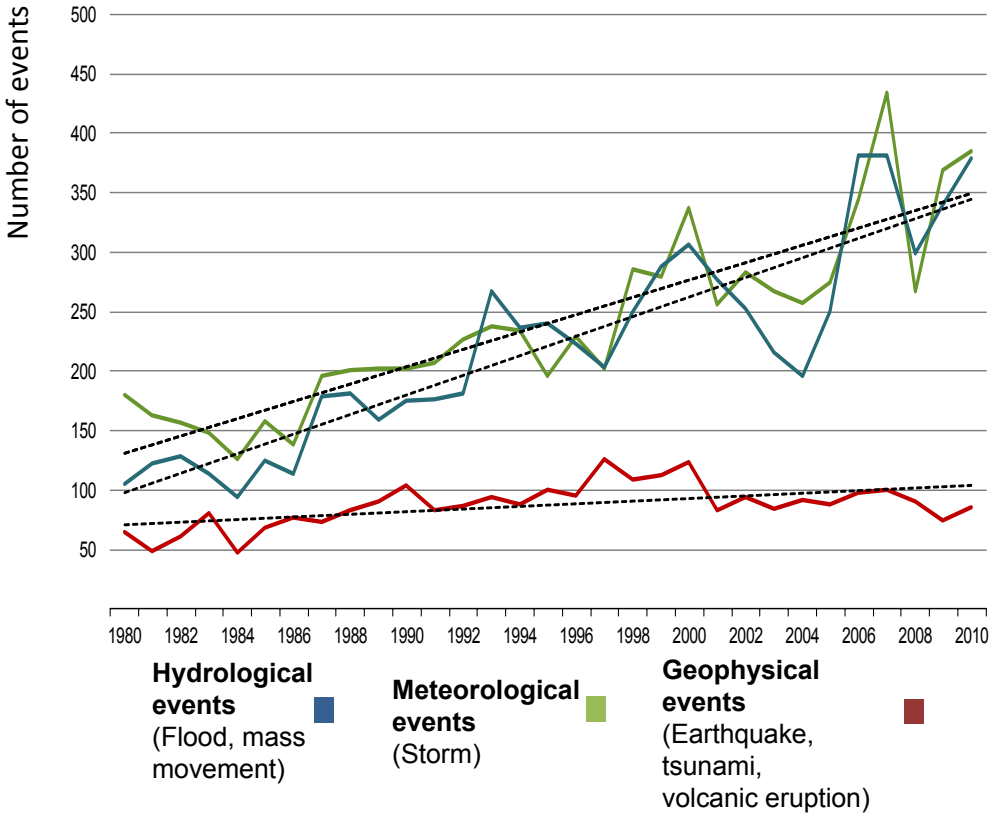


From weather-risk management to issues that go beyond adaptation

Natural catastrophes worldwide, 1980 – 2010, events by peril with trend



Limits to adaptation? How fundamental must adjustments be to address loss and damage which may be difficult or impossible to restitute.

Slide 33

w3 Header could be reworded, this slide could be hidden because most delegates already know this material...but leave in the printed version
warner, 4/6/2011

L & D from climate events

Estimates of annual losses (direct) have ranged since 1980 from a few US$ billion to above 200 billion (in 2010 dollars).

Does not account for:

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2010

- 295,000 fatalities; $150 bn losses; $38 (108 in 2011) bn insured; approx 80% in developed countries

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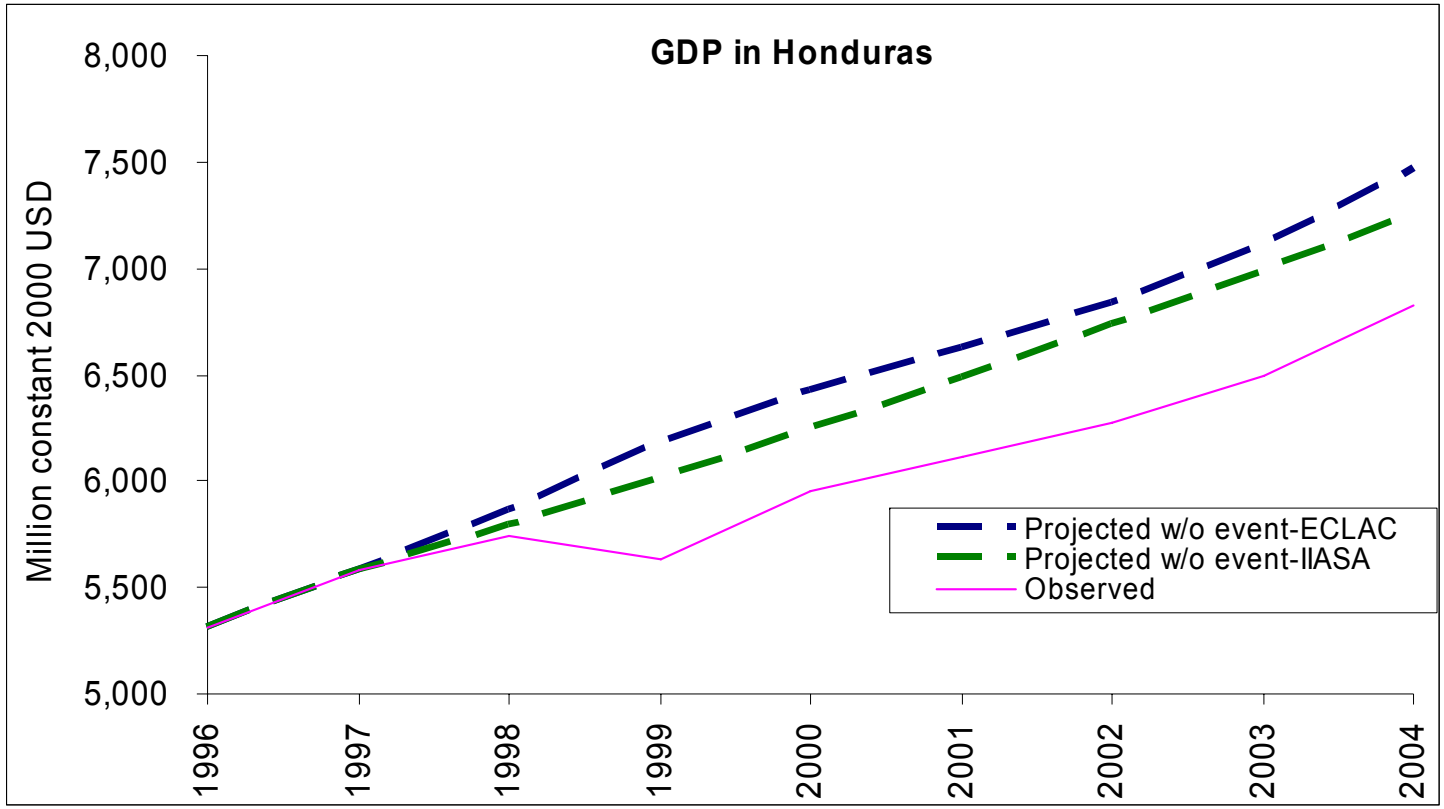
Disasters and Long Term Development

Honduras, Hurricane Mitch 1998



Absolute GDP with the event and projected GDP without an event were estimated. In 2004: 6 percent below potential GDP.

Change in some extremes

Global

↑ Warm days and nights

↓ Cold days and nights

In some regions

↑ Heavy precipitation event

↑ Tropical cyclone activity (low confidence)

↑ drought

↕ Limited evidence floods changing plus low confidence regarding even the sign of these changes

Parametric contracts are beneficial in a number of key ways relevant to climate change adaptation:

.They allow rapid claims settlement (2 weeks in CCRIF.s case), with early flow of funds potentially reducing overall disaster impacts (true from macro to micro)

.They do not require detailed knowledge of covered assets and funds can be used for current needs

.They are flexible in terms of coverage conditions and limits, and can be used alongside traditional insurance programmes

.They eliminate moral hazard and adverse selection

.Risk-based pricing is easier to achieve, providing transparency

.Cost of RT to international markets is cheaper

From weather-risk management to issues that go beyond adaptation

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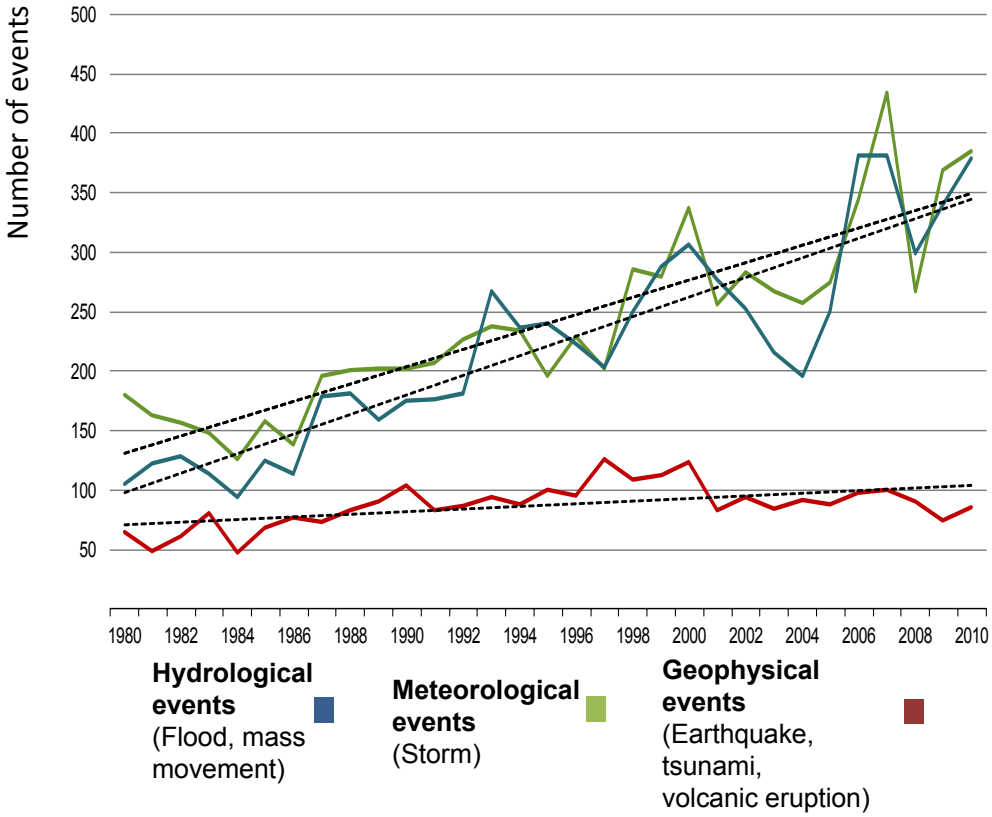

Limits to adaptation? How fundamental must adjustments be to address loss and damage which may be difficult or impossible to restitute.

Slide 39

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warner, 4/6/2011

Potential functions of regional risk management facilities

- Diversification of risks, reduction in premium costs
- Capitalization
- Sharing of experiences across countries, and the possibility to promote solidarity
- Technical assistance, risk assessment
- Reduce risk

CCRIF Technical Assistance

Scholarship/Prof. Dev. Programme	Regional 'Strategic' Knowledge Building	Support for Local DRR Initiatives
• Students across the region to benefit • Scholarships for BSc and MSc programmes • Continued professional development	• Partnerships with regional institutions • Funding for regional technical projects in natural hazards/risk science	• Support for NDCs, NGOs and other community-based organisations in local hazard risk management and climate change initiatives

Source: Simon Young

Climate variability and climate change

Climate variability

Interactions between climate variability and climate change

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