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The IPCC Special Report on Managing the Risks
of Extreme Events and Disasters to Advance
Climate Change Adaptation

Economics of Disasters and Disaster Losses

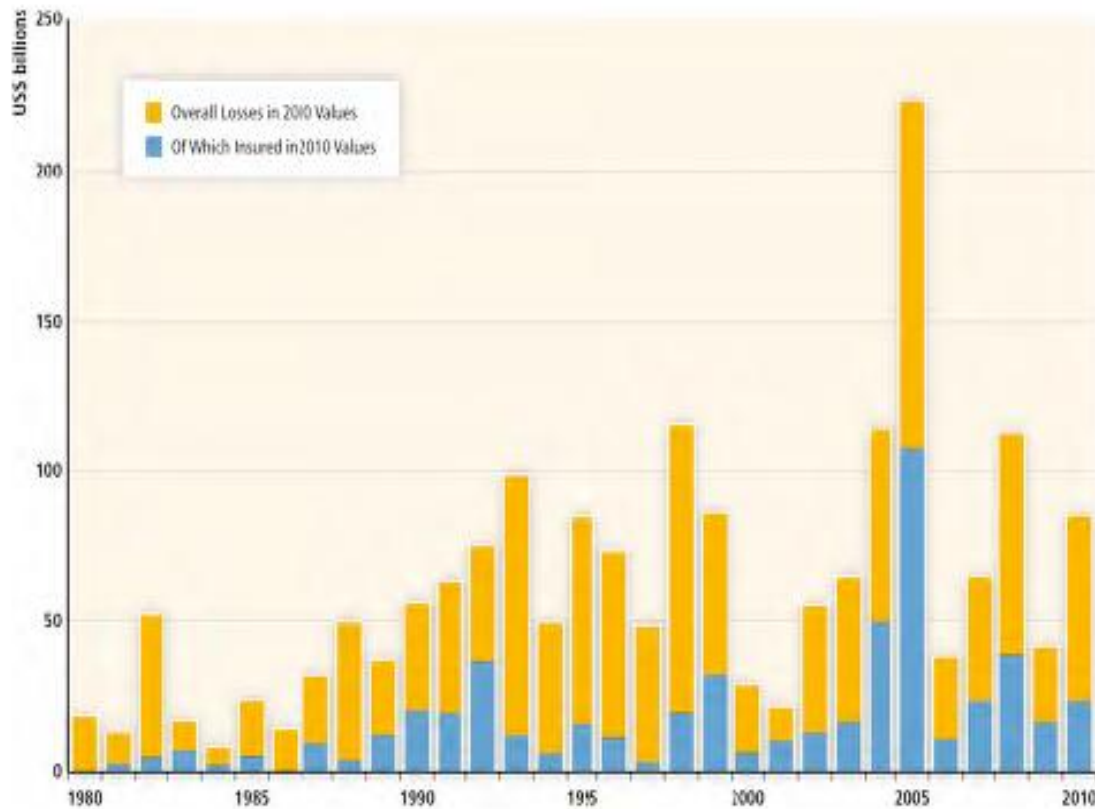
Dr. Reinhard Mechler

Addis Ababa, May 9th 2012

Overview and key messages

- Losses on the increase, also in Africa, but many impacts underreported
- Adaptation costs are large for Africa
- Planning, including development and budget provisioning is essential
- Donor supported risk financing options on local, national and regional levels offer promise
- Effective portfolios of risk management options involve sound risk analysis, risk reduction, risk financing and governance

Economic losses from climate-related disasters have increased, with large spatial and interannual variation

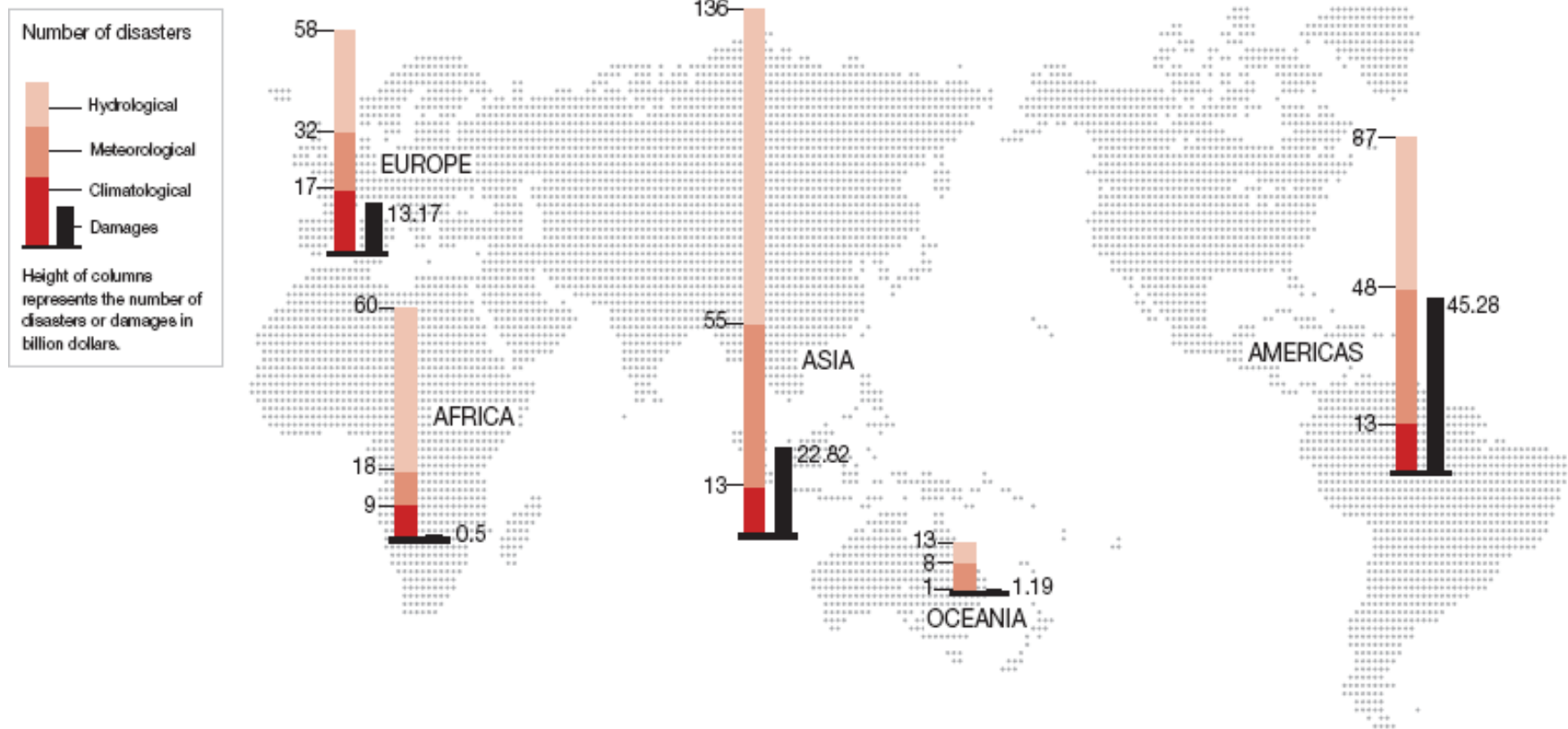


Source: Munich Re, 2011
(constant 2010 USD)

- Fatality rates and economic losses expressed as a proportion of gross domestic product (GDP) are higher in developing countries
- Increasing exposure of people and assets has been the major cause of changes in disaster losses
- Vulnerability and vulnerability reduction another factor, which is not well captured: counteracts exposure effect and may hide climate change signal in losses

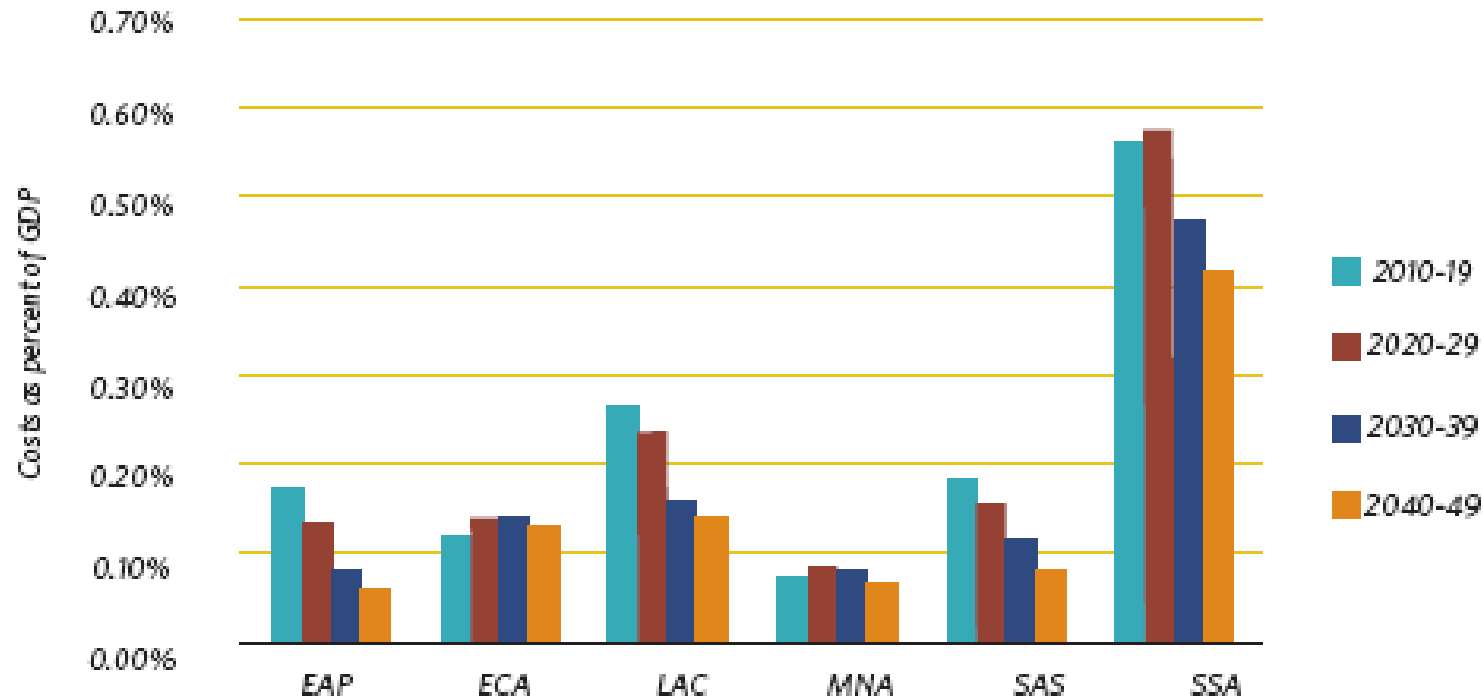
Africa bears large part of global burden

Annual average number and damages from disasters 2000-2008



- But damages largely underreported: e.g. drought

Estimated adaptation costs are large in Sub Saharan Africa, particularly when measured against GDP

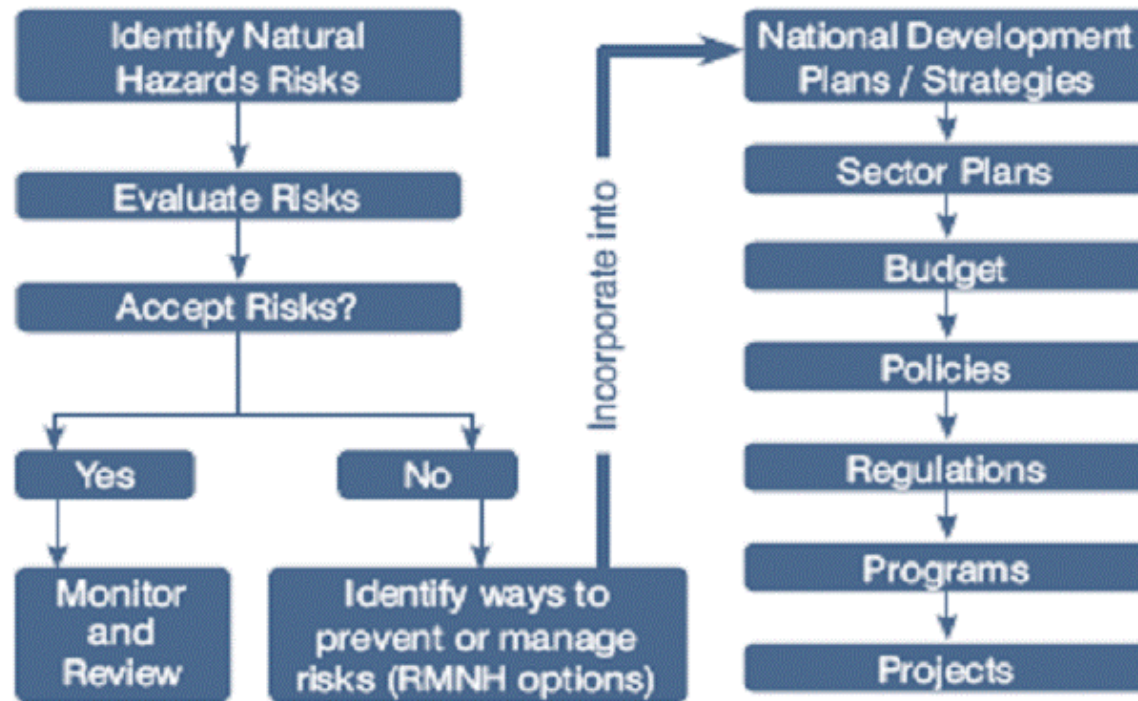


Annual adaptation cost per GDP by region and decade

Source: World Bank, 2010

May understate “true” costs as incremental adaptation, gaps in coverage and no residual impacts

Comprehensive planning for disaster risk essential



Source: Bettencourt et al., 2006

- Incorporating disaster risk assessments into strategies, sectors, budgets plans and projects
- National systems are at the core of countries' capacity to meet the challenges of observed and projected trends in risks from weather and climate extremes

Disaster risk financing arrangements are one piece of the DRM puzzle

	<i>Local Households, Farmers, SMEs</i>
<i>Solidarity</i>	Help from neighbors and local organizations
<i>Informal risk transfer (sharing)</i>	Kinship and other reciprocity obligations, semi-formal micro-finance, rotating savings and credit arrangements, remittances
<i>Savings, credit, and storage (inter-temporal risk spreading)</i>	Savings; micro-savings; fungible assets; food storage; money lenders; micro-credit
<i>Insurance instruments</i>	Property insurance; crop and livestock insurance; micro-insurance
<i>Alternative risk transfer</i>	Weather derivatives

Disaster risk financing arrangements are one piece of the DRM puzzle

	<i>Local Households, Farmers, SMEs</i>	<i>National Governments</i>
<i>Solidarity</i>	Help from neighbors and local organizations	Government post-disaster assistance; government guarantees/bailouts
<i>Informal risk transfer (sharing)</i>	Kinship and other reciprocity obligations, semi-formal micro-finance, rotating savings and credit arrangements, remittances	
<i>Savings, credit, and storage (inter-temporal risk spreading)</i>	Savings; micro-savings; fungible assets; food storage; money lenders; micro-credit	Reserve funds; domestic bonds
<i>Insurance instruments</i>	Property insurance; crop and livestock insurance; micro-insurance	National insurance programs; sovereign risk transfer
<i>Alternative risk transfer</i>	Weather derivatives	Catastrophe bonds

Disaster risk financing arrangements are one piece of the DRM puzzle

	<i>Local Households, Farmers, SMEs</i>	<i>National Governments</i>	<i>International Development organizations, donors, NGOs</i>
<i>Solidarity</i>	Help from neighbors and local organizations	Government post-disaster assistance; government guarantees/bailouts	Bilateral and multilateral assistance, regional solidarity funds
<i>Informal risk transfer (sharing)</i>	Kinship and other reciprocity obligations, semi-formal micro-finance, rotating savings and credit arrangements, remittances		
<i>Savings, credit, and storage (inter-temporal risk spreading)</i>	Savings; micro-savings; fungible assets; food storage; money lenders; micro-credit	Reserve funds; domestic bonds	Contingent credit; emergency liquidity funds
<i>Insurance instruments</i>	Property insurance; crop and livestock insurance; micro-insurance	National insurance programs; sovereign risk transfer	Re-insurance; regional catastrophe insurance pools
<i>Alternative risk transfer</i>	Weather derivatives	Catastrophe bonds	Catastrophe bonds; risk swaps, options, and loss warranties

- Pooling and sharing risks to diversify risks
- “Beyond insurance”: novel financial safety nets involving Public Private Partnerships

Local level

Horn of Africa Risk Transfer project - HARITA in Ethiopia

- Drought-prone northern state of Tigray in Ethiopia with livelihoods of smallholder farmers exposed to weather shocks
- Integrated risk reduction and risk transfer management framework
 - improved resource management (risk reduction),
 - microinsurance (risk transfer), and
 - microcredit (risk taking)
- “Insurance-for-work” program on top of the government’s “food and cash-for-work” Productive Safety Net Programme (PSNP)
- Work program includes projects for reducing risk and building climate resilience, such as improved irrigation or soil management.
- Index-based insurance pays for a seasonal drought and payouts are triggered automatically when rainfall drops below predetermined threshold
- Partners: farmers, local relief society, insurers, reinsurers, rural bank., university, government and donors
- Upscaling to other countries ongoing



National level Ethiopia drought relief protection

Reinsurance, Capital
Markets

World Food
Programme
purchases
protection

Modelled Drought Relief
Expenditure (Index)

If indexed drought event
occurs, instrument pays
out to Ethiopian
Government, who would
use funds for relief



Source: Ibarra, 2006

Regional/International level Caribbean Catastrophe Risk Insurance Facility



Country 1

Country 2

Country 3

Country 4

Country 5

Country 6

Country 7

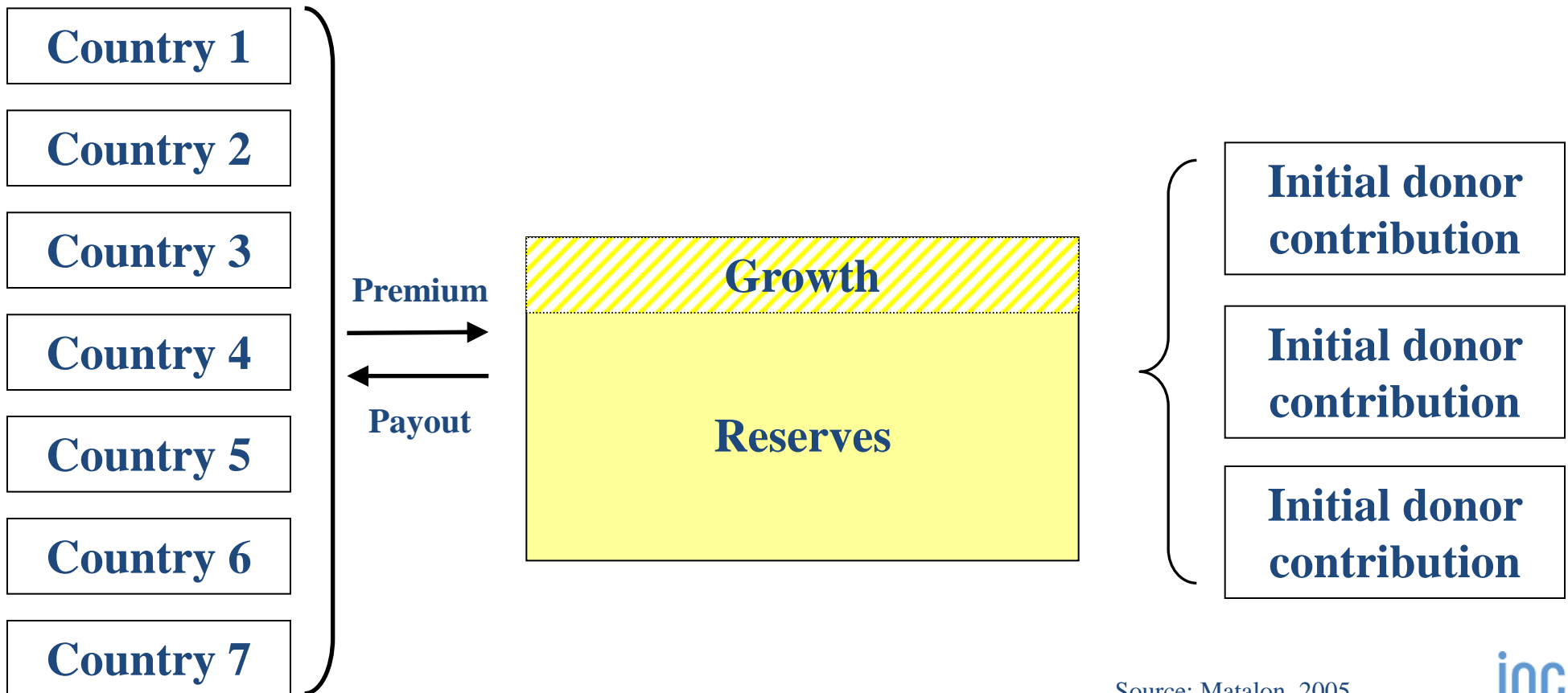
**Initial donor
contribution**

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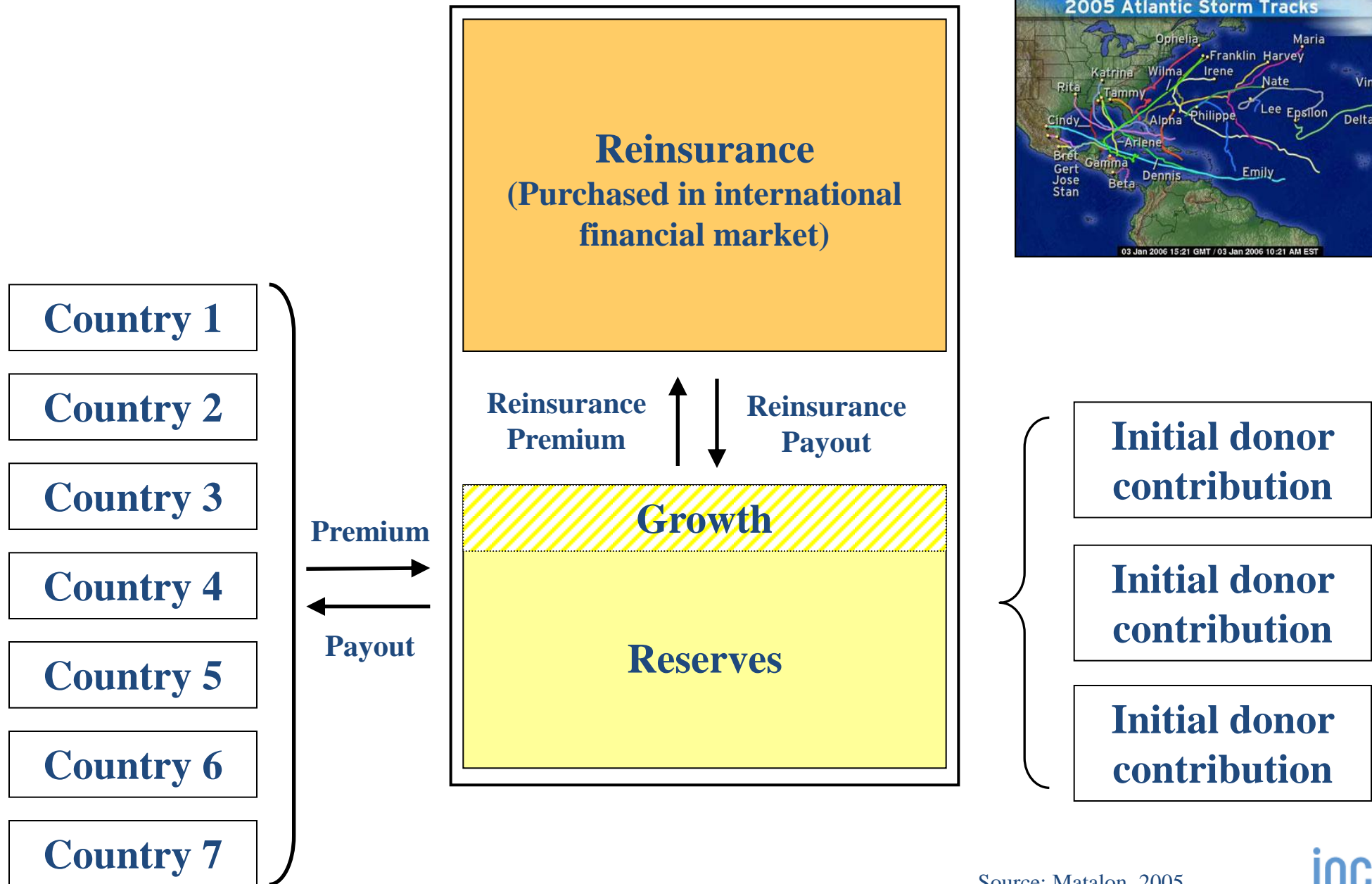
Source: Matalon, 2005

Regional/International level Caribbean Catastrophe Risk Insurance Facility



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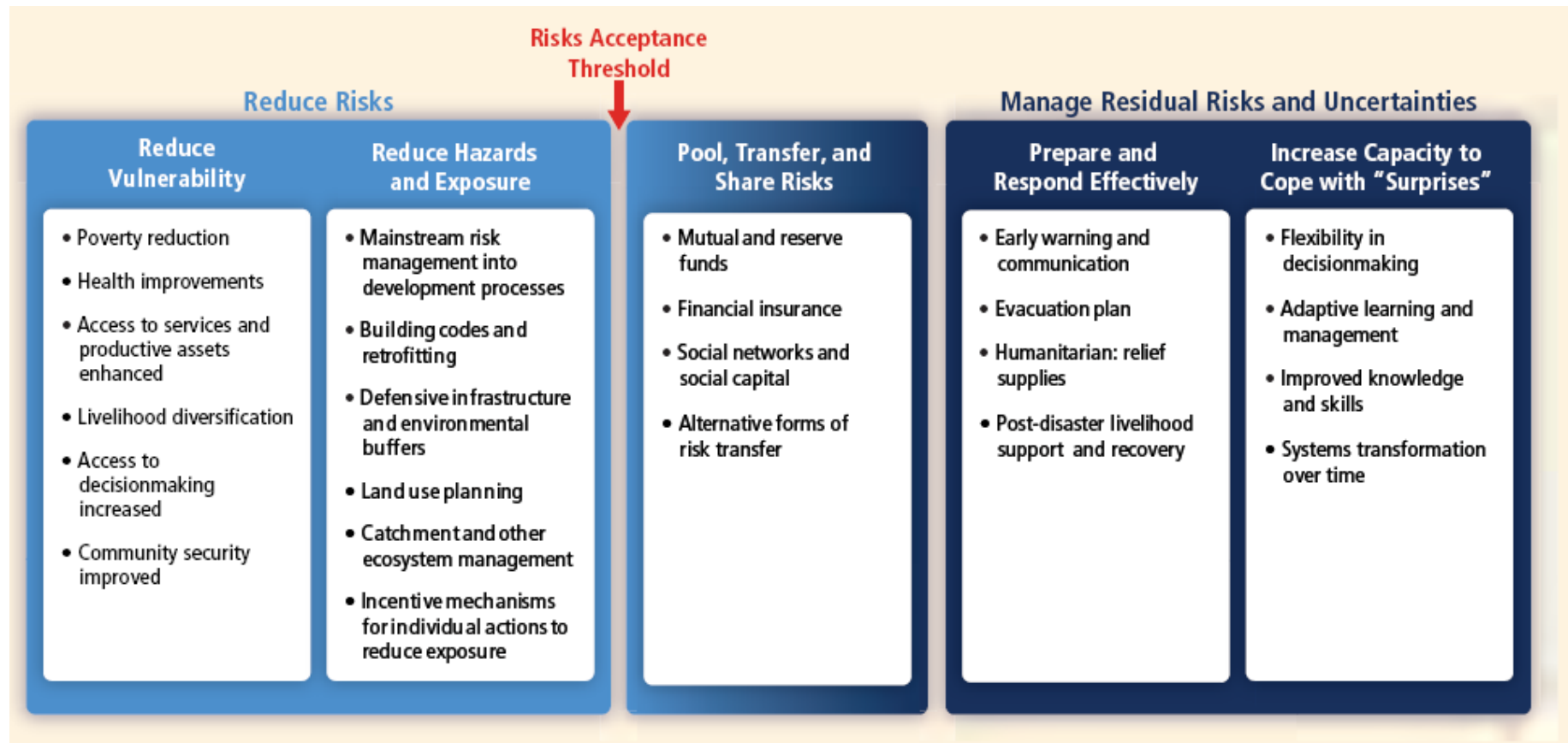
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Effective portfolios of risk management options

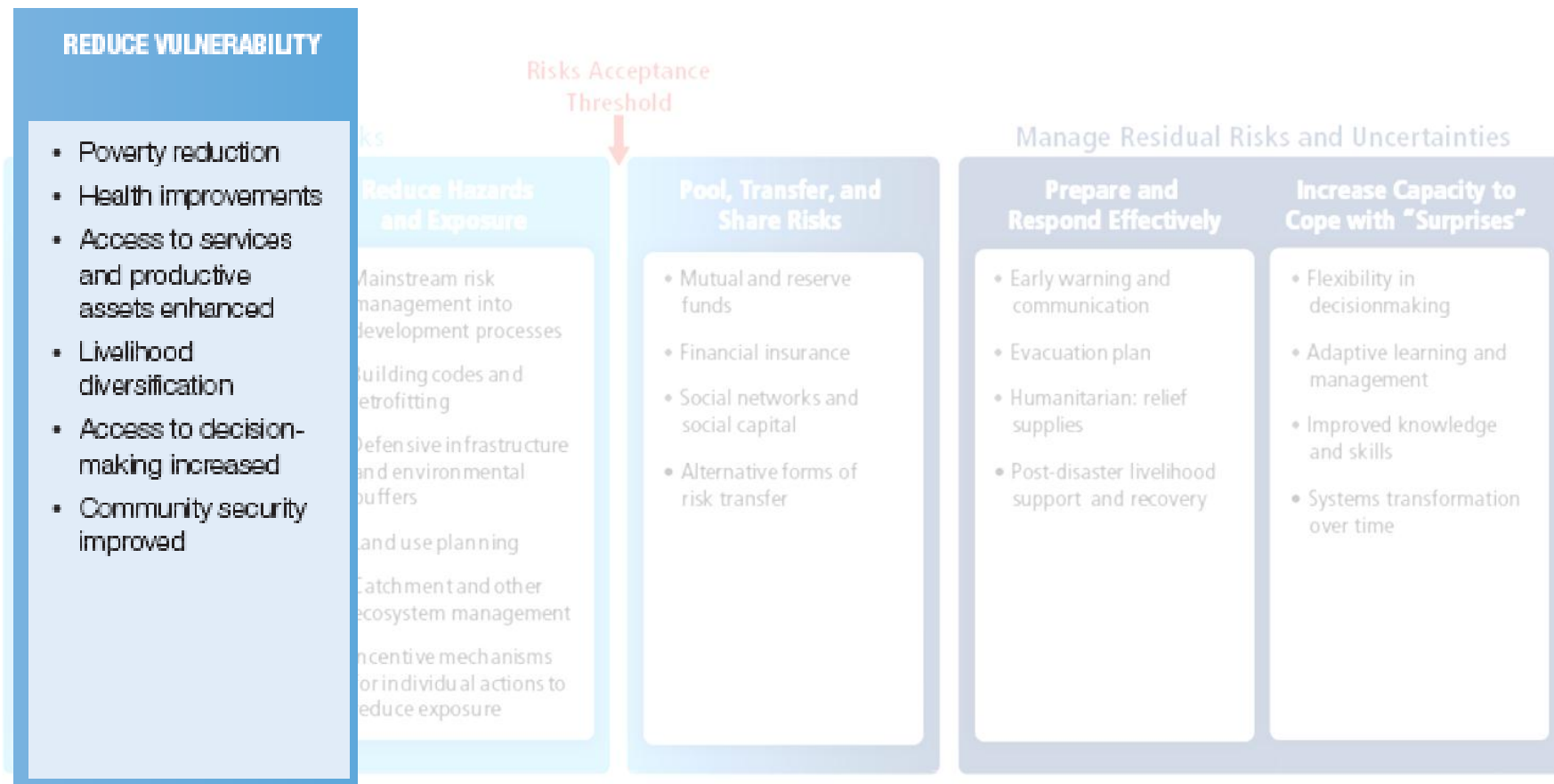
Integrating adaptation and DRM approaches for a changing climate



Effective risk management portfolios involve sound risks analysis, risk reduction, risk financing and governance

Effective portfolios of risk management options

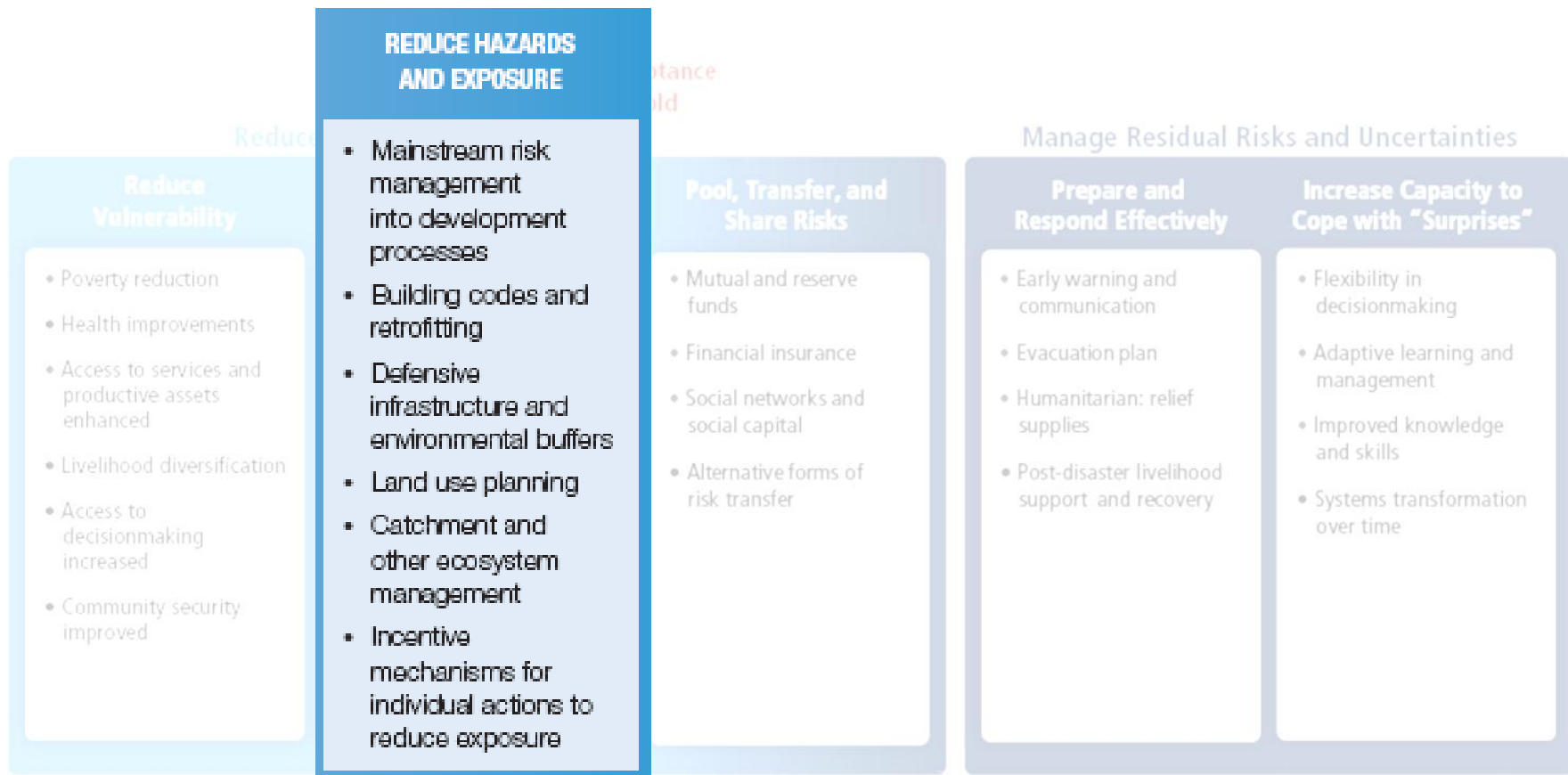
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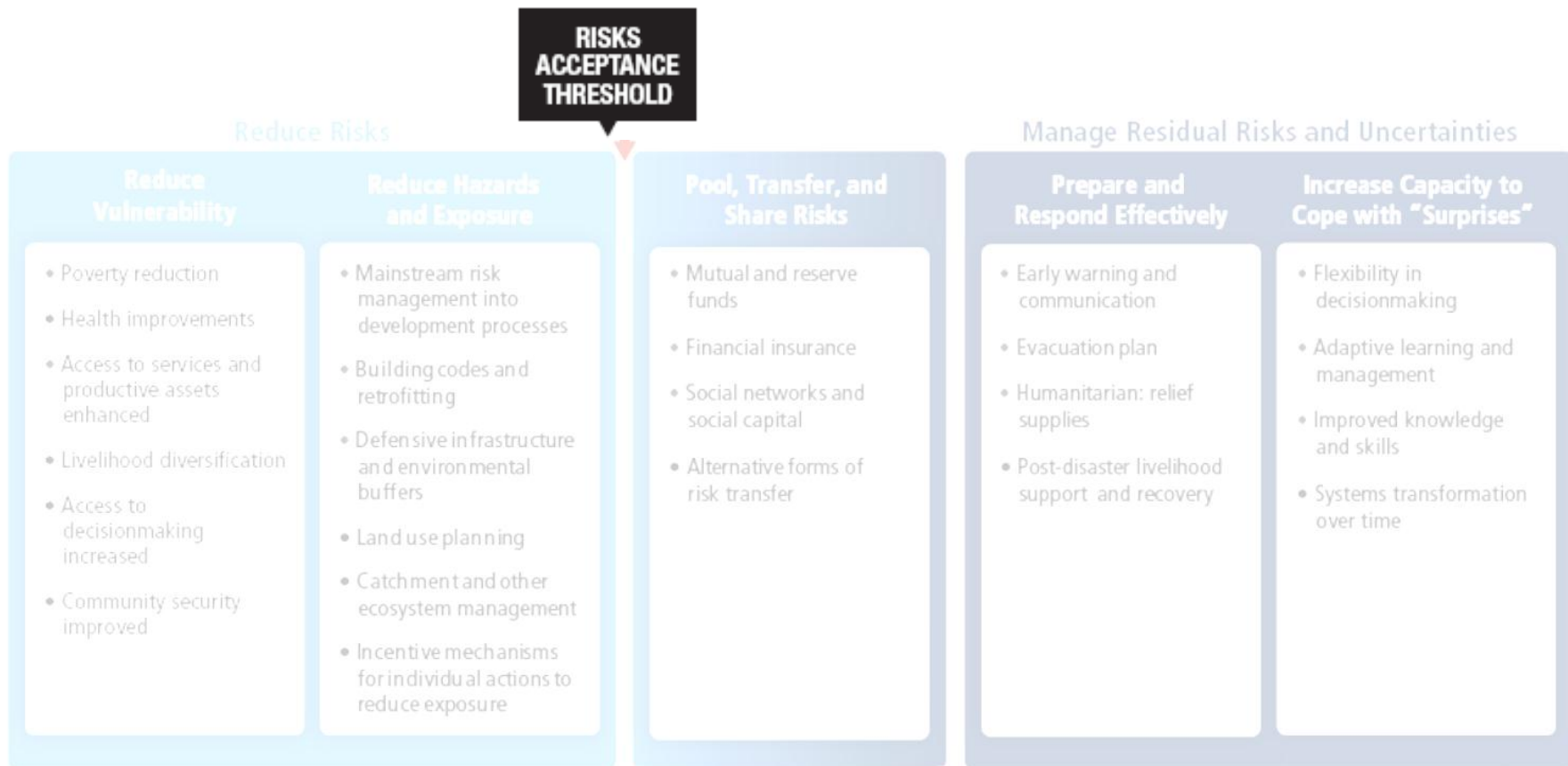
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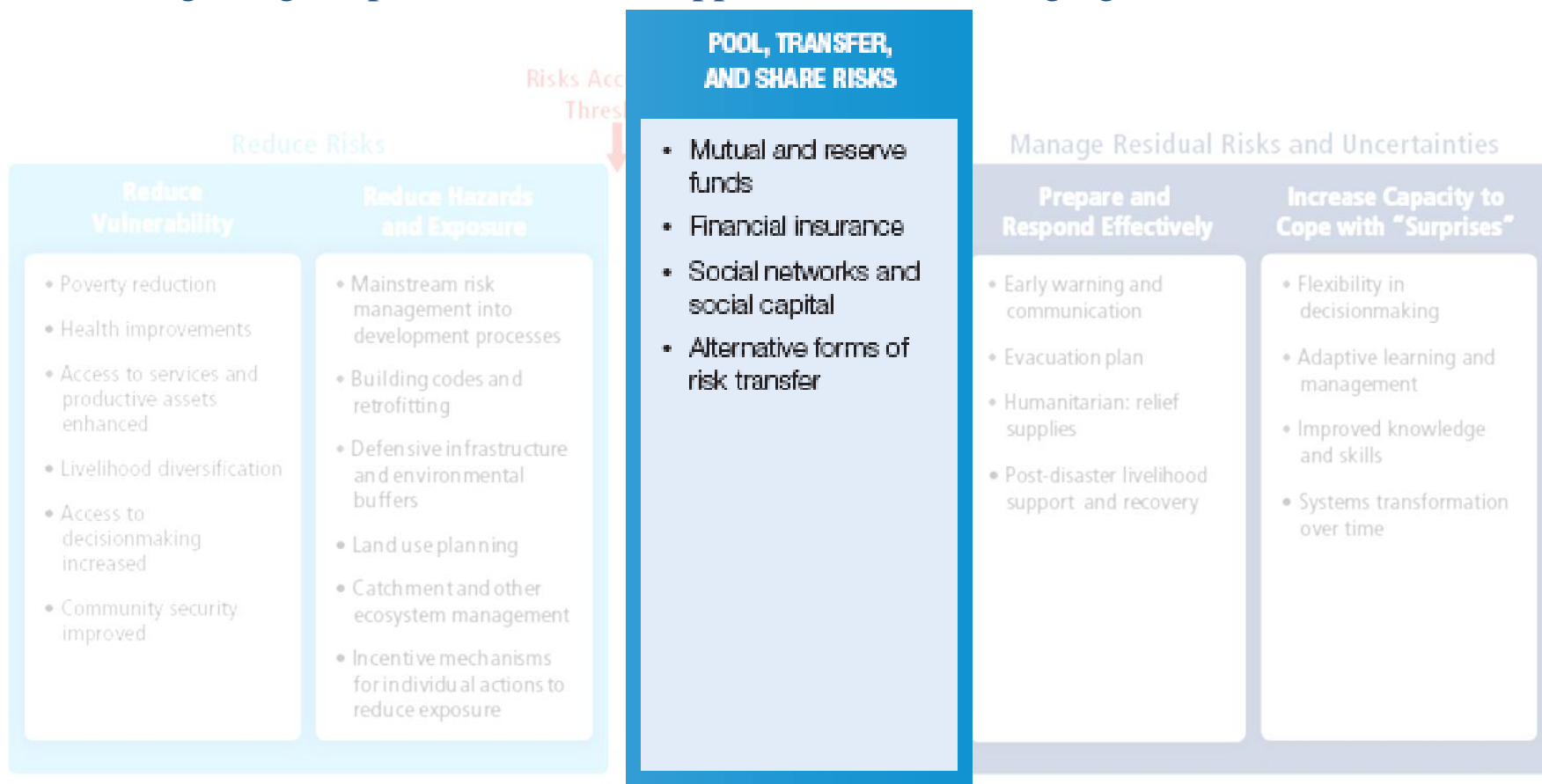
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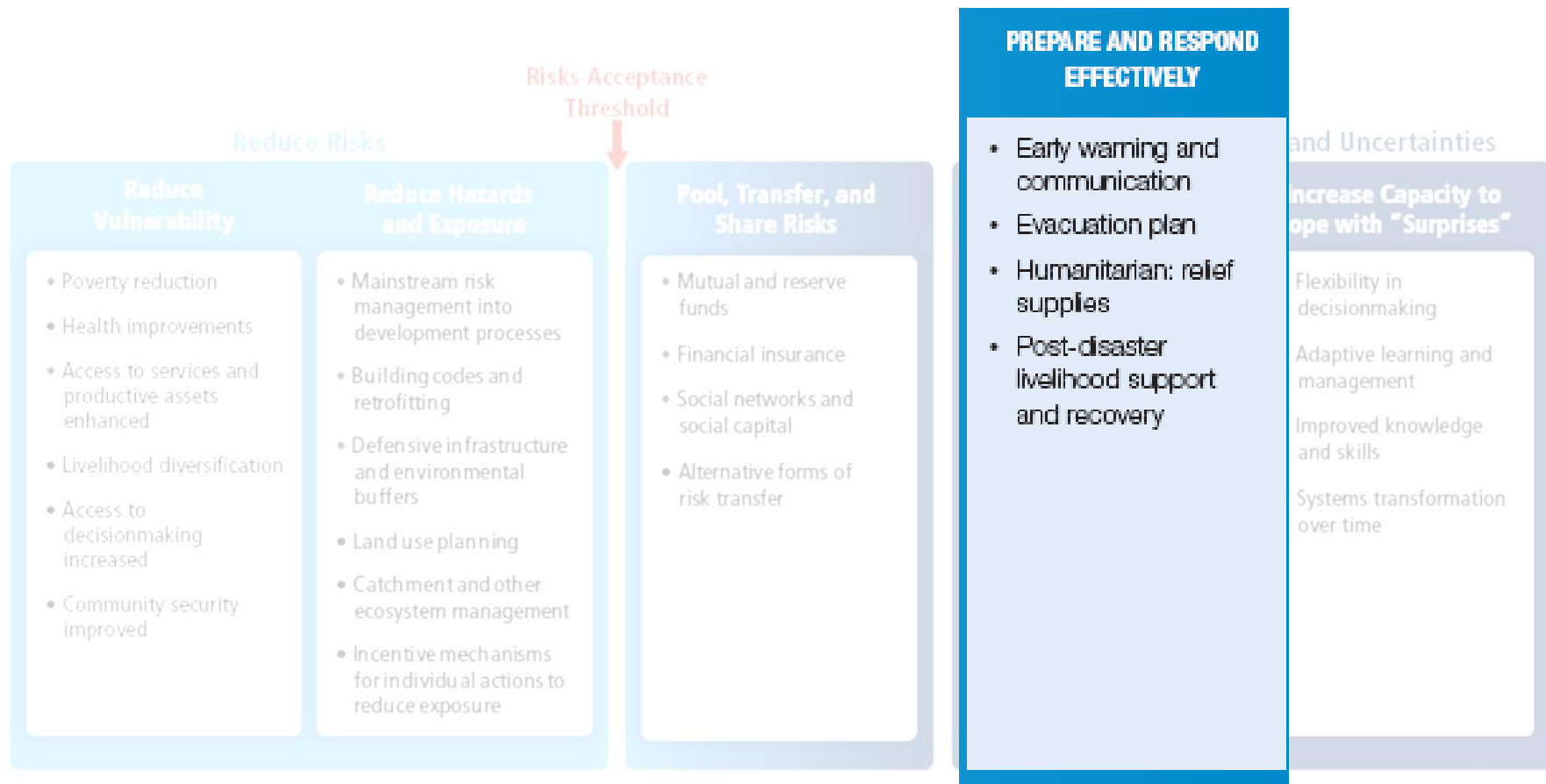
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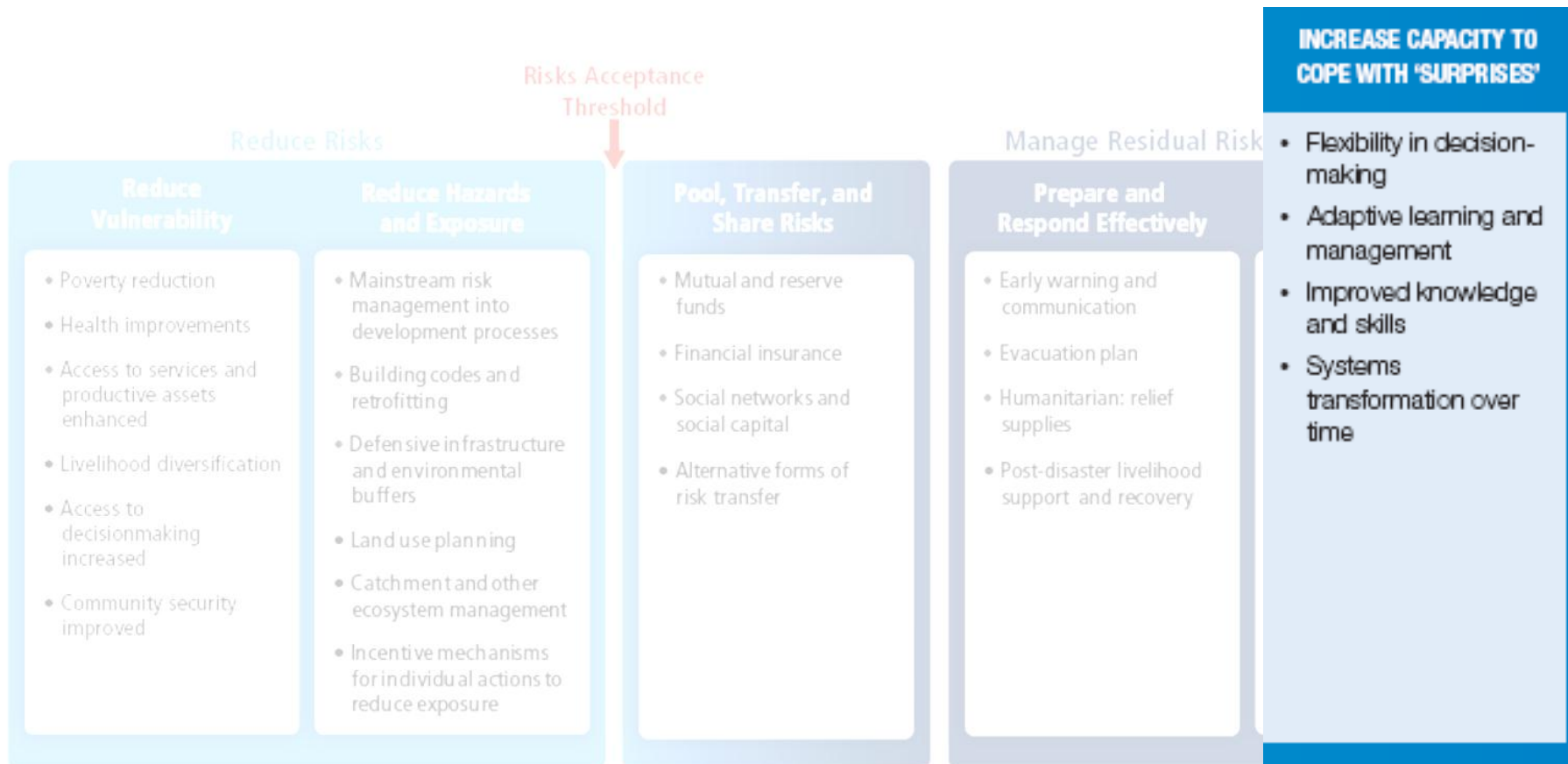
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