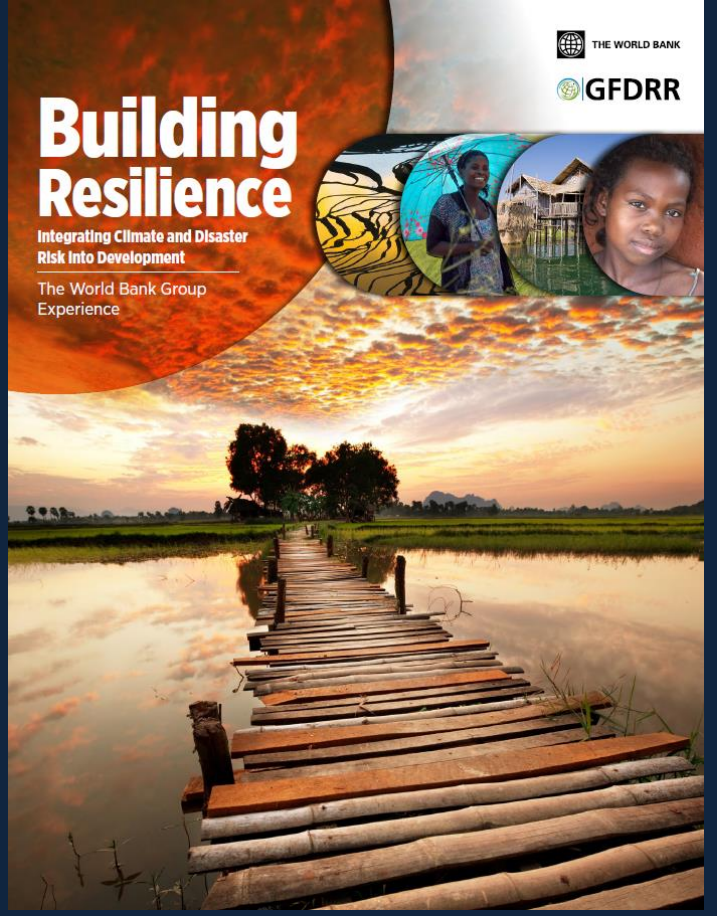


World Bank Experiences to Address Loss and Damage

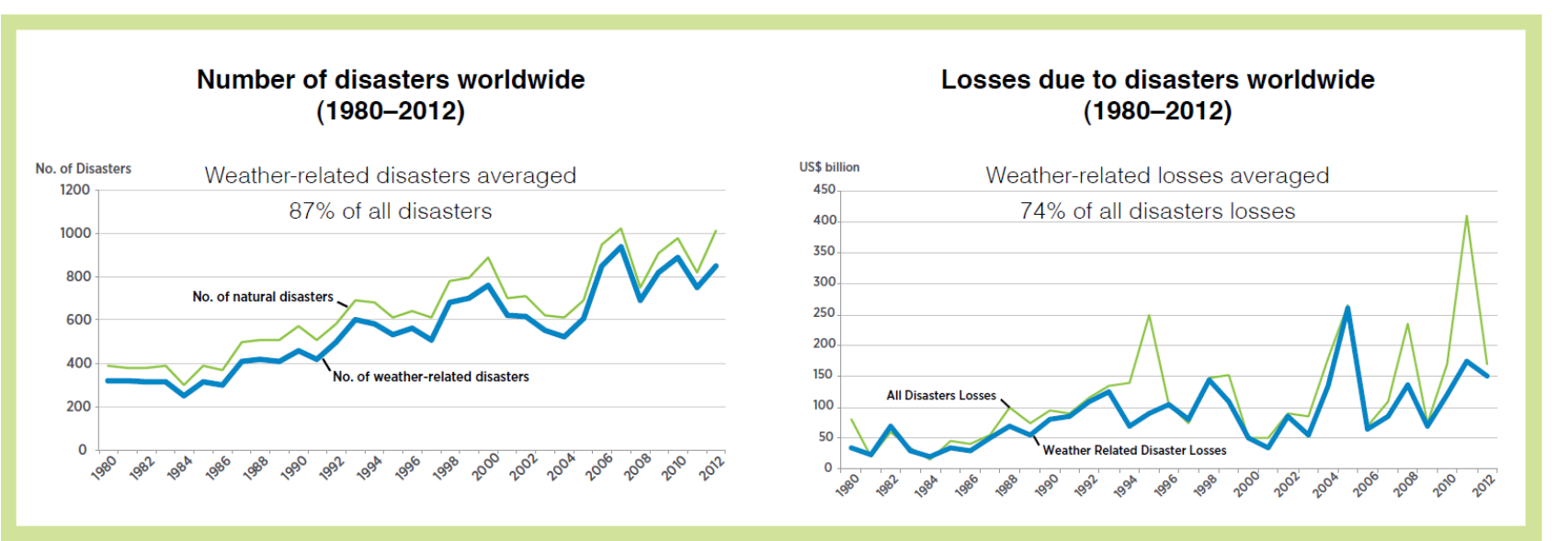
March, 2014

GFDRR THE WORLD BANK

An Upward Trend of Loss and Damage…

From 1980-2012, weather-related disasters accounted for:

- ***87% of total natural disasters***
- ***61% of fatalities***
- ***74% of economic losses***



Source: Adapted from © 2013 Münchener Rückversicherungs-Gesellschaft, Geo Risks Research, NatCatSERVICE (as of January 2013).

Amongst natural disasters, cyclones and storms account for most of the losses, whilst droughts and earthquakes account for most of the fatalities

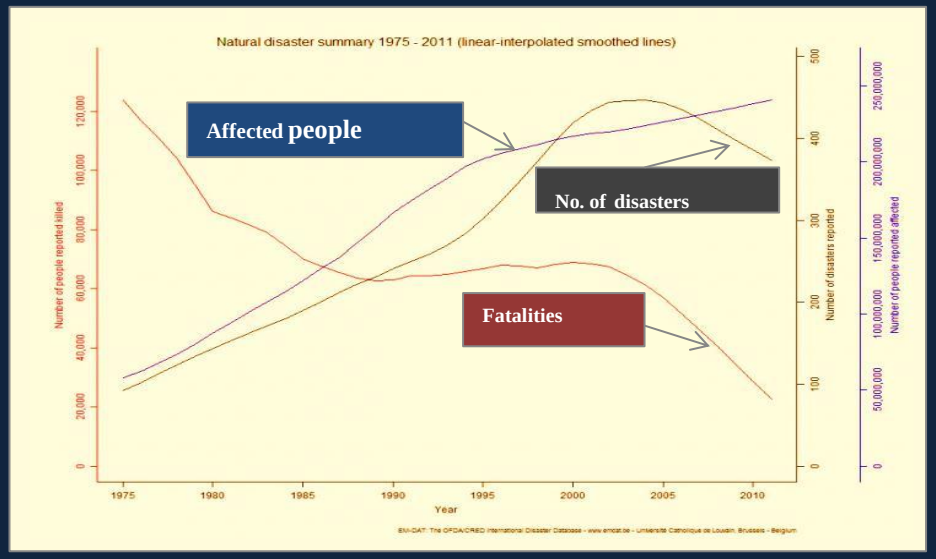
GFDRR THE WORLD BANK

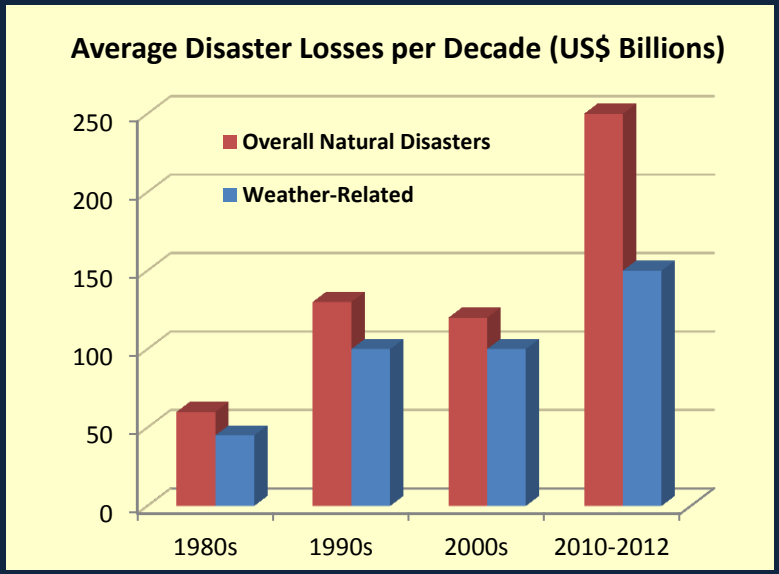
Mortality is down, but losses continue to rise….

Early warning is working: reported mortality due to disasters has been declining - except in low income, weak governance countries…

…but the number of affected people and economic losses continues to rise…

Losses due to weather-related disasters have tripled over the past three decades - from an average of US$45 billion/year in the 1980s to US$150 billion/year in 2010-2012

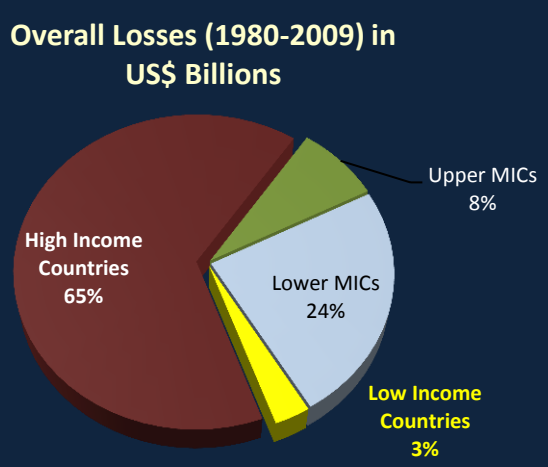


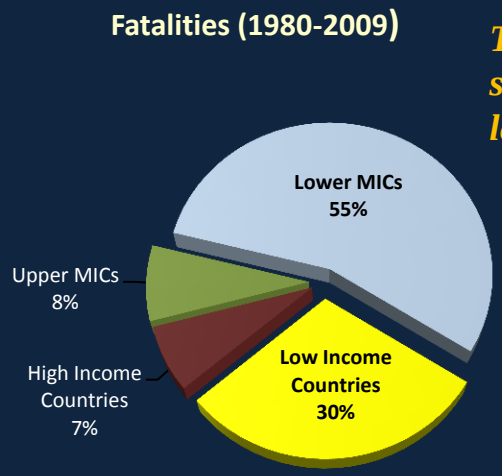


Source: Munich Re. 2013; mortality trends from EM-DAT: the OFDA/CRED International Disaster Database and UNISDR Global Assessment Report (2011)

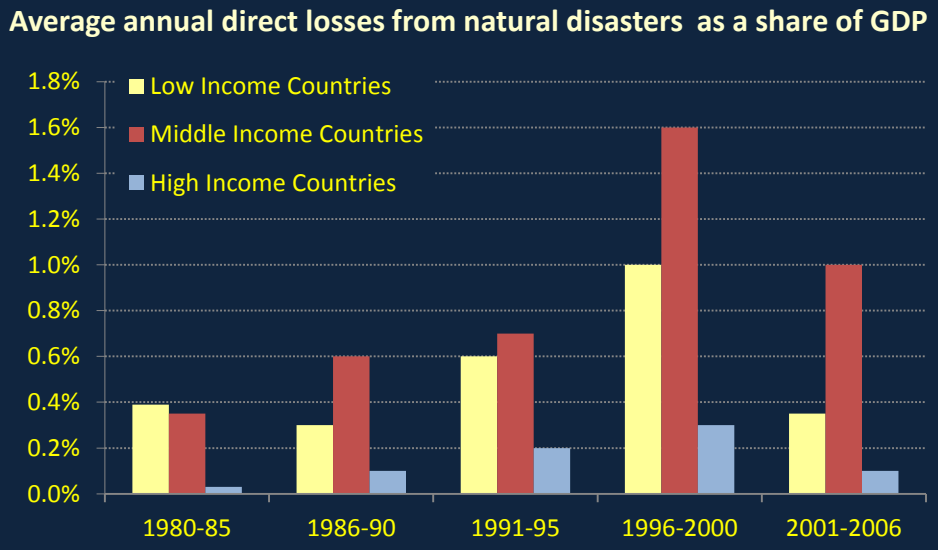
GFDRR THE WORLD BANK

Disasters strike both high and low income countries… But relative impact is highest in low to middle income countries…





The impacts are particularly crippling in smaller and lower-income countries that are least able to cope



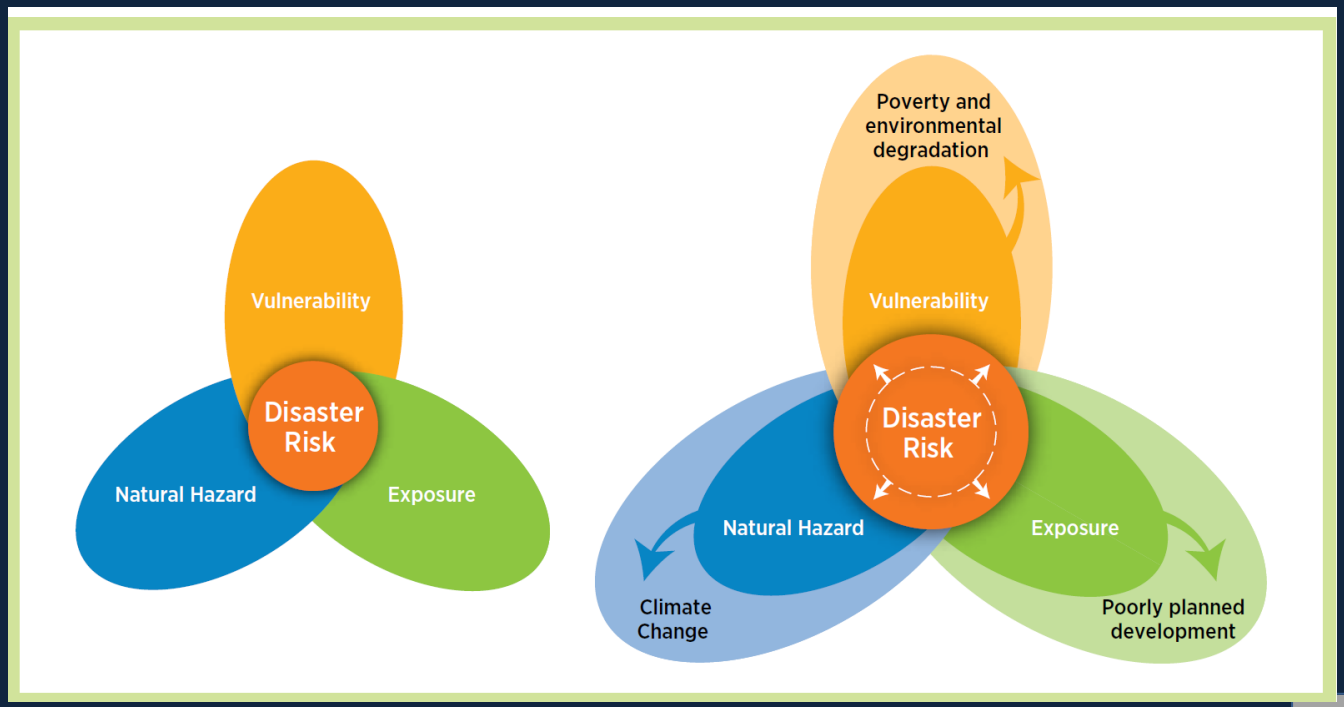
Relative impact is highest in fast growing middle income economies, due to the rapid expansion of assets at risk

From 2001-2006, the average impact of disasters in middle income countries averaged 1% of GDP
Average for high-income countries was 0.1 %

Sources: Munich Re; Cummings and Mahul (2009)

It remains extremely difficult to separate drivers of disaster risk

The contribution of climate change to weather-related hazards is a highly complex field. It is even more difficult to attribute causality to impacts



Source: Adapted from IPCC 2012

There is broad agreement that climate and disaster resilient development makes sense and is cost-effective over the long-term…

But it requires upfront costs....

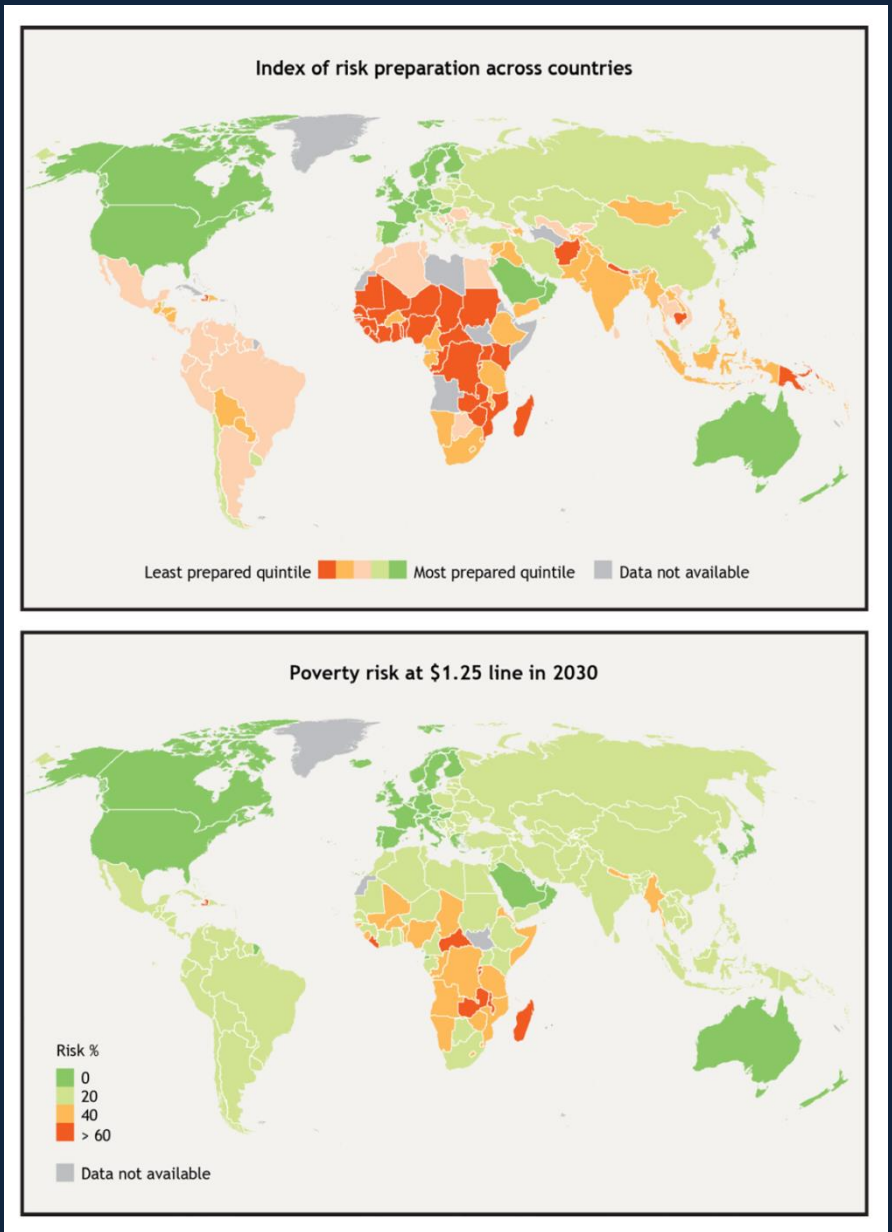
Sector	Building Back Better Factor
Housing	1.10-1.35
Schools	1.10-1.50
Hospitals	1.10-1.50
Agriculture/Livestock and Fisheries Infrastructure	1.10-1.40
Industrial Facilities	1.10-1.40
Commerce and Trade	1.10-1.35
Water and Sanitation	>1.00*
Transport	>1.00*
Electricity	>1.00*
Communications	>1.00*

Disaster assessment experience suggests it costs 10-50% more to build back better after a disaster. For infrastructure sectors, the start up costs can be substantially higher

Costs of building back better = Replacement Costs x Building Back Better Factor
BBB Factor = Quality improvements + technological modernization + relocation costs +disaster risk reduction standards + multiannual inflation

Source: GFDRR Damage and Loss Assessment Guidance Notes (2010)

Climate Change will exacerbate poverty and inequality

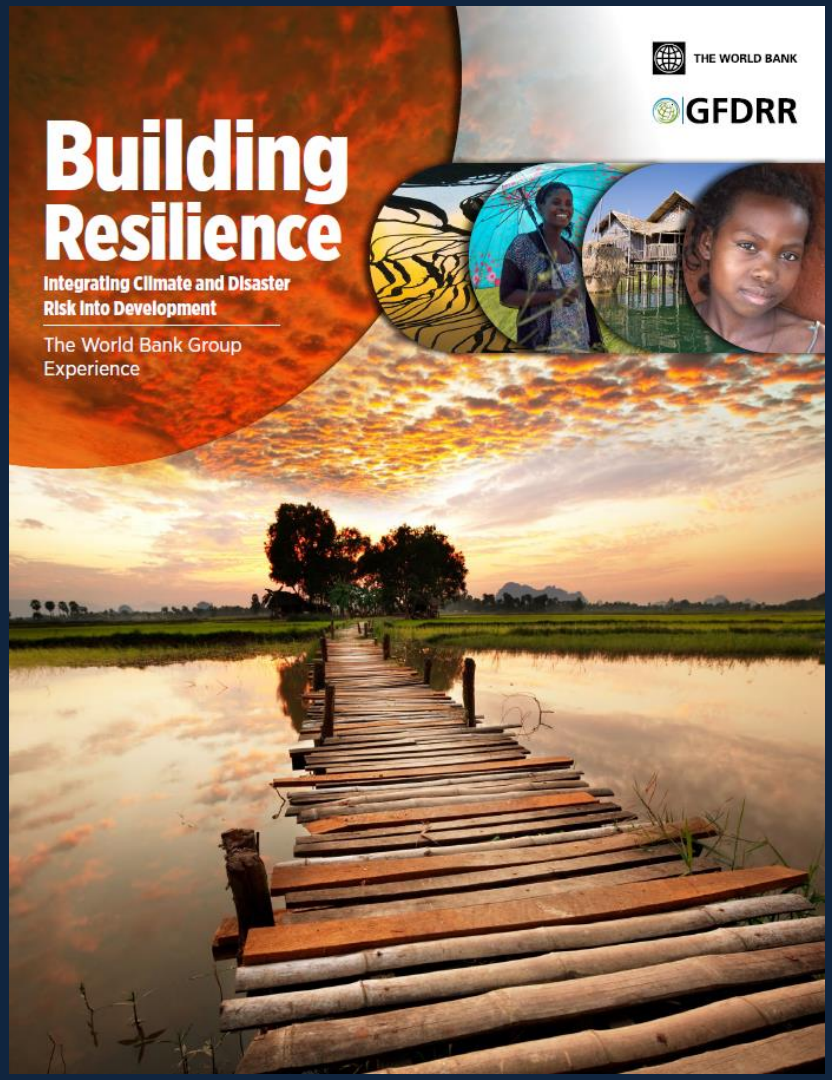


Countries with lowest degree of risk preparation are also expected to have highest poverty risks in the future...

The poor are also the ones most at risk…

Building climate resilience is thus critical for the global goal of ending extreme poverty and building shared prosperity

Much is known already on how to build resilience



.... But it requires better cooperation between climate and disaster risk management

- ***This will help prevent fragmentation of local capacity;***
- ***help address complex political and institutional incentives;***
- ***and keep stakeholders focused on goals***

The Key Pillars of Action

Figure 6: An operational framework for managing climate and disaster risk

PILLAR 2

Risk Reduction

Avoided creation of new risks and reduced risks in society through greater disaster and climate risk consideration in policy and investment

PILLAR 1

Risk identification

Improved identification and unders

PILLAR 5

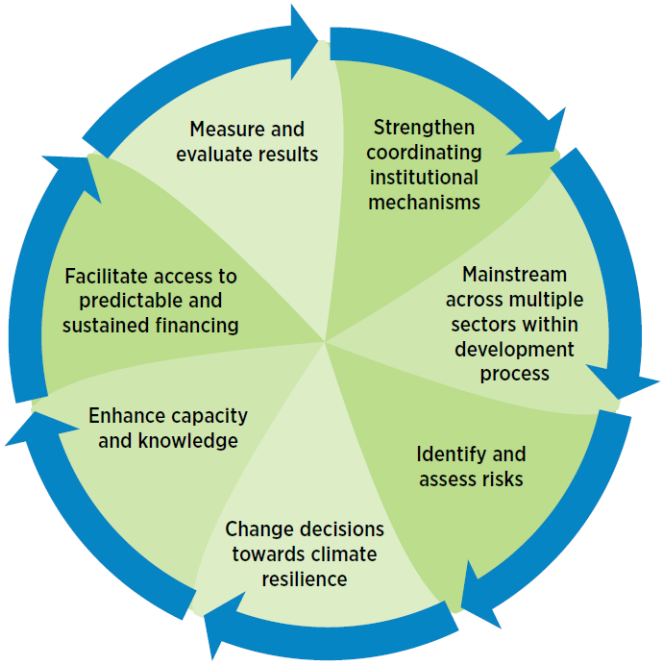
Resilient Reconstruction

Quicker, more resilient recovery through support for reconstruction planning

ssments and analysis

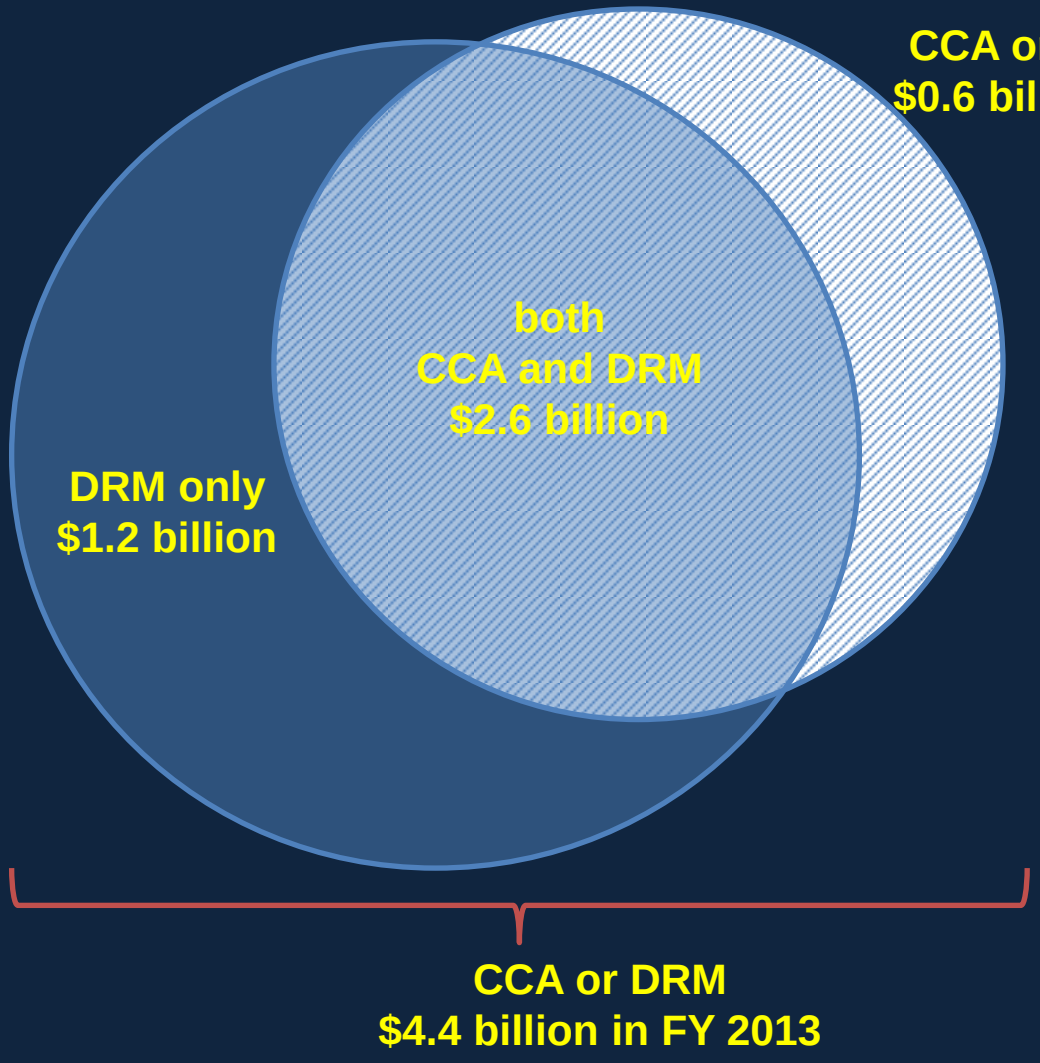
Source: The Sendai Report (World Bank 2012c)

Figure 5: Process of integrating climate resilience into development



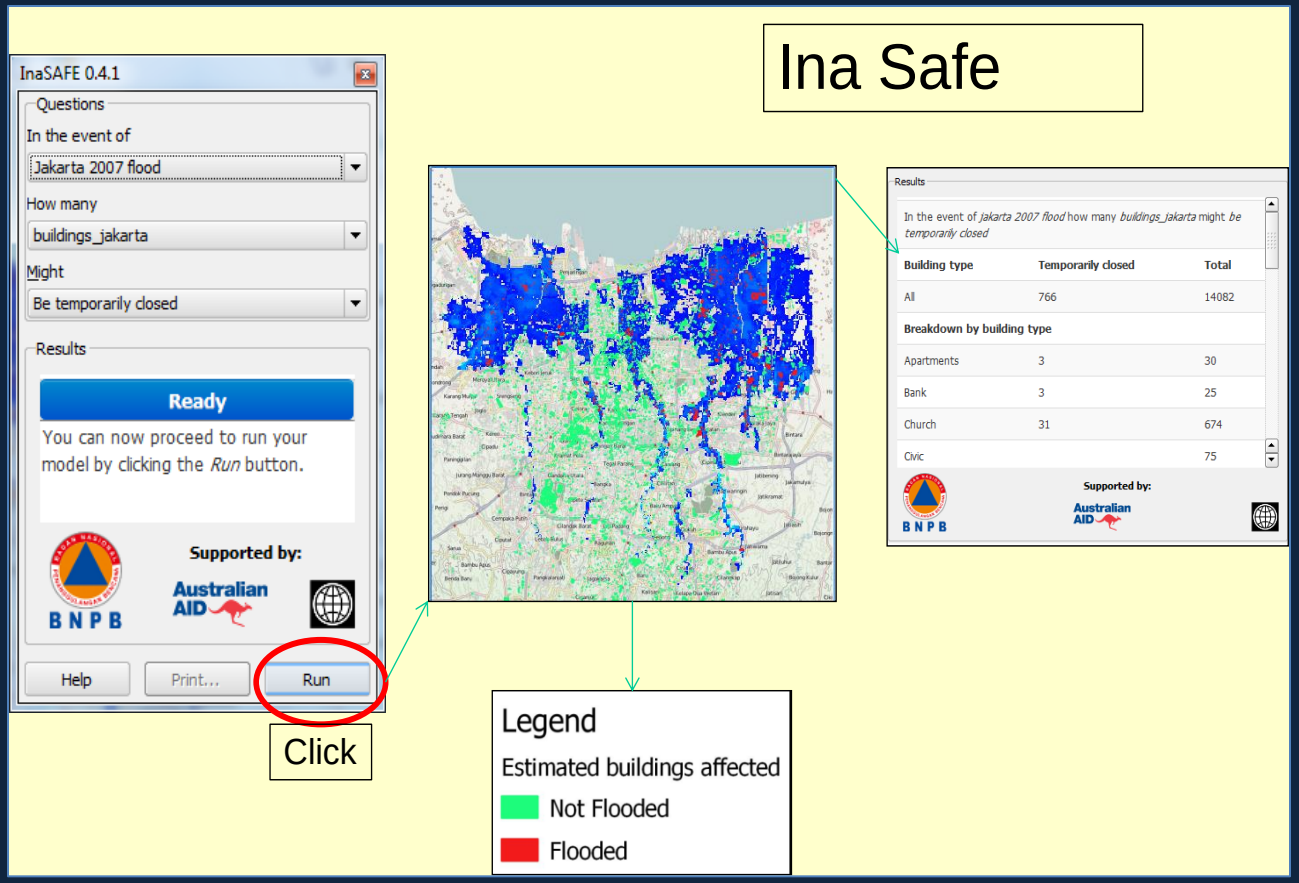
Source: Report authors

DRM and CCA Portfolio at the World Bank



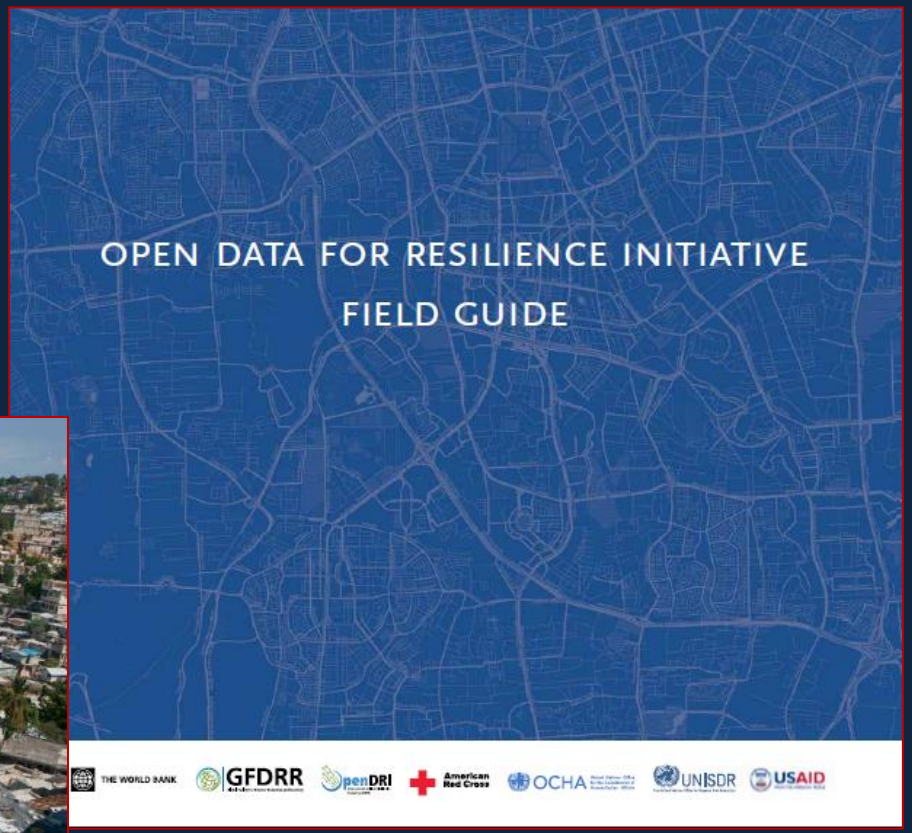
- *80% of CCA relevant projects have DRM co-benefits*
- *67% of DRM relevant projects have CCA co-benefits*

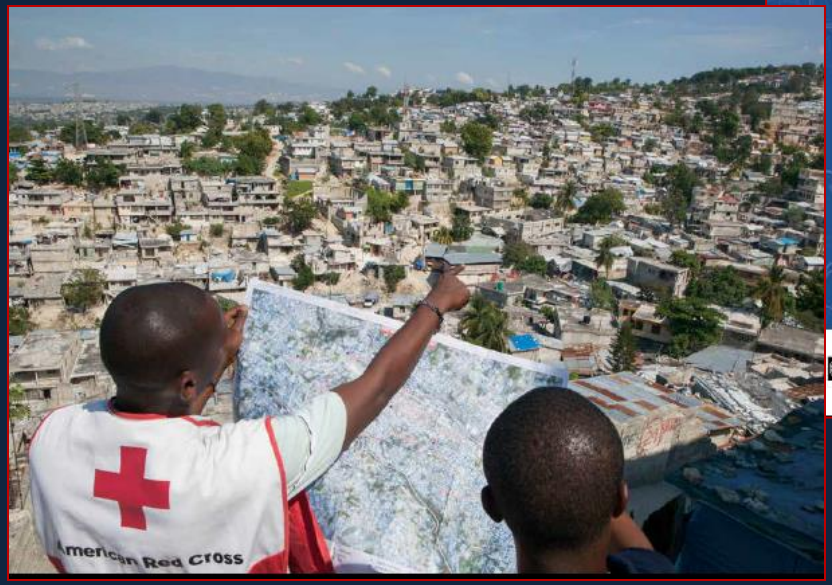
Risk Identification and Open Data



- ***Risk assessment implemented in more than 43 countries – 30 countries using open data (GeoNode)***
- ***10 Caribbean countries** are now sharing **disaster risk data online***
- ***2,800 professionals belong to Understanding Risk community***
- ***Extensive mapping of assets at risk by volunteers - 30,000 buildings in Sri Lanka ,***
- ***250,000 buildings in Indonesia***

Field Guide for Open Data for Resilience (OpenDRI) Just Released

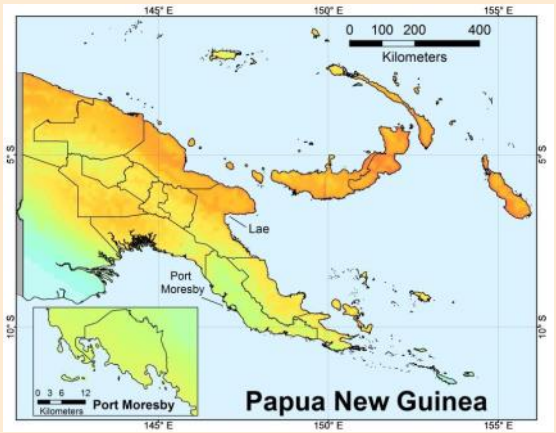


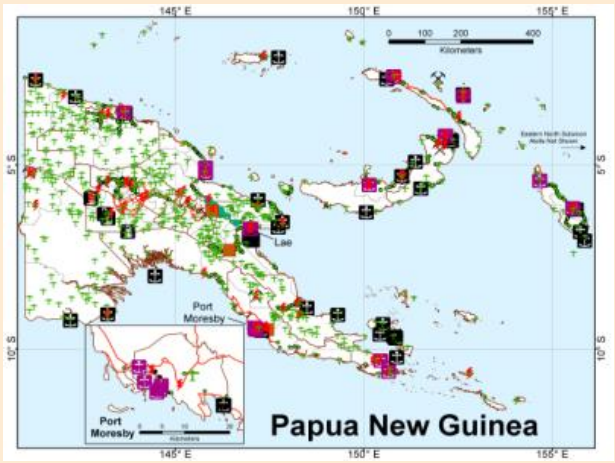


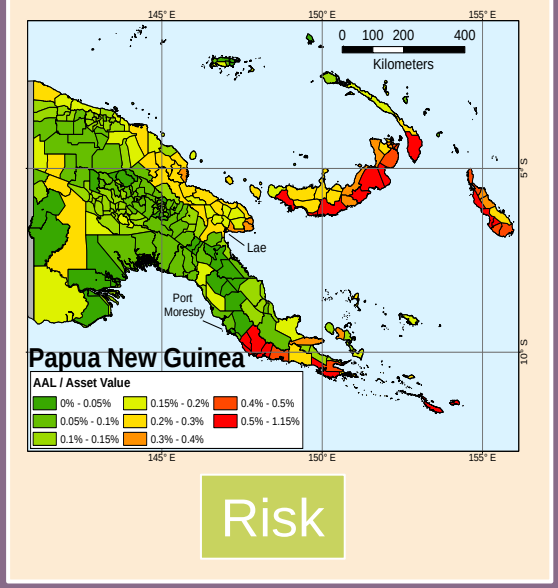
https://www.gfdrr.org/sites/gfdrr.org/files/publication/OPENDRI_fieldGuide_WEB_0.pdf

From Understanding Risk to Managing Risk

The Pacific Catastrophe Risk Assessment and Risk Financing Pilot





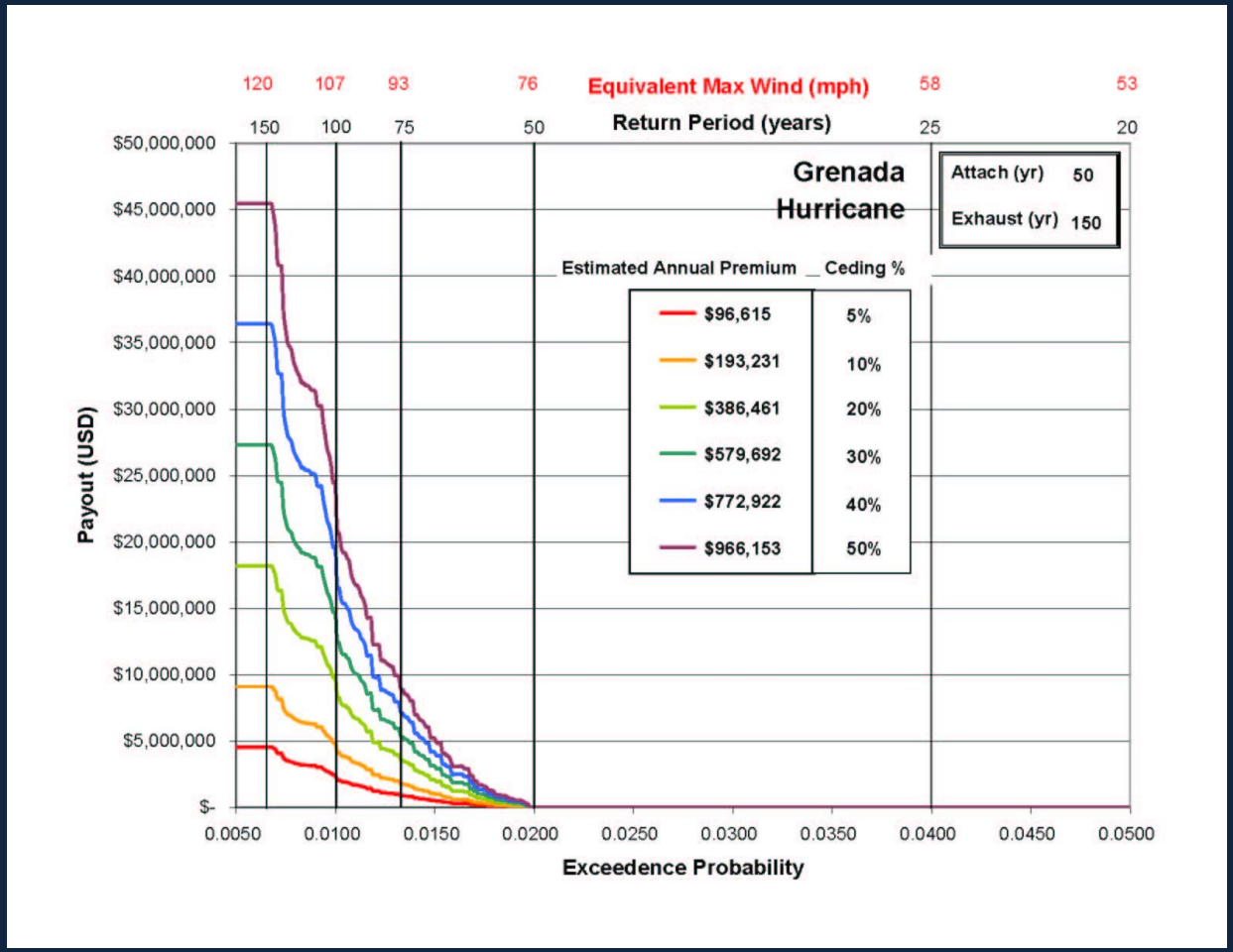


More than 2 million assets geo-referenced. Helped guide investment operations in Vanuatu and Solomon Islands and establish a pilot catastrophe risk insurance program

A Partnership with WB, SPC/SOPAC and the ADB

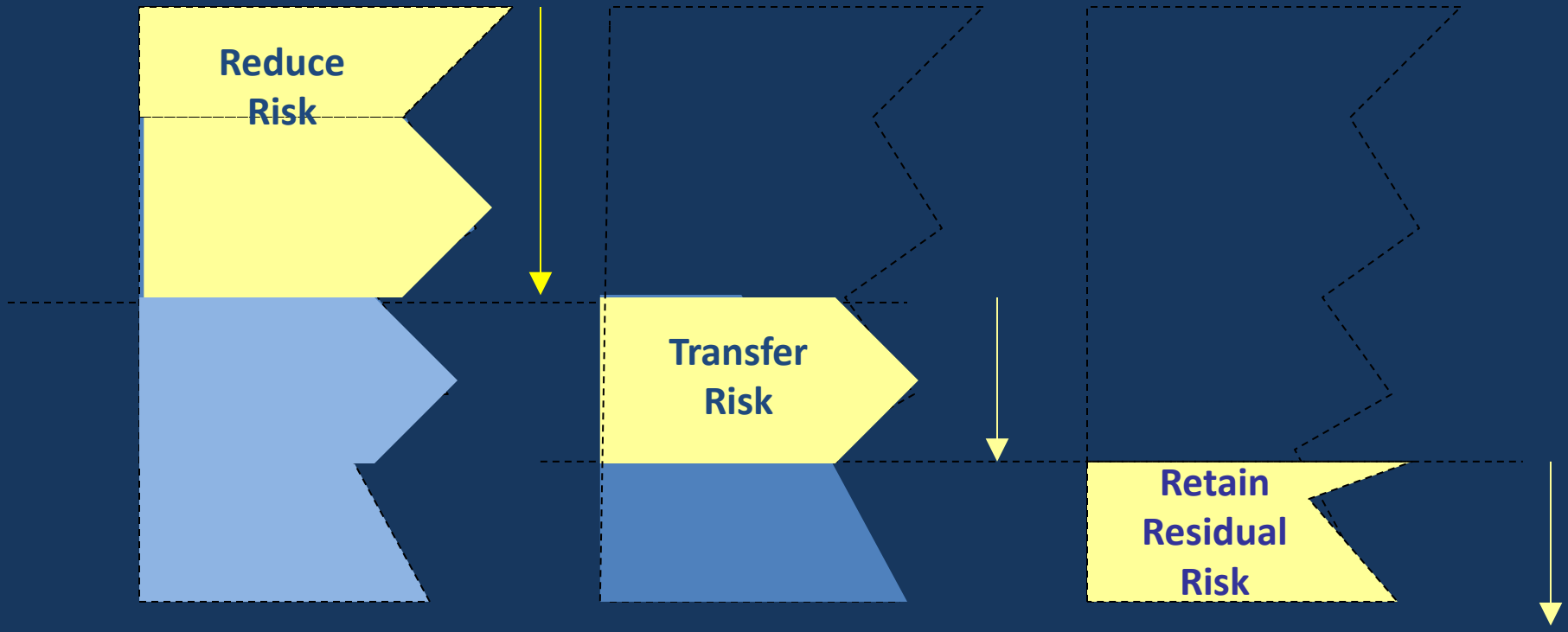
From Understanding Risk to Managing Risk (2)

By estimating the number and value of assets at risk, and the approximate return period of the hazards (e.g. hurricane strength cyclones), countries can build models to guide financial protection strategies

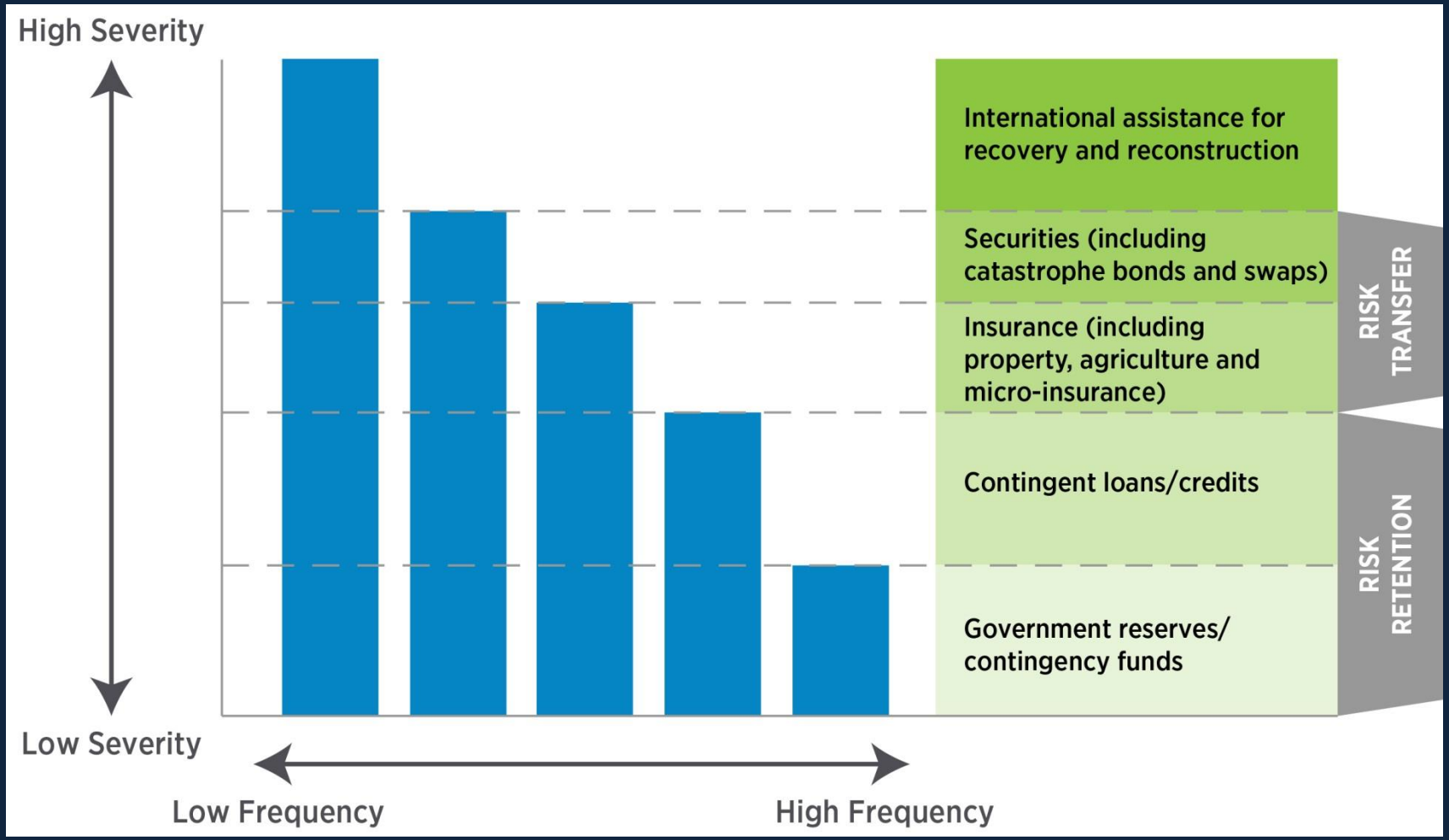


Example of a loss exceedance model used to estimate insurance premiums

Risk Management Options

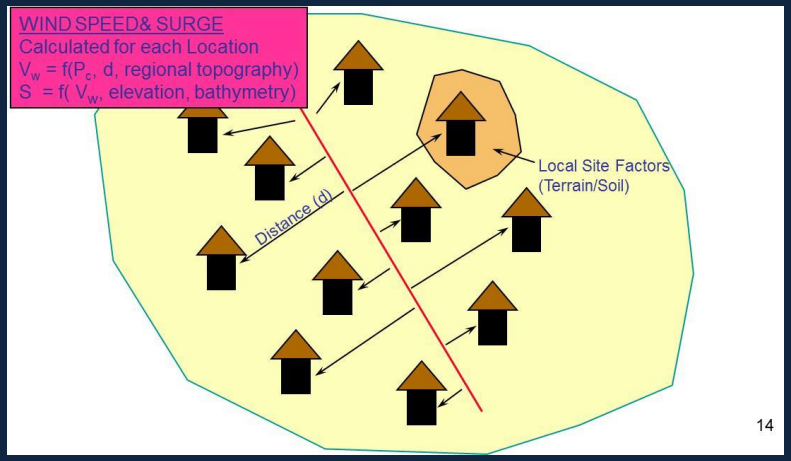


Financial Protection Instruments



Examples of Regional Financial Protection Instruments

- *Caribbean Catastrophe Risk Insurance Facility (16 members, fast payout), now being expanded to Central America*
- *Pacific Catastrophe Risk Insurance Pilot (5 members, raised US$67 million)*
- *Philippines developing resilience fund*
- *Colombia, Mexico require insurance for public assets, have a mix of national contingency and market-based financing instruments*
- *Mexico issued second catastrophe bond in 2012 (US$315 million)*
- *Uruguay weather derivative (US$450 million) for state-owned enterprise*
- *World Bank Treasury acts as intermediary with financial markets*



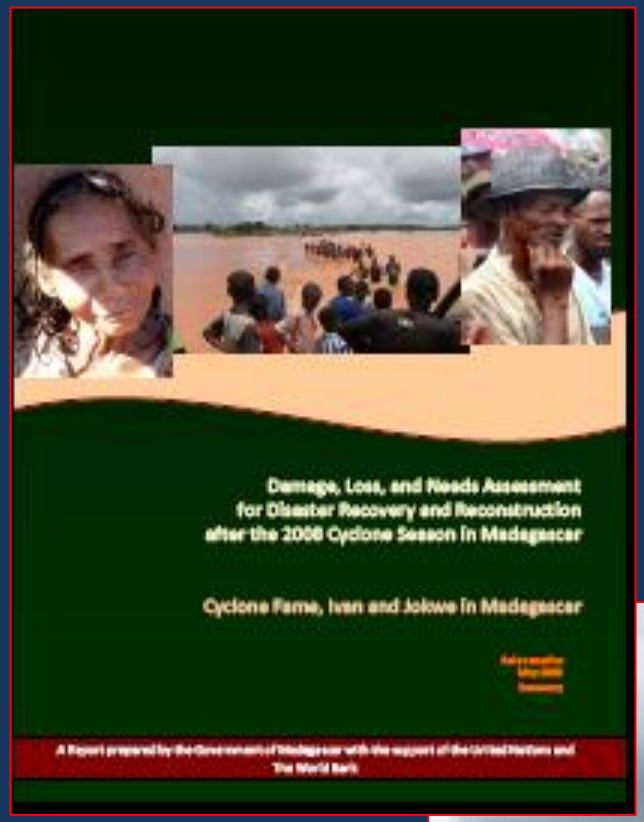
Regional catastrophe insurance schemes such as used in the Caribbean use parametric triggers rather than actual loss assessments to remove subjectivity and allow for quick payments (typically 7-14 days after an event)

Catastrophe Deferred Drawdown Option (CAT-DDOs)

Eligibility	**All IBRD-eligible World Bank clients (upon meeting pre-approval criteria)**
Pre-approval Criteria	**Acceptable macroeconomic policy framework AND disaster risk management program**
Drawdown	**Provides immediate liquidity after a natural disaster resulting in a declaration of state of emergency** **Up to full loan amount can be available at any time 3 years after loan signing, renewed for a maximum of four periods (maximum 12 years)**
Lending Rate	**Variable base rate plus a spread. Base rate is the value of the 6-Month LIBOR at the start of an interest period Spread (fixed or variable) consists of IBRD cost margin relative to LIBOR, plus IBRD contractual spread of 0.50%**
Front-End Fee	**0.50% of the loan amount due within 60 days of effectiveness date.**
Renewal Fee	**0.25% of the undisbursed balance**
Other Features	**Country Limit: Maximum size of 0.25% of GDP or the equivalent of US$500 million, whichever is less.** **Revolving Features: Amounts repaid by the borrower are available for drawdown, provided that the closing date has not expired.** **The expected net present value of the cost of a Cat DDO is at least 30% lower than the cost of insurance for disasters occurring once every three years.**

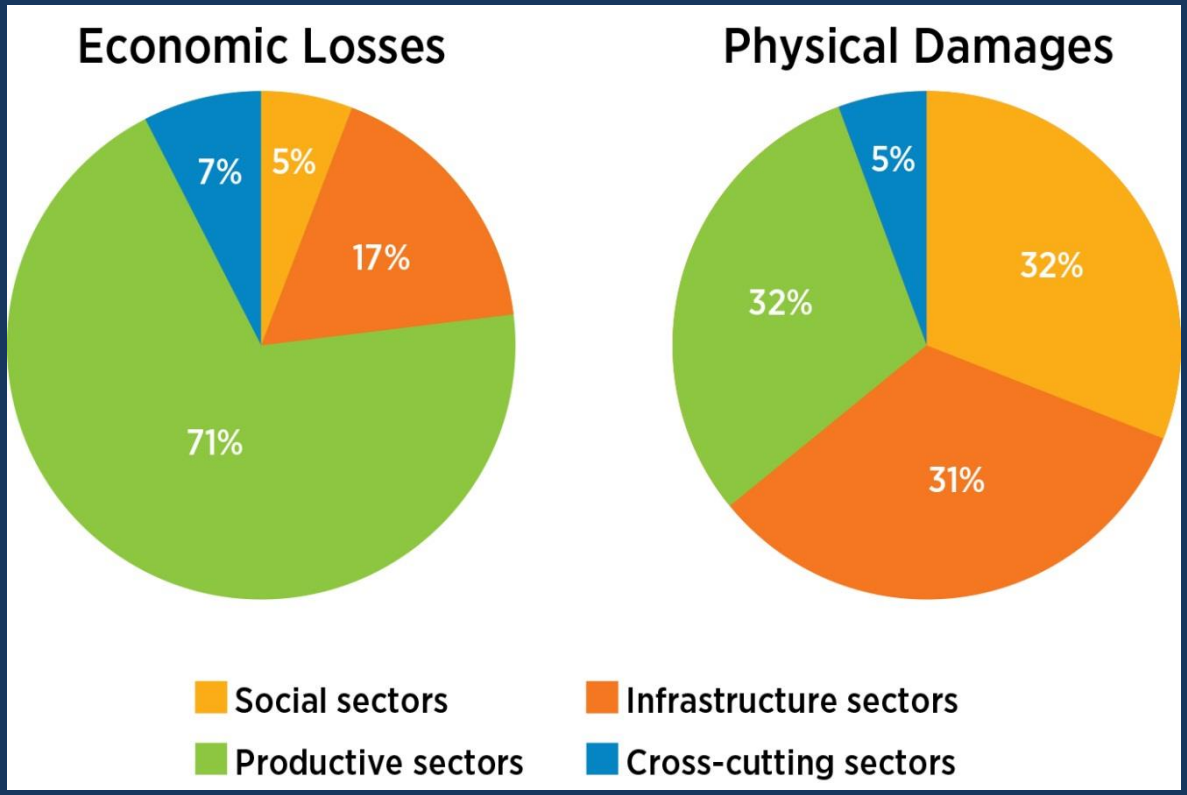
More information from: http://treasury.worldbank.org/web/documents/CatDDO_ProductNote.July2013.pdf

Resilient Recovery and Reconstruction



- Disasters often provide important windows of opportunity for climate resilient policies
- Since 2007, World Bank/GFDRR, in partnership with the UN and EU, supported 32 Post Disaster Needs Assessment, leading to US$3.4 billion in recovery assistance
- Rapid assessments have been used in countries with recurrent events (e.g. Mozambique, Horn of Africa)
- Reconstruction Framework Guide planned for 2014

Post Disaster Loss and Damage Assessments



Post Disaster Needs Assessment

Resilient Recovery and Reconstruction Planning

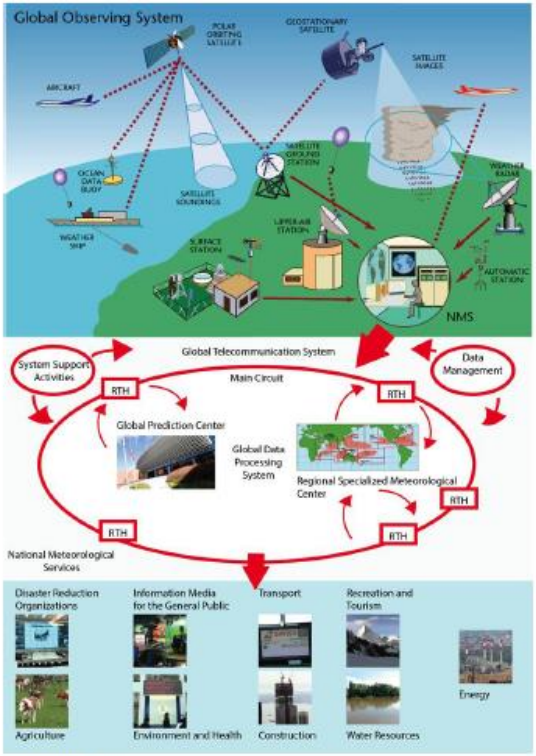
Resilient Development

Preparedness: Modernizing Hydro-Meteorological Services

Institutional strengthening and capacity building

Modernizing observing infrastructure and forecasting

Enhancing service delivery system



After WMO

Upgrading hydrometerological information and early warning capacity in developing countries would save an average of 23,000 lives annually and provide between US$3-30 billion in additional disaster reduction benefits

-- Stephane Hallegate, World Bank 2012

- **Growing portfolio at the WB** *(ca. US$450 million, 13 projects)*
- **Example: Sahel Regional Disaster Resilience Project (under preparation)**
- **Key principles:**
  - *Open and free data*
  - *Focus on service delivery*
  - *Use standards and best practices*
  - *Consider regional and global links*

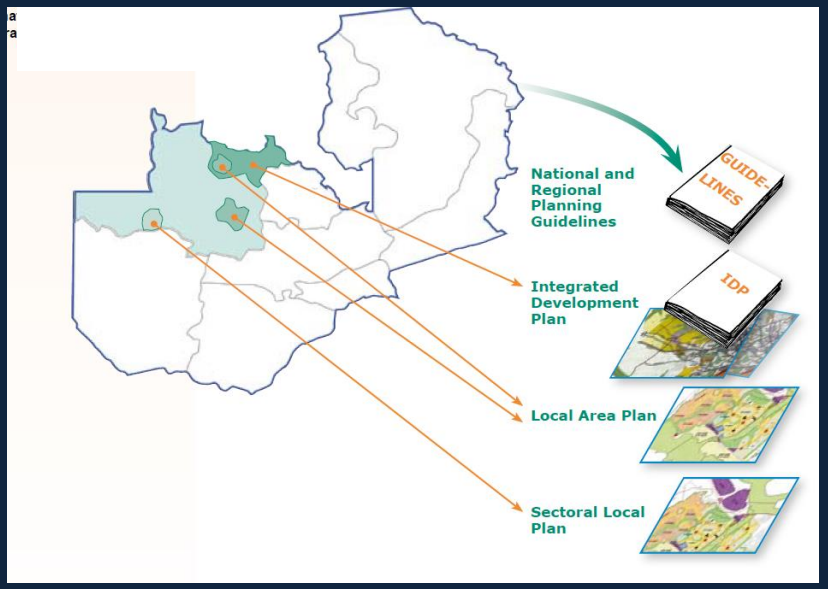
Key challenges:

- *Sustainability*
- *Institutions*
- *Relevance to end users*

Relevant Experiences for GCCA+

MAINSTREAMING RESILIENCE into DEVELOPMENT PLANNING

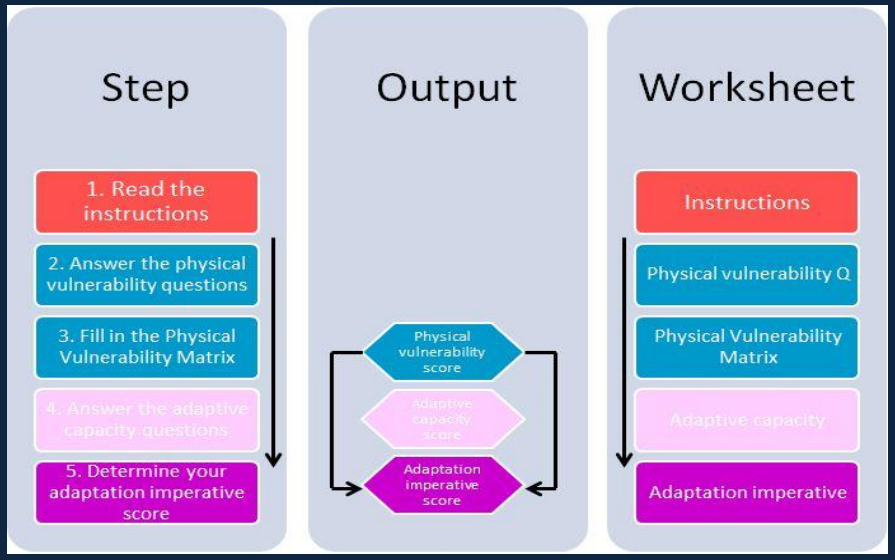
1. **In the Zambia PPCR, climate resilience will be mainstreamed into Integrated Development Plans and Local Area Plans**
2. **Program disburses 30% increment as an incentive for local plans to become climate resilient**
3. **Good performing wards and districts could access additional funding**



Key Challenges:

- *Limited experience*
- *Scaleability*
- *Risks leaving poorer areas behind*

Mainstreaming at National Development and Sector Level



The Hands On Energy Adaptation Toolkit (HEAT), developed by ESMAP, screens the power sector for vulnerability, adaptive capacity, and adaptation imperative (urgency to act)

Matrix indicating the adaptation imperative for the country's energy sector

Physical vulnerability: High / Adaptive capacity: Low	Physical vulnerability: High / Adaptive capacity: High
Greatest adaptation imperative Large number of physical climate change vulnerability challenges and strong need for assistance because of low country adaptive capacity	**High adaptation imperative** Large number of physical climate change vulnerability challenges and need to accompany country's climate change adaptation efforts
Low adaptation imperative Limited number of physical climate change vulnerability challenges, though individual risks could be high, and large opportunity to reduce overall vulnerability by building adaptive capacity	**Lowest adaptation imperative** Limited number of physical climate change vulnerability challenges, though individual risks could be high, and limited opportunity to reduce overall vulnerability because of high country adaptive capacity

Physical vulnerability: High / Low

Adaptive capacity: Low / High

Risk Reduction: Safer Building Codes and South-South Learning

Minimum return periods for transport infrastructure (in years)

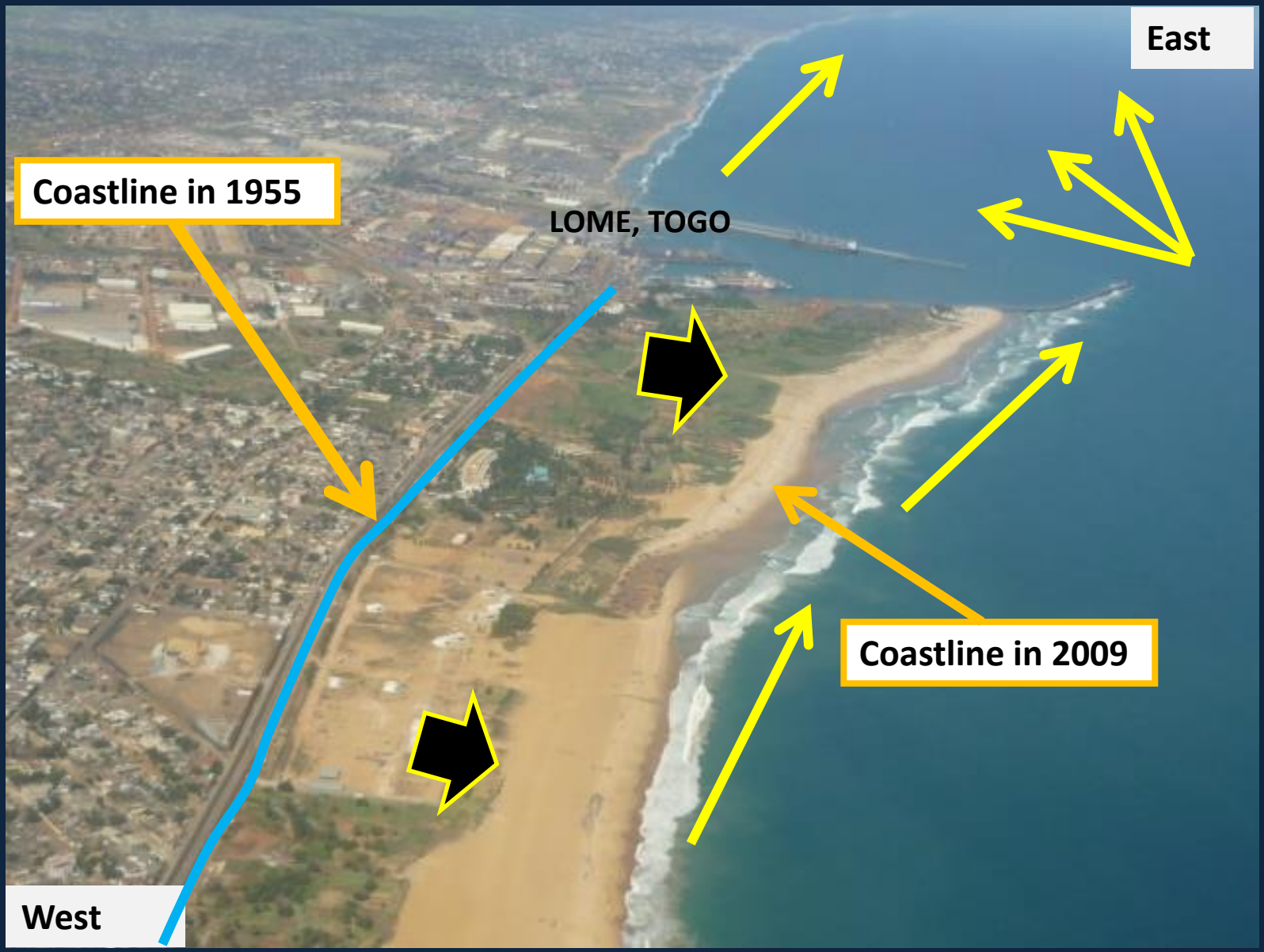
Zone	Roads		Drainage		Bridges		Dykes
	Surface	Embankment	Longitudinal	Transversal	Decks	Pillars	
High plateau, high rainfall	150	150	50	150	300	150	150
High plateau, low rainfall, occasional flooding	50	50	50	50	300	100	100
Watersheds in extreme south	75	75	50	75	300	150	150

- *Madagascar developed safer codes for public buildings, transport infrastructure and irrigation structures*
- *Highly participative process, managed by unit at Prime Minister's office*
- *Decree on public buildings allows communities to claim civil penalties for builders AND inspectors responsible for collapsed buildings*
- *Extensive training of builders and community awareness campaign*
- *Model expanding regionally - Mozambique now developing safe school standards, with Malawi interested*

Key Challenges:

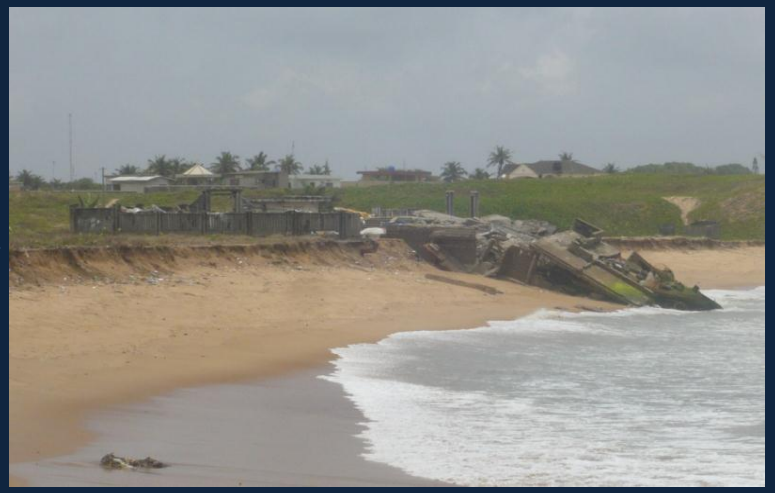
- *Ensuring compliance*
- *Donor bias for quantity over quality*
- *Changes in procurement practices*

Managing Settlements at Risk



Jan. 2011

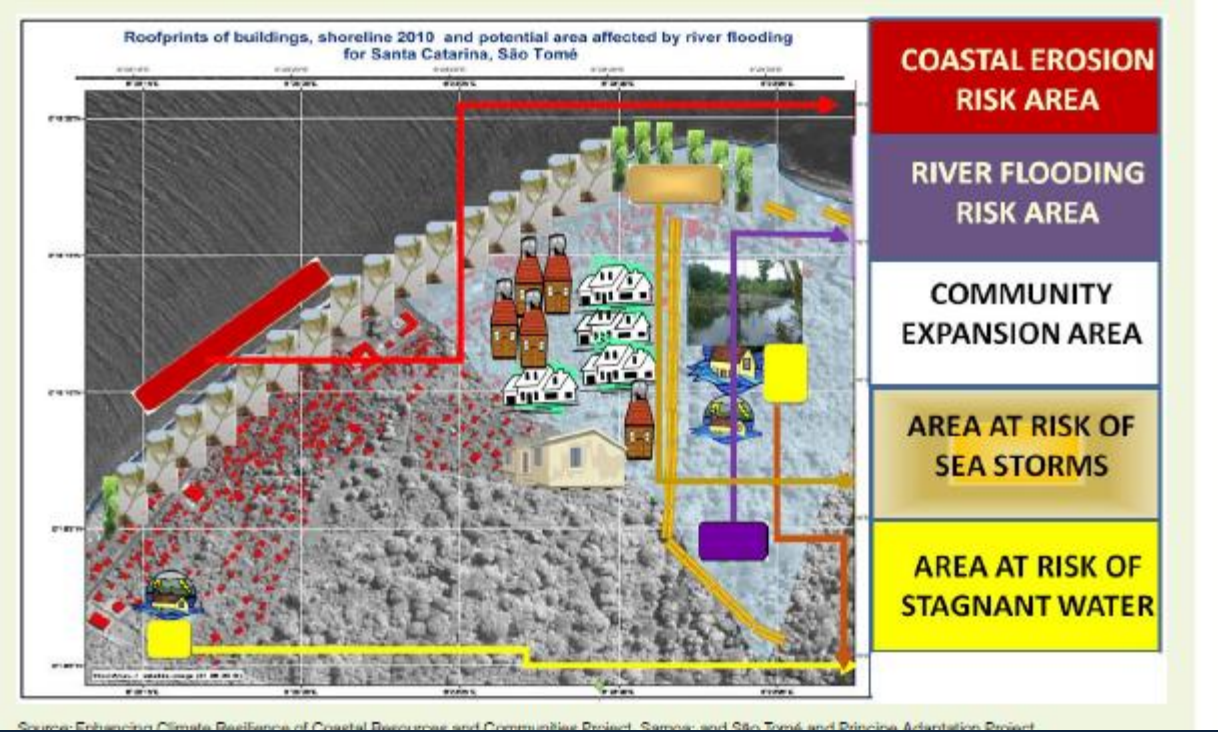
Sept. 2013



Nov. 2007

Sept. 2008

Risk Reduction -Managing Settlement Expansion
Combining Geospatial with Participatory Planning



- ***In Sao Tome and Principe, historical trend maps were combined with participatory planning to designate future expansion areas into safer zones***

- ***A combination of ecosystem management and structural engineering measures are needed***

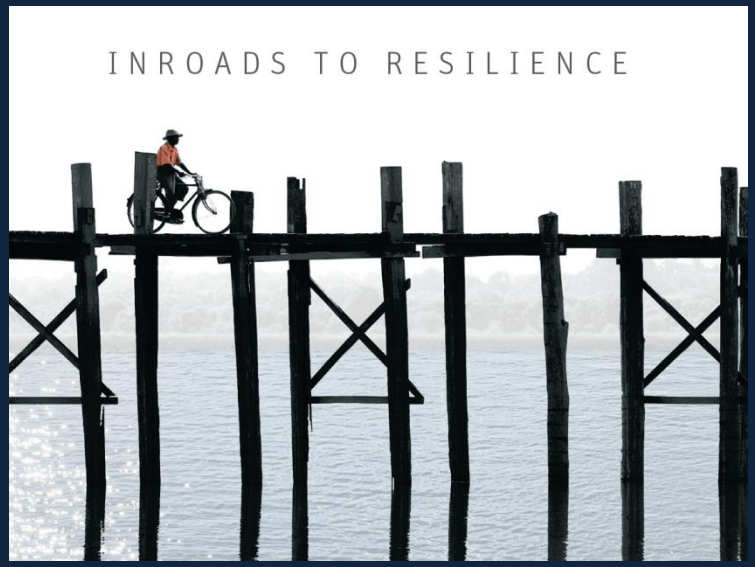
Key Challenges:

- *Rapidly eroding coastlines*
- *Available land already occupied (often by speculators)*
- *Hard choices involved - population retreat vs. protection*

Other Remaining Challenges

1. **Overcoming institutional barriers and disincentives**
2. **Building resilience under limited data and capacity**
3. **Long start-up process, with high external staff inputs needed = slow disbursements!**
4. **Measuring resilience**
5. **Attracting private sector interest in adaptation (still low)**

For questions please contact



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http://www.worldbank.org/en/topic/climatechange
http://www.gfdrr.org
http://treasury.worldbank.org/bdm/htm/risk_financing.html