MANAGING CLIMATE AND DISASTER RISKS IN THE PACIFIC

OPPORTUNITIES AND CHALLENGES

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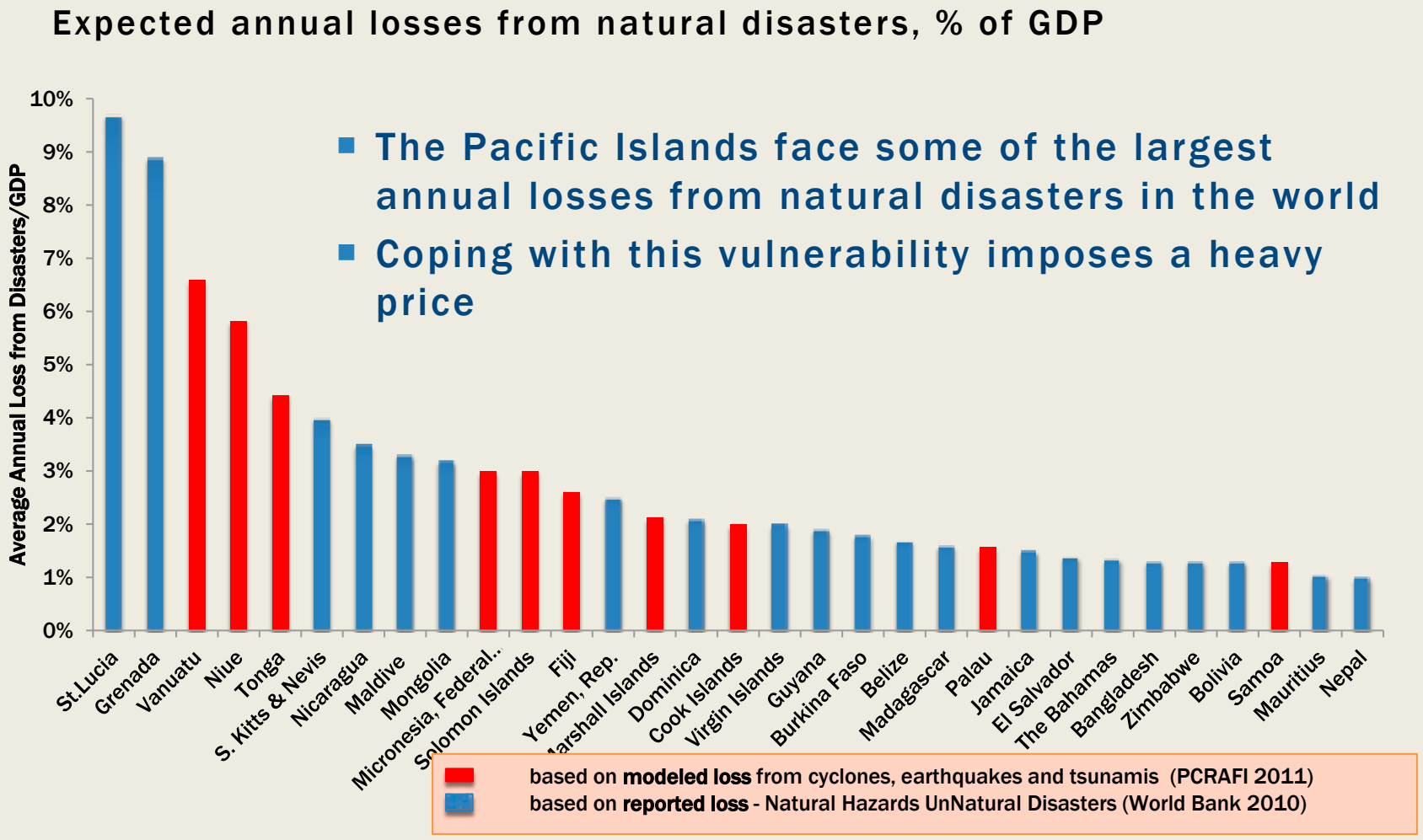
OUTLINE

- Vulnerability to Climate and Disaster Risks
- Policy Response
- The Role of Development partners

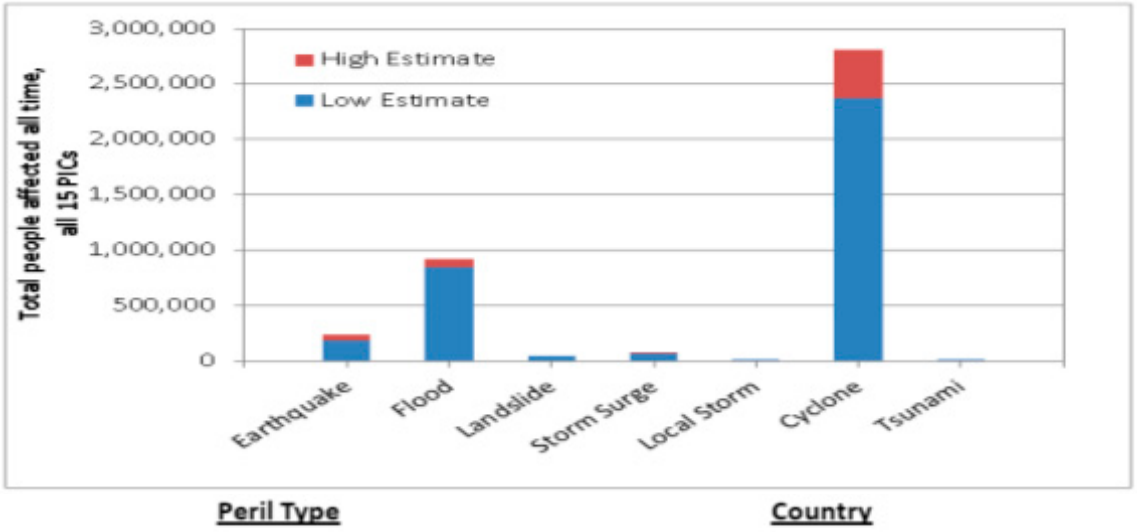
PACIFIC ISLANDS

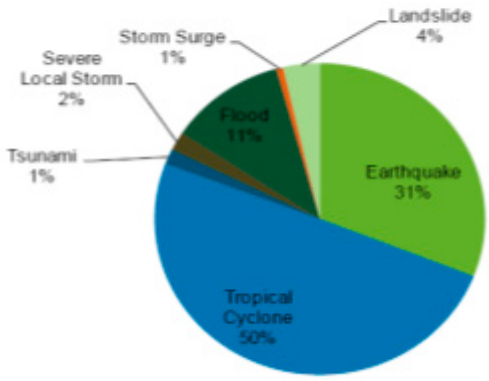
VULNERABILITY TO NATURAL HAZARD AND CLIMATE CHANGE

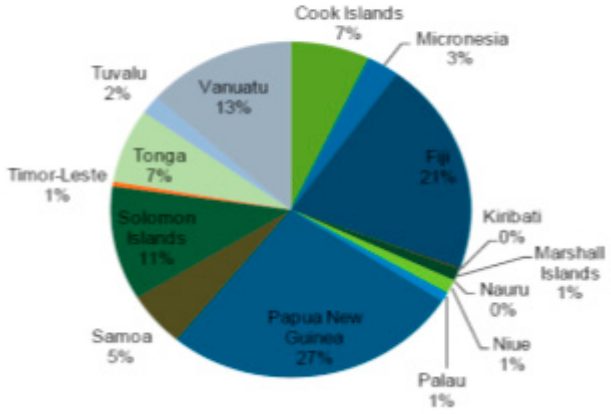
PACIFIC ISLANDS COUNTRIES AMONG THE MOST VULNERABLE IN THE WORLD TO NATURAL HAZARDS



CLIMATE RELATED HAZARDS ARE PREDOMINANT





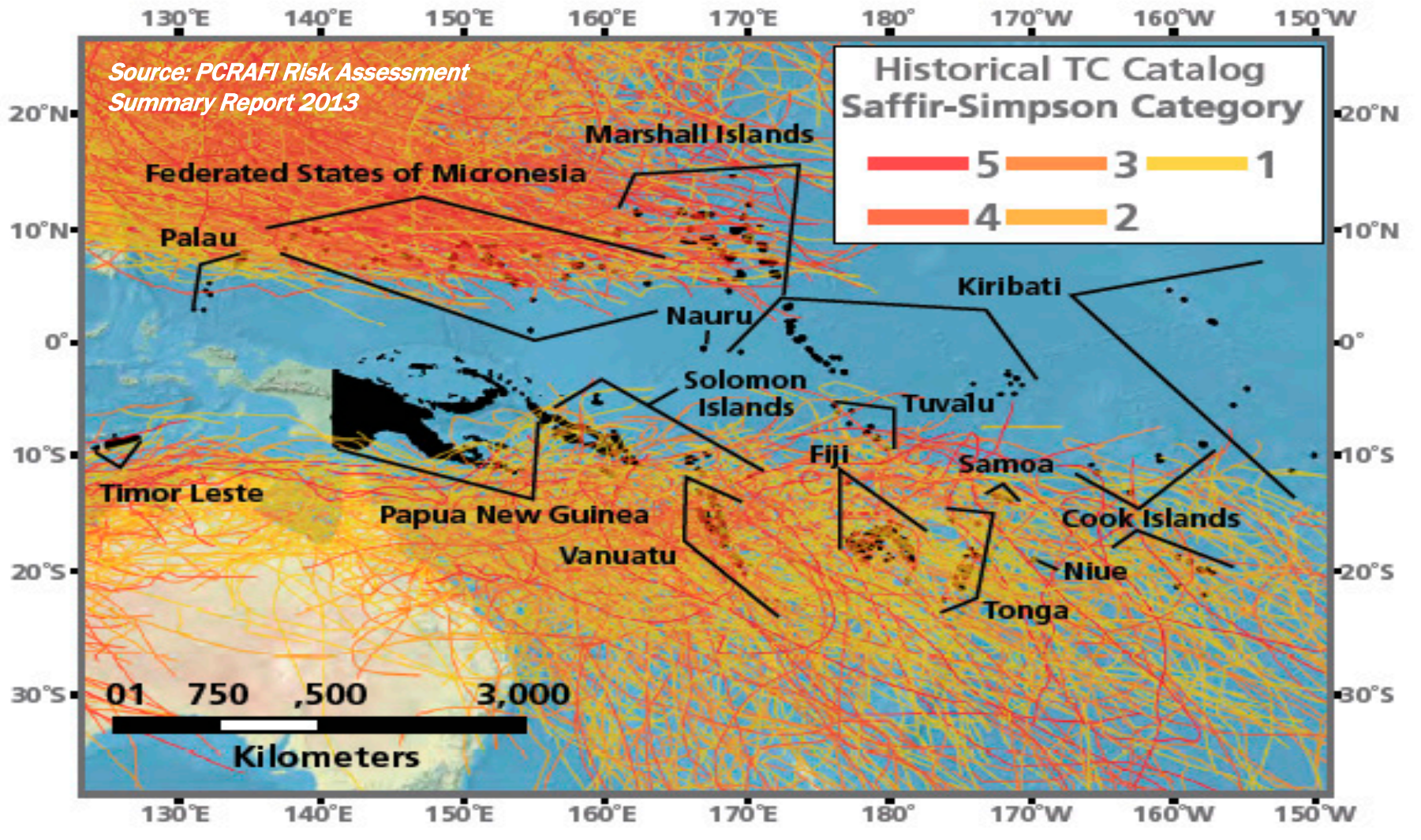


Total people affected in all 15 PICs

Distribution of natural hazards by peril and country

Source: PCRAFI Risk Assessment Summary Report 2013

MORE THAN 2,400 TROPICAL CYCLONES IN 60 YEARS



PROJECTIONS FOR A 4°C WARMER WORLD

Heat waves	Increase in the intensity and frequency of hot days, temperature extremes and heat waves.
Rainfall	Widespread increase in the number of heavy rain days (20-50 mm) and extreme rainfall events
Cyclones	The cyclone intensity is likely to increase in the 21st century with continued warming
Sea Level Rise	Regional sea-level rise is likely to exceed 0.5 m above current levels by about 2060, and 1 m by 2090 and several meters more to be realized in the coming centuries (~10–15 percent higher in the tropics than the global mean)
Coral reef systems	Already affected by increasing coastal and ocean temperatures and ocean acidification; may stop to growth and start to dissolve with the projected warming and acidification

Sources: (i) Turn down the Heat (4 degree) reports (WB 2012-13), (ii) 5th Assessment Report (IPPC 2013), (iii) Pacific Climate Change Science program (GoA, AusAid)

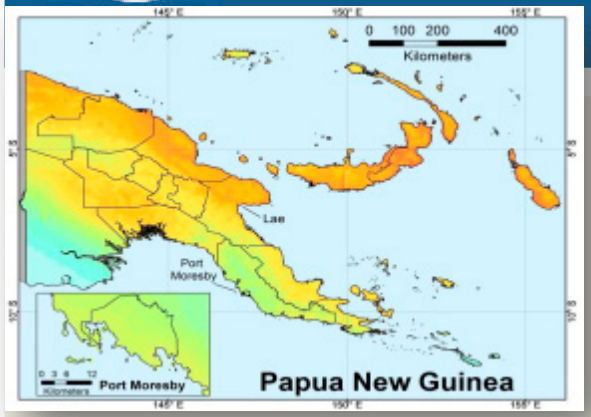
MAJOR SECTORAL IMPACTS

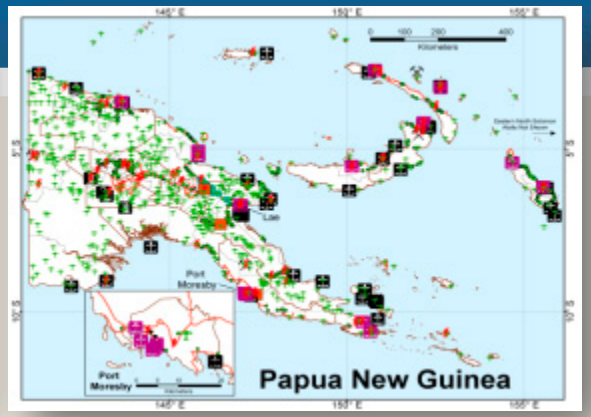
- **Agriculture/food security:**
  - Recent studies suggest a rapidly rising risk of crop yield reduction as the world warms, because of the negative effect of high/extreme temperature on crops (e,g rice, breadfruit in the pacific)
- **Water:**
  - Increased seawater penetration into coastal aquifers and population growth will exacerbate water scarcity
- **Infrastructure:**
  - Extreme weather events, sea level rise and coastal erosion is likely to lead to large costs related to coastal protection measures, continued infrastructure replacement and relocation of critical infrastructure, especially in low lying islands.
- **Coastal zones:**
  - Extinction of coral reefs would be catastrophic for the environment and the people who depend on them for food, income and shoreline protection
  - Fisheries are expected to be affected by the impacts of sea-level rise, warmer oceans, and ocean acidification
- **Health:**
  - WHO identifies small island developing states as particularly vulnerable to health impacts, because of the salinization of fresh water and arable land, as well as exposure to storm surges.

THE POLICY RESPONSE

BUILDING RESILIENCE AND STRENGTHENING PREPAREDNESS

UNDERSTANDING RISKS IS THE FIRST STEP TOWARD MANAGING CLIMATE/DISASTER RISKS





Hazard

Exposure/Vulnerability

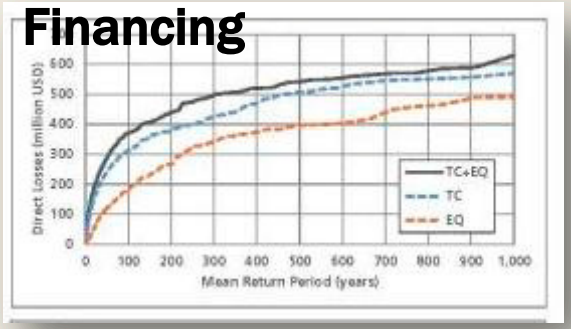
Risk

PCRAFI

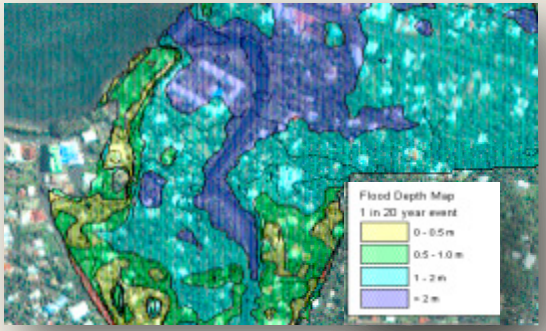
PACIFIC CATASTROPHE RISK ASSESSMENT & FINANCING INITIATIVE

http://pacris.sopac.org

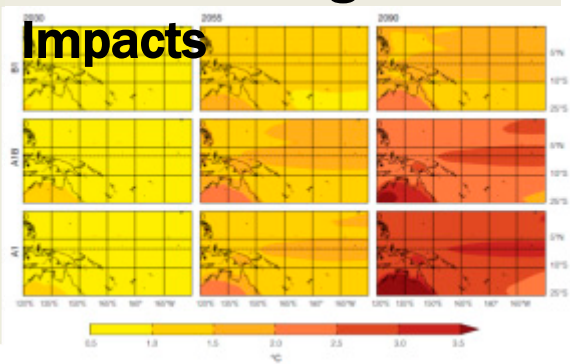
Disaster Risk Financing



Investment Planning



Climate Change Impacts



REDUCING RISKS AND BUILDING RESILIENCE

- **Climate Smart Agriculture (e.g. PNG, *Vanuatu/Increasing Resilience to CC and Natural Hazards Project*)**
  - **A "triple win":** incomes, resilience and mitigation
  - Use of proven practical techniques, such as mulching, intercropping, conservation agriculture, crop rotation, integrated crop-livestock management, agro-forestry, improved grazing, and improved water management.
  - Promoting innovative practices such as better weather forecasting, drought- and flood-tolerant crops and risk insurance.

- **Water resources management (e.g Kiribati)**
  - Increasing water supply (e.g. by using groundwater, building reservoirs, improving or stabilizing watershed management, rainwater harvesting, desalination);
  - Decreasing water demand through conservation measures and leakage reduction;
  - Improving management of water supply networks to reduce waste.

REDUCING RISKS AND BUILDING RESILIENCE

- **Climate proofing of roads & infrastructure (e.g. Samoa, Kiribati, PNG)**
  - Improving planning and design standards for crossing rivers, drainage, coastal protection measures, embankment construction and pavement choices to adjust to predicted changes
  - Greater use of flood hazards and coastal inundation mapping and modeling to mitigate risks
- **Coastal risk reduction (e.g. Kiribati, Samoa)**
  - Integrated costal zone management, improved land use and infrastructure planning, reducing environmental degradation, and retreat from the coast;
  - Coastal protection measures including sea walls, beach nourishment, offshore wave dissipation measures, mangrove plantations.

STRENGTHENING PREPAREDNESS AND RESPONSE

There will always be residual damage, so essential to have:

- **Early warning systems,** contingency planning tools, effective risk communication, community awareness raising (e.g. Vanuatu, Solomon Islands)
- **Mobile Based Disaster Early Warning Systems** which aim to improve the **last mile communication,** building on similar initiatives in Vietnam, Sri Lanka and Japan.
- Strong **emergency response mechanisms**, including improved financial response capacity in the aftermath of natural hazards events (e.g. PCRAFI)
- Promoting '**building back better**' or resilient reconstruction (e.g. Post Tsunami 2009 in Samoa and Tonga, Post TCE 2012 in Samoa)

THE ROLE OF THE WB AND DEVELOPMENT PARTNERS

WB VALUE ADDED

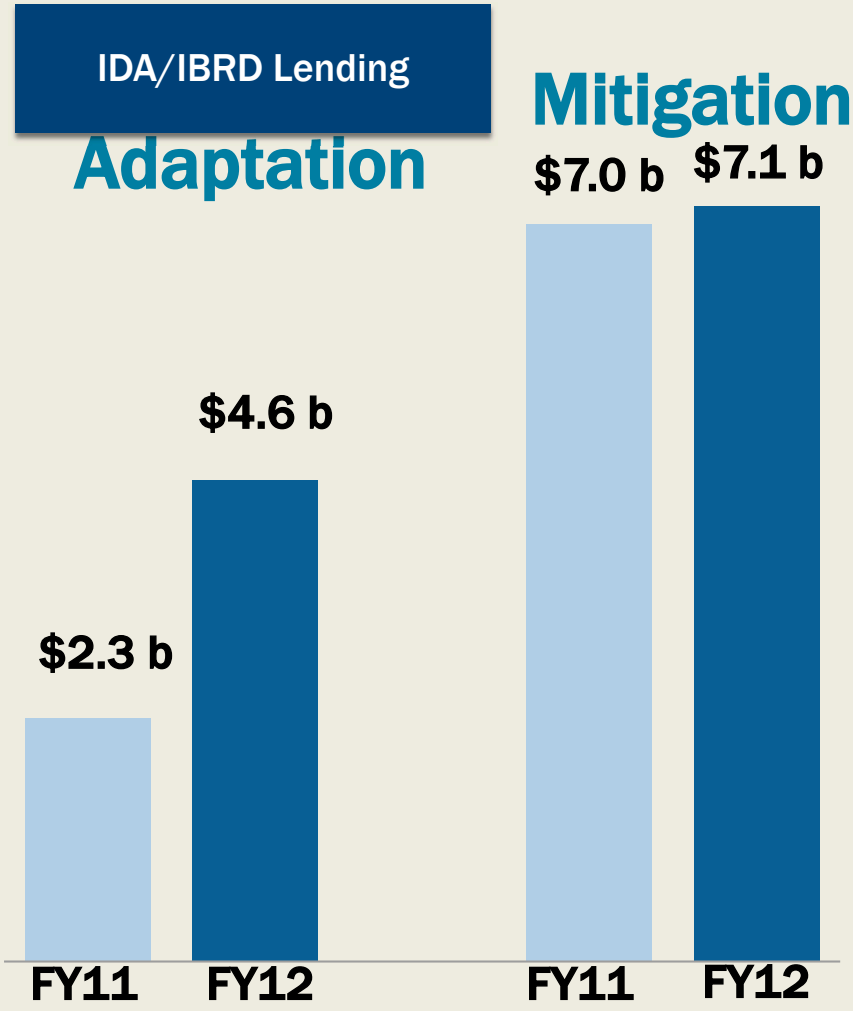
- **Policy dialogue:** Strengthen Governments' ability to respond to the climate and disaster risks in a holistic manner and integrate DRM and CCA into and across the development agenda; including facilitating dialogue with Ministry of Finance on the fiscal and financial impact of disasters.
- **Knowledge:** Invest in innovation/pilots and transfer knowledge and tools from global to regional levels, and be an effective 'knowledge broker' through project design and implementation (PCRAFI is a good example);
- **Investments:** Encourage governments to plan and invest in concrete 'resilient development' actions;
- **Donor coordination/strategic partnerships:** Strengthen DRR and CCA coordination and partnership with key donors and partners as an initial step to improving DRR/CCA donor coordination more broadly.

ACCESS TO FINANCE

A Growing Menu of Climate Finance Instruments

Adaptation

- The Adaptation Fund
- Special Climate Change Fund
- Least Developed Country Fund
- Pilot Program for Climate Resilience
- Global Facility for Disaster Reduction & Recovery
- Green Climate Fund



REGIONAL DRM PROGRAM

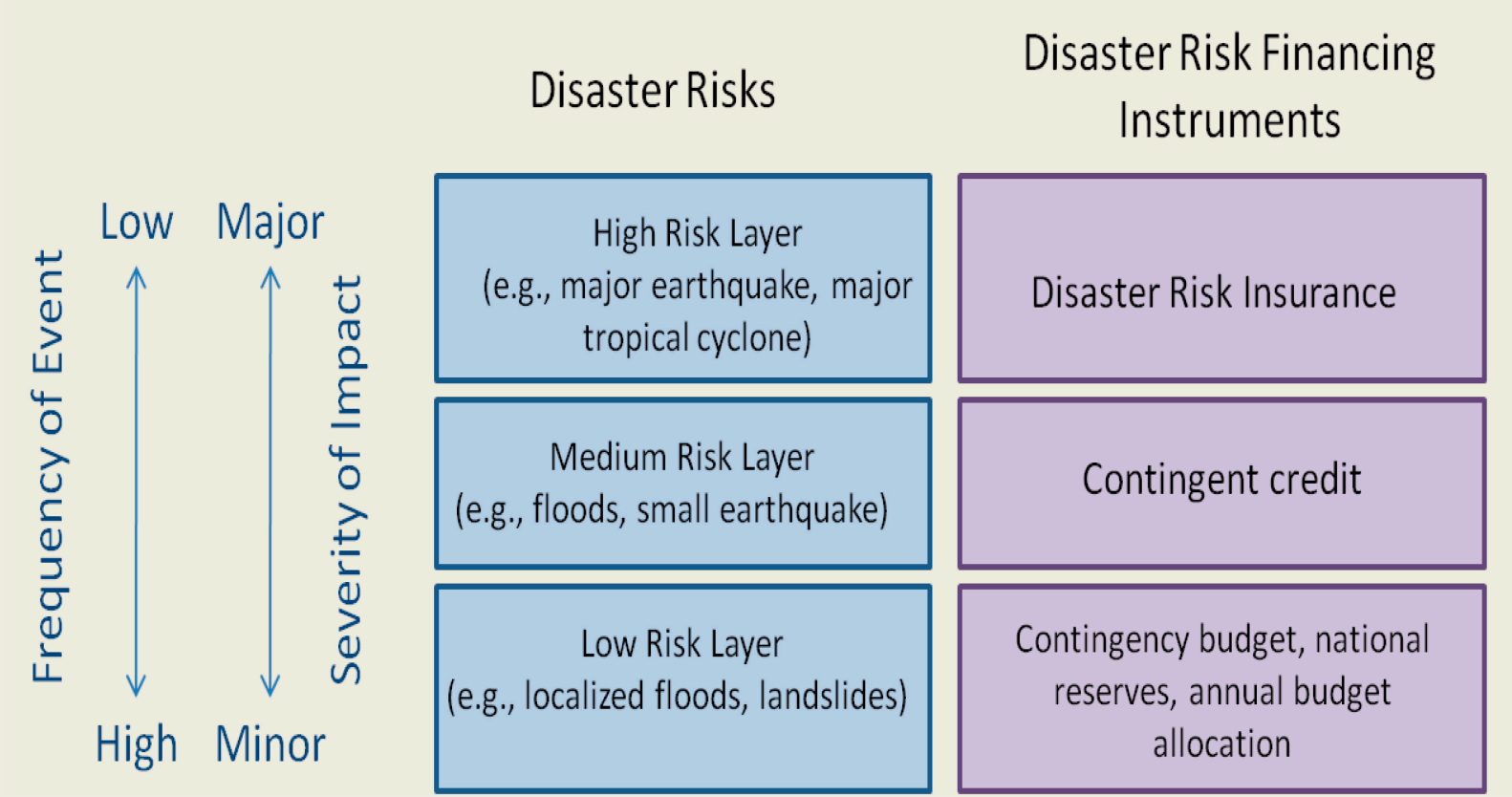
COMBINING RESILIENCE WITH FINANCIAL PROTECTION

- ***BEFORE: Better Risk Information***:
  risk information and tools, integrating risk in planning & design of key-infrastructure

- ***DURING: Increased resilience:***
  early warning, community resilience and DRM capacity building

- ***AFTER: Managing residual risks:***
  financial tools for immediate response and recovery
  - (i) national reserves,
  - (ii) regional contingent credit facility, and
  - (iii) catastrophe risk transfer mechanism.

TOWARDS AN INTEGRATED DISASTER RISK FINANCING STRATEGY



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