

Climate Change and Poverty

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**Macroeconomic Impact of Climate Change:
“Opportunities and Challenges”**

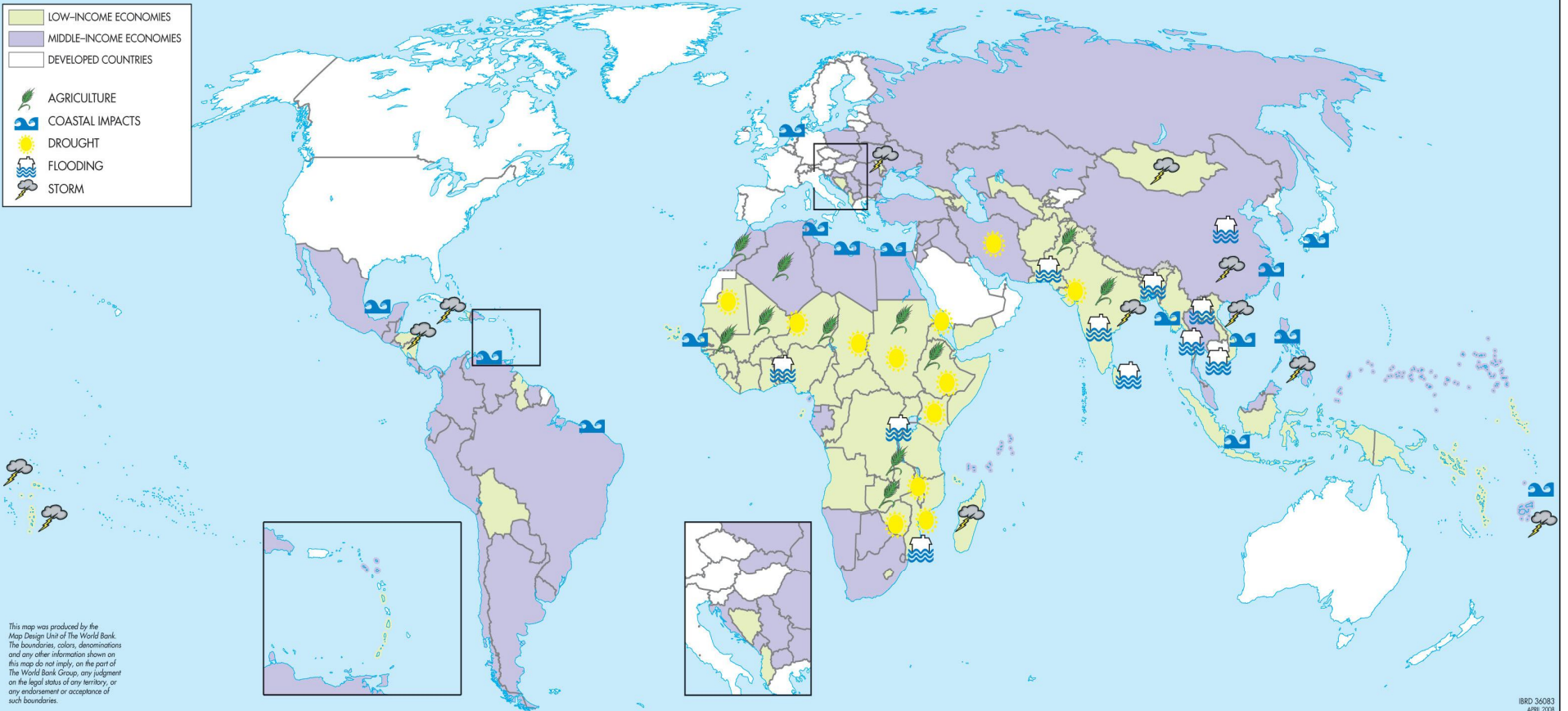
**Bank Indonesia, Annual International Seminar
Nusa Dua, Bali, August 2 , 2008**

Growth versus Environment?

“Some environmentalists argue that developing countries should sacrifice some of their hopes for economic development in the interest of slowing the climate change that may prove disastrous. But the advice contains a contradiction. Any disaster to developing country will be a disaster to their economic development... **It is not economic growth versus environment. It is growth with the environment taken into account.**” (Thomas Schelling, 1992)

Costs will be highest in developing countries

- LOW-INCOME ECONOMIES
- MIDDLE-INCOME ECONOMIES
- DEVELOPED COUNTRIES
- AGRICULTURE
- COASTAL IMPACTS
- DROUGHT
- FLOODING
- STORM



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...and their development path most affected



Decision Making Under Uncertainty

“This uncertainty will be resolved over time and the world should not lock itself into precise, quantitative commitments for the far-flung future.”

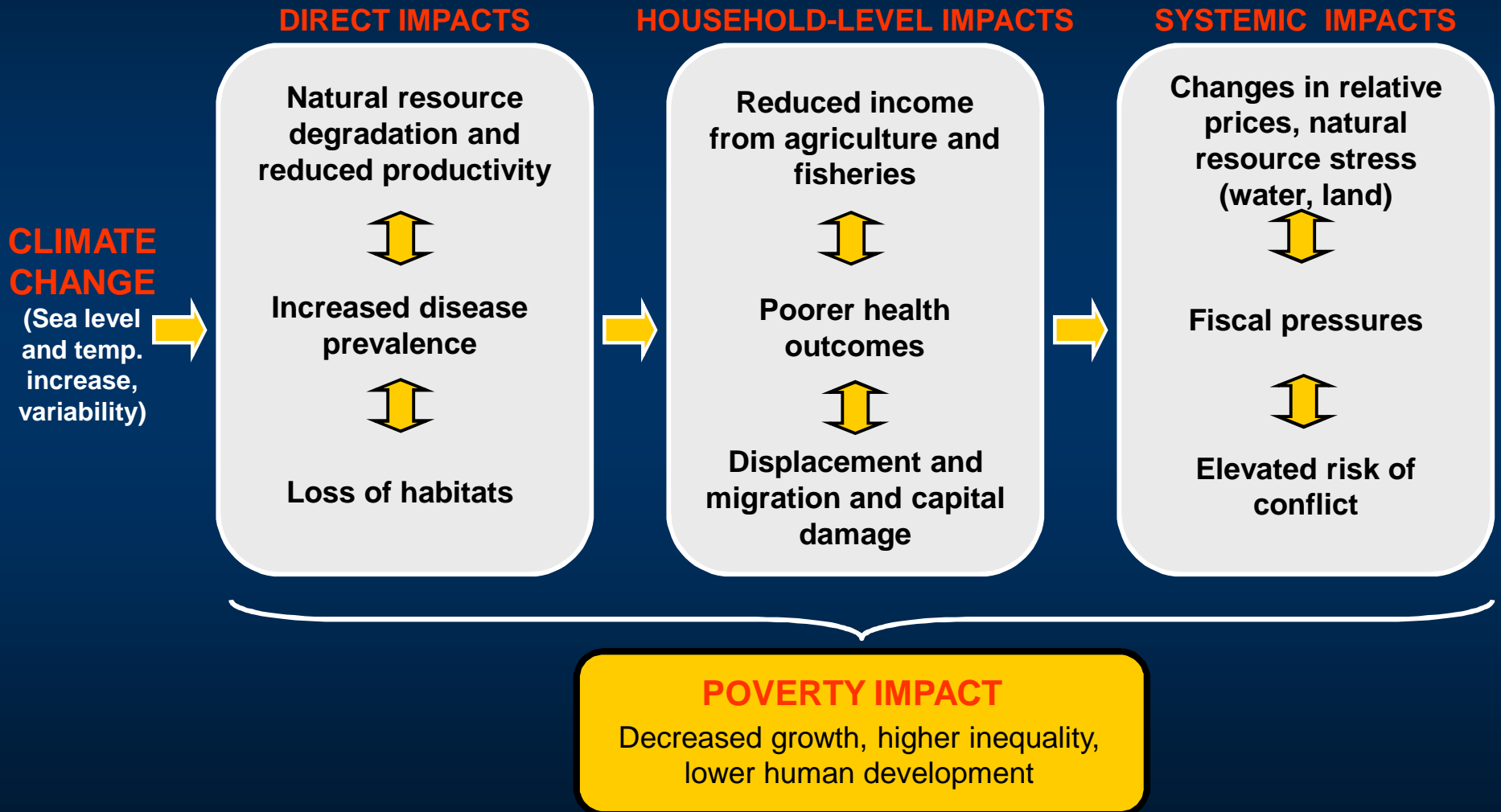
– Commission on Growth and Development, 2008

Increasing uncertainty



- **Direct Impacts**
 - Future GHG depends on long run growth, demographics and technological change
 - Range of uncertainty for the extent of global warming for a given rise in GHGs is around a factor of 3
- **Household impacts**
 - Depends on all of the above + private and public adaptation
- **National impacts**
 - Depends on all of the above + development

Unpacking Climate Change and Poverty



Poorer Households Will Be Most Affected By Climate Change

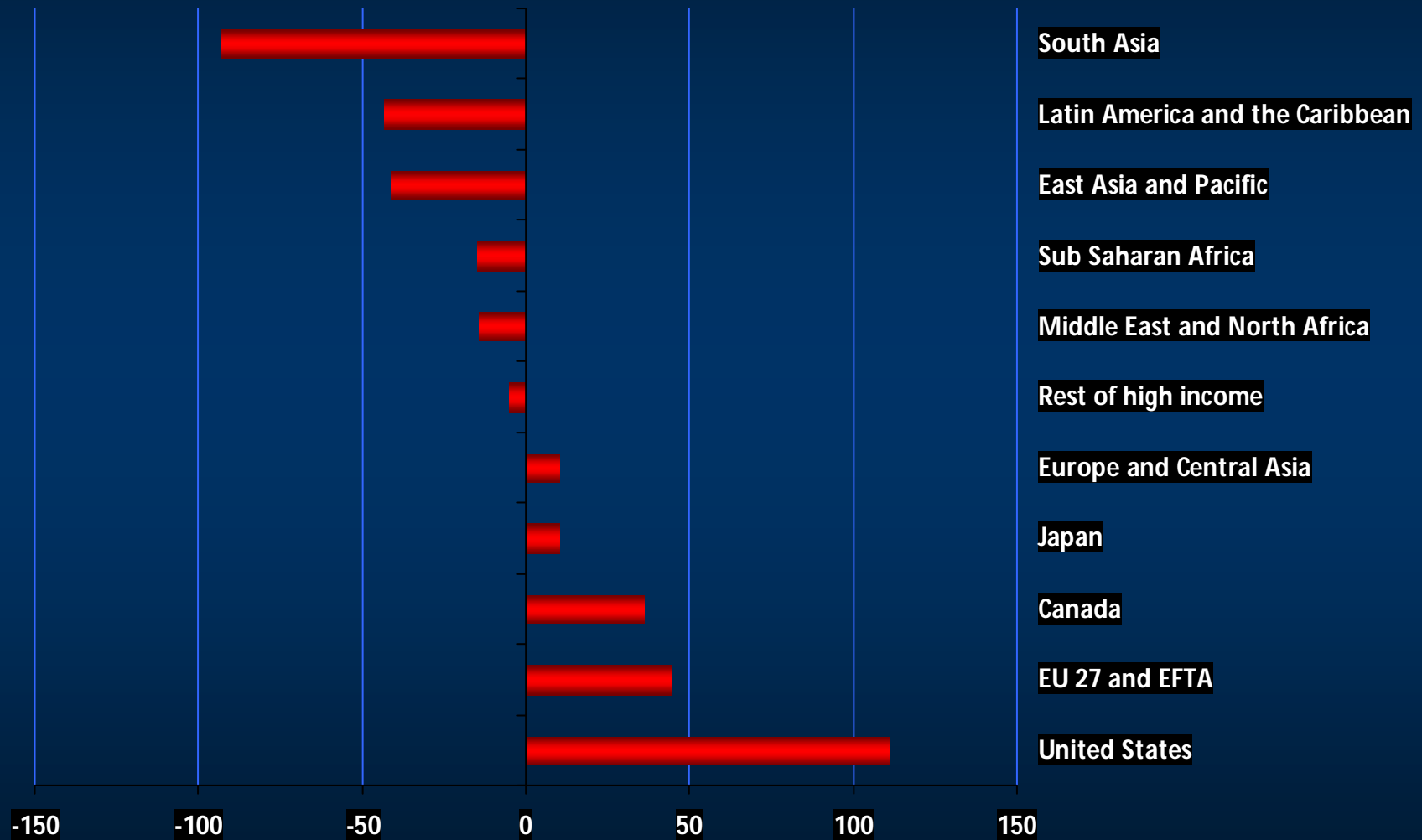
- Heavy reliance on declining income from natural resources:
 - Reduced agricultural productivity:
 - Niger, -31%; Burkina Faso -20% (2050)
 - Increase in “dead zones” in primary fishing grounds
 - Poor depend heavily on environmental incomes:
 - 32% of poor’s income, 17% of non-poor’s income, with higher shares from agriculture.
- The poor face severe health impacts along with lower initial wellbeing and less access to services:
 - Kenya, 50% more childhood malnourishment if born during drought
 - Projected increases of malaria Brazil, Sthn Africa, Horn of Africa
- Poorer households more likely to migrate but less equipped:
 - 150m “environmental refugees”?
- Poverty traps from repeated climate-related shocks and stresses: asset depletion, investments in low risk-low return activities, sickness.

Systemic Impacts Also Threaten Inclusive Growth

- **Changes in relative prices will affect poverty and distribution:**
 - Significant changes in agricultural trade flows
 - Rising fuel prices (impact of global mitigation policies)
 - Rising cost of skilled labor relative to unskilled labor
- **Rising fiscal pressures will strain poverty and investment budgets:**
 - IMF estimates that food and energy crisis raised fiscal costs by 7-10% of GDP between 2006 and 2008
 - During droughts (1990-1994) Malawi's budget deficit increased by 23%
- **Stress over natural resources can elevate conflict risk:**
 - 1990s Tuareg rebellion and current tensions in Nile Basin and W. Africa
- **Fragile states particularly vulnerable to systemic effects**

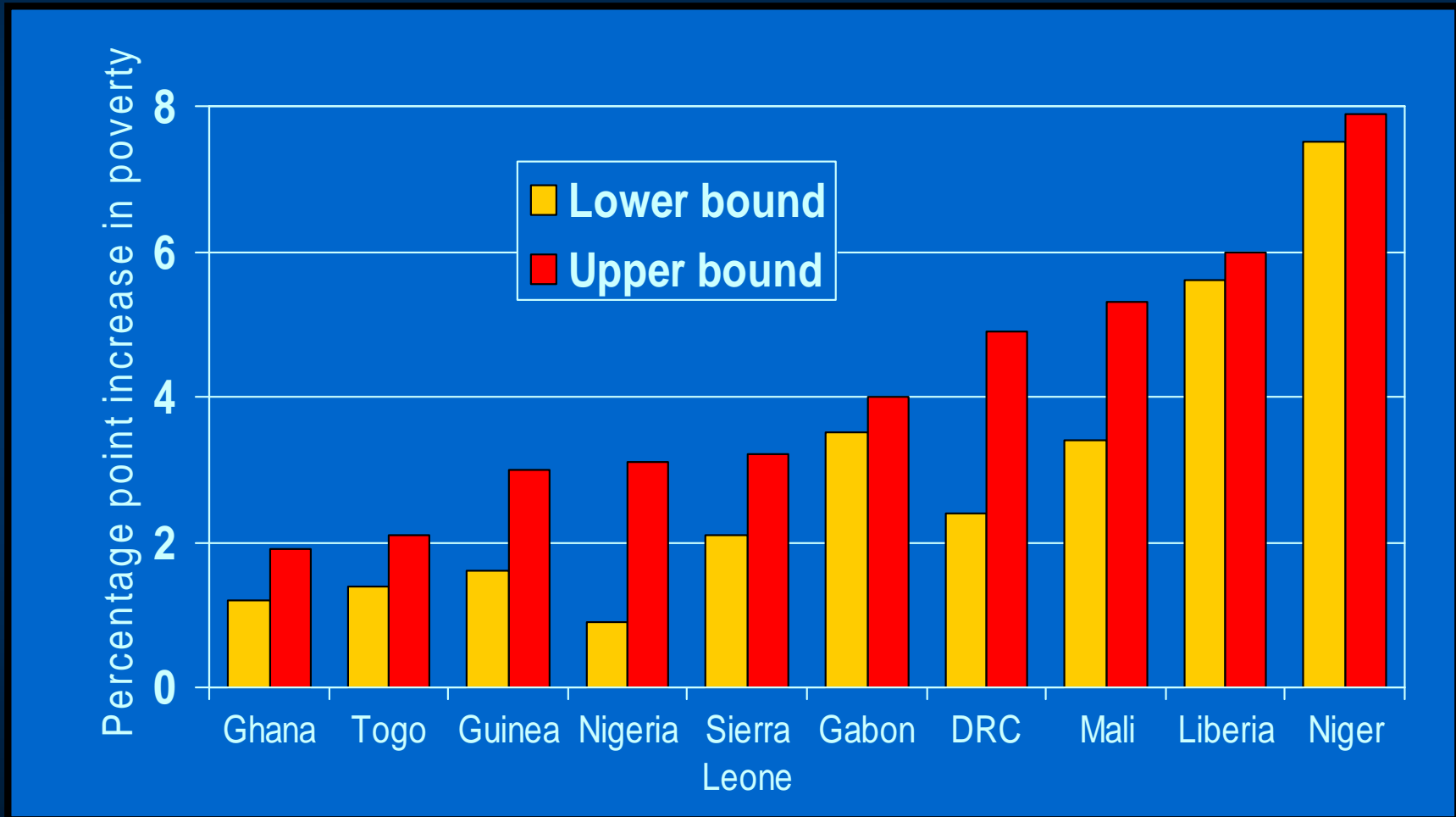
Climate change and net food exports

Difference in agriculture net exports in 2050 relative to baseline, 2001 US\$ bn.

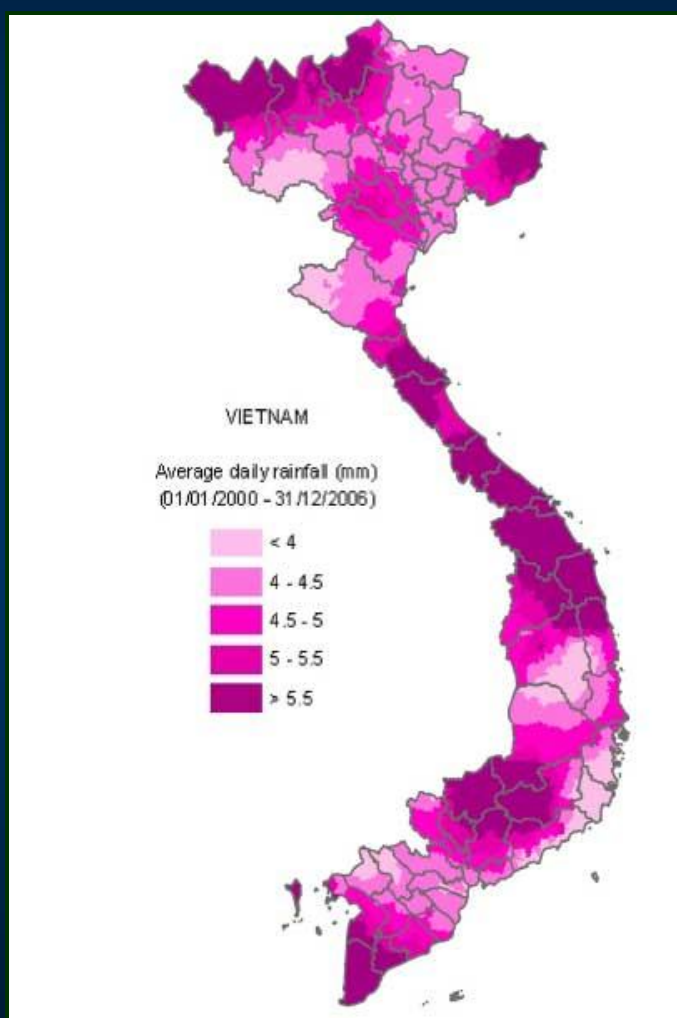


Source: Simulations with World Bank's ENVISAGE model.

Vulnerability to Price Shocks: Food crisis poverty impacts



Vietnam: Impressive Progress is Vulnerable to Climate Change



- Poverty headcount fell from 58% in 1993 to 16% in 2006
- Vietnam is among the top 5 most vulnerable countries to SLR and related flooding (especially Mekong Delta). 70% of population in lowland areas.
- Vulnerable also to growing rainfall variability (especially in poorer Northern Mountains), storms, and landslides.
- Natural disasters 1991-2000 → loss of 2.3m tons of food, 6m houses destroyed, \$3bn assets

Source: Quy-Toan Do and Trung Dang Le (2007).

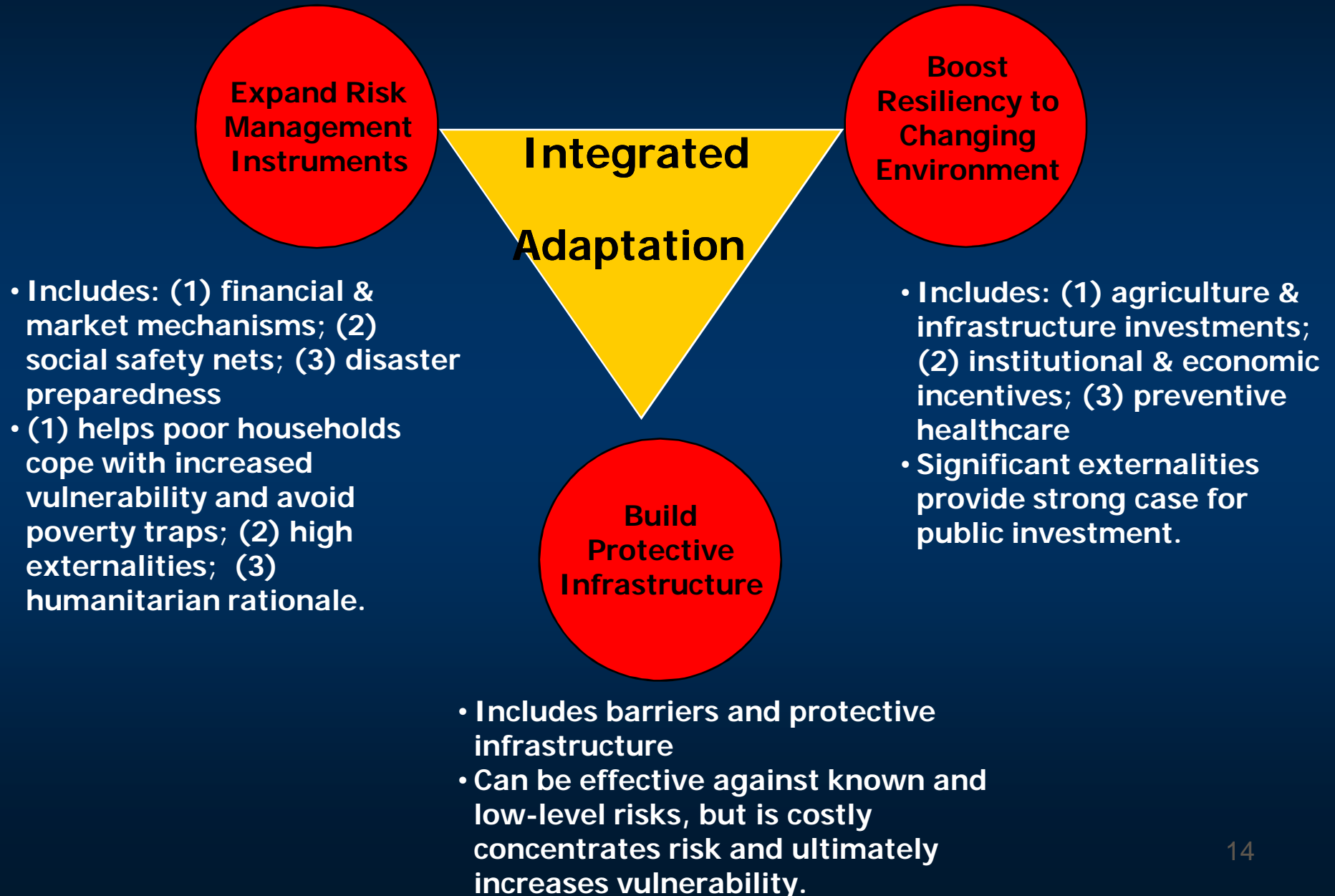
Addressing Climate Change Central to Poverty Reduction Agenda

- Mitigation policies to adopt less GHG intensive technologies.
- Adaptation strategy integrated with national poverty reduction strategies.
- Economic adjustment to impacts of global climate policies and impacts (leading to rising commodity prices and changes in trade flow)
 - E.g., Improved global food markets (monitoring, coordination) and global trading environment (Doha)

Effective Mitigation Supports Poverty Reduction

- Mitigation must proceed on a win-win basis with sensitivity to the needs of the poor...
 - **Increased efficiency:**
 - China reduced energy intensity by 38% since 1980
 - New market based instruments to reduce emissions and leverage private sector investments.
 - **Increased renewables:**
 - Support for more stable policy and regulatory frameworks for renewable energy
 - **Increased access – especially for the poor**
 - Electrification rate in S-S Africa 26% (2005)
 - **Compensatory policies for regressive mitigation fiscal policies**
 - ...Carbon taxes and emission targets likely to be very regressive.
 - Compensatory programs will be necessary: e.g. Indonesia, cash transfer program and pro-poor spending alongside fuel subsidy cuts
- And with recognition that increased financing will be necessary in all areas – efficiency, renewables, access and social protection.

Three Pillars of Integrated Adaptation Strategy



Pillars of Integrated Adaptation

- **Boost resiliency to the changing environment:**
 - Investments in flood, heat and drought resistant agriculture.
 - Improved regulatory framework for natural resources (water/land markets)
 - Subsidies and incentives to promote less climate sensitive activities.
 - Preventive healthcare (water/sanitation, vaccines, health care access)
 - Stronger building codes and climate-sensitive constructions
- **Expand risk management instruments:**
 - Investments in safety net programs
 - Disaster preparedness and monitoring plans
 - Vietnam: disaster forecast centers; flood corridors and flood retention areas; awareness raising.
 - Financial and market risk management mechanisms
- **Build protective infrastructure:**
 - Infrastructure investments – dikes and levees

The Analytic Agenda: Narrowing the Uncertainty Gap

- Increase precision of our understanding of the impact of climate change on poverty at the country and regional level
- Improve tools for cost-benefit analysis of mitigation and adaptation investments.
- Research the fiscal revenue and expenditure growth and distributional implications of adaptation and mitigation policies
- Identify key market or coordination failures that require intervention by public policy.

The Financing Agenda: New and Additional Sources

- Emerging cost estimates in order of hundreds of billions US dollars additional investments per year for several decades.
- “IDA plus”
 - Improved access to clean energy
 - Support for transition to low carbon development
 - Support for adaptation to climate change
- **Climate Investment Funds, approved July 08:**
 - Clean Technology and Strategic Climate Fund
- **Role of IFC:**
 - Enabling private sector investment

Development “With The Environment Taken Into Account”

- Several MDGs are vulnerable to climate change in next decade.
 - Food crisis illustrates potential for significant (7 year) setbacks on MDG#1, but effects likely to cut across all MDGs.
 - Nexus of climate change, fuel and food crisis underscore growing vulnerability of the poor
- Climate change policy and development are not “either/or” propositions:
 - Need “smart” climate change investments that contribute to poverty reduction and development
 - Adaptation and mitigation → energy efficiency, improved risk management, better natural resource management, new livelihood opportunities
- “The best defense for developing countries against climate change may be their own continued development.” Schelling, 1992.