

# Sustainable Development, Livelihoods & Poverty Findings from the IPCC, AR5

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# Key Regional Risks of Climate Change



Increased risk of heat-related mortality



Increased risk of drought-related water and food shortage causing malnutrition



Exacerbated poverty, inequalities and new vulnerabilities



Mountain-top extinctions in Asia

# Illustrative Potential Impacts



Food insecurity



Increased displacement of people



Loss of Biodiversity



Increased Flood damage

# Regional Impact

- Exacerbate multidimensional poverty - high mountain states, risk from sea level rise, indigenous peoples.
- Create new poverty pockets with increasing inequality, in both developed and developing countries.
- Poor households that are net buyers of food affected due to food price increases, in urban and rural areas

# Regional Impact : Extreme Events, Poverty

- Future increases in extreme events are overlaid with poverty
- Of the countries and regions most at risk;  
LICs-Bangladesh  
LMICs- India



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# Regional Impact: Sea Level Rise

- One study - 96% decline in tiger habitat in Bangladesh's Sunderbans mangroves with a 28 cm sea level rise
- Sea level rise threatens coastal and deltaic rice production areas in Asia – Bangladesh
- India- projected to experience 80% increase in population at risk from sea level rise
- Bangladesh – at risk population is predicted to grow to 27 million by 2050



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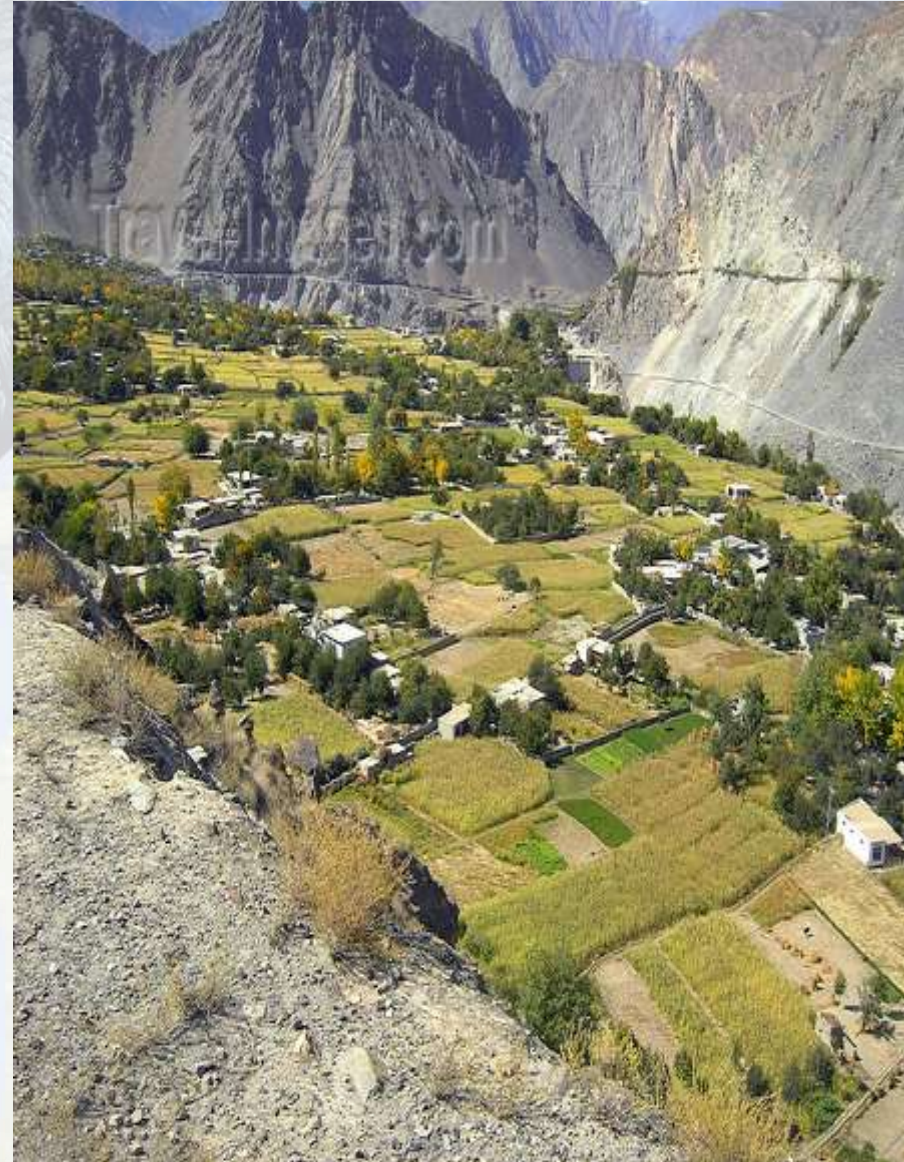
# Regional Impact : Food Production, Security

- Indus, Ganges, Brahmaputra, Yangtze, and Yellow River basins- impacts on water availability and food security due to climate change.
- Largest numbers of food-insecure people located in South Asia by mid 21 C.
- Food Production decline between 2030 and 2050 by upto 18% - India



# Regional Impact : Sub-national differentials

- Semiarid areas, rainfed agriculture : climate change impacts both +ve / -ve
- Projected temperature increases lead to wheat yield declines in one district but to increases in another
- Significant decline in wheat yields in Indo-Gangetic plain





# Regional Impact: Livelihoods

- High vulnerability of capture fisheries to climate change - Bangladesh, Pakistan

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  - In glacier-dependent Himalayan region, excessive runoff and flooding will threaten livelihoods

- Increase in hazards – glacial lake outbursts, landslides & floods may affect trekking in the Nepali Himalayas



# Gendered Impacts

- India- more women than men work as wage laborers to compensate for crop losses
- Nepal- shifts in monsoon, longer dry periods, decreased snowfall push girls and women to grow drought-resistant buckwheat and day labor
- Bangladesh-Restricted mobility keeps women waiting in risk-prone houses during floods.



# Adaptation, Mitigation and Sustainable Development

Adaptation, Mitigation - both for sustainable development and poverty eradication

Decision making involves valuation and distributional issues : who pays, who benefits; values and mediation of values

Sustainable Development : co-benefits, ancillary costs, adverse side-effects of response options in both adaptation and mitigation.

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# Sustainable Development, Adaptation & Mitigation

## *Instances of Interest*

- **Crop varieties adapted to climate change enhanced resistance to droughts and heat, raise productivity in non-climate change related droughts and temperature extreme**
- **Reductions in emissions from household biomass fuel combustion, reduces local pollutant emissions, associated health impacts**
- **Decarbonizing production of electricity, reduce CO<sub>2</sub> emissions, reduces PM<sub>2.5</sub> and associated mortality.**
- **Uncertainties for Biofuels versus Food crops**
- **Livelihood losses from REDD+**

# Challenges

- Costing challenges: In rural areas value of non-market goods and services, esp. where communities and economies are directly dependent on ecosystem services
- Multi-metric approach: mix of non / quantifiable costs, non /monetary metrics;



# Adaptation Policy for Human and Natural Systems

Incentives, Regulation, Instruments

