Reducing vulnerability and building resilience in a changing climate

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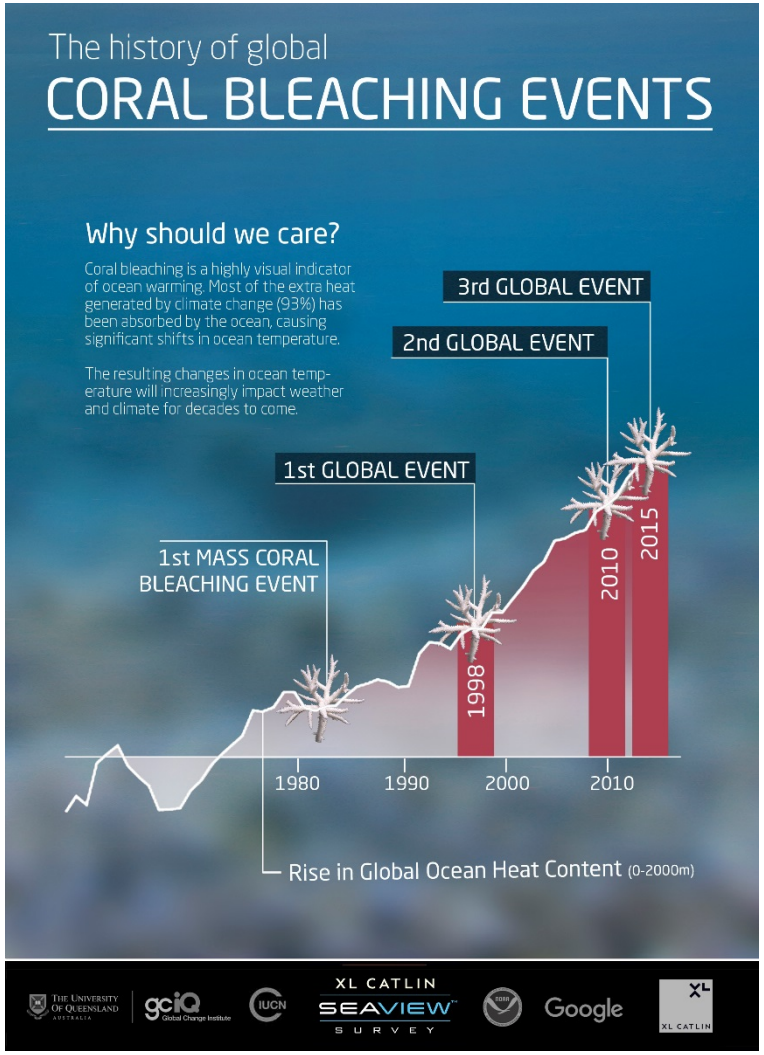
Why does climate change matter?

Development context: wars, famines, plagues, epidemics, global economic recessions, and other shocks / stresses.

Climate change is different:

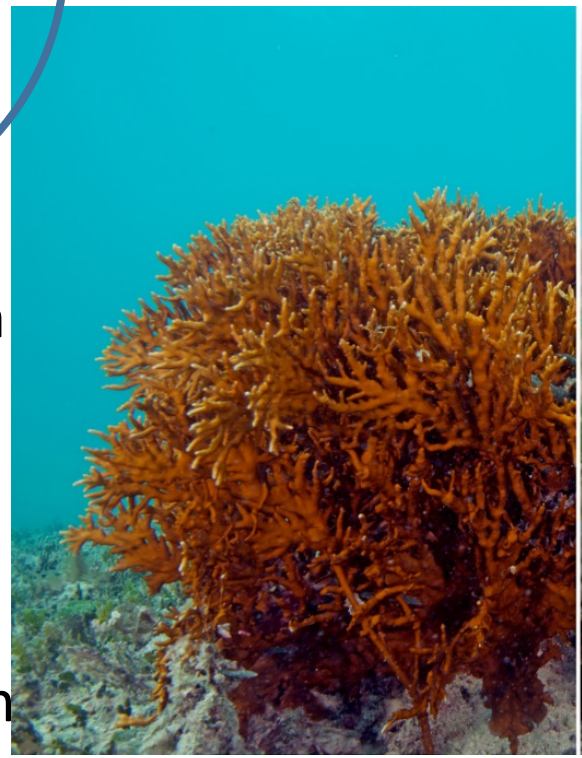
- Affect natural resource base. E.g. 7% of global population, affected by lack of sediment / subsidence → loss of land, homes, livelihood
- Changes rainfall patterns/timing of Monsoons → changes in rice yield /price → food insecurity issues
- Weather disasters more frequent / severe, e.g. cyclonic events, floods, droughts, and erosion
- Uncertainty – affecting effectiveness of choices poor people make

Climate change and the natural resource base: coral reefs



Less than 0.1% of ocean but supports 25% of marine life

500 million people depend on coral reef resources (esp. fish)



Bleaching + storm damage affects fish availability, coastal erosion processes, salinization, storm damage..

Source: XL Caitlin Seaview Survey http://www.globalcoralbleaching.org/

Climate change and the natural resource base: rice cropping

Small-scale shocks

- Extreme heat
- Waterlogging
- Dry spells

Large-scale disasters

- Cyclones
- Floods

Long-term change

- Sea-level rise
- Warming
- Decreasing rainfall

Exposure

Climate change reinforces disaster poverty (e.g. Odisha, India)

Direct Impacts

- Fatalities – 10,000 (99 super-cyclone)
- Crop damage – 438,000 ha (2008 floods)
- Power outage (Cyclone Phailin, 2013)
- Local waterlogging – prevents sowing crops

Indirect Impacts

- Migration - (unplanned/unsafe)
- Food insecurity
- Debt – mortgaging of land
- Psychological trauma
- Poverty traps

Sources: Chittibabu et al (2004); Chhotray et al (2013); OSDMA State Disaster Management Plan (2013); Chhotray (2014).

People are adapting (examples from Asia and Africa)

1. Share /pool the loss/ risk

- Crop / livelihood insurance
- Communal forestry
- Information gathering/sharing

2. Change Use/Diversify

- Diversify asset portfolio e.g. fish/farm
- Diversify occupation e.g. taxi driver

3. Mitigate the Effects

- Climate proof home /garden
- Water storage
- Soft barriers e.g. tree planting
- Food storage (crops, seeds)
- Marine/ coastal / water resources management

4. Prepare for events

- New seed technologies
- Forecasts / early warnings
- Post disaster support e.g. cash, blankets

5. Bear the loss

- Consumption smoothing
- Loans for disaster recovery

6. Change location/Mobility

- Agro-pastoral migration
- Wage labour migration
- Involuntary migration

7. Education / Training

- DRR training e.g. evacuation
- Agricultural fisheries extension
- Skill/occupational training

Climate change adaptation may → vulnerability

Evidence in Africa and Asia of poverty traps in agro-ecosystem where people are poor, crop yields are low, and the environment is degraded, all exacerbated by climatic stress → precludes accumulation of assets

- Sale of assets
- Sale of wage labour
- Forced migration
- Stopping education of children
- Child labour
- Reducing subsistence consumption

Nothing is straightforward: migration

Migration improves HH resilience

Migration used to survive, but not flourish

Migration erodes coping capacity

Migration not an option: trapped populations

Increasing resilience to climatic stressors

Increasing vulnerability to climatic stressors

Household profiles of migration as a corrosive or adaptive strategy to rainfall and livelihood opportunities (*Warner and Afifi, 2014)*

Why mainstream climate change into development

- Omission of climate impact assessments could lead to wasted development funds as:
  - Climate change threatens the natural resource base, food security, developmental gains, and future resilience of the most vulnerable
- Can turn possible risk factors (e.g. forced migration) into resilience building opportunities (e.g. safe planned migration)
- Same challenges as embedding gender in development:
  - It is not difficult to understand why
  - It is difficult to do as it challenges existing understanding of world

Institutional options to build resilience in the context of weather and climatic change

- Pro-poor development that leads to asset accumulation builds resilience:
  - Build capacity to diversify (occupation or livelihoods)
  - Support risk management activities for weather and climate shocks / stresses: sharing / pooling losses; risk mitigation; disaster preparedness
  - Support agricultural extension for those most in need (not those most able to benefit)
- Education and training for all on the implications of a changing climate, and how to thrive
- Reconsider role of social protection in enabling people to bear losses (mixed effectiveness)
- Identify potential for all adaptations to be successful and safe

Thank you

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