

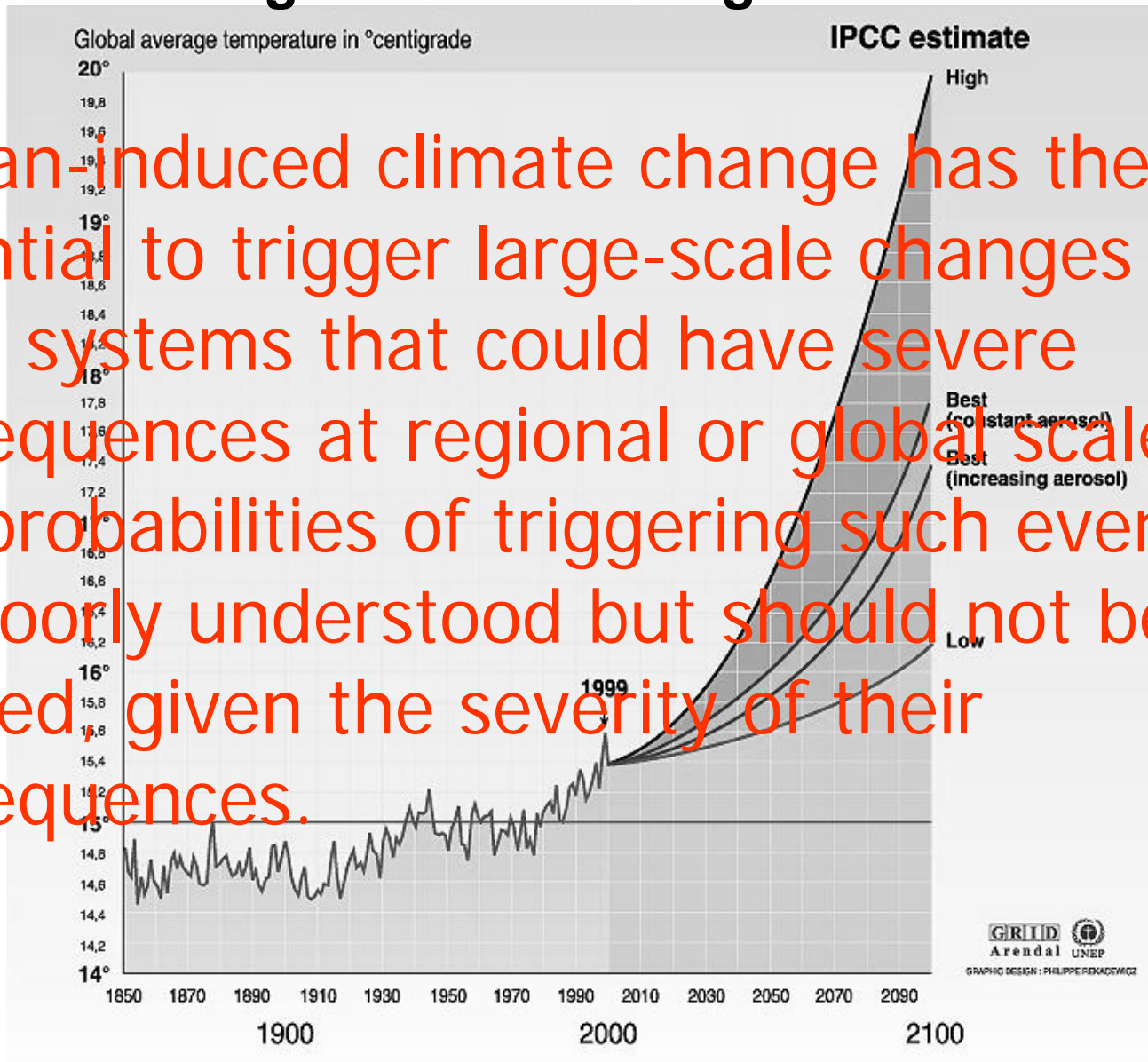
# Local dimensions of global environmental change

3<sup>rd</sup> Future Environmental Trends Conference  
Energy, environment and development,  
analyzing opportunities for reducing poverty  
14-16 December, 2006

Scalar & temporal dimensions  
Local? What level  
Environmental Change? When?  
The spectre of climate change, an  
example

# Climate change introduces huge unknowns

Human-induced climate change has the potential to trigger large-scale changes in Earth systems that could have severe consequences at regional or global scales. The probabilities of triggering such events are poorly understood but should not be ignored given the severity of their consequences.



# Agriculture sector: Issues

- Exposed to multiple pressures
  - Increasing demands due to rising population
  - Soil degradation (nearly 23 % of agricultural land, permanent pastures, forests and woodland degraded)
  - Only 16 % cropland irrigated producing 40 % of the world's food
- Climate change acts as an additional stressor
- Higher vulnerability of developing countries

# Agriculture sector: Indian context

## Agriculture Vital to India's Development

- Provides food to over 1 billion people
- Contributes to nearly 19 % of GDP
- Provides livelihood to about 67 % of the population

## Rainfed areas

- Nearly 2/3 rd of land under agriculture still rainfed
- Degraded lands, water scarcity, drought-prone  
(1/6 th of area drought-prone in India)
- Agriculture is complex, diverse & risk prone
- Majority of rural poor live there

# Vulnerability to Climate Change

- Exacerbate thermal & water stress in arid & semi arid regions
- Droughts are likely to be more severe
- Productivity of staple crops to be adversely affected

Who is more vulnerable? What is the extent to which vulnerability varies across different sections of the population including its impacts on the marginalised and the poor



# drawing on Sen's entitlements and capabilities approach

- Introduces a household perspective on vulnerability
- Focus on vulnerability of individuals and social groups, where vulnerability arises largely from differential access, or “entitlement” to resources.
- Does not solely stem from an individual's cash income but based on other factors

Challenge is to distinguish  
between reactive temporary  
mechanisms and measures for  
strengthening the adaptive  
capacities

Recent study of TERI in drought  
and flood affected regions

# Impacts, Coping and Adaptive Strategies

- Terms cannot be clubbed into water-tight compartments, define for each case study. E.g., distress sale as an impact or as a coping measure.
- Impacts: drops in agricultural production/productivity, water scarcity, food intake, consumption expenditure, drop out of school and health status.
- Coping : short-term/reactive: distress sale, shift in occupation, temp migration, availing of credit/loan, changes in cropping pattern
- Adaptive: long-term/proactive/boosts resilience: income diversification (one main activity, with a cluster of activities supplementing it).

# Community responses

- ***Strategies deployed/developed by households***
  - Change in cropping intensity
  - Income diversification
  - Distress sale of cattle, land and jewellery
  - Credits/ loans
- ***External factors that aid response to climatic stress (eg from AP)***
  - Infrastructure development
    - Village Neramatla and its dependence on agriculture
    - Village Mansamudram and connectivities
  - Income diversification
    - Proximity to a town/ city; village Katherapalli
  - Ability to diversify cropping patterns

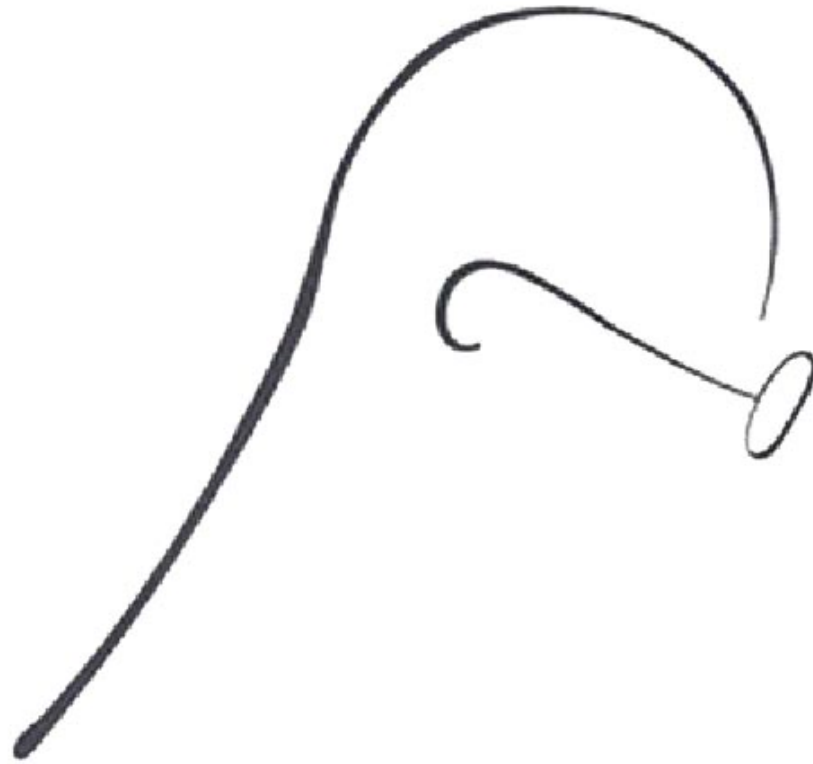
# Institutional/ non-institutional factors

- Role of government departments in enhancing adaptive capacities through implementation of plans and programmes
- Policies of the government to help communities cope with current climatic variability and drought and flood mitigation
- Role of local institutions in strengthening capacities: SHGs, banks and agricultural credit societies
- Role of community institutions and their strengths
- Role of private sector

Is development the best form of adaptation? If so, whose responsibility is it? National Governments? International community ?

# Adaptation an international public good?

Who pays for it?



Be the change that you  
want to see in the world