
Climate risk-screening of developmental programmes

Overview

- Background
 - Vulnerability: Concept and assessment
 - Climate change and impacts: Indian context
 - Few case studies
 - Objectives of the study
 - Key research questions
 - Methodology
 - Knowledge gaps and future research needs
-

1. Background

1. Vulnerability: Concept and assessment

- Vulnerability= f [Exposure, Sensitivity, Adaptive capacity]
 - Differential vulnerabilities exist across different systems based on inherent response abilities
 - Both human and natural systems are affected
 - Reduced capacities for effective response in developing nations
 - Climate change; an additional and multi-pronged stressor
-

1. 2 Major threats due to climate change: Indian context

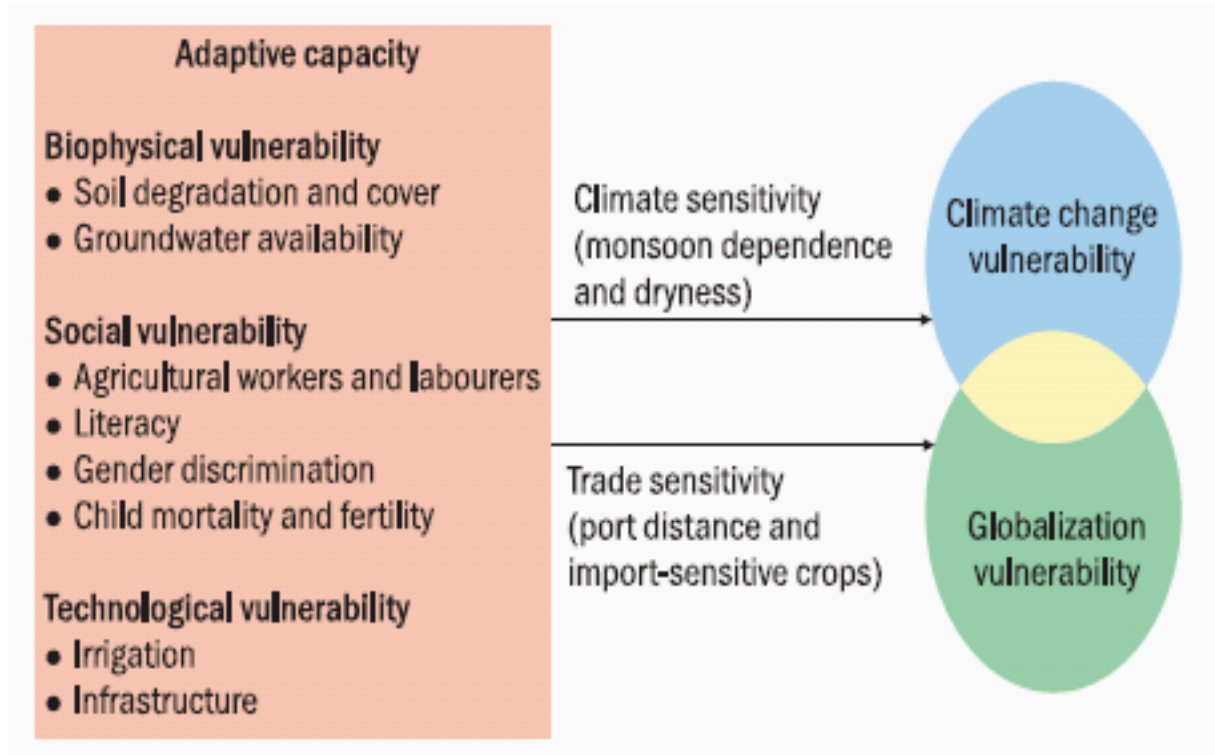
- Reduction in freshwater availability, glacial recession
 - Impacts on agriculture, livelihood and food security
 - Adverse impacts on natural ecosystems (forests, coral reefs, mountainous regions etc.)
 - Coastal regions owing to sea level rise, storm surges etc.,
 - Human health due to changes in virulence and disease patterns and
 - Risk to infrastructure
-

1. 3 Key findings from previous studies

Case Study 1: Hotspot mapping and insights

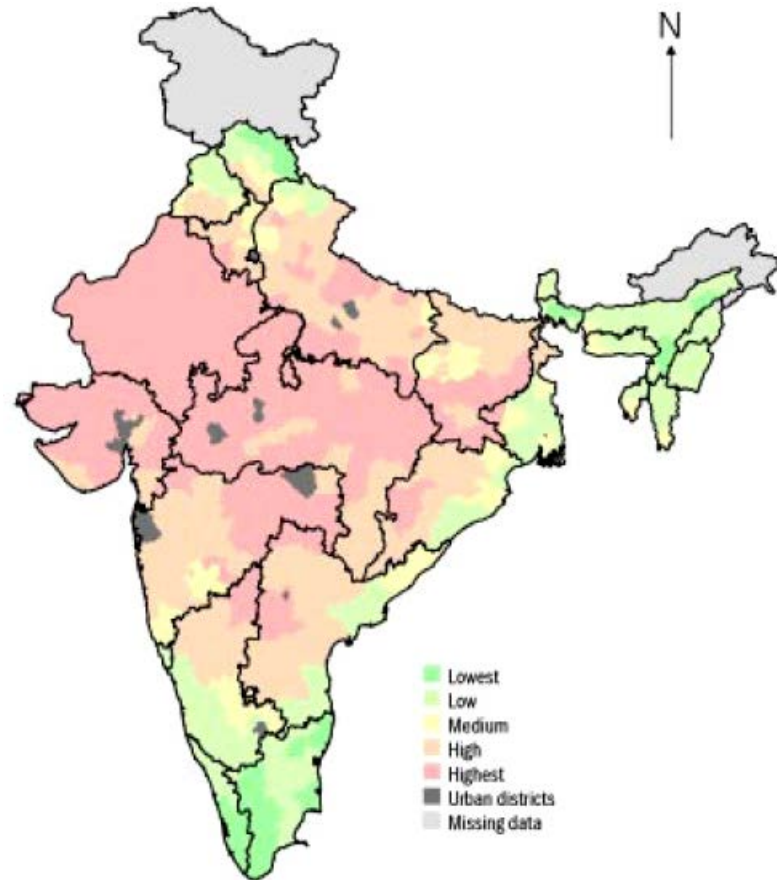


Determinants of vulnerability



Source: TERI, 2003

Regions with highest climate sensitivity and exposure are not necessarily the most vulnerable



Source: TERI, 2003

1.3 Key findings from previous studies

Case Study 2: Community based coping behaviour

Varying methodologies to assess vulnerabilities at the community level

- Income as a holistic indicator to assess vulnerabilities across land holding categories
- Households with large land holdings derive major share of income from cultivation and experience sharp drops in income in a drought/ flood year

Several other factors influencing vulnerability

- Distributing risks through diversified cropping
- Presence of institutional systems including
 - access to social safety nets; banks and credit societies
 - strong community based organizations and networks
 - influence of private sector
- livelihood diversification and
- Infrastructure development

Source: TERI, 2003

2. Objectives of the study

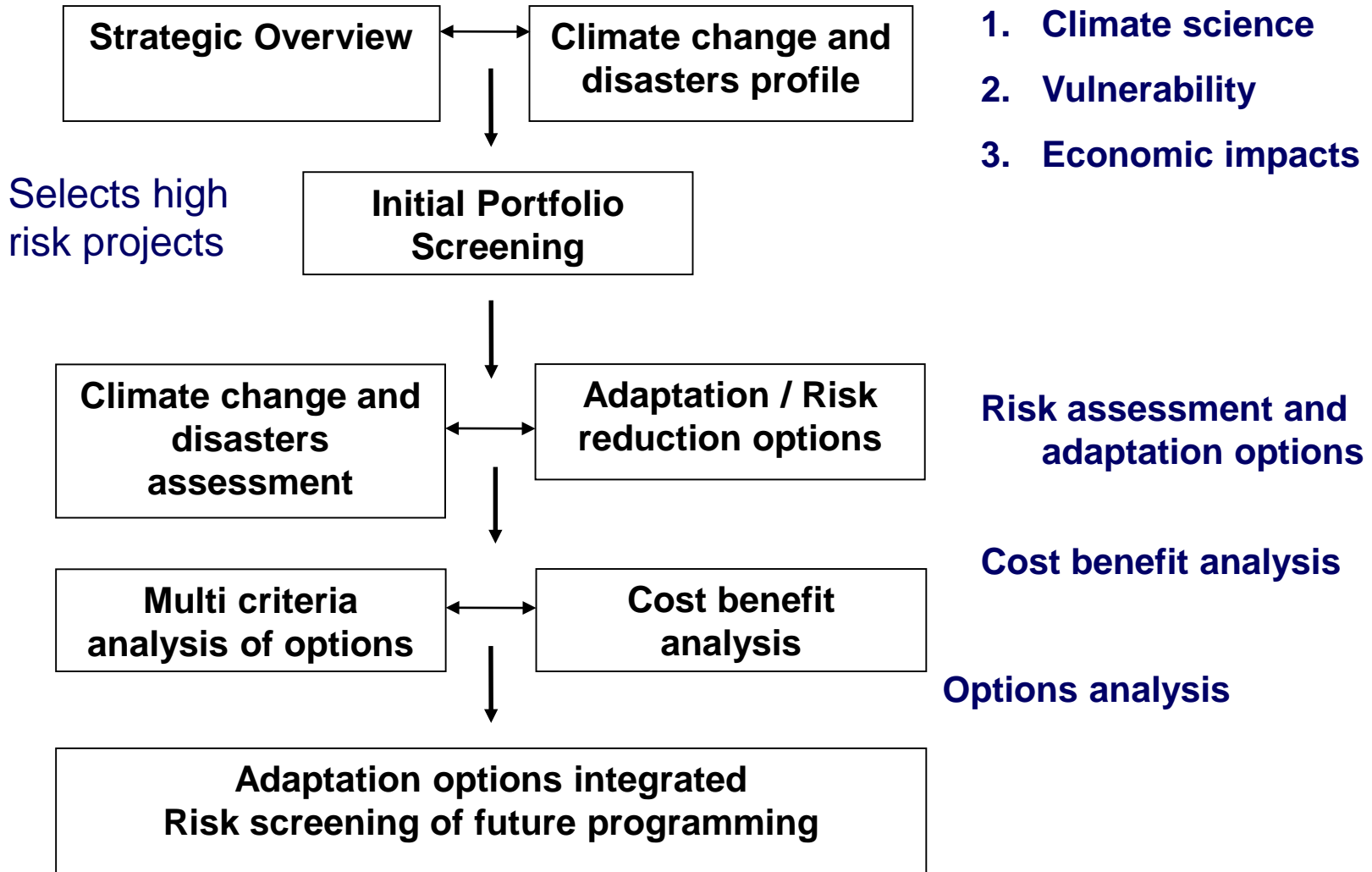
- To consider the robustness and application of technical assessments including economic analysis of climate change impacts, vulnerability and adaptation options
 - Risk assessment of high priority developmental programmes under DFID
 - Prioritization of selected adaptation options based on multi-criteria analyses
-

3. Key Questions

- How does scientific knowledge further our understanding on impacts, vulnerability and adaptation to climate change?
 - Has the climate risk assessment approach and the multi criteria analysis led to a range of credible adaptation options?
 - What do we learn from the cost benefit analysis, and is it appropriate for adaptation decision making?
 - What are the opportunities where synergies can be drawn between development and disaster risk reduction in areas exposed to extreme events?
-

Sensitization and awareness-raising

4. Methodology



4.1 Climate science and know-how?

- Focus on 4 DFID partner states – Orissa, Andhra Pradesh, West Bengal and Madhya Pradesh
 - Uncertainties – inherent limitations of the models & errors in observational data leading to imperfect representation of local processes
 - Projected increase in intensity and frequency of rainfall events may lead to more hazardous impacts – flash floods, landslide, loss of crop & infrastructure
-

4.2 The initial screening – high risk programmes

DFID- I Programme Area	Programme for Assessment
National	Water and Sanitation Programme
	Sarva Shiksha Abhiyan - Elementary Education Programme
	Reproductive and Child Health Programme Phase II
West Bengal	Kolkata Urban Services for the Poor
	Support to Rural Decentralisation
	Health Systems Development Initiative
Andhra Pradesh	Rural Livelihoods Programme
Madhya Pradesh	Rural Livelihoods Programme
	Urban Services for the Poor
Orissa	Western Orissa Rural Livelihoods Project

4.2 Screening of projects

- **Criteria for climate risk screening: comparison of scenarios**
 - **No programme scenario: without interventions**
 - **Programme scenario: partial risk reduction due to programme implementation**
 - **Programme plus scenario: risk reduction with additional components added within the present programme portfolio**
-

4.4 Cost-benefits of selected options

- Identification of affected population/ groups/ societies at risk
 - Valuation of past impacts
 - Estimation of expected impact based on climate change projections
 - Identification of adaptation strategies
 - Estimation of present value of avoided cost (benefits)
 - Estimation of project cost
 - Calculation of net present discounted values, benefit cost ratio and internal rate of return
-

5. Knowledge gaps and future research needs

- Need for systematic review in order to scale impacts uniformly across various studies. It will also help in assessing the underlying uncertainties
 - Need for integrated vulnerability assessments to identify suitable win-win adaptation measures
 - Need to identify links with the existing policies and building scope for enhancing, modifying, strengthening in the light of unanticipated changes in the climate
 - Need for community based research on varying vulnerabilities and interventions to enhance adaptive capacities
 - Need to develop district level adaptation plans in identified vulnerable regions in the country
-