

Ministry of Environment, Forest and Climate Change Government of India





Framework for Integrated Climate Risk Management

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INRM Consultants Pvt Ltd (Incubatee Company established through TBIU system of IIT Delhi) Integrated Natural Resource Management - Solutions with Modeling and Geoinforma





FACULTÉ DES SCIENCES





Climate Policy Framework in India









Project overview: Climate Change Adaptation in Rural Areas India

Executing Agency : MOEFCC

Implementing Agency: GIZ

Partner states: 4 (*Himachal Pradesh, Punjab, Tamil Nadu and Telangana*)

Objective:

- To integrate CCA measures into national and state development planning
- To strengthen capacities of key stakeholders in planning, implementing, financing and monitoring CCA measures

Work Packages:

- (i) Capacity building at national level
- (ii) Demonstrating approaches for CCA at the sub-national level
- (i) Accessing National and International climate finance
- (ii) Capacity Development at the sub-national level and Knowledge Management

Knowledge Management

- Vulnerability and risk on water resources due to climate change
- Prioritizing adaptation options
 Identifying technology needs



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Objectives:

To pilot a risk-based approach to climate change adaptation for managing both, current and future risks.

More specifically:

- Contribute towards comprehensive climate risk management in India by piloting the 6 step Climate Risk Management (CRM) Framework in two states (Tamil Nadu and Himachal Pradesh).
- Inform state level climate risk and adaptation management processes by conducting an integrated risk assessment for:
 - Rural infrastructure
 - Rural livelihoods







Methodological approach

• The 6-step Climate Risk Management (CRM) framework









Step 1: Assess information needs and objectives

- Climate Impacts and Vulnerability Assessments
- Build on knowledge and information in State Action Plans on CC, and Disaster Management Plans
- Baseline hydro-climate and socio-demographic data.

Step 2: Identify system of interest Tamil Nadu: <u>Nagapattinam district</u>

- Selection criteria included:
 - a) Previous experience
 - b) Availability of data
 - c) Status of knowledge on risk and vulnerability
 - d) Level of exposure





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Step 3: Develop context specific methodology

- Tailor the assessment methodology to the local context and target sectors
- Forward-looking, providing a risk analyses based on future climate scenarios
 - Difficult for impacts where future scenarios are uncertain (e.g. tropical cyclones).
- Both, top-down (traditional science driven) and **bottom up (participatory)** approaches











Step 4: Risk Assessment

 Our approach to risk assessment is based on latest IPCC concept of risk

Hazard

- Slow onset events
 - Drought
 - Salinization of coastal agricultural land
- Rapid onset events:
 - Tropical cyclones
 - Extreme heat events and heat stress (humans, livestock)

Vulnerability

- Indicator-based social vulnerability assessment at block or tehsil scale (Census India)
- Community focus group meetings and Local Vulnerability Capacity Assessment



- Presence of people, livelihoods, environmental services, infrastructure and resources that could be adversely affected by a potential hazard.
- Exposed elements or system mapping using remote sensing imagery.
 - Participatory mapping undertaken during focus group meetings, to determine local perceptions of exposure.







Step 5: Evaluate risk tolerance and limits

- Assessment of capacities to reduce and adapt to the identified climate risks.
- Assessment of existing programs, mechanisms and resources available
- Drawing on experiences during previous extreme events in these regions to identify how the adaptive systems have performed in the past.
- Based on all information, risks to the communities and sectors will be categorized as acceptable, tolerable, and intolerable.

Step 6: Identify and assess adaptation options

- Provide a basket of potential adaptation options as well as economic evaluation
- The options will address different components of risk (e.g., reducing vulnerability or exposure, and mitigating the hazard), and include instruments for addressing residual risks (insurances etc).







The risk space in Tamil Nadu as evaluated from household responses (mean)





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For example, for farm level responses, the following schematic can be worked out building on methodological approach.

Example from Tamil Nadu field survey









Non-farming households exposed to cyclone and flood risks mostly deploy incremental and fundamental actions









Expected outcomes and benefits

- Provide scientific evidence on climate risks to enable informed decisionmaking on adaptation needs and actions
- One of the first applied studies to take a loss and damage perspective, including a focus on how to assess and deal with unavoidable loss and damage.
- Offer potential guidance and learnings for scaling up to other districts and states.
- By engaging with local stakeholders, there is an opportunity to build local capacities on climate hazards, impacts and risk.









Thank you



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