
A pilot project on Climate Change Adaptation for Sustainable Rural Development

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Global Significance

- The Delhi Ministerial declaration at COP 8 emphasized on adaptation, to reduce the vulnerability of developing countries to the adverse effects of climate change.
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Adaptation in context of UNFCCC

- **UNFCCC, Art. 4.1 (b), (e) and (f)**
...facilitate adequate adaptation.....co-operate in preparing for adaptation...
.....of projects or measures undertaken by them to mitigate or adapt to climate change
 - **UNFCCC, Art. 4.4, 4.8**
...assist developing country Parties that are particularly vulnerable to the adverse effects of climate change in meeting costs of adaptation...
 - **Kyoto, Art. 10**
Formulate, implement...measures to facilitate adequate adaptation...
 - **Adaptation Fund** was established under the Kyoto Protocol to support the implementation of concrete adaptation projects and programmes as well as activities identified in paragraph 8 of Decision 5/CP.7
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India: Impacts of Climate Change

- Water stress and reduction in the availability of fresh water due to potential decline in rainfall.
 - Threats to agriculture and food security.
 - Shifts in area and boundary of different forest types and threats to biodiversity with adverse implications for forest-dependent communities.
 - Adverse impact on natural ecosystems, such as wetlands, mangroves and coral reefs, grasslands and mountain ecosystems.
 - Adverse impact of sea-level rise on coastal agriculture and settlements.
 - Impact on human health due to the increase in vector and water-borne diseases, such as malaria.
 - Increased energy requirements and impact on climate-sensitive industry and infrastructure.
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Adaptation Strategies Sector-wise

- Water Resources
 - Agriculture
 - Forestry
 - Coastal Areas
 - Health
 - Energy & Infrastructure
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Water Resources

- Change in land use
 - Change in cropping patterns
 - [Water conservation](#)
 - Flood warning systems
 - Crop insurance
 - Integrated Water Resources Management strategy at different levels
 - *The current strategies to adapt to the two extreme events, namely floods and droughts, will hold good even to the projected impacts of climate change.*
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- Flood protection:
 - Structural measures: Construction of dams, construction of levies and dikes .
 - Non-structural: Floodplain zoning, flood forecasting systems, flood insurance and flood preparedness.

Contd.....

.....Water Resources

- Drought:

- Technological management: Medium (seasonal) to long-term (annual to decadal) forecasts
 - Supply side measures: augmentation of the supply of water by sustainable extraction and use of surface and groundwater, improving the water availability, revival of diverse and community-based irrigation systems, soil and water conservation, equitable water distribution, traditional water conservation practices, and groundwater recharge.
- The Government of India is also envisaging the linking of rivers to mitigate droughts, as well as floods.
 - Artificial restoration of the hydrological system .
 - Biotechnology: may help in increasing crop yields while reducing the water requirement and developing crops that are less dependent on water.
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Agriculture

- ❑ Altered agronomy of crops: altering the dates of planting, spacing and input management, alternate crops or cultivars.
- ❑ Change in irrigational practices
- ❑ To evaluate the available germplasm of various crops, for heat and drought tolerance.
- ❑ Development of resource conserving technologies (Eg: surface seeding or zero-tillage establishment of upland crops after rice give similar yields while restricting the release of soil carbon, thus mitigating the increase of CO₂ in the atmosphere)
- ❑ Augmenting production and its sustainability
- ❑ To provide Institutional support in the form of improved extension services, markets and infrastructure
- ❑ Increasing income from agricultural enterprises.
- ❑ Accelerated evolution of location-specific fertilizer practices, improvement in extension services, fertilizer supply and distribution, and development of physical and institutional infrastructure, to improve efficiency of fertilizer use.

Contd.....

.....Agriculture

- ❑ Improved land use and natural resource management policies and institutions.
 - ❑ Adaptation to environmental change: in the form of social cover such as crop insurance, subsidies and pricing policies related to water and energy.
 - ❑ Policies such as financial compensation/incentive for green manuring should be evolved
 - ❑ Improved risk management through early warning system and crop insurance.
 - ❑ Recycling waste water and solid wastes in agriculture.
 - ❑ Reducing dependence on traditional agriculture practices.
 - ❑ Institutional arrangements, such as cooperatives and contract farming.
 - ❑ Current programmes, policies, and projects are likely to reduce the vulnerability of agricultural production and conserve soil and water resources.
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Climate Change Adaptation Project

Project Goal

- The overall goal of the project is to improve the livelihoods and adaptive capacities of the vulnerable rural communities to the adverse impacts of climate variability and change.
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Project objectives

- The public investment programmes for natural resource management and rural development (watershed and forestry management) implement the core elements of climate change adaptation.
 - Rural communities have access to innovative financial instruments, i.e. micro insurance and weather derivatives for climate risk management.
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Project Details

- ❑ **Total Financial outlay**
€ 8.0 million (approx. Rs 42.4 Crore)- Partners German Ministry of Environment and MoEF, Government of India
 - ❑ **Project duration:** Five years
 - ❑ **Location of implementation:** expression of interest from key vulnerable states on pilot basis. The tested models in these states can be replicated in over 60% of India's land area that is drought prone.
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Strategy

- Development and testing of **technical solutions** for adaptation for integration into the public watershed and forestry management programmes
 - Development and implementation of **financial instruments**, i.e. micro insurance and weather derivatives for climate risk management
 - **Capacity building** measures for strengthening the adaptive capacities of the communities
 - **Process monitoring, documentation and dissemination** of the developed models for large scale implementation
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Priorities of the Indian Planning Process

- Economic security
 - Energy security
 - Environmental security
 - Water security
 - Food security, and
 - Provision of shelter and health for all
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Water Resources

- Planning and design of hydrological structures;
- River basin management, flood control and drought management; and
- Urban planning and industrial development.

Other implications beyond immediate water supply issues include:

- Agricultural policy will require more flexible food policies that can anticipate the selection of crops.
 - Forest policy will need to account for erosion mitigation measures in areas where precipitation is predicted to be high.
 - Wastewater treatment & sewerage planning will need to address overflow and capacity issues related to intense precipitation.
 - Development of water- intensive industries will need to take account of siting issues related to changes in rainfall patterns.
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Agriculture

- Food security policy: to account for changing crop yields as well as shifting boundaries for crops.
 - Trade policy: Changes in cash crops can affect imports/ exports.
 - Livelihood: It is critical that policy addresses issues of loss of livelihood with changes in crops, the need to shift some regions to new crops & associated skills/ trainings required.
 - Water policy will need to consider the implications for water demand of agricultural change due to climate change.
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Outcome of the project

- Enhanced livelihood security for the rural communities in vulnerable rainfed areas through adaptation to the impacts of climate change;
 - Reduction in climate related risk for the rural communities through insurance cover;
 - Enhanced adaptive capacity of the rural communities; and
 - Enhanced institutional capacity and coordination to support climate change adaptation.
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The project supports..

- The development and application of financial instruments, i.e. micro insurance and weather derivatives for climate risk management in selected vulnerable parts of India.
 - Involve public and private partners in order to enhance product innovation, service quality and standards for the benefit of the population in vulnerable areas,
 - Making those instruments affordable and creating awareness for their benefits as risk management tools.
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Modalities

- **MOEF as Executing Agency**
 - Senior officers at the level of Additional Secretary or Joint Secretary as the National Project Director (NPD)
 - Delineation and delegation of responsibilities to identified research institutions, NGOs, as reqd.
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Proposed Stakeholders

- Ministry of Environment and Forests & concerned State Government and other line Ministries.
 - Climate Change Unit, GTZ NRM Programme
 - Line departments at the state level, district administration and PRIs
 - Non government organisations
 - Public and private sector (Indian and international) banks and insurance companies
 - Beneficiaries: Rural farming community in the pilot area
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Tasks and Approaches

KEY TASKS FOR ADDRESSING ADAPTATION NEEDS:

Capacity Building

- ❑ *Local:* Monitoring, observation, awareness/assessment at state/ district/ Implementation at community levels
 - ❑ *National:* Scientific assessment, measurement, models, national research agenda
 - ❑ *Regional/ Global:* Participation in global/ regional modeling and assessments.
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THANK YOU
