Project on Climate Resilient Agriculture in Maharashtra

Background

The State of Maharashtra ranks second in the country with respect to the net sown area and the population. Over 50 percent of its population depends on agriculture. The growth in agriculture sector fluctuates heavily and is dependent on highly erratic rainfall. The report of 'Maharashtra Adaptation Action Plan on Climate Change' brings out anticipated adverse impacts of long term climate change on the agriculture and water sectors, among others.

Maharashtra's agriculture is dominated by small and marginal farmers with average land holding of 1.44 ha. Most of the farmers, including those belonging to the underprivileged classes and the women, have little or no resources to make investments to improve soil health and access to water for irrigation. These farmers are also vulnerable to climate shocks and long-term changes due to limited access to climate resilient seed varieties, agriculture extension services, agro-meteorological advisories, and post-harvest infrastructure & services. In Purna river basin, agriculture production has further suffered due to sodic soils and saline groundwater.

The government of Maharashtra has decided to enable the farming community with the climate change impacts. The Project on Climate Resilient Agriculture in Maharashtra (PoCRA), is an initiative in this direction.

Project Objective

To enhance climate-resilience and profitability of smallholder farming systems in selected districts of Maharashtra.

Project Area

The project extends over 5142 villages of 15 districts in Maharashtra. The project villages have been selected in the clusters of mini watersheds. An average mini watershed covers an area of approximately 5000 ha and consists of 7-8 villages.
Project Components and subcomponents

Component A: Promoting Climate-resilient Agricultural Systems
   A.1: Participatory development of mini watershed plans
   A.2: On-farm climate-resilient technologies and farming systems
   A.3: Climate-resilient development of catchment areas

Component B: Climate-smart Post-harvest Management and Value Chain Promotion
   B.1: Promoting Farmer Producer Companies
   B.2: Strengthening emerging value-chains for climate-resilient commodities
   B.3: Improving supply chain for climate-resilient seeds

Component C: Institutional Development, Knowledge and Policies for Climate-resilient Agriculture
   C.1: Sustainability and institutional capacity development
   C.2: Maharashtra Climate Innovation Centre
   C.3: Knowledge and policies

Component D: Project Management

Project Interventions

1. Participatory planning of vulnerable village clusters:
   - The project is being implemented in 670 mini watershed clusters vulnerable to climate change, including 932 villages affected by high levels of soil salinity in Purna river basin.
   - The clusters are ranked on combined vulnerability index which is a weighted average of climate exposure, sensitivity, and adaptive capacity.
   - Most vulnerable clusters in each project Taluka are taken up for implementation.
   - Micro plan of each cluster is prepared with the involvement of community.

2. Promoting Climate-Resilient Agricultural Systems:
   - Demonstration of climate resilient agriculture technologies through Farm Field School approach with assistance of Agriculture universities and Krushi Vidnyan Kendras (KVK).
   - Plantation of horticulture and agro-forestry species on arable and non-arable lands to enhance Carbon Sequestration.
   - Promotion of protected cultivation.
   - Improvement of saline and sodic soils through appropriate agronomic practices and soil amendments.
   - Promotion of Integrated Farming Systems.
3. Efficient and sustainable use of water for agriculture:
   - Treatment of catchment and drainage lines in the selected cluster with soil and water conservation methods through 'Ridge to Valley' approach
   - Creation of decentralized water harvesting structures including farm ponds and open dug wells
   - Participatory water balance assessment and crop planning
   - Promoting efficient use of available water through micro-irrigation
   - Protective irrigation during critical stages

4. Promotion of Climate Resilient Value Chains and Post-harvest Management
   - Strengthening of Farmer Interest Groups/Farmers producer organizations/ Farmers producer companies
   - Strengthening of value chains of major commodities like Soybean, Pulses, Cotton, Vegetables and fruit crops
   - Support to the production of climate resilient seed varieties and supply chain
   - Strengthening of infrastructure for collection, primary processing, grading, sorting, cleaning, and storage of agriculture produce

5. Capacity building of stakeholders and institutional development
   - Farm specific agro-met advisories
   - Preparation & execution of Cluster Contingency Plans
   - Awareness and Skill Training to farmers
   - Establishment of Climate Innovation Centre
   - Analytical studies pertaining to CRA technologies, Water Productivity & Value chains etc.

Strategic Partnerships:
   - For effective planning, execution and monitoring of the project, strategic partnerships are being established with reputed institutions and organizations having specialised knowledge and expertise.
   - The project has signed an umbrella memorandum of understanding (MoU) with the Indian Council of Agriculture Research (ICAR), New Delhi.
   - Through this MoU, the project can access data, knowledge, and best practices from all agencies and institutions under ICAR, including Central Research Institute for Dryland Agriculture (CRIDA) and Central Soil Salinity Research Institute (CSSRI).
   - The project has also signed MoUs with IIT Mumbai, Yeshwantrao Chavan Academy of Development Administration (Yashada), Gokhale Institute of Politics & Economics, and Groundwater Survey and Development Agency (GSDA).
   - The project also proposes to sign MoUs with ICRISAT Hyderabad, State Agriculture Universities, and KVKs.
Project Period: Six years

Strategic Overview, Thematic Linkages and expected Achievements of the PoCRA

Institutional arrangement for Implementation of PoCRA

- Project Steering committee
- Project Advisory committee
- Project Management Unit
- Divisional Project Coordination Unit
- District coordination committee
- District Project Management Unit: District Superintending Agriculture Officer and Project Director, ATMA
- Sub-divisional Agriculture Officer
- Village Climate Resilient Agriculture Management Committee
- Cluster Assistant and Agriculture Assistant

Expected Results

- Enhancement in water productivity
- Reduction in temporal yield variability of dominant crops
- Reduction in spatial yield variability of dominant crops
- Reduction in greenhouse gas emissions
- Increase in farmer's income
Department of Agriculture
PROJECT ON CLIMATE RESILIENT AGRICULTURE IN MAHARASHTRA (POCRA)

<table>
<thead>
<tr>
<th>SELECTED VILLAGES</th>
<th>NANAJI DESHMUKH KRUSHI SANJEEVANI PRAKALP</th>
</tr>
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<tbody>
<tr>
<td>Village selection criteria:</td>
<td></td>
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<tr>
<td>- Climate exposure</td>
<td></td>
</tr>
<tr>
<td>- Sensitivity</td>
<td></td>
</tr>
<tr>
<td>- Adaptive capacity</td>
<td></td>
</tr>
<tr>
<td>Project Clusters : 670</td>
<td></td>
</tr>
<tr>
<td>Project Villages : 5142</td>
<td></td>
</tr>
<tr>
<td>A) Saline villages : 932</td>
<td></td>
</tr>
<tr>
<td>B) Other vulnerable villages : 4210</td>
<td></td>
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</tbody>
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### PROJECT VILLAGES - DISTRICTWISE

<table>
<thead>
<tr>
<th>DISTRICT</th>
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<tbody>
<tr>
<td>Aurangabad</td>
<td>406</td>
<td>Amravati</td>
<td>532</td>
</tr>
<tr>
<td>Jalna</td>
<td>363</td>
<td>Akola</td>
<td>498</td>
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<tr>
<td>Beed</td>
<td>391</td>
<td>Washim</td>
<td>149</td>
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<tr>
<td>Osmanabad</td>
<td>287</td>
<td>Buldhana</td>
<td>441</td>
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<tr>
<td>Latur</td>
<td>282</td>
<td>Yavatmal</td>
<td>309</td>
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<tr>
<td>Parbhani</td>
<td>275</td>
<td>Wardha</td>
<td>125</td>
</tr>
<tr>
<td>Hingoli</td>
<td>240</td>
<td>(932 Villages in saline tract of Purna River basin included)</td>
<td></td>
</tr>
<tr>
<td>Nanded</td>
<td>384</td>
<td></td>
<td></td>
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<tr>
<td>Jalgaon</td>
<td>460</td>
<td>Total (Vidarbha)</td>
<td>2054</td>
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<tr>
<td>Total (Marathwada)</td>
<td>3088</td>
<td>Total Project Villages</td>
<td>5142</td>
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</tbody>
</table>

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