PoCRA Vulnerability and Extension Services for Sub-district Level Officers and Community

Workshop conducted under **MoU V, IIT Bombay - PoCRA** (Project on Climate Resilient Agriculture)

22 - 23rd ,26 - 27th August, IIT Bombay

The Government of Maharashtra (GoM) is implementing the World Bank aided project on climate resilient agriculture (PoCRA) to enhance climate-resilience and profitability of smallholder farming systems in approximately 5,000 drought-prone villages in 15 districts, namely, Jalgaon, Aurangabad, Jalna, Beed, Parbhani, Hingoli, Osmanabad, Latur, Nanded, Buldhana, Washim, Akola, Amravati, Yavatmal, and Wardha.

Since August 2018, IIT Bombay (IITB) has been contributing as a technical and knowledge partner to PoCRA through five MoUs. A brief description of the work done, the current objectives is given below. All the five MoU documents with detailed sets of objectives as well as reports can be accessed at www.cse.iitb.ac.in/~pocra.

The purpose of these workshops is to demonstrate IIT Bombay's water budget and irrigation energy solutions, and their applications at the farm and community level. The two pilot districts chosen are Wardha and Beed. Training sessions will be conducted in two separate workshops on 22 - 23rd and 26 - 27th for Wardha and Beed respectively. The attendees are sub-district level, block level, and village level officials from the Department of Agriculture and MSEDCL, community members of ten villages.

Water

Water forms a basic input for the farmer and is central to the problem of resilience. The core objective of the partnership between IIT Bombay and PoCRA has been to develop a GIS-based scientific planning framework based on water-budget (the IITB-PoCRA water budget model) in order to *increase aggregate water availability at the village-level, ensure access to water at farm-level, stabilize yields and eventually improve income and profitability.*

At the core of this framework is a point-level (or 1D) soil water balance model which runs on an hourly scale and on a real-time basis during the monsoon season. It computes the water budget over 3.2 million grid-points (200mx200m) for 32 crops in the 15 PoCRA districts thus covering 18,000+ villages. The model has the functionality to aggregate the point results to any region of interest (say, village, zone within a village, block, district, watershed etc.) for any period of time.

Such a model has enabled (i) mapping of vulnerable farmers and better targeting of beneficiaries, (ii) advisories for dry spells, wet spells and other monsoon season contingencies, (iii) more effective spatial planning of water harvesting interventions and (iv) demand-side planning at village level through rabi crop plans. Currently annual water balance charts are displayed in all the villages selected under the project.

Now, with this knowledge infrastructure in place, there is a need for a systematic planning and extension workflow at the district and local levels to disseminate the benefits of water budget planning framework down to the village and community level.

Keeping this in mind, during MoU V, the IITB team plans to strengthen the district extension pipeline i.e. the sub-district offices and especially the village-level Agriculture Assistants through intensive on-field hand-holding, trainings, workshops and design of Standard Operating Procedures (SoPs) for dissemination of water budget results, advisories etc. from the district office to the community and facilitate more informed, scientific and collective decision making at the village level through conduct of seasonal community meetings i.e. *hangam baithaks.* The IITB water team has selected 12 villages in two districts, Beed and Wardha to demonstrate the above activities.

The main objective of this workshop is to train the agriculture department staff (as well as community representatives) from the selected villages about the use and utility of the village-level planning tools based on the water budget model and its results. Some of the topics to be covered are (i) reading and interpretation of important village-level maps, (ii) reading, interpreting and making village-level water budget results actionable, (iii) conducting farmer surveys, water-harvesting-structures surveys through simple mobile tools, (iv) conducting seasonal meetings (*hangam baithaks*) in the village to disseminate the above information to the community.

Energy

The work done from MoU III to MoU V has developed along four aspects: Understanding the current status, supply side solutions, demand side solutions, development of a framework to connect supply and demand.

Main solutions developed: optimization of energy infrastructure through restructuring of Low Tension networks, framework to estimate energy usage and infrastructure requirements based on cropping and irrigation practices, extension material for building farmers awareness of capacitors and appropriate pump selection, pilot Load management initiative at the Distribution Transformer.

Three objectives in MoU V, listed below, takes forward community engagement and demand-side management. The outcomes of MoU V enable scaling up of these initiatives in all PoCRA villages, and eventually mainstreaming in the Department of Agriculture and MSEDCL.

- Implementation of Energy estimation tool in 10 villages towards Information, Comprehension, and Collective action
- Load Management scheduling App development and test at select Distribution Transformers
- Structured demonstration of value of capacitors in 10 villages