

# Participatory assessment of adaptation options:

## Climate change and extreme drought in Marathwada



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Community-based adaptation (CBA) can reduce the vulnerability of rural communities to the impacts of extreme climate events. But, which adaptation measures should be given priority, and who should decide?

Top-down adaptation decision-making that does not take note of local contexts and concerns can be ineffective or even maladaptive. Adaptation decision-making that does not recognize the diversity of adaptation priorities within a community and does not allow marginalized voices to be heard will exacerbate existing inequities.

Participatory multi-criteria analysis to identify priority adaptation options can be the first step to effective adaptation. Moreover, adaptation has to move beyond assessments and planning to implementation. The implemented adaptation measures should be periodically evaluated by using appropriate approaches, such as local metrics.





## Implementing adaptation

### Adaptation priorities vary across scales

Technical options like integrated farming system received high scores from officers, but were unfamiliar to farmers. Farmers appreciated the need for regulatory measures like groundwater regulation and water budgeting, but officers deemed them unfeasible. If local priorities are not considered, adaptation will not be successful.

### Adaptation priorities vary within a community

Adaptation decisions need to be made in forums that allow marginalized voices to be heard. Landless labourers and herders should be consulted about watershed development. Women manage family budgets and nutritional security and should be involved in decisions about changes in crops.

### Gender focus is key to successful adaptation

Women handle the majority of agricultural operations. It would be fruitless if women cannot participate in training on improved cropping practices. Certain adaptation options may diversify livelihoods (like dairy production) or improve resource use (like vermicomposting) but at the cost of increasing women's work burden.

### There is a gap between policy and implementation

There is scope to increase access to reliable climate services, reduce misunderstanding and scepticism of crop insurance, and increase the reach of crop research.

## Participatory multi-criteria analysis

1. **Consultations** with drought-affected communities and district administration in Jalna to identify adaptation options

2. **Workshops** with village communities and block-level officers to prioritize adaptation options

- Pair-wise ranking of criteria to derive weights
- Matrix scoring of adaptation options
- At the village level, scoring was done separately by:
  - farmers affiliated with village committees;
  - other farmers
  - landless labourers;
  - women, and
  - youth

3. **Sensitivity analysis**

4. **Evaluation** using household survey data and qualitative assessment



# Adaptation priorities for Jalna

## **Efficient irrigation technologies**

Drip and sprinkler irrigation technologies can help use scarce water resources more efficiently. But, awareness raising and training are needed to promote their usage, particularly for water-intensive crops. More targeted subsidies can facilitate their dissemination. R&D can help make these technologies affordable without compromising on quality, and help adapt them to low water pressure conditions.

## **Soil management and conservation**

Customized support for soil management needs to be provided to farmers by agriculture extension offices and research stations. Farmers growing high value horticulture crops can be trained on precision farming techniques to conserve water, soil, and nutrients. State level policies can promote nutrient recycling on integrated livestock and cereal production farms, and encourage organic farming among small farmers by supporting village-level production of organic manure.

## **Credit and livelihood diversification**

Self help group (SHG) savings can provide a crucial source of income to women. But, during drought years, these groups tend to break down because their typical livelihood options depend on the availability of water, fodder, or local demand. There is a need to set-up SHGs and provide them regular guidance and training on climate-resilient livelihood options and robust market linkages.

## **Risk diversification and safety nets**

Strengthened crop insurance mechanisms are needed to provide a safety net in drought and enable recovery from income losses. Existing crop insurance schemes need to increase their reach to small farmers, expand coverage of crops, reduce procedural complexities, and improve timeliness of payouts.

## **Research on risk proof agriculture**

R&D of technologies such as drought tolerant crop varieties and affordable efficient irrigation technologies needs to be given priority and funding. Research needs to be advanced from the laboratory to the field through farmer field schools, mobile-based advisories, and women-focused agricultural extension activities.

## **Enhanced access to water**

Given the hydrogeological conditions in Jalna, watershed development may have very localized recharge effects. Yet it is critically important in this drought-prone region. Even if specific farmers or landless labourers do not directly benefit from watershed development activities, they could benefit indirectly from enhanced opportunities for agricultural wage labour in the slack season or even during droughts. Raising community awareness about the benefits of watershed development can help reduce resistance towards giving up land for watershed development activities. This needs to be complemented by construction and maintenance of water conservation structures like farm ponds and KT weirs.

# Extreme risks, vulnerabilities and community-based adaptation

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The EVA Policy Brief series presents key policy insights from field-based research conducted in Jalna district before, during, and after the extreme drought of 2012-13.



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