



CLIMATE PROOFING WATERSHEDS IN SEMI-ARID INDIA

By **WATERSHED ORGANISATION TRUST (WOTR) India**

There is an increasing experience of unpredictability in Earth's climate: rising temperature, variability in precipitation patterns, extreme events. Such changes have worrying implications for communities dependent on climate sensitive livelihoods like agriculture, forestry, fishing etc., particularly since the business-as-usual strategies are often rendered futile in the face of climate vagaries. Dry land communities face additional challenges owing to the linkage of climate variability and water availability.

The need for assessing vulnerabilities / resilience

Most rural developmental interventions aim to improve the degraded natural resource base and/or augment livelihood options of the dependent communities. These interventions hinge on the assumption that the factors causing vulnerabilities are predictable, therefore manageable. The extreme and sudden occurrence of events in climate variability are inherently less predictable and uncontrollable. While communities have always been exposed to weather variability, what rings the alarm bell is the frequency and intensity of climate variability, which triggers coping mechanisms that may further compound existing vulnerabilities.

The impacts of climate change vary across regions (e.g. global, national, regional), economic sectors (e.g. agriculture, livestock, industry), social groups (e.g. rural populations, coastal communities, etc. including gender perspectives). Assessing the resilience is a key concept in adaptation practice and research. It underlines that ability of individuals, communities, and regions to cope up with differential risks arising from the effects of climate change, when exposed.

Given this, lack of proper preparedness regarding climate change variables within a project may lead to unsustainability of the intended positive impacts or some harmful impacts. It thus makes assessment of vulnerabilities / resilience imperative as part of project design as it helps identify appropriate interventions, design the required support systems, and take a timely call on diverting or utilizing the project funds for a more appropriate intervention.

Community Driven Vulnerability Evaluation-Programme Design (CoDriVE-PD)

In a step towards enhancing the resilience of rural communities and their resource base, Watershed Organisation Trust (WOTR) has developed the tool, CoDriVE-PD and has applied it within its watershed development projects across 5 Indian states.

This science-based tool combines key features from three international research methodologies: Driver-Pressure-State-Impact-Response (DPSIR), The UK Department for International Development's Sustainable Livelihoods Framework, and CRiSTAL. Through community engagement, CoDriVe-PD helps make a quick yet precise assessment of the climate risks and vulnerabilities of an area. It builds a vulnerability context; identifies climate risks and trends; builds a coping mechanism/adaptation response inventory that aids evaluation and tracking and provides a five digit multi-dimensional 'Resilience code' based on the five livelihood capitals (financial, human, natural, physical and social) backed by a list of locale-specific indicators. When applied at different stages of a project cycle, the tool generates codes at each stage. It enables in longitudinal tracking of community's adaptation responses, provides decision support and evaluates activities.

With this integrated approach, WOTR has incorporated impacts of climate vagaries through its innovative interventions viz. Agro meteorology, System of Crop Intensification, Participatory Water Budgeting coupled with suitable Capacity Building activities. (<http://codrive.wotr.in/CodrivePD/Forms/HomePage.aspx>)

Locale specific and farmer centric AGRO-METEOROLOGY

An approach developed by WOTR, in collaboration with the India Meteorological Department (IMD), the Central Research Institute for Dryland Agriculture (CRIDA) and the State Agriculture University (MPKV) provides locale specific crop weather



advisories to farmers. It offers important inputs on how to customize crop advisories, bridge barriers, leverage institutional strengths and accelerate adoption of on-farm adaptive responses.

This approach Involves 4 components:

- Acquisition of data from local Automated Weather Stations (AWSs), short ranged weather forecasts from IMD.
- Crafting Agro-advisories based on weather forecasts.
- Dissemination of information twice a week followed by feedback gathering.
- Onsite Capacity Building of the communities.

Till date 4559 unique advisories have been sent to farmers across 204 villages. (<http://wotr.org/sites/default/files/AGRIMET-%20Policy%20Brief%20No.%204.pdf>)

SYSTEM OF CROP INTENSIFICATION (SCI)- A step towards climate resilient agriculture

System of Crop Intensification is a four pronged approach implemented systematically and tested in poor soils. It involves soil preparation and management, crop geometry, systematic application of locally prepared organic inputs and micro-nutrient foliar sprays. SCI field trials were conducted on a variety of crops: tomato, sunflower, maize, paddy, groundnut, pulses and wheat. Some major impacts are: reduced input costs, increased crop yields, better soil health and greater survival rate of crops at times of weather variation. (<http://wotr.org/sites/default/files/Block%20Model%20Irrigation-Information%20Brief.pdf>)

PARTICIPATORY WATER BUDGETING-More crop per drop

Water Budgeting instills an understanding of the ground water availability, its judicious use with long term perspectives and follows principles of equity. Since semi-arid regions depend on groundwater post monsoons, communities are capacitated to monitor their groundwater levels. Based on this information crop plans and efficient irrigation systems are adopted. It is currently being implemented in 106 villages. Water budgeting helps combat water scarcity, increases crop productivity and hence it contributes to securing the sustainability of water resources.

CAPACITY BUILDING

Since its inception, WOTR has successfully facilitated 230 NGOs and government Project Implementing Agencies. Additionally, its involvement in over 11,801 women SHGs, micro-finance, trainings and other initiatives have benefitted over 149,453 women. Similarly over 380,000 people from 27 states in India and 63 other countries have participated in WOTR’s training and Capacity building programs.

In this manner, WOTR reaches out to a whole realm of stakeholders through its interventions, trainings and “hands on” capacity building programs, thus touching and changing lives of millions across the fragile eco-systems of the semi-arid regions in the country.

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