

# Adaptive Sustainable Agriculture



Agriculture is the lifeline for rural poor, particularly communities living in resource fragile dry lands. Limited ecosystem services and scanty rainfall patterns limit the potential of agricultural productivity, thus having implications on food security, livelihoods, and general well-being of communities in these regions. Currently, dry lands are plagued by over-exploitation and over-utilization of agriculture. The unintended consequences of up-scaling the green revolution and white revolution models into the dry land regions of India are being deeply felt. Agriculture being highly climate sensitive makes communities further vulnerable.

However, if managed well, agriculture in dry land regions can be both profitable and sustainable. NABARD in association with WOTR has been working in this direction and promotes Adaptive sustainable agriculture – climate compatible agricultural methodologies, low external input systems, efficient water use, and encourages collective farm management particularly for small-holder farmers.

## **This includes:**

### **System of Crop Intensification (SCI):**

It involves soil preparation and management, crop spacing, systematic application of locally prepared organic inputs from livestock, and micro-nutrient foliar sprays. It is simple to follow. It is a viable intermediate between organic farming and is climate adaptive.

SCI is about plant management rather than pest management and relies on the principle that adequate amounts of phytochemicals in the plant's system help combat climate induced stresses. Optimal crop spacing ensures higher yields. It brings back the critical link between agriculture and livestock by laying emphasis on having an integrated farming systems approach.



## Water Budgeting and Efficient Water Use Systems:

While suitable crop production methodologies have been identified for sustainable/ profitable agriculture in dry lands – this is not enough to use water judiciously for humans, agriculture, and livestock as to optimize benefits in climate variability, erratic rainfall and possible drought – is a key essential. While water budgeting is a concept that can be used at various levels, in agriculture it is geared towards ensuring optimal use of water available for agriculture – based on which crops for the year are planned, both at village and farm levels. This includes use of drip irrigation systems, equitable sharing of excess water, and judicious decisions on groundwater withdrawals.

### Collective Farm Management

Agriculture being highly climate sensitive makes the small land holder farmers the first victims as they have low adaptive capacity. In this context, Adaptive Sustainable Agriculture has been taken through a system that connects concepts of water-budgeting based crop planning and efficient water use systems with collectivization of farm resources for agriculture.

The initiative promotes bringing together groups of individual farmers with adjoining lands to share their farm resources for farming. It starts with connecting water resources through uniquely designed drip irrigation system ensuring all farmers in the group get adequate water. Based on the total available water in all sources (tube/ bore wells), the crops for the season are planned. This initiative promotes effective use of water for crop planning and gently induces crop diversification per farmer, collective management of farm lands, farm equipment and infrastructure and encourages collective marketing of the produce.

Collective farm management reduces the risk and builds response capacity of small land holder farmers to impacts of climate change as well as enhances food and income security.



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