

Building Resilience through Community-Led Groundwater Management: Addressing Water Scarcity in Drought Prone Areas

Impact Story

Savita is not the only woman farmer who credits her farmers' group for some simple measures that helped her courageously face the drought of 2023, which devastated the crops and lives of most farmers in Marathwada region. She represents one of the 300 farming families from five villages of Fulambri block, Chhatrapati Sambhaji Nagar district, Maharashtra State who learnt climate smart agriculture and water conservation techniques and used it successfully to counter the adverse impact of the drought by taking the right crop management decisions at every stage of the crop growth. Unlike their counterparts in the neighbouring villages, they saved their kharif crop and got some produce during one of the severest drought that affected entire Marathwada region in 2023.

Most of the rainfed farmers in drought prone areas of Central Maharashtra are at the mercy of rain God. Two years ago, GRASP (Grass Roots Action for Social Participation), a voluntary organisation, came forward to work on climate resilient agriculture in a cluster of five villages (Adgaon, Murshidabadwadi, Ranjangaon, Sultanwadi and Vitthalwadi) of Fulambri Block, Chhatrapati Sambhaji Nagar, District, Maharashtra where Savita lived. Under a project "Addressing climate variability through participatory groundwater management" supported by Global Water Partnership-South Asia (GWP-South Asia) and India Water Partnership (IWP), the farmers of these villages organized themselves into Farmers Field School (FFS) groups under the guidance of GRASP in 2022. These groups received training from the Krishi Vigyan Kendra (KVKs) at Jalna and Chhatrapati Sambhaji Nagar districts, Maharashtra and experts from Maharashtra State Agriculture and Groundwater

"We would have lost everything during this drought, but could salvage some grains and fodder by using the techniques we learnt during the last two years. We realised its importance in the face of severe drought 2023 in Marathwada region".

Said Savita, a rainfed woman farmer from village Adgaon, Block Fulambri, District Chhatrapati Sambhaji Nagar, (erstwhile) Aurangabad), Maharashtra State

Departments helped them on use of user-friendly techniques of soil water conservation, groundwater recharge and improving soil health. The groups took up these practices enthusiastically, partly on their own, and partly with little support under the existing government programmes.

Besides identifying new cost effective methods of water conservation, the farmers developed a regular habit of visiting their fields in groups and monitoring of crop growth, pests and diseases. During these visits, they shared their observations and related their experiences with each other, discussing how they overcame the problems in their own fields. This exchange was akin to a university of popular scientists constantly improvising on their locally developed solutions. These Farmers Field School groups are now respected by other farmers in the region as the torch-bearers of local knowledge on climate proofing.

Going beyond saving their crops during the drought, Savita and the farmer groups interacted with groundwater experts from GRASP to understand the underlying rock structure in their villages and its water related behaviour. With this newly acquired knowledge, they could identify within their villages, the zones which have high water bearing potential and those where groundwater could be recharged. They recently prepared village-wise water budget and water use plans for long-term drought proofing, which they taken to the Gram Panchayat for implementation in near future.



Climate Adaptation Plan preparation exercise by VWMC members

The GWP-South Asia and IWP supported project demonstrated an effective way of creating awareness among the community in five villages with their strong and capable Village Water Management Committees (VWMCs) working consciously towards, building resilience against climate related challenges. In this endeavour, the village youth also played a crucial role of barefoot technologists in assessing, planning and conserving surface and groundwater for the benefit of the community.

With a little yet systematic and regular help from GRASP, the VWMCs and the village youth collectively prepared Water Budget & Water Use Plans and Climate Adaptation Plans for each of the 5 villages. Adoption of water saving techniques like drip irrigation dissuaded the farmers from cultivating water intensive crops like sugarcane and banana. In the long run, these plans will pave the path for a water secure future in drought prone areas.

Water storage capacity has increased by 27.53%, and groundwater recharge has increased by 33.85%. Village Sultanwadi recorded the highest increase of 54.82% in storage capacity due to a large number of farm ponds created under convergence, whereas the lowest increase of 31.86% was found in village Ranjangaon in spite of sizable work in pond deepening, as the baseline was quite high.



Demonstration of Pheromone Trap in cotton crop (IPM method for removing pests)

Villages Murshidabadwadi and Vitthalwadi could not get any new structures during the last two years. Maximum groundwater recharge benefits of 65.33% were observed in village Ranjangaon due to deepening of the pond, whereas the lowest benefits of less than 1% were observed in villages Murshidabadwadi and Vitthalwadi. Similarly, village water consumption has decreased by 10.1% due to use of sprinkler and drip systems. This has not only ensured year-round water availability but has also boosted agricultural productivity and improved the overall quality of life for the villagers.

Hands-on learning and participatory technology development through 25 Farmers' Field School sessions enabled 186 farmers to evaluate and implement water-saving techniques to boost their crop productivity.

25 climate smart agricultural demonstrations educated 470 farmers on advanced farming practices like vermi-composting, INM and IPM.

Comprehensive assessment of 122 dug wells carried-out in 5 villages by regular monitoring of water levels and adopting water recharge measures helped to enhance groundwater availability.

15 hands-on training imparted to 50 VWMC members and youth on water conservation, hydro-geological survey and water budgeting enhanced their capacity for efficient crop water use planning.

Exposure visit and learning trips for 55 farmers and youth to Krishi Vigyan Kendra, Gandheli Village, Chhatrapati Sambhaji Nagar District provided insights into advanced INM, water harvesting, and vermi-composting techniques.



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