

Case Study 1: Integrated Watershed Management: A Case Study of Som Village in Udaipur District of Rajasthan

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1. Background

Water is an essential element for the sustenance of life. It is chiefly for this reason that the effective management of this precious resource is vital. This case study talks about how the Bhil community in Som village of Udaipur district, Rajasthan managed their limited water resources through watershed development using community participation.

The population of Som village of Jhadol block, Udaipur district is dominated by the Bhil tribes who are one of the largest tribal communities of Rajasthan. The primary livelihood of these communities is agriculture (ET Bureau 2017). At present, mostly small and marginal farmers are practicing subsistence agriculture. During off season they migrate to nearby cities for casual work as labourers. Primarily arid to semi-arid climate prevails in this region with short spells of showers (annual avg. 599 mm) brought by the southwest monsoon (June-September). Rest of the year it receives scanty rainfall resulting in high demand of irrigation for agriculture. Average depth of groundwater here is 15 m from the land surface. Because of low rainfall the farmers have to dig deep bore wells and mine water to sustain agriculture as well as to satisfy their domestic needs. Farmers with large landholding are able to dig bore wells, but marginal farmers can't afford the financial burden. Moreover, most of the families of these communities tend to dwell near their agricultural fields for the ease of management. However, the water sources are available in the main settlement areas which are away from their houses. Hence, in addition of being inherently water scarce region, inappropriate management and allocation of water resources are amplifying the water problem in this region. Apart from that, encroachment of forest land and conversion of forest land into agricultural fields have led to land degradation, soil erosion and depletion of the water table in that area. Poor land management and deforestation are affecting the forests and pastures which have high socio-economic and cultural values to the community. The water scarcity issue in the village has increased the drudgery of women and children as they are forced to travel a long distance to fetch water for domestic purposes. Women mostly spend 5-6 hours in a day for fetching water. School dropout rate of girls may also have increased due to water scarcity as they have to help their mother's for fetching water and taking care of their siblings and cattle.

Scarcity, in any form, must be address with the sustainable solutions. Integrated Watershed Management Programme (IWMP) is a worldwide accepted intervention which not only improves the availability of water resources but also helps in upgradation of the socio-economic and ecological status of the concerned region (Department of Land Resource, Govt. of India 2018). The main

objective of IWMP is to “restore ecological balance by harnessing, conserving and developing degraded natural resources such as soil, vegetative cover, and water”.

2. Objective

With this purview, this study focused on regenerating the degraded watersheds in this rain deficient rural village of Rajasthan using integrated watershed management programme (IWMP). Both the government and non-governmental organization as well as native communities were involved from the planning to decision making process. Priority was given to alleviate the local water scarcity issues using IWMP that will give immediate as well as long term benefits to the community. The broad objective of this study was to restore the watershed (a) by rejuvenating small streams and rivulets construction of water harvesting structures such as check dams and (b) by plantation of income generating species through community precipitation. The study was intended to restore the ecological balance of the watershed as well as upgrade the socio-economic status of the local community.

3. Methodology

In Rajasthan, Watershed Development Programmes are going on since early seventies. Only after 1991 watershed related works are executed by the Watershed Development Department (Department of Watershed Development and Soil Conservation, Govt. of Rajasthan 2019). However, learning through the implementation challenges, now emphasis is given to Participatory Integrated Watershed Management for the sustenance of the programmes. Currently Panchayati Raj Institutions are overlooking the all Watershed Development Works and they are implemented through elected statutory body i.e. Gram Panchayat/ P.R.Is.

Following the existing governance structure Participatory Rural Appraisal (PRA) method was followed during this study. *“Participatory rural appraisal is a methodology of learning rural life and their environment from the rural people. It is based on village experiences where communities effectively manage their natural resource (Cavestro 2003).* The PRA was adopted to ensure the sustainability of the implemented measures.

To understand the needs of the community at first Focus Group Discussion (FGD) was carried out with them. 25 participants were selected and divided into age and sex. Youths (14-18 years), men (> 40 years) and women (> 35 years) were participated in the FGD. The following questions were asked to every participant to understand their needs.

- What are the sources of your drinking water? From how far do you fetch water?
- What are the forest products do you bring from forest? How many times do you visit forest?
- What are the natural resource management measures would you like to be taken up?
- How much land do you need for watershed management?

Local NGO's were also interviewed with same questions to understand their views on the needs. NGO were kept in loop to keep them updated on the ongoing works in that area.

After the FGD, the next step was to form a forest/ watershed protection committee (FWPC). A FWPC of 7 members was formed which was headed by the Gram Pradhan. 3 men, 2 women and 1 youth were selected from the members of Gram Vikash Committee and local Self Help Group (SHG) as other members of the committee. The committee was headed by the *Gram Pradhan* who is also a representative of PRI. He was responsible to ensure links of the FWPC with the PRIs and NGOs.

4. Results and Discussion

During the FGD, it was found that in the past few decades, the livelihood patterns of these tribes have undergone significant changes due to water scarcity. Agricultural practices have reduced in the village and relatively high rate of seasonal migrants are moving out the village to the nearby cities in aspiration of jobs. During PRA planning exercises, the importance of sustainable water management through a watershed approach was explained to the community.



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To meet their needs, in consultation with the villagers, it was planned to restore watershed by rejuvenating a small stream of the Som River that flows through the village, using water harvesting structure like check dams. Along with that a plantation drive was also planned using income generating species both ecological and economic benefit of the residents. A total of 85 hectares of land was identified with the help of the committee for IWMP. In 20 hectares of area two big check dams were built using boulders and nets through *Shram Daan* (voluntary participation) of the community. These check dams were intended to serve for cattle and domestic needs. In the plantation area of 65 hectares around 20 small check dams were also constructed using wooden logs to restore degraded land and increase water holding capacity of soil. The FWPC was responsible of

maintenance and sustainability of these check dams. The check dams constructed will create water storage for the local community through rainwater harvesting. It will enhance water availability and accessibility even during the dry months. Irrigation water for agricultural lands can be extracted from these storages. Likewise, Plantation will lead to more groundwater recharge and reduced runoff, improve groundwater quality, and enhance soil moisture and water holding capacity of soil. The communities will also get many spill-over benefits from this initiative. Women and girls will have more time for education and other domestic purposes due to easy access to water. The overall health status of the community may also get better due to access to improved drinking water resources.

5. Conclusion

“Sustainable management of water resources and access to safe water and sanitation are essential for unlocking economic growth and productivity, and providing significant leverage for existing investments in health and education” (Arya 2012).

2 billion people around the world are still affected by water stress even after implementation of Millennium Development Goals and conceptualization of Sustainable Development Goals post-2015 (UNEP n.d.). Hence there are still ample of scope and need of development in improving access to water almost in every corner of the world. When SDG (6- *Clean Water and Sanitation*) is targeting to achieve universal and equitable access to safe and affordable drinking water for all by 2030, the small initiative taken in the Som village in Rajasthan will surely add a significant mark in the world map of access to water. Additionally, keeping climate change in mind it will also help in building resilience of the Bhil community, who are already vulnerable due to limited resources, to adapt against possible adverse condition.

References

- [Arya](#), C.K., Singh, B., Purohit, R. & Singh, J.S. (2012). Socio-Economic Status of the farmers in Canal Command area of Som-Kagdar Irrigation project of Udaipur, Rajasthan. *International Journal of Agricultural and Statistics Sciences*, 8(1):63-72
- Cavestro, L. (2003). PRA-Participatory Rural Appraisal Concept, Methodology, and Techniques. Retrieved from <http://www.yemenwater.org/wp-content/uploads/2015/04/PARTICIPATORY-RURAL-APPRAISAL.pdf>
- Department of Land Resource, Govt. of India (2018). Integrated Watershed Development Programme. Retrieved from <https://www.india.gov.in/integrated-watershed-management-programme-ministry-rural-development>
- Department of Watershed Development and Soil Conservation, Govt. of Rajasthan (2019). Watershed Development and Soil Conservation. Retrieved from <http://water.rajasthan.gov.in/content/water/en/wdandscdepartment.html>
- ET Bureau (2017). Witness the rustic charm of Rajasthan: The state caught in a delightful time warp. The Economic Times. Retrieved from

<https://economictimes.indiatimes.com/magazines/travel/witness-the-rustic-charm-of-rajasthan-the-state-caught-in-a-delightful-time-warp/articleshow/58143872.cms?from=mdr>

- United Nations Environment Programme (n.d). Goal 6: Clean water and sanitation, Retrieved from <https://www.unenvironment.org/explore-topics/sustainable-development-goals/why-do-sustainable-development-goals-matter/goal-6>

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