

Alwar's guardians of water

Kilometers of barren hills with just sparse thorny bushes for vegetation speak for the paucity of water in the desert state of Rajasthan. Nineteen of thirty-three districts in the state have been declared “drought hit” this year.ⁱ Alwar district, gateway to Rajasthan and about 100 kilometers from the national capital, Delhi, is among the eight districts that have historically been water deficient. In 2015, there was a rain deficit of 20–59 percent in the district.ⁱⁱ Traditionally, Alwar has also been home to water-conscious people, always underlining the importance of the scarce natural resource and conserving it with water harvesting structures. Building on this traditional wisdom, S M Sehgal Foundation (Sehgal Foundation), a nonprofit organization, has worked to strengthen community-led development initiatives to achieve positive social, economic, and environmental change across the region. The foundation team aims to empower rural communities across India to ensure dignified lives. In Alwar, the team has been working to conserve water and improve agricultural production so that the overall standard of living in the region is elevated.

***Jaldhaara* promotes life and livelihoods**

The foundation launched the *Jaldhaara* (stream of water) project in Samra panchayat in Thanagazi block of Alwar district in 2014. The project, through various physical and social interventions, aimed to improve water availability with storage and recharge structures and enhance livelihoods and food security by promoting efficient agricultural techniques.

These interventions were done after assessing the topography and rainfall patterns of the region. In addition to erratic rainfall, the area has a higher ground gradient, which means most of the rainwater flows downhill fast. Hence the recharge of groundwater is far less than needed. After assessing the topography and rainfall patterns, the organization executed projects to hold water and assist in groundwater recharge, such as anicuts, contour trenches, and *johads*.ⁱⁱⁱ

The project, covering five villages—Samra, Hamirpur, Kaled, Jaitpur Goojran, and Natata, has enabled the creation of groundwater augmentation structures, using check dams or anicuts^{iv} to store rainwater, contour trenches^v to help recharge groundwater and recharge wells^{vi}, digging new wells^{vii} and using farm bunding^{viii} to ably harvest rainwater in these villages.^{ix}

As of May 2016, 18 check dams, 20 nallah bunds, more than 7,000 contour trenches, 340 farm bundings, 44 field runoff overflow structures, more than 2,000 plantations for catchment area treatment, 13 recharge wells, and 18 sprinklers were constructed in partnership with the Sehgal Foundation team.^x

Because ownership is essential for project sustainability, the foundation team has built the capacities of residents to maintain the structures and measure their impact periodically. Information emerging on water levels from 700 stations that monitor the groundwater level, and 100 stations that check the quality of groundwater, help in decision making.^{xi}

Kanhaiya Lal, a water champion who has worked in this region for years and is now in-charge of these water projects, said, “Management of rainwater has been a tradition of Rajasthan, especially in Alwar. This region was awarded by then President K R Narayanan in 2000 for its determination in reviving the Aravari River. Rains are meager here, hence it is best to manage whatever rain the area gets. The proactive approach and openness of the villagers helped us in many ways. A good rainfall will ensure that our combined efforts are rewarded.”

Material and social impact

The last two years have seen deficit rainfall in Alwar, specifically in Thanagazi block,^{xii} so the impact of the work done is subtle. The first anicut built in Kaled village on the land of Shankar Meena does not store water yet, but the impact is clearly visible in the level of water in the nearby well. In December 2013, water in that well was at 3.42 meters. After the construction of the anicut in 2014, the water level rose three times to 10.50 meters in May 2016.^{xiii} The anicut has the capacity to store 1,350 kiloliters of water, impacting 87 people.^{xiv}

Shankar Meena says, “I continue to use water from my well. The women in my house do not have to go distances to fetch water. I can irrigate my fields and keep my cattle from straying away for water. All this is because this check dam that has helped recharge groundwater. There are villages that have no water yet, and women walk kilometers to get water to meet their basic needs.”

A 2016 interim report done by Sehgal Foundation on the project points out that water harvesting structures under Jaldhaara have conserved 714,431 kiloliters of water, benefiting more than 2,000 people. The johads have collected 4,840 kiloliters of water, benefiting 1,882 people. On an average, water levels have risen three to four times in Thanagazi since the water interventions.^{xv}

Kanhaiya Lal considers the subtle impact of the interventions as a promising step because the region has seen below-average rainfall in the last few years. “The impact of conservation is evident from our groundwater monitoring stations. Even with this little water, crops have been better. Imagine, a good rainfall, as predicted this year, will change the landscape of this area,” he adds.

Inclusive approach that upholds belief

Jaldhaara has not only revived the age-old traditions of water conservation and harvesting, but has also built a process that involves communities in the revival process. The foundation reached out to the villagers to emphasize the need and their role in water conservation. Feasibility surveys were done to understand the region and its topography, water usage of communities, and the interventions required. A few active villagers have been organized in groups called Village Development Committees (VDC) that make decisions on the nature of work and identifying location-specific interventions and beneficiaries. VDCs having ten to fifteen people, with representation from every caste, locality, and gender, meet once a month to plan the logistics of the work and then implement those with the help of identified beneficiaries who share the cost and even, at times, the land.

Kushal Baba of Kaled village is hopeful after the construction of the johad for which he contributed 15,000 to 20,000 rupees and invested his time and efforts to oversee construction. He remarked, pointing at the johad, "It may look like a huge crater right now. But I look at it as a vessel. When it rains, it will hold water. My efforts will ensure that there is water for my use and also for other villagers, cattle, and animals from nearby forests. This is my duty towards nature."

K L Meena, superintendent engineer at Alwar's Zila Parishad (District Council) watershed department said, "Organizations like Sehgal Foundation are the essential gap fillers. They assist and support the government in this tedious task of reaching out to rural communities in the country. They complement the government's efforts and help villages benefit from our schemes. Sehgal Foundation's work on water is crucial for the region."

The endeavors of the foundation are evident from the rigor and zeal shown at the VDC meetings. The villagers are very conscious, aware, and eager to adopt these instruments of change. In village after village there is talk about saving water and forests and enhancing livelihood. Capitalizing on their passion, Sehgal Foundation has commenced on this journey to create water-conscious communities that will reach milestones in water conservation in the years to come.

ⁱ <http://www.thehindu.com/news/national/other-states/19-districts-in-rajasthan-droughthit/article8491809.ece>

ⁱⁱ <http://waterresources.rajasthan.gov.in/RAINFALL/MONSOON2015.pdf>

ⁱⁱⁱ Johad is a rainwater storage tank, principally used in Rajasthan. It collects and stores rainwater throughout the year to be used by humans and cattle.

^{iv} Anicut is a small dam made in a stream to regulate flow, irrigation and recharge groundwater. Check dams are a type of structure, which dams up a small river or nallah in order to brake the flow of water during the monsoons, and allows it to seep into the soil.

^v Contour trenches are ditches dug along a hillside in such a way that they follow a contour and run perpendicular to the flow of water. The soil excavated from the ditch is used to form a berm (a narrow shelf) on the downhill edge of the ditch. The berm can be planted with permanent vegetation (native grasses, legumes) to stabilize the soil and for the roots and foliage in order to trap any sediment that would overflow from the trench in heavy rainfall events. Contour trenches are used to slow down and attract runoff water, which then infiltrates into the soil.

^{vi} A recharge well pushes back surface water into the groundwater system. Usually, a recharge well is one meter in diameter and six meters deep, lined with concrete rings having perforations. These perforations let water seep from the sides. The rings line the recharge well from bottom to top with a steel or concrete ring closing it.

^{vii} The dug well is a traditional method of obtaining water, which has been used for thousands of years. In its simplest form, a dug well is a shallow hole dug down into the water table.

^{viii} Farm bunding is an agricultural technique of bunding plots and planting on the bunds to prevent soil erosion and help recharge of water.

^{ix} IRRAD Alwar WM proposal Sep 2013

^x Data provided by the Pratapgarh office of Jaldhaara project.

^{xi} Data provided by the Pratapgarh office of Jaldhaara project.

^{xii} <http://waterresources.rajasthan.gov.in/RAINFALL/MONSOON2015.pdf>

^{xiii} Groundwater data provided by the Pratapgarh office of Jaldhaara project.

^{xiv} First Interim report–Jaldhaara 3

^{xv} Calculated from groundwater data provided by the Pratapgarh office of Jaldhaara project.