CASE STUDY - 1

System of Trap Rainwater Improves Incomes For Displaced Tribal Farmers

MALKANGIRI DISTRICT, ODISHA

RSC – 11 is a strange name for a tribal settlement, on the slope of a hill under Nuaguda Panchayat of Chitrakonda block in Malkangiri district, the southern-most district of Odisha. It is short for Resettlement Colony 11, named so by creativity-deprived government officials to address the settlement of 80 households of Parja tribe displaced from their villages. It is in the catchment area of Balimela dam.

The Department of Water Resources of the Odisha state government pegged the average annual rainfall for Malkangiri district in 2018 at 1754.8mm. But for settlements like RSC-11 the problem is inability to draw water that runs down the hill, in the form of a perennial stream. Absence of systems to draw water from it leaves the inhabitants desperate for water during summers. The landless in the colony depend on forest produce and daily wage labour. The farmers here, most with lands of smaller than two acres in area, cultivated only paddy in Kharif (rainy season) and depended on wages from migrant labour for the rest of the year.

Things changed when Sishu "O" Mahila Kalyan Samiti (SOMKS), a local non-profit, set up a lift irrigation system, with the help of Watershed Support Services and Activities Network (WASSAN), a member of the Revitalizing Rainfed Agriculture Network (RRAN). The system by drawing water from the stream, helped the farmers create irrigation facilities to take up another crop during summers. This additional income helped a few women in the colony to invest in earning income from other livelihood options, like rearing goats.

Paddy, cultivated during the Kharif, is the mainstay for the farmers here. They also grow small amounts of vegetables, pulses and coarse grains in their backyards, mostly for household consumption. Due to lack of irrigation facilities especially during the Rabi season, the community was not able to cultivate a variety of crops for commercial purposes; a long-cherished desire of many farmers here.

With Community's Consent

After surveying the area and with the consent of local inhabitants and authorities, the WASSAN team proposed construction of a water distribution system. The constructing work began with the help of SOMKS, within days after the community gave the nod for the project.

A voluntary committee named Baba Ganeshwar Pani Bayabakari Dala was formed with 39 small and marginal landholding tribal farmers, to monitor the construction work. Including the cost of labour, the project was completed in Rs. 3,78,168, of which, RRA Network paid Rs. 2,66,069 and Rs. 1,12,100 was farmers' share.

Through the establishment of this water distribution system, the community also learnt of systems like micro-irrigation, which aid in optimal utilization of water. Two farm ponds were dug out for the people of the community to practice fisheries alongside. A water user group of 40 members was formed to take charge of the ponds' maintenance. A meeting is conducted twice a month to ensure the smooth maintenance and functioning of the water distribution system. An amount of Rs. 100 is collected from each member of the committee, to cover the maintenance charges of the pond.

(This case study is sourced from Sishu "O" Mahila Kalyan Samiti (SOMKS) - a Malkangiri-based non profit).

CASE STUDY - 2

Farmers in Telangana Village Enjoy Bounty of Water Sharing

MAHABUBNAGAR DISTRICT, TELANGANA

Within a span of three years, Chellapur village of Mahbubnagar district doubled its Kharif produce, and tripled its fodder production per year. The land under irrigation doubled too. All the farmers on a stretch of 48 acres of land gained access to assured water supply, to mitigate the stress of dry spells; a feature of the region.

This is the outcome of a groundwater sharing experiment carried out here over a stretch of 48 acres of farmlands; an agglomerate of lands owned by five farmers independently. The experiment was part of Andhra Pradesh Drought Adaption Initiatives (APDAI – Karuvu Kavacham); a pilot project supported by Government of Andhra Pradesh and World Bank, implemented in two phases from 2006 to 2009.

The project was implemented in 5 mandals (Kosgi, Daulatabad and Bommaraspet in Mahbubnagar district and Gandlapenta and Nallacheruvu in Anantapur districts). Commissionerate of Rural Development, Society for Elimination of Rural Poverty, Mandal Mahila Samakhyas and WASSAN were partners in the initiative. WASSAN, a member of the Revitalizing Rainfed Area Network was the Lead Technical Agency who provided strategic and design inputs.

The project began with sensitizing the farmers about the perils of ground water depletion. After the analysis by the lead technical agency, a discussion was conducted with farmers to chalk out the plan for pooling bore wells. A rainfed patch of 45 acres, dotted with a five bore wells was selected for the experiment. A pumping test for water adequacy and water quality analysis was carried out to assess the suitability of pooling water from the selected bore wells. Farmers from the village were taken to an exposure visit to 'Social Regulation Project' of Centre for World Solidarity organization and the 'Andhra Pradesh Farmer Managed Groundwater System' project in Anantapur where ground water issues were successfully addressed in a similar fashion. For subsequent batches from other districts, Chellapur became a centre to learn the technique.

This happened particularly because of the memorandum signed between WASSAN and participating farmers to not dig any new bore wells in the selected are for at least next 10 years. A common interest group (kind of a farmers' collective) took responsibility of crop planning based on the availability of ground water. The participating farmers reduced the area under paddy or avoided it totally, especially during the summer season. But most important was the agreement to share water even with the farmers who do not own a borewell (in the selected patch), especially to protect their crops from dry spells during Kharif sowing season.

As a result, irrigated area in the village doubled. About 12 acres (40%) of the kharif crop was given protective irrigation that led to a 240% increase in grain production. The fodder production increased three times (358% increase in total) and the farmers started growing three new crops, that contributed to crop diversity in the area.

Due to sharing of borewells, and keeping one of them at rest each day, about 25% of pumping hours were saved. Also, the water extraction came within the safe yield limits as indicated in field study conducted by Advanced Centre for Water Resources Development and Management (ACWADAM), a Pune based think tank.

CASE STUDY - 3

Borewell Sharing Doubles Rabi Produce in Telangana's Tribal Hamlet

RANGAREDDY DISTRICT, TELANGANA

Kharif (rainy sowing season) would bring in a part of the agricultural income for the farmers in Malkaipeta-thanda, a small tribal hamlet of Ibrahimpur panchayat of Telangana's Rangareddy district.

The surprise was doubling of groundnut produce in Rabi (spring sowing season) of 2009-2010 from 66.23 quintals (in 2008-09) to 104.70 quintals on a stretch of 25 acres. This was the result of meticulous water budgeting done by mostly small and marginal farmers of the Lambada (a semi-nomadic) community farmers here.

'DuddalamJalu Ground water Sharing User Group' is the water sharing group that spearheaded the budgeting process ahead of the Rabi. The group was formed as a part of a borewell sharing experiment under the National Agriculture Innovation Program (NAIP) funded by World Bank and executed by Indian Council of Agriculture Research (ICAR).The aim of the project was to enhance rural livelihoods by means of piloting innovative models of institution building and utilization of resources.

WASSAN, a Hyderabad based non-profit, part of the Revitalizing Rainfed Agriculture Network anchored the project in Rangareddy district as a member of the project's consortium. A study conducted by WASSAN during the initial stages of the programme highlighted that the groundwater table in the village varies from 13 to 36 feet below the ground. The average rainfall of 938 mm is subject to climate vagaries, making dry spells a regular feature. This phenomenon inhibits recharging of ground water table too. There are 2 tanks for irrigation, which also serve as groundwater recharge sources. The village had 54 borewells, some 250 feet deep. (Achieving the yield prospects of 20 cubic meters per hour pumping, expected for irrigating the stretch, depends on the morphology of the area.)

A stretch of 45 acres was identified for the implementation of the pilot. It was jointly owned by 18 farmers from the hamlet. Out of these seven farmers owning 13.5 acres, shared water from four bore wells. The other 11 farmers do not own bore wells. These farmers had a share of 31.5 acres in the identified stretch.

Owing to irregular rainfall, about 83% farmers depended mostly on groundwater for irrigation. The cropping season was limited to Kharif only. The productivity of maize and red gram, important Kharif crops was also very low. Prior to the experiment, groundnut was cultivated only by the farmers who owned borewells during Rabi.

But ahead of the Rabi of 2009 or 2010 farmers worked collectively to chalk out a *Kharif* and *Rabi* crop action plan for year 2009-10. They agreed to cultivate groundnut in 45 acres during Kharif and only 25 acres during Rabi. Irrigation schedule and calendar were prepared based on crop requirement. Borewell owning farmers agreed to restrict paddy cultivation for their household consumption. They also agreed to raise irrigated dry crops. The farmers who do not own borewells could go for intercropping with rainfed crops; Maize, Sorghum, Pigeon pea and Green gram during Kharif. In addition to borewell owners, these farmers also sowed a Groundnut crop during Rabi, thus the produce for the season grew two-fold.

CASE STUDY - 4

Women in Himachal Villages Revitalize Water Commons

THANAKKASOGA DISTRICT, HIMACHAL PRADESH

Five *Baoris* (springfed open wells) came to life when women activists from four villages Luhali, Dhyali, Thanakkasoga and Sattar Bhadon in Himachal Pradesh, took control of things. The once polluted and ill-kept baoris have boundary of plants which keep the soil from being washed away. Anyone who tries to defecate or litter in and around these wells is fined heavily. These beautiful wells now provide water not just for drinking, but to irrigate vegetables grown in people's backyards too. Realizing the importance of *Baoris* as a common resource, village Thanakkasogga has even started and constituted a body to maintain them.

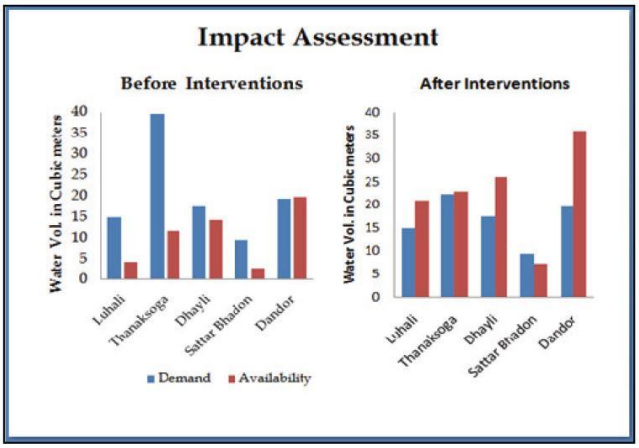
Being situated in the rainfall shadow zone, the people of Thanakkasoga district depend solely on the water from perennial streams and springs. The rejuvenation project was initiated by the awareness created by People's Science Institute (PSI) – a Dehradun based non-profit research organization. Eventually the Mahila Mandal took the responsibility and gathered support even from the local governing bodies for the project.

PSI's situational analysis reveals that in the past few years, the springs in Indian Himalaya Region have become seasonal in nature. *Baoris* or open wells are traditional structures to tap the water from these sources. But Baoris in Thanakkasoga district got contaminated due to open defecation. Their discharge was as low as 15-18 liters per minute (lpm) even in monsoons. This plummeted to the rate of 1 lpm in summers. The aim of the project was to revive these defunct *Baoris*, thereby solving the crisis of water shortage for people in the three villages of Thanakkasoga district in Himachal Pradesh.

ACWADAM, a Pune-based non-profit research organization provided the technical inputs while Arghyam a philanthropic organization founded by Rohini Nilekani provided financial support.

In the initial stages of the project, PSI created water user committees, which also had members from mahila mandals. Despite mobilization efforts not much support could be gathered. Eventually women from local mahila mandals took the initiative and introduced the matter in the Gram Sabha (meetings conducted by local governing bodies called Gram Panchayats). They created awareness campaigns to gather support. Gradually, people from the villages began to contribute to cleaning and restoration work through *Shramdaan(*austerity for a cause through voluntary labour). Some Mandals even developed plant nurseries to grow plants on the boundaries and the recharge area of the Baoris. Volunteers from the village also extended support.

Two years after the completion of the restoration programme, PSI staff observed that people from the villages started organizing cleaning and desilting drives at the Baoris. Due to these efforts the availability of water in the five Baoris increased manifold (as the graph indicates).



(This case study is sourced from People's Science Initiative - a Dehradun-based think tank).

These case studies were from the field areas of:

ACWADAM SOMKS PEOPLES SCIENCE INSTITUTE PSI S E R P