

Participatory Groundwater Management: Sharing the resource at the village level

Sharing of groundwater resource by the farmers who have with those who don't have is a very prominent feature of the participatory ground water management in villages. The practice is particularly a laudable effort in an over exploited area like Ananthapur in particular which would go a long way in easing the stress on the resource in the deficit rainfall area. The Andhra Pradesh Community Based Tank Management Project particularly aims at achieving this goal by a sustained effort in creating awareness and understanding about the emerging groundwater resource scenario under a renovated and rehabilitated tank and the need to use groundwater at optimum levels so that the resource is conserved for posterity.

The emergence of water sharing practice in Madirepally village

Geo-hydrology: The Madirepally village of Singanamala mandal has basically granitic terrain. The granite is coarse and fine grained at different places. Areas with fine grained granite form the shallow basement areas and are not suitable sites for drilling of successful bores. Most of the area has shallow basement without fracturing. The elevated topo areas have sandy soils and other areas have red chelka soils.

From the groundwater point of view, the village has very heavy winds and hence the evapo transpiration is also very heavy resulting in reduced soil moisture. The dug wells are very deep sometimes above 35 feet and dry.

NGO Support: RIDS is the non governmental organization (the support organization for APCBTMP also) working closely with the farmers of the village and has succeeded to a great extent in creating the required awareness among the local farmers regarding the participatory groundwater management. The farmers in the village are practicing groundwater management by sharing and conserving the resource through micro irrigation and its augmentation through construction of recharge structures. Before RIDS interventions, the farmers were given training on PHM and are provided with the required equipment. However, there was slackness in practicing it.

The villagers express gratefulness to the NGO who created enough awareness among them about the futility of drilling of new bores and the advantages in sharing the water among them. Most of the farmers reported that earlier they drilled numerous borewells to various depths. Most of the sites were drilled without investigating scientifically and huge money was invested in the hope of getting enough water. They believe the efforts of the NGO would ultimately pave the way for changing the groundwater scenario in their village.

The Effect: One of the farmers, Sri. Kakarla Subbanna, who has 8.0 acres of land, reportedly drilled 26 borewells. Five of the failed borewells visited are not very far from

each other and there is only one borewell that is successful. This borewell is able to irrigate 4.0 acres of Citrus. One open well in his land is 12 m deep and has more than 5.5 m of water column and is able to sustain ID crop in the other patch of 4.0 acre land belonging to his brother.

Similarly another open well is shared between two farmers (Kuruva Rajappa and N. Anand). A 5 Hp centrifugal pump is being used to irrigate 3.0 acres of Mirchi crop. Sri Bala kishtappa, a farmer is sharing water with three other farmers. Sri. P. Kishtaiah, another farmer is also sharing the water with three other farmers. One of the borewell of Sri. N. Laxmanna, which went dry earlier, was revived due to the construction of Farm Pond. There are several examples of such water sharing in the village. Currently water sharing among farmers has become a practice rather than a concept.

This change of practices has happened over a period of time and also with a cost attached to the lessons learnt. The situation before 2002 (before the NGOs intervention) and the position after 2004 (after the intervention) has yielded a change in the attitude among the farmers with substantial physical gains. The net effect of this change is put in the following table in a nutshell.

Item	Position prior to 2002	Position after 2004	Net effect of the activity
Acres under cultivation	645 acres.	600 acres.	7-8% decrease in irrigated area
No of borewells	40 bore wells and in-well bores up to a depth of 80-100 ft.	60-70 borewells up to a depth of 160-180 ft	No further drilling of the bores—Social regulation
Failure of borewells	Farmers drilled 5-28 bores in 3.0-8.0 acres of land	Failure of bores - mitigated due to moratorium on drilling	Savings from the in-fructuous investment
Social regulation	Uncontrolled drilling of bores by individuals	Moratorium on drilling new bores	Sharing the resource and no further addition to the existing number of BWs
Recharge structures	Decreasing yields in the bores. No addition to the area irrigated	Constructed 28 recharge structures like PTs, CDs and Recharge pits. No further exploitation.	Increment in the discharges of the existing bores. Increase in the area irrigated under each borewell.
Cropping Pattern	Mostly paddy, for regular consumption, through very low yielding BWs	Switched over to ID crops like G. nut, Mirchi, S. flower etc.	Better financial returns; Conserved resource.

The current position:

Earlier the villagers drilled large no of bores individually, in their lands, in the hope of getting an irrigation source. Sri. K.Subbanna drilled 26 bores but only one was successful and is functioning to this day. Most of the bores went dry or were low yielding. They always resorted to growing paddy and other water intensive commercial crops earlier but subsequently switched over to ID crops like Sunflower, Groundnut etc. After burning fingers badly, the farmers decided not to drill new borewells and share the water from the successful bores with other farmers. Water is being shared between brothers, among farmers irrespective caste and between small and big farmers of the village. The villagers constructed 28 recharge structures and helped to augment the yields of the successful bores. Sharing of the bores increased from 5 in 2002 to 33 in 2005 to 58 in 2007. Recharge structures constructed during the past 2-3 years reportedly revived/rejuvenated defunct borewells and are presently irrigating 1.0-3.0 acres. Earlier, the farmers used flood irrigation method but are now adopting micro irrigation methods like drip and sprinkler irrigation for the I D crops.

APCBTMP team interacting with farmers and the NGO



APCBTMP team visiting one of the borewell of Sri. Kakarla Subbanna along with other farmers and the NGO



Future Scope:

- Adversity has forced the farmers to resort to sharing the resource.
- The NGO working in the village has put in enough efforts to create awareness and harness the situation for the benefit of the society at large.
- The villagers have united to manage the resource. Social regulation is being implemented scrupulously.
- There is unanimity among farmers in implementing PGM.
- Recharge structures have revived a number of defunct borewells. More recharge structures as per feasibility may be taken up in the village.
- The NGO needs external support in the form of extension of Micro Irrigation Project to all the needy farmers in the village. The district administration may be advised to extend the necessary support.
- There is scope to implement PHM more vigorously.
- Many villages in Andhra Pradesh in general and in Ananthapur in particular, need to replicate this type of activity. While acknowledging the work turned out by the RIDS in the much needed sphere, it is equally important that the NGO is extended all required support and the programmes is taken further on a campaign mode.