1. Title of technological innovation

Up-scaling of farm ponds for drought mitigation in medium rainfall zone through convergence

2. Brief write up

Water is most crucial resource for sustainable agricultural production in the dry land/rain fed areas. However, the major part of the rainwater goes away unused as runoff washing away precious top soil. Central Research Institute for Dryland Agriculture (CRIDA), Hyderabad has standardized location specific water harvesting technologies in the form of *Farm Ponds* to address this problem and the institute is actively up-scaling this technology in convergence with on-going programmes like NREGS.

This technology was taken to the farmers' field by CRIDA team in Sithagonthi cluster of villages of Adilabad district in Andhra Pradesh under NAIP project on Sustainable Rural Livelihoods Security in the year 2008. This area is predominantly populated with tribals who are engaged in subsistence agriculture despite receiving an average rainfall of 1050 mm annually and fairly deep black soils. The topography here has good potential for harvesting runoff. Considering the slopes of the fields, an appropriate location was identified for a dug out pond (17m x 17 m x 4.5 m) involving a group of farmers as stakeholders. Initially there was very strong opposition from the farmers (Mr. Namdev and his brothers) for losing a part of their land for digging the pond. By highlighting the benefits of the proposed intervention, the farmers were persuaded and agreed to get the Farm Pond dug in their land.

Soon after the farm pond was dug (July, 2008), there were good rains leading to complete filling. The rainwater filled to the brim of the pond got the farmers enthused. They hired diesel engine to irrigate half acre area where they grew tomatoes. By the time tomatoes came to harvest, the prices in the market had touched close to Rs.25/kg. Mr.Namdev hired local vehicle and went to the market himself to sell tomatoes. He made a good profit of over Rs.20,000/- through four good harvests of tomato. By mid November 2008, there was water still to a depth of two meters. This encouraged the farmers to sow chickpea on one acre land. Besides this, he also cultivated a small patch of chickpea and raised some fish in the pond to meet miscellaneous expenses. Earlier Mr.Namdev was hiding from the money-lenders and not concentrating on farming. Through enhanced farm income Namdev could clear all his debts and that restored his self confidence and dignity. He has also started sending his children to the school. Now he is considered as a successful

farmer in the area and many farmers from the neighbouring villages are coming to see his farm module. This has raised enthusiasm of the farmers of this area and the generally reluctant tribal farmers have come forward to get farm ponds dug on their lands in convergence with the ongoing NREGS. Overwhelmed by this response, the NAIP project has facilitated inclusion of digging work in the NREGS shelf of works. Consequently the district authorities of Adilabad had visited this successful farm module and have allocated an amount of Rs.20.00 lakhs for up scaling this intervention. In the current year (2009) also the Farm Pond of Mr.Namdev is filled and is being used for providing life saving irrigation to kharif crops. This successful case has demonstrated the value and usefulness of Farm Pond technology for sustainability of rainfed farming systems and importance of convergence of R & D institutions.

Farm pond in Namdev's field

Namdev selling vegetables

Farm pond dug under NREGS being widened and deepened

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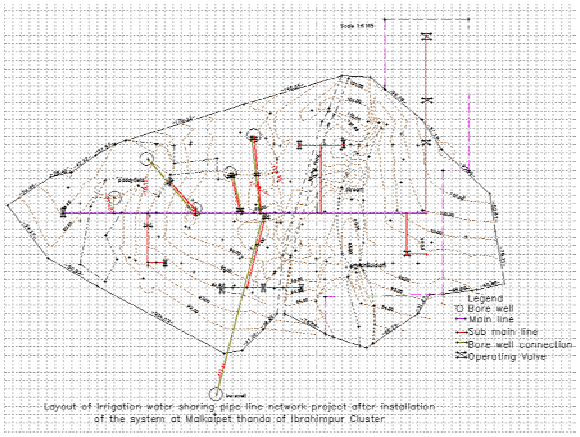
1. Title of technological innovation

Sustainable use of groundwater: Pipeline networking and social engineering for participatory management

2. Brief write up

Malkaipet thanda in Ibrahimpur cluster, Rangareddy district is one of the driest regions of Andhra Pradesh. Despite this, a few farmers have dug deep bore wells to cultivate paddy season after season. This area has been categorized as "dangerously low" in terms of groundwater resources. NAIP staff, keeping this in view started working on promoting a water sharing arrangement among farmers. The efforts in this direction were initiated by WASSAN, the cluster anchoring partner in the Ibrahimpur cluster, Rangareddy district as soon as the project began. It involved a series of consultations with the bore well owning farmers and the neighbouring ones who did not have water source to irrigate their lands. Initially, the two tube well owning farmers did not like the idea. The project then got a defunct bore well repaired as an incentive and again approached the farmers who had mellowed down by then and agreed to share water, provided the project assisted the community for digging a few more bore wells so that there was enough water to share it across a large area. This time, the project contacted NABARD for assistance who came forward with financing the digging of two tube wells in that area under their Comprehensive Land Development Programme (CLDP). This raised the hopes of several farmers including those who owned bore wells initially, because with the pooling of water, they could now irrigate other patches of their dry lands where they could not have provided water. Thus, the one year long negotiations with the community to implement social regulation for groundwater usage finally yielded results. Over 60 acres of land belonging to 18 households was brought under protective irrigation by laying out a network of pipelines and bore wells at Malkaipet thanda in Ibrahimpur cluster, Rangareddy district. The entire group of farmers has agreed not to cultivate rabi paddy but to share bore water among themselves for growing ID crops. For the first time an area of 25 acres came under groundnut with protective irrigation during rabi 2009 where no second crop was possible earlier. Groundnut was generally cultivated in kharif with an average yield of 4000 kg/ha. With this intervention, groundnut could also be cultivated in rabi with much higher yield level (5500 kg/ha). This intervention helped increase cropping intensity besides creating additional employment income for

the farm families. Next year, the area under protective irrigation through the pipeline networking will increase to its full potential i.e. 18 ha.



Lay out of pipeline network (top left); discussions with the community (top right); pipeline network being laid (left) and rabi groundnut with sprinkler irrigation

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1. Title of technological innovation

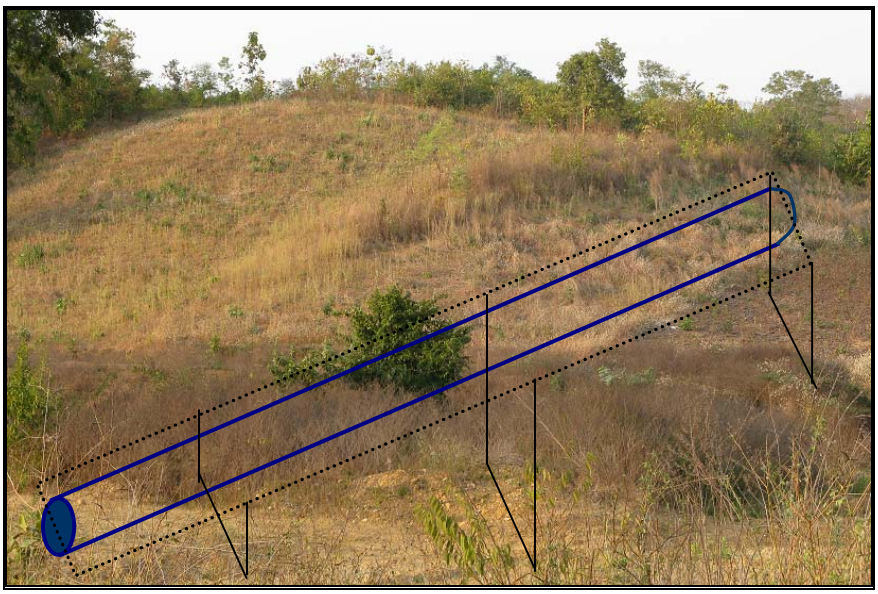
Enabling farmers for augmenting water availability

2. Brief write up

Bheemavaram tank in Tummalacheruvu cluster (Khammam) serves as a source of irrigation for about 120 acres. However, the excess water that flows out of the tank every year during the rainy season goes waste since it flows down into a drain without becoming accessible to the fields downstream. Therefore, one of the first demands of the community when the project team interacted with them through PRA was construction of aqueduct across the *Bandlavaagu* drain. In order to make this dream come true, project team along with a group of consulting engineers took up the issue.

The group after careful study, recommended for construction of an aqueduct across the stream and discussed with the farmers if they could take the responsibility of laying the aqueduct under the guidance of project staff and engineers. Since the area is very remote and generally no contractor would take up work in such a hinterland, the farmers agreed to lay the aqueduct on their own. The farmers were encouraged to formulate a user group and open a joint account in the bank so that financial assistance could be directly delivered to the group without much delay. The farmers contributed labour and a committee of the user group and project staff monitored the construction of aqueduct under the guidance of engineers. The construction employed latest low cost technology involving continuous HDPE pipes supported by steel columns instead of cement pipes and RCC columns which brought down the cost almost by 40%. The farmers are very happy with their dream coming true and are working to dig distribution channels downstream so that the entire potential of the overflowing water could be harnessed to irrigate about 120 acres.

The facility was dedicated to the farmers of Bheemavaram in a special event on 10th July 2009 by Shri. R. Kanta Rao Hon'ble Member of Legislative Assembly of Pinapaka constitution.



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1. Title of technological innovation

Village level value addition with community participation

2. Brief write up

Farmers in the Ibrahimpur cluster, Rangareddy district grow pigeonpea extensively. But they sell their produce to the middle men without any value addition. Thus, they end up making very little or no profit. Keeping this in view, the project in consultation with the cluster anchoring partner and farming community, facilitated introduction of a mini dal mill. The village organization has identified 4 self help groups to run the dal mill. The 4 self help groups together have hired a person to help them initially with the technicalities of running the mill. The 4 groups together procured 80 quintals of dal from across the cluster with an investment of Rs.2.85 lakh. By processing this, they got about 60% grade one dal and 12% grade two dal. The overall recovery was around 70%. The byproducts like broken dal and flour accounted for 15% while around 15% accounted for loss of weight, chaff grains and wastage. The grade one dal fetched close to Rs.60/kg while the grade two fetched around Rs.55/kg. The total amount realized by the group was Rs.3.35 lakhs with a profit of Rs.50,000/-. The capital to procure dal was mobilized by each group through the funds made available from the District Water Management Agency (DWMA), Govt. of A.P. The entire process has given a new confidence to the women of the self help groups who are confident of increasing the turnover to at least 120 quintals during the year 2010.

Women managing dal processing unit (top left); Treating the dal after processing (top right); Grading the dal

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