Groundwater as Commons demonstrated in Mahbubnagar, Telangana

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Collectivising groundwater for protecting rainfed crop; Source: WASSAN By the year 2000, farmers in Mahbubnagar, Telangana could see how risky their investments on groundwater had become. The area barely received 600 mm of annual rainfall, and just 15 percent of its area was under irrigation. This caused a crisis for both drinking water and irrigation for a sizeable chunk of farmers in Mahbubnagar, a drought prone area in semi arid part of Telangana, when there was low rainfall. The groundwater table kept plunging and they were hesitant to invest in another borewell. The competitive extraction of groundwater for water intensive crops, following the trend in irrigated areas, had further depleted the groundwater. Most farmers in the area were at the mercy of the rains and their low yielding borewells. Groundwater had become the property of large farmers who could afford to dig and re-dig borewells, and no social regulatory mechanism was in place to control this. Farmers pool groundwater to save crops In 2007,

Watershed Support Services and Activities Network (WASSAN)

, a Hyderabad-based NGO, attempted to collectivise groundwater to protect rainfed crops. Borewell owners pooled their individual borewells to provide critical irrigation to an entire block of 50 to 100 acres. The water was spread thin and the first claim was to secure the crops. WASSAN started by supporting the Chellapur water grid network as a part of the Andhra Pradesh Drought Adaptation Initiative in Mahbubnagar. The work in this village was later extended under the National Agriculture Innovative Program in Rangareddy district and Rastriya Krushi Vikas Yojana Program in Anantapur district. Based on the experience of the above programmes, the Government of Andhra Pradesh (before bifurcation) issued a Government Order for the integration of water sharing implementation in Indira Jala Prabha program, a flagship scheme of the State Government for Scheduled Caste and Scheduled Tribe community land irrigation. (see map in

original story

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The collectivisation model

There were two broad shifts in approach that WASSAN promoted:

from an individual farmer approach to an area based approach for irrigation from groundwater as private property to groundwater as common property

The model facilitated a common understanding between borewell and non-borewell farmers to share groundwater. It also provided incentives to share and initiate social regulation to control the competitive digging of borewells.

The collectivisation of groundwater borewells has a few elements to make it work well:

Grid with outlets: A pipe-line grid is laid out along the main line into which water from all the private borewells is pooled. The grid extends pipelines to all the rainfed area within a patch of 50 to 100 acres. Care is taken to select blocks with lesser than 20 percent irrigated area. The grid has outlets, each of which caters to a specific area of 3 to 4 acres, which reduces the time and labour for irrigation. The pipeline network is provided at 20 percent subsidy by the project so that water can be taken to any part in the area. Getting maximum benefits per unit of water (Source: WASSAN) Getting maximum benefit per unit of water: Water losses are reduced by adopting effective irrigation systems and methods. Sprinkler sets are accessed and maintained collectively for each of the outlets. During winters, only crops which don't guzzle water such as groundnuts intercropped with cowpea are grown. Farmers were encouraged to reduce the cultivation of water intensive crops (such as paddy) under borewell and go for alternative crops to improve the water productivity. Rice area within these blocks is reduced substantially while protective irrigation is provided as a right to all farmers who do not own borewells. **Setting up of enabling institutions**: The irrigation system is operated by Common Interest Groups formed for each of the outlets. Meetings were organized to discuss the water sharing modalities. The cropping pattern is planned on water availability and priority is given to food and fodder crops. The Common Interest Groups prepare estimates of repair and maintenance and collects the shared amount based on the land irrigated in the last kharif season. In some villages like Malkaipeta Thanda, Rangareddy District, the user fee is pooled by the farmers into a common fund to maintain the system. Here, farmers without wells pay Rs. 1,000 per acre per year, while borewell owners pay Rs. 200 per acre per year. This amount goes towards maintaining the system's pump motors and pipeline. Community managed groundwater regulation includes the monitoring of groundwater level and borewell yields as well. Community deciding the rules for groundwater sharing (Source: WASSAN) **Community has to abide by certain rules**: The agreement is arrived at by the farmers on stamp paper with the Mandal Revenue Officer as witness. No new borewells are to be dug for at least 10 years because if new borewells are sunk, the groundwater table will plunge and the existing wells will dry up. All the land within the specified area belonging to both borewell owners and non-owners would have the right to supplemental irrigation for kharif rainfed crops. One borewell is rested every day to reduce usage by about 20 percent. The acreage of borewell owning farmers is ensured and in the event of failure of a borewell, the pooling arrangement assures a back up. Negotiation with farmers on water regulations and cost sharing of pipeline installation are tough indeed -- the issue was of how the new system would protect the existing investments of borewell owners. A lot of investment under the project goes into reducing water losses by adopting effective irrigation systems and methods. The benefits to borewell owners through this offsets the losses by far due to the sharing of borewells. Beyond pipeline network: Crop diversification, biomass enhancement and soil & moisture conservation through addition of organics, mulching, bunding, water harvesting are taken up. **Impacts of the Chellapur water grid**

- Irrigated area was doubled
- 40% of the pooled area was provided with protective irrigation
- Grain production increased by 240%

- Fodder production increased three-fold
- Additional gross returns per borewell were Rs. 7812
- Nearly 25% of the total pumping hours was saved resulting in a saving of both groundwater and electricity
- Water extraction was within the safe zone
- There is a possibility of getting back the entire investments (Rs.20000/- per acre) approximately within 3-4 years. Micro irrigation system and pipelines have reduced the labor time for irrigating the crop (seven hours to one hour). It also increased water use efficiency.

One or two support irrigations to rainfed crops during critical stages which primarily use rainwater for its growth led to about 30 to 40 percent increase in productivity. The results are good but to upscale this work, wide ranging legal and policy support is required. Only then can groundwater truly become a commons property.

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