

**An approach to the revival of derelict water resources of Bolpur Sub-division : geonomic planning**Dr. (Mrs.) *Sutapa Mukhopadhyay*, India

In India rainwater harvesting programmes have developed over centuries in an ecologically sound manner. Rain was considered as the main source of water. Once captured, this rainfall met the demands for the rest of the year. In order to conserve the precious rainwater one of the regular traditional systems of rural India was the construction of tank. But currently this simple technology of using rainwater has declined and in its place exploitation of rivers and ground water through dams and tube-wells has become the key source of water. The Government has been constantly encouraging exploitation of groundwater but has done little to recharge it. As a result the groundwater tables are falling all over the country. In this situation proper planning for the optimum utilisation of the surface water resources it is viable for controlling the rapid draining out of water to augment recharge into phreatic aquifers. So one of the effective strategies of combating rural water scarcity is the renovation of the existing derelict tanks. The traditional rural tanks, the major sources of irrigation prior to the commencing of the canals, are now gradually becoming derelict, because of silting and poor maintenances. It is obvious that efforts must be made to restore these structures to their full potential. In this programme community based rainwater harvesting has as much strengths today as it ever did before.

With the above idea in mind the study has been done on the irrigation pattern of Bolpur sub-division of Birbhum district of West Bengal. Birbhum is marked as one of the drought prone districts of West Bengal where agriculture is the mainstay of the economy. So in this paper a project plan for the revival of the rural water sources has been discussed which may be taken as the model plan of South Rural Bengal.

The studied sub-division is Bolpur comprising Illambazar, Bolpur, Labhpur and Nanoor Police Station.

Present Irrigation Status :

From the official data of irrigation it is found that about 75.3%, 87.77%, 62.75% and 38.23% land to the total cultivated land of Bolpur, Nanoor, Labhpur and Illambazar Blocks respectively are irrigated.

Kopai South Main Canal with large number of distributory canals are the main source of ground canal irrigation. Other than this, irrigation has also practiced

from tanks, tube-wells and rivers. Ground canal irrigation is dominant almost in all the blocks. In Bolpur block second most means of irrigation is the tank; but in Labhpur, Nanoor and Illambazar block tube-well irrigated area has the second position. River lift irrigation is almost nil excepting some Panchayets of Bolpur block.

A study has been done on the decadal (1971-2001) changing form of irrigation pattern of this area (Mukhopadhyay, 1996) and it has pointed out that the popularity of the well and tube-well irrigation is gradually increasing than the ground canal and tank irrigation. These decadal changing forms have been shown in the graphs.

Problem facing by the villages:

On the basis of the above statistical analysis an investigation was done among farmers to find out the causes of this changing irrigation pattern and on the present problems, which they are facing. The general over view is that the canal, tank and river lift irrigation are losing their importance and tube-well irrigation is occupying that position. Causes behind this situation are —

- a) This area is near to the tail end of the Kopai South Main Canal, so most of these canals have remained dry during most part of the year. They have an only flow during rainy season. Construction of regulator along the course in various sectors of upper and middle part of the canal decreases the amount of water supply in the lower end. These have been constructed by Panchayats for political reasons.
- b) Most of these canals are not concreted; so excessive soil erosion along the bank decreases the depth of the canal by siltation.
- c) Same is also true in case of tank irrigation. Due to lack of management most of the tanks of the villages have fully or partially silted up and in some areas these have changed to agricultural field.
- d) Farmers are always in dark about the time and amount of available canal irrigation water, so they fail to plan the cropping programme of the year. As soon as the water is available in the canal farmers irrigate the plot to the maximum because they are in doubt of the availability of water later.

- e) In some of the villages there are no availability of canal water, specially along the extreme tail end part of the canal, but they are bound to give taxes.
- f) Many farmers have lost their land for the construction of canal but they have not got any compensation for that.
- g) Since 1981 onwards in response to Panchayet level development large number of deep tube-wells have been constructed for irrigation. Obviously this less labour intensive easy available means of irrigation have much more attraction than other two traditional methods.

But now after twenty years in the villages, having much more tube-well irrigation, an alarming environmental problem has risen. It is the gradual down dropping of the ground water level and the scarcity of drinking water. In Illambazar and Bolpur block in some villages tubewells are being reset at 1.5 mt. to 2.5 mt. below the present level each and every year since last 5 years. Scarcity of drinking water and creation of unhygienic environment in the villages are the resulting effects.

Tank particulars of the area :

The total number of tanks of the four blocks of Bolpur sub-division is 5527, which is on an average about 1300 at each blocks. Among four blocks Labhpur has the largest number of tanks i.e. 1421 and the density of the tank is 5.23 Km². Illambazar has the second rank with 5.16 Km². In Bolpur and Nanoor block the density of ponds area 4.18 Km² and 4.3 Km² respectively. So on an average there are about 5 tanks per sq. km. Almost all of the Panchayets have more than 100 tanks and majority of them have the area of near about 1 sq. km.

Despite the existence of such number of ponds the area is facing acute water storage. Investigations revealed that most of these tanks have been fully or partially silted up and have reduced its storage capacity. So to arrest the decline of the tank system a programme of tank regeneration with active community participation is, no doubt, a strong step to boost up the economy of the village. Two local Santiniketan based NGOs Akhil Bharat Bhavidya O Parivesh Samiti (ABBHRA) and Tagore Society for Rural Development have initiated tank renovation programmes at some villages.

Planning strategies:

Case Study - 1:

A programme was in Amdahara village (JL No. 89) of Bolpur P.S. in the year 1994 by Tagore Society of Rural Development, Bolpur. One unmetalled canal passes along the eastern part of the village which remains

dry during most of the part of the year, only has flow during August and September. It is almost silted up and the average depth of the canal is 1.06mt. Along with this three shallow tubewells were constructed by the Panchayet for irrigation. But in the meeting the villagers expressed their opinions that they were not interested to place further shallow tube-well because the total ground water level of the village has dropped. The village is just along bank of Kopai river where previously the depth of the water was 9-10mts. but it drops down to 30-35 mts. Besides, the village has 39 tanks, among these only 10 ponds are perennial and 12 tanks are seasonal, but about 16 tanks remain in derelict condition due to the lack of maintenance, conflict among the owners etc. Mass campaigning programmes were successful and the interested villagers formed Tank Farmer Association (TFA) in the pre-survey meeting.

There were three parties in this project work - owner/ owners of the tank, TFA and the NGO involved.

Owner - Ranging from one to fifty persons. They share 50% of the total expenditure to tank renovation.

TFA - Formed by twenty villagers particularly for monitoring of the renovated tank and bank side vegetations and other manual work needed for the maintenance of the tank. They do not bear any monetary part of the expenditure.

NGO - Bears 50% of the expenditure and provides expertise benefits.

Profit, however, shared within these three parties at the rate of 25%, 50% and 25% respectively. Lease term stays for 10-15 years. After that the ownership of the tank will be refunded to their village counterpart.

Tank Regeneration programme was launched for the derelict tank to increase the storage capacity of the tanks. Programme has started in two derelict tanks, one is Rath Pukur (Plot No. 646) with an area of 6146.56 sq. mt. and the other is Dighi (Plot No. 158) with an area 6758.08 sq. mt. The expenditure incurred for such programme in the year 1994 is given below.

Rath Pukur (10 owners of the tank)

Labour cost (3073 days x Rs. 30)	92,190
Tree Plantation on four banks	1,000
Other expenditure	500
	93,690

Dighi (6 owners of the tank)

Labour cost (3379 day x Rs. 30)	1,01,370
Other expenditure	500
Tree Plantation on four banks	1,000
	1,02,870

These two tanks are well being maintained by the villagers. They are satisfied with their pisciculture from these tanks. These also enrich the water level of the nearby wells. The water of tanks is also being used for irrigation.

Case Study 2 :

Another programme was initiated in 2000 by another NGO ABBOPS at two tribal villages Bonsuli and Murgabani of Choupahari Mouza (J.L. No. 122) of Illambazar Police Station. The project was a part of Participatory Environment Management programme sponsored by Department of Environment, West Bengal.

Desiltation programme was done in two tanks of the villages where there were 100% participation of the villagers. One Environment Protection Committee was formed with the villagers under the on going Project. In Bonsuli village there are two tanks Bonpukur and Doba; in Murgabani village there are three tanks, Jharnapukur, Barapukur and Mathapukur. Among them in the meeting with the consent of the villagers two tanks were selected Bonpukur of Bonsuli and Mathpukur of Murgabani village.

The total area of Bonpukur was 935.5 Sq. km. and to increase the depth of 1mt. or 3.2 feet about 935 cubic mt. silt was removed from the tank. The Mathpukur of Murgabani village was 1395.8 sq. mt. and to increase the depth of 1mt. about 1396 cubic metre silt was

removed from the tank. The villagers shared the labour cost and they took only Rs. 10/- per day, so the labour cost for Bonpukur desiltation was incurred Rs. 4,675/- and for Mathapukur Rs. 6,930/-. Other expenditures like monitoring, tree plantations etc. were nil because these are being done by the villagers themselves. The villagers are highly satisfied with this programme because during last year (2001) rabi season they used the water of these tanks for rabi crops and it has solved partly the water scarcity problem of the villages.

Conclusion:

Participation of local communities in this type of need based water point programme is an appropriate communication strategy for social mobilization and raising awareness among the villagers. So for environment restoration and social development it is an urgent need to give stress on small irrigation project rather than large projects. We hope that by adopting this type of micro level water conservation programme in grass root level may develop sovereign village of Gandhiji in India.

DR. (MRS.) SUTAPA MUKHOPADHYAY, Sr.
Lecturer, Department of Geography, Visva-Bharati.
