A Study on People's Participation in Irrigation Tank Management Project in Raichur District of Karnataka State

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ABSTRACT

The Investigation was carried out in the year 2010-11 to ascertain the impact of people participation and irrigation management practices on crop productivity and income of farmers in six villages of Raichur Tahsil viz., Hoogenhalli, Donga Rampur , Kurabdaddi, Chandrabunda, Mandalgara and Arasigera of Raichur district revealed that, the positive and significant impact of tank rehabilitation on crop productivity was observed with 34.14 per cent increase in cotton yield (per acre) after tank rehabilitation. Similarly 21.79, 25.80 and 32.38 per cent increase were observed in sri method of paddy, ground nut and sunflower yield (per acre), respectively. The socio-economic characteristics of the respondents such as age, per capita income, change proness, mass media exposure, extension contact and social participation were found significant correlation with crop productivity. There was positive and significant impact of community based tank management project on farmer's income. The per cent of farmers belongs high income group (above Rs 51, 000) was doubled after rehabilitation (20% to 40%). Similarly the per cent of farmers belonging to low income group (below Rs. 17,000) was reduced after tank rehabilitation (13.33% to 5.83%) activities undertaken in the project area.

Minor water reservoirs behind earthen dams are called "irrigation tanks" in India. Tanks are providing surface irrigation, recharging ground water and serving water needs of rural households and livestock. Tank irrigation is an old established practice in most of the semi-arid tropical parts of India, where the monsoon rains disperse erratically during a few months of the year and irrigation tanks serve to store and regulate the flow of water for agriculture use. South India has a long history of rain water harvesting through tanks and weirs. Andhra Pradesh, Karnataka and Tamil Nadu account for nearly 60 per cent of the tanks irrigated area. There are about 1, 27,000 tanks in these states as against 2, 08,000 tanks in the country. The Community Based Tank Management Project in Karnataka aims at improving the rural livelihoods and reducing poverty by developing and strengthening community based approaches to manage 2000 tanks spread over in nine districts. It is envisaged that the project interventions will result in increased productivity as well as irrigable area in the tank commands and catchments; increased households' income of direct stakeholders, besides creating other impacts. There has been a growing realization for rehabilitation and restoration of irrigation tanks with farmers' participation. Hence, the present study was undertaken to know the Impact of People Participation and Irrigation Tank Management Practices on Crop Productivity and Income of Farmers in Raichur district.

METHODOLOGY

The present study was conducted in Raichur taluk of Raichur district during 2010-11.The study was focused on the community based tank management activities undertaken by community under JSYS. Raichur district was selected for the study because of higher number of irrigation tanks and the area comes the under jurisdiction of University of Agricultural Sciences, Raichur. Among five taluks of Raichur district, Raichur taluk was purposively selected keeping large command area under community based tanks management project as criteria, six villages tanks were covered. They are hoogenhalli, Donga Rampur, Kurabdaddi, Chandrabunda, Mandalgara and Arasigera

villages of Raichur tahasil were selected. Based on the community based tank management project experience of the tank water beneficiaries as criteria 20 respondents from each village were selected randomly comprising 120 total respondents. The respondent whose lands are in the command area and who are members of tank user group (TUG) was considered for selection as respondents. Twenty farmers from each tank user group were drawn by use of random sampling procedure. The data was collected by personal interview method using the structured schedule and the benchmark data was collected from JSYS Office, Raichur. The "Ex-post-facto" research design was employed in this study and the data were analyzed by using frequency, percentage, mean, standard deviation and chi square test. Crop productivity was quantified by taking into consideration of the yield levels of cotton, Sri Method of paddy, sunflower and ground nut crops which were grown predominantly in the command area. Annual income was computed by taking into consideration the total gross income generated from agriculture, horticulture and forestry crops in watershed area by the respondents, for a period of one year.

RESULTS AND DISCUSSION

It could be observed from Table 1 that, there was positive and significant impact of tank rehabilitation on crop productivity as 34.14 per cent increase in cotton yield was observed after tank rehabilitation. Similarly, 21.79, 25.80 and 32.38 per cent increase in yield were observed in Sri Method of paddy, ground nut and sunflower after tank rehabilitation, respectively.

Findings from above results gave a better idea about the difference in crop productivity before and after tank rehabilitation. Hence, it could be inferred that, increase in crop productivity was considerably higher after initiation of tank rehabilitation activities in the tank command area because of educational efforts of the project officials and other development agencies coupled with exposure visits under the project.

When farmers were interviewed by probing into productivity, they said that, the increase in productivity in terms of yield directly depends on the availability of water. As a result of rehabilitation of tank, there was

Table 1. Impact of people participation in tank irrigation management project on the crop productivity of the farmers (N=120)

Crops	Before Tank rehabilitation (Avg. yield/acre)	After Tank rehabilitatio (Avg. yield/acre)	Percentage change in yield/acre
Cotton	10.25 q/acre	13.75 q/acre	34.14
Paddy	19.5 q/acre	23.75 q/acre	21.79
Ground nut	5.25 q/acre	6.60 q/acre	25.80
Sunflower	6.00 q/acre	7.94 q/acre	32.38

Table 2: Relationship between Socio-Economic Characteristics of the Low, Medium and High Participating farmers and Crop productivity of the farmers under Irrigation Tank Management project (N=120)

S.N	Socio-Economic Characteristics	Correlation Co-efficient (r)		
		Low	Medium	High
1	Age	-0.3506*	-0.3227*	-0.2821*
2	Education	0.1756	0.1258	0.1468
3	Size of holding	-0.1826	-0.1657	-0.1036
4	Per capita Income	0.6241**	0.2549*	0.5462**
5	Occupation	0.1926	0.1574	-0.1836
6	Social Participation	0.6958**	0.7125**	0.6329**
7	Change pronness	0.2815*	0.4368**	0.2652*
8	Mass Media Exposure	0.4625**	0.2658**	0.5624**
9	Contact with Extension Agencies	0.4234**	0.4286**	0.6458**
10	Scientific Orientation	0.6312**	0.5314**	0.4586**
11	Management Orientation	0.1689	0.2105	0.1968

* = Significant at 0.05 level of significance ** = Significant at 0.01 level of significance

Table 3. Impact of people participation and irrigation tank management on the annual income of the farmers (N=120)

Variable	Categories	Before tank rehabilitation		After tank rehabilitation		Difference	
		No.	%	No.	%	No.	%
Annual income	Low (below Rs 17,000)	16	13.33	7	5.83	9	7.50
	Semi medium (Rs 17,001-34,000)	35	29.17	29	24.17	6	5.00
	Medium (Rs 34,001-51,000)	45	37.50	35	29.17	10	8.33
	High (above Rs 51,000)	24	20.00	49	40.83	25	20.83

increase in storage of water in the tank and considerable decrease in water leakages. Obviously, the water available to each farmer and frequency of irrigation had increased significantly which led to enhancement in the productivity. The agriculture development activities undertaken by University of Agricultural Sciences such as on-farm demonstrations on arable crops, horticulture crops and water management had helped in educating farmers and adoption of improved methods. These changes contributed to crop yield in tank command area. Earlier researchers *Chandregouda and Jayaramaiah(1990)* and *Shanthamani (2007)* revealed that increase in their crop productivity level after implementation of programmes.

The presented in Table-2 depicts that the variables viz., innovativeness , mass media exposure, contact with extension personnel, scientific orientation, risk bearing ability and per capita income of all the three categories of farmers were found positively significantly with crop productivity of the farmers under the community based Tank Management project. Whereas age of the farmers found negatively significant with crop productivity.

The data presented in Table 3 shows that there was positive and significant impact of tank management activities on farmer's income. The per cent of farmers belongs high income group (above Rs 51, 000) were doubled after rehabilitation (20% to 40%). Similarly, the per cent of farmers belonging to low income group (below Rs.17,000) were reduced after tank rehabilitation (13.33% to 5.83%).

CONCLUSION

It is fascinating to note that, the annual income level of the farmers had increased after tank rehabilitation. This may be due to the good work done by the tank user groups in carrying out the community based tank management activities, there by increased water availability, as a result it would have facilitated for higher yield and higher income. The income generating activities taken by the project such as livestock, nursery kitchen garden and other off-farm activities have contributed to their income. Further, the personal characteristics of the respondents like high economic motivation of earning more money, innovativeness, risk bearing ability and timely supply of critical inputs and necessary possession of implements might have acted as incentives to the farmers and hence would have brought change in their annual income level before and after initiation of tank rehabilitation activities. The above findings gained support from the studies indicated by *Sridhara (2002)* and *Nirmala (2003)* who reported that increase in their annual income level after implementation of project.

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