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Suresh Kumar
PG students, UAS, Dharwad, Karnataka, India

Vasudeva Naik K
Assistant Professor, Dept. Of Agril Economics,B.Gudi, Karnataka, India

Umamaheshwara
PG students, UAS, Dharwad, Karnataka, India

Correspondence
Suresh Kumar
PG students, UAS, Dharwad, Karnataka, India

Constraints experienced by farmers in irrigation tank management in Haveri district, Karnataka

Suresh Kumar, Vasudeva Naik K and Umamaheshwara

Abstract
In Karnataka 38 per cent of the tanks and have a command area of less than four ha and 1.4 per cent of the tanks have command area of more than 200 ha. Tanks with a command area of 4 to 20 ha form about 50 per cent and the tanks with command area of 20 to 200 ha form about 10 per cent of the total tanks. Considering the importance of tanks, GOK has initiate a project entitled "Karnataka Community Based Tank Management Project" with financial assistance from World Bank in the year 2002. In this regard, the present study is an attempt constraints faced by the farmers. The study revealed that, major constraints experienced by farmers were lack of knowledge about tank management practices followed by, lack of required irrigation water.

Keywords: Constraints, Farmers, Knowledge

Introduction

The present decade in India is characterized by the damage caused by scarcity of rainfall on one hand and flash floods due to heavy rainfall on the other. More than 75 per cent of the rainfall occurs during four months from June to September and same is compressed in a few gain hours during 25 to 60 rainy days. Therefore, for communities which are living in the low rainfall regions need to conserve rainwater for the utility during rest of the year.An irrigation tank is a reservoir constructed across the slope of a valley to harvest rainwater in rainy season and to use it for irrigation and other purposes. Tank irrigation system is less capital intensive and has wider acceptance compared to major irrigations. Tanks can be effectively used for development of backward areas. The tank irrigation system has a special significance to the marginal and small farmers who depend on the tank irrigation. With the breakdown of the institutions governing the tanks, a vast majority of tanks have been silted; thereby water storage capacity has been considerably reduced. Hence, in addition to the community participation, economic viability, social acceptability and technical feasibility of the tanks need to be strengthened. Tank irrigation is an old established practice in most of the semi-arid tropical parts of India, where the monsoon rains disperse erratically during few months of the year and irrigation tanks serve to store and regulate the flow of water for agriculture use. Tanks are a feature in the cultural landscape of peninsular India. They are irrigating one-third of the total paddy area in the states of Andhra Pradesh, Karnataka and Tamil Nadu. The concentration of tanks is high in these states because of undulating terrain, hard rock geology, red soils and bimodal rainfall distribution. During and before 1950's, Tank irrigation alone accounted for 47 per cent of the total irrigated area. After 1965, this proportion began declining as there has been a spurt increase in the area of canals and wells. In 1993-94, the area irrigated by tanks was 7.8 per cent of the net irrigated area as compared to 45 per cent in1949-50. The area irrigated by wells and canals continued to increase from 20 per cent to 35.2 per cent and 23.0 per cent to 47.7 per cent of wells and canals, respectively.

South India has a long history of rain water harvesting through tanks and wells. Andhra Pradesh, Karnataka and Tamil Nadu account for nearly 60 per cent of the tank irrigated area. There are about 1, 27,000 tanks in these states as against 2, 08, 000 tanks in the country. It is quite evident from the field research and the available literature that the tank systems are on declining trend in terms of performance. Although several reasons like deforestation, centralization of authority, poor catchment treatment, issue of private property, increase in population, agricultural transformation, unfavorable institutional framework and its capacity to handle the tank, *etc.* Karnataka has 36,672 tanks with a command area of around 6, 90,000 ha. The actual irrigated area by tank is estimated to be less than 2, 40,000 ha (35% of the total potential). However, there has been a decrease in the net irrigated area by tanks over the years in comparison with other sources of irrigation. It is estimated that with 10% increase in the

present level of water use efficiency in irrigation projects, an additional 14 m.ha area can be brought under irrigation from the existing irrigation capacities. Hence, present study was conducted with the objective to study the constraints faced by the farmers in irrigation tank management.

Material and Methods

To achieve the objective of present study, the present study was conducted in Hanagal taluk of Haveri district during 2014-15. The study was focused on irrigation tanks covered by KCBTMP in Haveri district. Hanagal taluk was purposively selected keeping larger area under irrigation tanks as criteria. From selected taluka, four villages were selected based on highest command area under irrigation tanks in consultation with JSYS Office, Haveri. The four villages selected from the taluk were Akki Alur, Balambeed, Adur, Singapura. Further, 30 respondents from each village were selected randomly thus total sample size for the study was 120.The data was collected with the help of structured schedule and data was collected by personal interview. The collected data was analysed by using frequency and percentage.

Results and Discussion

The information on various constraints experienced by the farmers in tank management is presented in Table 1. The constraints are grouped under different sub-heads, which are presented below.

1. Technical constraints

The major technical constraints experienced by farmers were lack of knowledge about tank management practices (79.25%), followed by non-availability of required irrigation water (65.17%), lack of time to participate in tank user group meetings (63.18%).other technical constraints faced by the farmers were lack of motivation from the tank user group leaders (58.54%), lack of knowledge about crop planning (56.24%) and lack of guidance regarding tank management practices (41.25%). It could be inferred from the above results that the respondents were engaged in subsidiary occupations along with agriculture. The other possible reasons could be that non-participation in group meetings, negligence of the Tank users group leaders and less regulatory measures regarding tank management.

2. Tank management

The major constraints related to tank management experienced by farmers were accumulation of silt in command area (61.58%) followed by poor physical status of tank (45.36%), poor maintenance of tank structures (36.24%) and mismanagement of command areas (35.47%).other tank management constraints faced by the farmers were improper rehabilitation of tank structures (34.68%), mismanagement of catchment areas (31.65%), inadequate drainage (25.78%). The reasons to above results may be that encroachment of tank bed cultivation, inadequate repairs and deforestation in catchment area.

3. Other constraints

Other constraints experienced by farmers were low crop productivity (53.24%) followed by over irrigation to the crops (51.35%) and poor water distribution (22.13%). The possible reason for this result might be that deteriorated condition of canals and reduction in the storage capacity, variation in the onset of monsoon. This finding is in line with the findings of Singh (2000) [11] and Golya naik (2008) [5]. It is evident that technical constraints and constraints in tank management components of irrigation tanks as stated by the farmers are the key factors which must looked into by the government organizations and departments for successful participation of farmers in irrigation tank management.

Table 1: Constraints experienced by farmers in tank irrigation management (n=120)

Sl. No.	Constraints	Freq.	%
	I. Technical constraints		
1.	Lack of knowledge about tank management practices	95	79.25
2.	Non-availability of required irrigation water	78	65.17
3.	Lack of knowledge about crop planning	67	56.24
4.	Lack of time to participate in tank user group meetings	76	63.18
5.	Lack of guidance regarding tank management practices	50	41.25
6.	Lack of motivation from the tank user group leaders	70	58.54
	II. Tank management constraints		
1.	Inadequate drainage	31	25.78
2.	Improper repair/rehabilitation of tank structures	42	34.68
3.	No regulation/control for distribution of water	26	21.31
4.	Non authorities to regulate water	20	16.25
5.	Poor physical status of tank	54	45.36
6.	Accumulation of silt in command area	74	61.58
7.	Poor maintenance of tank structures like bunds, catchment area & command area	43	36.24
8.	Mismanagement of catchment areas	38	31.65
9.	Mismanagement of command areas	43	35.47
	III. Others		
1.	Poor water distribution	27	22.13
2.	Over irrigation to the crops	62	51.35
3.	Low crop productivity	64	53.24

Conclusion

It is estimated that with 10% increase in the present level of water use efficiency in irrigation projects, an additional 14 m.ha area can be brought under irrigation from the existing irrigation capacities. Hence, thrust should be given to improve water use efficiency in tank command area. Case studies of successful irrigation tanks practicing tank management may be taken up and draw lessons to other areas. The impact of

institutional linkages or arrangements for tank management and capacity building of extension personnel could be another area for future research work.

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