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ECONOMIC IMPORTANCE OF BHAKUCHI WADI AND NIMBAVDE RESERVOIRS IN RELATION TO AGRICULTURAL PRODUCTIVITY AND FISHERY OF SANGLI DISTRICT, MAHARASHTRA, INDIA

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ABSTRACT

The study between two consecutive (August 2018 to July 2020) reports significance of man-made reservoirs in agricultural productivities and fishery in Khanapur and Atpadi tahsil of Sangli district of Maharashtra. Cropping pattern was found to be changed from rainfed crops to cash crops like wheat grapes and grams. Water is also useful for inland fishery by some community as a income source.

KEYWORDS: *Agricultural productivity, Bhakuchi wadi, Nimbavde reservoir, Fishery.*

INTRODUCTION

Water, the nectar of life and one of the most important natural resources for the entire living organism. The quality of water is of vital concern for mankind since it is directly linked with human welfare. Water is utilized for domestic purpose, for industrial applications, agriculture purpose, as well as for inland fishery.

Agricultural productivity is very complex phenomenon dependent on various physical, edaphic, socio-economic and technological factors. It is expressed in terms of out put per unit of input. It is also a measure of agricultural efficiency depending upon the man-made framework to exploit the reservoirs. The availability and supply of water through different modes of irrigation is key factor in determining the agricultural production in general.

In Maharashtra, 13% agricultural land is under irrigation. There are 14 districts come under drought prone situation, Sangli is one of them.

Simultaneously, fishery is also one of the important productivities of water bodies. It is an additional source of income to fisherman community. The present work is on two water reservoirs of Khanapur Tahsil with respect to agricultural productivity and fishery.

STUDY AREA

Geographically, Sangli district is divided into two zones. Krishna river basin area and eastern drought prone region of the district which is away from river basin with low rainfall and with typical geographical set up.

Among 10 tahsils of Sangli district Khanapur and Atpadi tahsils which comes in drought prone region. These tahsils have some minor irrigation reservoirs constructed where rain water is stored from adjoining catchment area. This stored water is being utilized in dry months for many purposes.

The reservoirs namely Bhakuchi wadi and Nimbavde confines within 71 and 83 kilometers distance respectively from Sangli, the head quarter of district.

MATERIALS AND METHODS

The socio-economic aspects of these manmade reservoirs have been studied from these tahsils. Local people from the respective villages were interviewed with the help of questionnaire. The data obtained through questionnaire is analyzed in laboratory and used for discussions and further results. Other visual observations were also made for these reservoirs. Secondary data was obtained through survey with respect to fishery and agricultural productivity.

The socio-economic survey was conducted adjoining the nearby villages of reservoirs randomly. The household head considered as unit of analysis of profile.

RESULTS AND DISCUSSIONS

The stored rain water in the reservoirs is used for drinking, irrigation as well as for domestic purpose. The fishing activity by the adjoining villagers and farmers is the additional income source. From human civilization, irrigation is an age-old art, to increase the crop production for growing population. The government policies encouraged the farmers to utilize surface water, ground water resources by providing financial support. Doshi and Pujari (1997) reported that in the drought prone districts of Maharashtra, there is changing crop pattern and

crop yield. The quantity and quality of human efforts modify the farm practices at farm as well as regional level.

In the present investigation it has been noticed that constructed reservoirs are found more beneficial to the marginal land owners and farmers. Land ownership and cropping pattern along these two villages are studied.

Singh and Dhillon (1984) emphasized the significance of the use of water resources by irrigation system in regional economic development. Farming in dry lands without irrigation is a suicidal and un-economic venture. Pawar (1989) stated that irrigation is characterized by physiographic variation, which in turn have resulted in the development of the particular source in a particular region. Any future planning of irrigation depends upon the basic and essential aspect of supply of agricultural water from ground and surface resources .

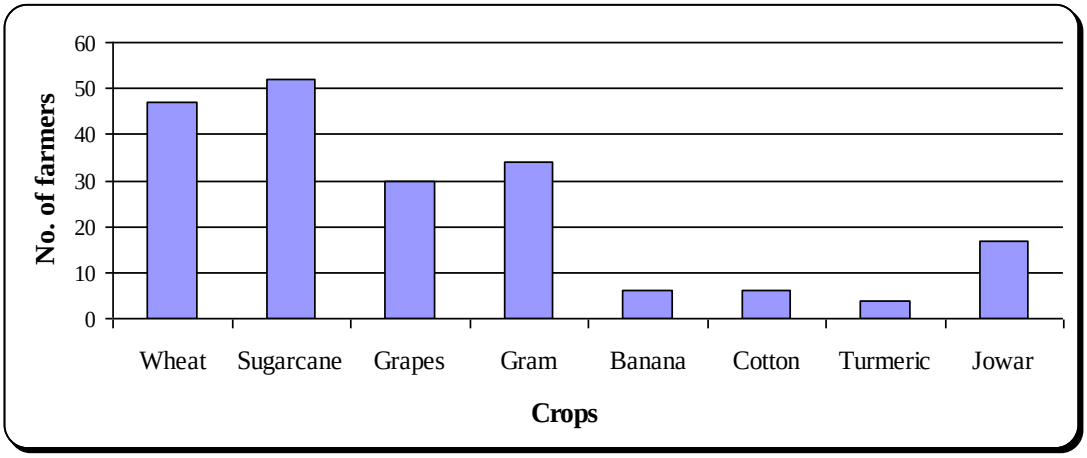

Fig. 1a: Cropping pattern of Bhakuchiwadi.

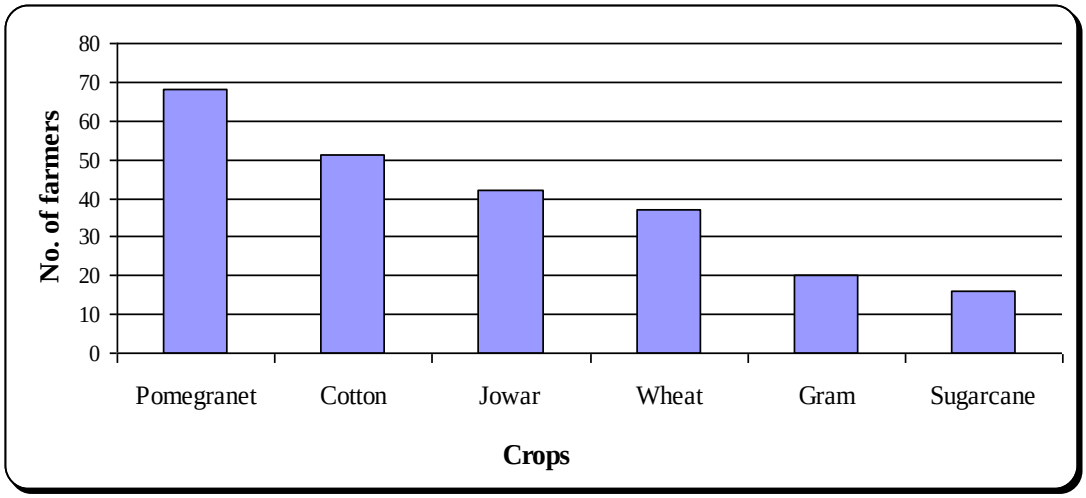

Fig. 1b: Cropping pattern of Nimbavde.

Fig. 1a and Fig. 1b indicates the cropping pattern of Bhakuchi wadi and Nimbavde. After construction of Bhakuchi wadi and Nimbavde reservoirs in Khanapur and Atpadi tahsil, the cropping patterns in both the villages have been changed. The farmers were cultivating rainfed crops like jawar, bajara, tur, maize and urid before construction. Currently, the major cultivated crops at Bhakuchi wadi are wheat, sugarcane, grapes and gram whereas banana, cotton, turmeric are on small scale while at Nimbavde pomegranate, cotton, jowar, wheat, gram and sugarcane are dominant once. Datye *et. al.* (1988) have noticed similar type of changes in drought prone region of Sangli district. Patil (2012) has observed changing cropping pattern of Bhambarde and Lengre reservoirs. Sathe et al (2006) have reported changing pattern of rainfed to sugarcane, wheat and grapes in Ped and Pundi villages of Tasgaon tahsil. Doshi and Pujari (1977) have also observed that farmers have shifted to cultivate fruit crops like ber, pomegranate, mango and grapes depending upon the nature of land and water resources.

Basically, these reservoirs were constructed for irrigation. Fisheries in these tanks have been neglected for long time, but much more attention has been made regarding fishery development in last few decades. Some of the local fish varieties have established themselves in the water bodies (Table No.1).

Table 1: Fishes occurred at Bhakuchi wadi and Nimbavde reservoir.

Sr. No.	Varieties	Local name	Scientific name	Family
1	Major Carps	Rohu	*Labeo rohita*	*Cyprinidae*
		Catla	*Catla catla*	*Cyprinidae*
		Mrigal	*Cirrhinus mrigala*	*Cyprinidae*
2	Common carps	Cyprinus	*Cyprinus carpio*	*Cyprinidae*
3	Chinese carp	Silver carp	*Hypoplithalimichthys molitrix*	*Cyprinidae*
4	Local varieties	Tambir	*Labeo fimbricatus*	*Cyprinidae*
		Kanas	*Labeo calbasu*	*Cyprinidae*
		Dokrya	*Chana gachua*	*Cyprinidae*
		Murrel	*Chana marulius*	*Cyprinidae*
		Vam	*Mastocembelus armatus*	*Mastacembelidae*
		Khaprya	*Ompok bimaculatus*	*Siluridae*
		Putia	*Glossogbius girris*	*Cyprinidae*
		Singi	*Barbus minor*	*Saccdsranchidae*
		Shingati	*Mystus malbaricus*	*Bagridae*
		Dandi	*Rosbara daniconius*	*Cyprinidae*
		Mallya	*Garra mullya*	*Cyprinidae*

The culture fishery is practiced in both the reservoirs. Fisherman community of Bhoi and Bagdi races and also Muslim people generally do the fishing. The fishing business of these

communities is traditional and from their forefathers. The fishermen have established the co-operative societies. These societies obtain the right of fishing from government authorities for the period of five years on lease. Sathe *et. al.* (2000) reported similar observations from Tasgaon tahsil of Sangli district.

In rainy season, i e July –August about 10 thousand fingerlings per year of carps are released in each reservoir. The fishing season initiates in the month of January and extends up to May. Fishing activity is usually done by gill nets. Besides these the 'cast nets' are also used for fishing.

During present study 5 species of cultivated carps are found. There are 8 local fish species found in both the reservoirs.

Collected fishes brought to the shore and sorted according to species. Small and medium sized fishes got better market value. Average weight of single fish ranges between 250 g to 500 g. A team of fishermen collect about 10 -20 kg. Fishes per day in Bhakuchi wadi and Nimbavde water reservoirs. The fishes were sold at the rate of 40-50 Rs / kg in market. The fishes were sold at the nearest town Vita. Generally, fishes were purchased by the whole sealers in the market at much lower prices. Sometimes, if no whole salters come forward during the auction, the fisherman would do the retail selling of fish. The retailers would make profit 20 % to 40 %.

If a tank on lease by a person or supported by co-operative society then fisherman has to pay 10 Rs. per kg per day to lease man or co-operative society (Table 2).

Table 2: Fish catch and profit of Bhakuchi wadi and Nimbavde reservoir (approximately).

Duration	Fish catch	Profit of fisherman (Rs.)	Profit of lease man (Rs.)
		40- 50 Rs / kg.	10 Rs. / Kg.
1 Day	10- 20 kg.	400-1000	100-200
3 Days of week	30- 60 kg.	1200 – 3000	300 - 600
1 Month	120- 240 kg.	4800 – 12000	1200 - 2400
5 Months	600 -1200 kg.	24000 – 60000	6000 - 12000

Even though there are a smaller number of fishermen involved in the fishing activity, the entire village is benefited by getting fresh fishery resources.

CONCLUSION

The stored water of reservoirs is utilized for agricultural irrigation. Cropping pattern is found to be changed in surved villages. Majority of farmers have shifted from dry land agriculture to horticulture and commercially important cash crop cultivation.

These reservoirs are found more beneficial to improve financial status of marginal land owners by maximum crop yield in the available area but under different seasons of drought prone.

Both the reservoirs are significant for inland fishery. The fisherman community is dependent on these wetlands for fish source as income source to them. Some local fishes are also found in water bodies means local diversity of aquatic ecosystem has maintained well.

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