Original Research Article

SOCIO ECONOMIC PROFILE OF FISH FARMERS OF TELANGANA AND USAGE OF MOBILE APPS

ABSTRACT

A study was done with the objective to assess the socio economic profile of fish farmers of Telangana and usage of mobile apps by them. An interview schedule was designed to assess the socio economic profile and to compile information on usage of mobile phones. Information was collected about age, income, fisheries experience, farm size, production, species cultivated and constraints faced by farmers. Information on mobile phone usage was studied through possession of mobile phone/smart phone, usage of mobile phones, usage of mobile apps, awareness of agriculture/fisheries apps and attitude towards usage of apps related to fisheries. Farmers' attitude towards mobile app related to fish culture was also studied. Results indicated that farmers' age was in the range of 35-50 years. Yearly income was in the range ₹ 2-5 lakhs. They had fish farming experience between 15-30 years. Majority had pond size of <1 hectare and fish production was between 1-2 tonnes/hectare. It was found that all the farmers used smart phones. Most common apps used by farmers were WhatsApp, Facebook, YouTube and State Bank of India personal banking app. It was found that farmers were not aware of any mobile apps related to fisheries and aquaculture and thus usage was also not reported. However, they had a positive attitude towards usage of a mobile app related to fisheries. This study recommends development of mobile apps for fish farmers in a participatory manner which will be useful in disseminating information. Based on farmers' needs a mobile app Matsya Kiran was developed.

Keywords: Fish farmers, Mobile phone, Socio-economics, Telangana

1. INTRODUCTION

The socio economic characteristics of particular demography strongly influence their responses to the technological changes and participation in the development schemes [1]. A study on socio economic

profile is necessary because it has influence on the farming practice adopted by the farmers and it is the outcome of farming practice and performance. The lack of authentic information on socio economic condition of target group is one of the serious limitations, in the successful implementation of developmental policies [2]. The socio economic characteristics of farmers influence their responses to the technological changes.

Among the major technological changes which have happened in India, the digital revolution has been the most significant ones. Mobile phones are already playing a very important role and paving the way for much advancement. A study has reported that a total of 124 mobile apps are available and provide fisheries related information in various fields like angling, aquaculture, aquarium management, marine fisheries and fisheries governance, marketing and biology; out of which 22.58% apps are of Indian origin [3]. However, there is not much information on awareness and usage of mobile apps by fish farmers. So, in addition to socio-economic profile of fish farmers, it is important to study the usage of mobile phones and mobile apps by them. Considering the importance of usage of mobile phones a study was done with the objectives to assess the socio-economic profile of fish farmers, usage of mobile phones and attitude of fish farmers if a fisheries related mobile app is designed for them.

2. MATERIALS AND METHODS

For the study, state of Telangana was selected purposively. Telangana is a newly formed 29th state in the south of India. The rationale for selecting Telangana, lies in the fact that the state has a great potential of ₹4,500 crore to ₹5,000 crore in fisheries sector under reservoirs, tank and ponds and ranked 6th in fisheries production with approximately 3.5 lakh tonnes of production in 2018 as per Department of Fisheries (DoF), Telangana (2018) The state fisheries have a vast fishery potential with 74 reservoirs having water spread area of 1.77 Lakh Ha, 23,874 tanks having water spread area of 5.92 lakh ha., 474 ponds having water spread area of 781 Ha., and 4818 Kms of rivers and canals. The fishermen population is 27,14,255 and there are 3,930 fishers cooperative societies with a membership of 2,39,365. The

fisheries sector contributes considerably for food security, nutrition and health, livelihood security to rural population and welfare of fishers. The vision of the State Department of Fisheries state is optimal utilization of natural resources for fish production, promote freshwater aquaculture, supported by infrastructure and trained human resources [4].

Among all the districts of Telangana, Karimnagar and Khammam are important with reference to fisheries with highest fish and seed production and also relatively higher number of aquaculture farms. Hence these two districts were selected for the present study. A total of 60 fish farmers from these two districts were selected as respondents. Information about fisheries of these 2 districts is given in table 1.

Table 1. Fisheries information of Karimnagar and Khammam district, Telangana.

Details	**Karimnagar**	**Khammam**
Fish and prawn production (in tonnes)	20,841	15,567
Fish rearing tanks/ Reservoirs (nos.)	444	1,156
Water spread area (in ha)	31,094	26,561
Fishermen cooperative societies	155	149
Members	7,972	13,653

Source: Department of Fisheries (2018)

Tool used to collect information was Interview schedule. Socio economic profile of farmers was studied through an interview schedule and information was collected about their age, income, fisheries experience, farm size, species cultivated, production and fisheries related constraints faced by them. Information was collected from farmers about usage of mobile phones, usage of smart phones, usage of mobile apps, awareness of any agriculture or fisheries apps, attitude towards usage of apps related to fisheries and features which they would like to be included if a fisheries related mobile app is designed for

them. To collect the specific features which farmers would like to be included in the app a schedule was prepared with open ended questions. Responses were collated and simple percentage analysis was done.

3. RESULTS AND DISCUSSIONS

3.1 **Profile of farmers:** The profile of 60 farmers was studied through an interview schedule from which information was collected about their age, income, farming experience, farm size, species cultivated, production and constraints faced. Information about age is presented in figure 1.

3.1.1 Age

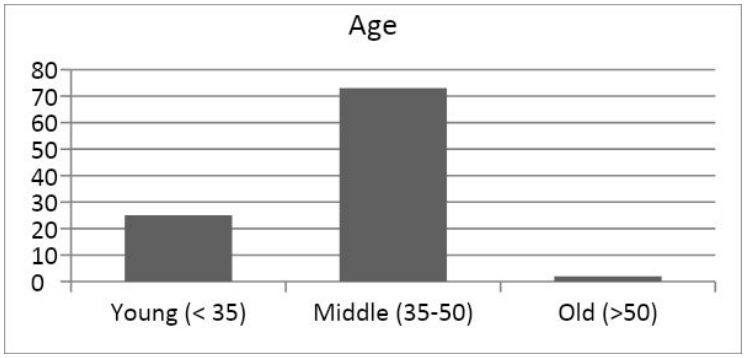

Fig 1. Age profile of fish farmers of Telangana

The farmers' age ranged from 35 to 50 years and average age was 42 years. Majority of the farmers (73%) were found to be in the middle age group (35-50), followed by young age group (25%). Only few farmers were found to be in the old age group, constituting 2% of the total farmers.

3.1.2 Income

Information on annual income (in Rupees) of the farmers was collected and is presented in figure 2.

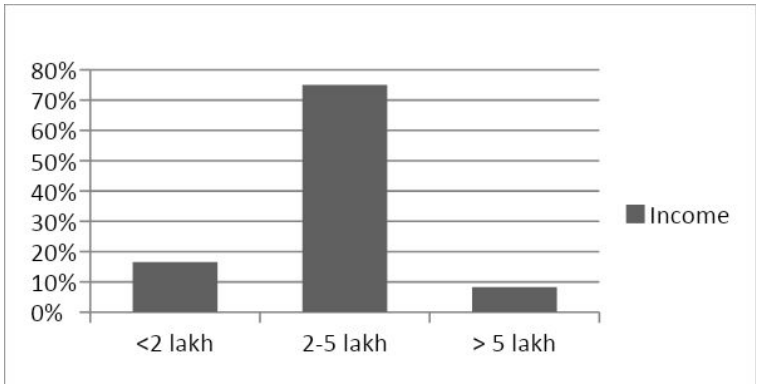

Fig 2. Income of fish farmers of Telangana

Average annual income of farmers was found to be ₹ 2.5 lakhs per annum with 75% of them earning between ₹ 2-5 lakhs. Range of income was ₹ 1,00,000 to ₹ 10,00,000/- They are involved in fisheries activities during culture period i.e. about 8 months.

3.1.3 Fish Farming Experience

Information on fish farming experience was collected from the farmers and this is presented in figure 3.

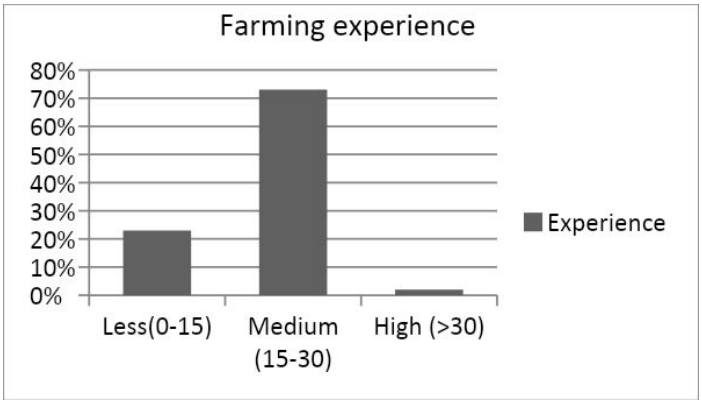

Fig 3. Farming experience of fish farmers of Telangana

Average fish farming experience was found to be 22.5 years with a range of 0 to 32 years. Maximum farmers had fishing experience in the range 15 -30 years.

3.1.4 Pond size

Information on pond size was collected from the farmers and this is presented in figure 4.

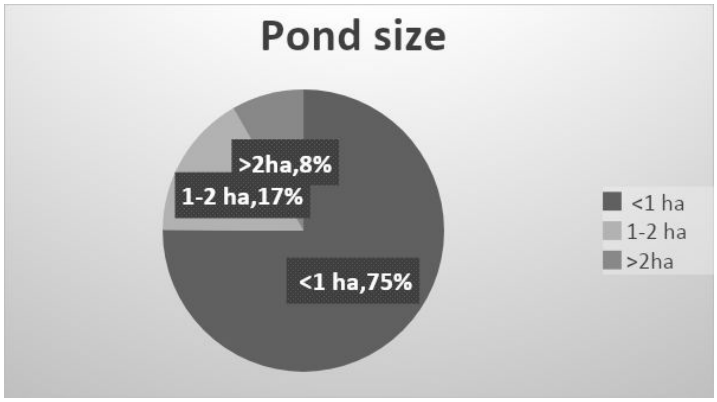

Fig 4. Fish pond size

Majority of the farmers (75.1%) had pond size of <1 ha, 16.6% of the farmers had 1-2 ha pond size and 8.3% of the farmers had >2 ha pond. Average size of the farm was found to be 0.12 ha.

It is clear from the study that the farmers were middle aged, had average annual income of ₹ 2.5 lakhs with small fish farms of 0.12 ha and fish farming experience of 22.5 years. Similar studies for fish farmers in Telangana are not there on which comparisons could be done. The socio economic status of the fish farmers as per the national classification with a typical Indian household with four members in a family and an annual household income between ₹ 2–5 lakhs per annum could be categorized as being in the middle income group and also by using World Bank's definition of middle income families to be those with per capita income between $10 to $50 per day [5].

National Council of Applied Economic Research of India in their survey have concluded that there were 153 million people who belonged to middle income group in 2006 [6]. World Bank, estimated in their 2011 reports that if India's economy continues to grow per projections, India's middle income group would grow by an additional 500 million people by 2025. This would make it, with China, the world's largest middle

income market [7]. With educated fish farmers who are middle class and have aspirations there are immense opportunities for development.

3.1.5 Species cultivated and fish production

As reported by farmers, the fish species which were cultured by them, were Catla, Rohu, Mrigal, Common carp, Grass carp, Murrel and Fresh water prawn. Majority of the farmers reported that the fish production is around 1-2 tonnes per ha.

3.1.6 Constraints faced by fish farmers

The major constraints faced by the farmers were

- Lack of scientific knowledge on culture management and modern farming methods
- Lack of knowledge on fish processing
- Lack of knowledge on feed management
- Availability of quality fish seed of different varieties
- Low fish yields
- Lack of marketing facilities

Kumari and Sharma [8], Vignesh *et al.* [9], Pandey *et al.* [10] also have reported similar kind of constraints by aqua farmers.

3.2 Information on usage of mobile phones

All fish farmers had smart phones. For further information on usage of mobile phones, enquiry was done regarding the most common apps downloaded and used by them, frequency of usage of these apps, awareness/usage of any apps related to agriculture/fisheries, sources of information related to fisheries, attitude towards app on fisheries and need of app on fisheries.

3.2.1 Usage of smart phones and most common apps

Information was collected regarding usage of smart phones by farmers, most common apps available or downloaded by them. This information is presented in figure 5.

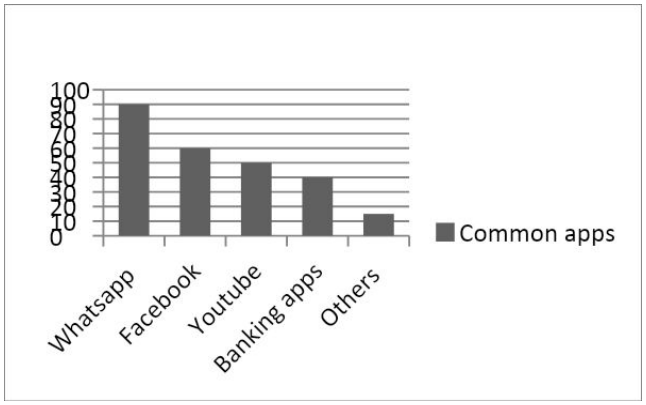

Fig 5. Common mobile apps used by farmers

It was found that all the farmers used smart phones. Most common apps used by farmers were Whatsapp, Facebook, Youtube and SBI personal banking app. Other apps used by farmers include food ordering apps, online shopping, ticket booking apps for train or bus etc.

3.2.2 Usage of apps related to agriculture and fisheries

Information was collected regarding usage of apps related to agriculture and fisheries by the farmers. It was found that no farmers used any agriculture/fisheries related app and were not aware of any such app. Corroborating this an empirical research reported in the field of agriculture have shown that a very small number of apps are available in relation to the significance of agriculture worldwide. This study has proposed that the development of mobile apps should support agricultural activities by providing accurate, certified and validated content and services that would take into account the peculiarities of geographical areas [11].

3.2.3 Sources of information related to fisheries

Information was collected regarding sources of information related to fisheries. Farmers reported that Internet, Krishi Vigyan Kendra and officials from Department of Fisheries (DoF) were the source of information. However, other researches like Rajak and Sharma [12] have reported that the source of information are fish feed companies. In this study however, feed companies were not a source of information.

3.2.4 Attitude and need of mobile app in fisheries

All the farmers showed positive attitude towards development of a mobile app which provide fisheries related information. They responded in positive that there is a need of a mobile app which provides any information fisheries.

3.2.5 Features to be included in mobile app

Based on the positive response from fish farmers towards a need of a mobile app which provided information on fisheries, further enquiry was done about specific features they would like to be included if a mobile app was developed for them. Simple percentage analysis was done and this is presented in table 2.

Table 2. Responses of farmers for the features to be included in mobile app

S. No.	Feature	Percentage of farmers
1.	Culture Information	100
2.	Disease management	100
3.	Market information	91.6
4.	Fish seed suppliers	91.6

5.	Feed management	93.3
6.	Water quality management	100
7.	Schemes	90

All fish farmers reported that they would like to use a mobile app which have information on fish culture, disease management and water quality management. In addition they are interested to have information on feed management, feed suppliers, market information and Government schemes. It is thus clear from the study that at present, farmers are not aware of any mobile app in fisheries/aquaculture but are keen to use mobile apps which provide information on various aspects of aquaculture. Kafetzi [13] too have reported that farmers use less apps related to farming due to lack of awareness but show interest. All the farmers reported that a mobile app which provides information on these aspects will be highly beneficial establishing the need of a good mobile app. Based on the needs of the farmers a mobile app named as Matsya Kiran was developed.

CONCLUSION

The use of mobile apps has been increasing and is being used for the development of rural people. Fish farmers have a positive attitude towards usage of mobile apps and show interest in a fisheries related mobile app. Thus there is a need to develop mobile apps which provide fisheries related information to the fish farmers of Telangana as well as other states. This handy device is an adequate tool to disseminate adequate information to fishers/fish farmers, students, youth, cooperatives, SHGs, etc.

CONSENT: Informed consent of the respondents was taken before conducting their personal interview.

COMPETING INTERESTS DISCLAIMER:

Authors have declared that no competing interests exist. The products used for this research are commonly and predominantly use products in our area of research and country. There is absolutely no conflict of interest between the authors and producers of the products because we do not intend to use these products as an avenue for any litigation but for the advancement of knowledge. Also, the research was not funded by the producing company rather it was funded by personal efforts of the authors.

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