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Bhutti JK
Master of Fisheries Science,
Post Graduate Institute of
Fisheries Education and
Research at Rajpur (Nava),
Himmatnagar, Gujarat, India

Smit Lende
Assistant Professor, Post
Graduate Institute of Fisheries
Education and Research, at
Rajpur (Nava), Himmatnagar,
Gujarat, India

NA Pargi
Master of Fisheries Science,
College of Fisheries Science,
Junagadh Agricultural
University, Veraval, Gujarat,
India

Vasava RJ
Master of Fisheries Science,
Post Graduate Institute of
Fisheries Education and
Research, at Rajpur (Nava),
Himmatnagar, Gujarat, India

PV Taral
Master of Fisheries Science,
College of Fisheries Science,
Junagadh Agricultural
University, Veraval, Gujarat,
India

Corresponding Author
Bhutti JK
Master of Fisheries Science,
Post Graduate Institute of
Fisheries Education and
Research, at Rajpur (Nava),
Himmatnagar, Gujarat, India

Studies on the socio-economic condition of fish farmer in Sabarkantha district of Gujarat state

Bhutti JK, Smit Lende, NA Pargi, Vasava RJ and PV Taral

Abstract

The socio-economic survey based study has crucial importance for the primary step before implementing or following any development based activity. The present study was conducted to assess the livelihood status of fish farmers and socio-economic condition in the Sabarkantha district, Gujarat. Data were collected from the fish farmers for a period of six months from November 2019 to April 2020. The study indicated majority of fish farmers were belonging from Hindu caste. The majority of farmers had a primary occupation of agriculture. Majority respondents had concrete house and rest of had semi-concrete house. The farmers were educated from primary level to bachelor degree and some of the farmers were illiterate. The pond size of small to marginal farmers varied from 0.5 to 1 ha of area. The study mainly focused on actual condition of fish farmers which should use for upcoming governmental and non-governmental activities.

Keywords: Socio-economic, fish farmers, aquaculture, family, pond

1. Introduction

Aquatic food production is categorized into capture of wild fish and culture of farmed species of aquaculture sector. Global aquaculture production in 2018 was 82.1 million tons (Zhou, 2020) [15]. Indian fisheries sector is second largest fish producer in the world and Gujarat is 3rd largest fish producing state in India (Bais, 2018) [6]. Fresh water aquaculture resources in the country includes 2.25 million hectares of ponds and tanks, 1.3 million hectares of bheels and derelict waters, 2.09 million hectares of lakes and reservoirs and 0.12 million kilometre of irrigation canals and channels (Bhatta, 2003) [8]. Indian aquaculture production mainly includes Indian major carps and common carps. The factors like culture practices, breeding, seeds production and socio economic factors plays a very crucial role in productivity enhancement. The socio-demographic characteristics of the freshwater fish producers in the six selected states of India based on a comprehensive survey (Kumar *et al.* 2003) [12].

Fisheries and aquaculture sector play an extremely important role on the socio- economic advancement of India and it is the part of our cultural heritage. In India many fish farmers in rural areas have taken fish farming activities as their secondary earning which fulfil the per head protein demand. Most of the people are involved in fish farming to improve their socio-economic condition through pond farming. For sustainable rural development and poverty elimination different approaches have been adopted and the “Sustainable Livelihood Approach” has been gradually expanded with its own core and principles for poverty focused development activities. The approach basically based on the fundamental principle analysis of capital assets such as human capital, physical capital, financial capital, social capital and natural capital in the context of the external environment (Kabir *et al.* 2012) [11].

Gujarat has the longest reservoir area of 3,47,659 ha. The reservoirs of Gujarat are mainly used for irrigation instead of fishing activities. Therefore a fishery is not much developed in such huge areas of reservoirs. Gujarat comprises total 26 districts and total number of reservoirs is 1635 including small, medium and large reservoirs. In Gujarat, about 1119 reservoirs of 10-50 ha are present and its total area is 23,858 ha. In 2011- 12 total production is 2615.00 tonnes. In 2010- 2011 catla, rohu and mrigal production is 433 tonnes, 512 tonnes and 465 tonnes respectively. In these reservoirs, catla, rohu, mrigal, catfishes and prawns are majorly captured (Patel *et. al.* 2016) [13]. At present, freshwater aquaculture in Gujarat is carried out in about 40% of total village ponds and tanks of 22000 ha. The production is an average of less than 1 ton of fish/ ha of village ponds. There are also vast water resources which includes small irrigation tanks, reservoirs and water logged areas which have large potential for development of freshwater aquaculture in Gujarat. (Bhatt, 2018) [7].

2. Materials and Methods

The study was conducted in some selected areas of Sabarkantha district during November to April 2019–2020 by using survey and frequent interview method. Several fishermen of the area were interviewed during the surveys. The questionnaire interviews were conducted along the different pond sites and home in the selected area. Before going to take an actual interview, a brief introduction about the study was given to each of the farmers and assured them that all information would be kept confidential. Each question was explained clearly and systematically asked for their clear understanding. During the time of interview, the physical conditions of the ponds and the fish cultivation methods were observed for well understanding the fish production technology in the study area. Time required for each interview was about an hour to one and half hour. After collection of data from the field, data were verified to eliminate errors and inconsistencies. Then the data were tabulated carefully. The qualitative data were categorized and analysed mainly based on descriptive statistical analysis using MS-excel software. All the collected data were processed and analysed to extract the findings of the study area following careful accumulation.

3. Results

3.1 Age Structure of Fish Farmers in Sabarkantha District

In the study area, majority of fish farmers (38%) were 51-60 above years old. On the other hand, 27% respondents were less than 40 years old and 35% respondents were 41-50 years old (Table 1).

Table 1: Age of the fish farmers in Sabarkantha District

Age group (years)	No. of Respondents	Respondents (%)
30-40	36	27
41-50	46	35
51-60 +	50	38
Total	130	100

3.2 Religion Status

According to survey, the most of fish farmers were Hindu (98%) and remaining from Muslim (2%) religion (Fig. 1).

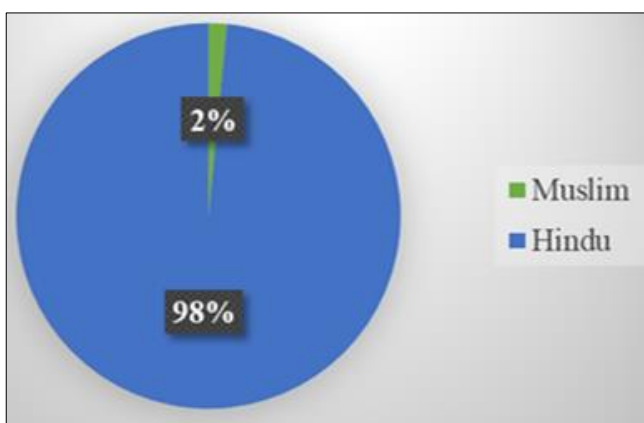


Fig 1: Religion status of fish farmer in Sabarkantha district

3.3 Primary Occupation of Fish Farmers in Sabarkantha district

According to the investigation, the fish farmers were involved in activities such as agriculture (59%), business (12%), service (12%), politics (9%) and rest (8%) as daily labour work (Fig. 2).



Fig 2: Primary occupation of fish farmers

3.4 Family Type

The family was classified into two types: (i) separated family or nuclear family, married couples with children and (ii) joint family, group of people related by blood and or law. The study revealed that 67% fish farmers lived in joint families and 33% lived with separated families (Table 2).

Table 2: Family type of fish farmers in Sabarkantha district

Family type	No. of Respondents	Respondents (%)
Joint	87	67
Separated	43	33
Total	130	100

3.5 Family Member

In the study area most of the family was joint family. A total 26% families had highest seven or more members and 23% families had lowest four members in their family (Fig. 3).

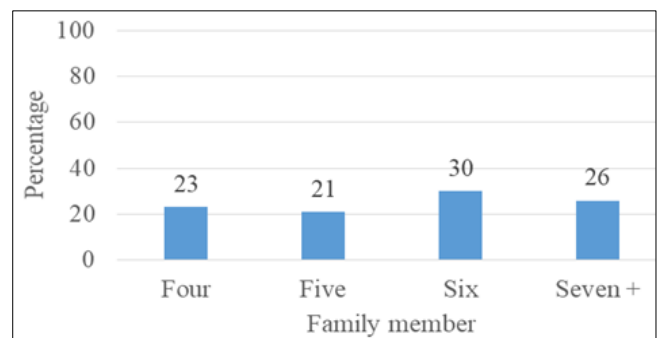


Fig 3: Family member percentage of fish farmers

3.6 Housing Condition of Fish Farmers

The study indicated that the fish farmers had their own house for living. Majority respondents around 85 (65%) had concrete house (Concrete wall with concrete roof) and rest of 45 (35%) respondents had semi-concrete (Concrete wall and tin shed roof) house (Fig. 4).

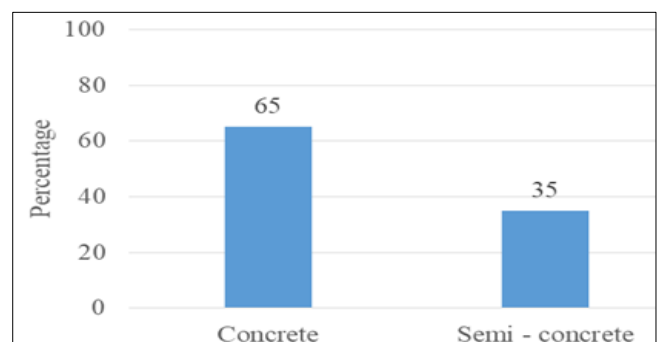


Fig 4: Housing status of pond fish farmers in the study area

3.7 Sanitation Facilities

In the study area, all the farmer had a good sanitation facility. Almost 31% farmers were using concrete (concrete platform) toilet and rest of 69% farmers were using semi- concrete (concrete platform with tin shed) toilet for their daily use (Fig. 5).

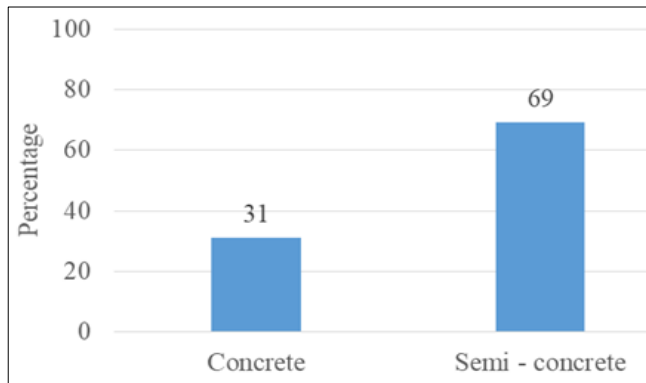


Fig 5: Sanitation facilities of farmer in Sabarkantha district

3.8 Drinking Water Sources

In this 120 respondents, 92% were using tube well water for drinking purpose and 8% respondents by another water sources. Every farmer had at least one tube well was observed in their houses (Table 3).

Table 3: Drinking water source of farmer in Sabarkantha district

Water source	No. of Respondents	Respondents (%)
Tube well	120	92
Other	10	8
Total	130	100

3.9 Educational Status of Fish Farmers

The six categories were used for determine the level of education in farmers. Out of the 130 fish farmers, 9% had no education, 13% had primary level, 28% had secondary level (Up to X), 16% had S.S.C. level, 31% had H.S.C. level and 3% had bachelor level of education (Fig. 6).

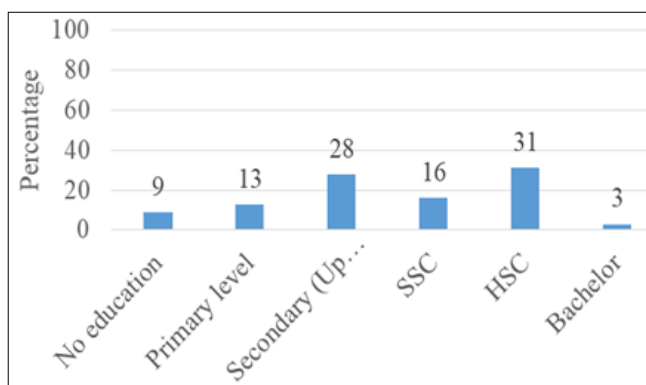


Fig 6: Education status of fish farmers in Sabarkantha district

3.10 Farmer's Children Education Status

It was found that most of all farmers were married and they had one or two children. In the study area, 27% farmer's children had primary education, 42% farmer's children had secondary level, 19% farmer's children had higher secondary level and rest 12% farmer's children had bachelor level of education (Fig. 7).

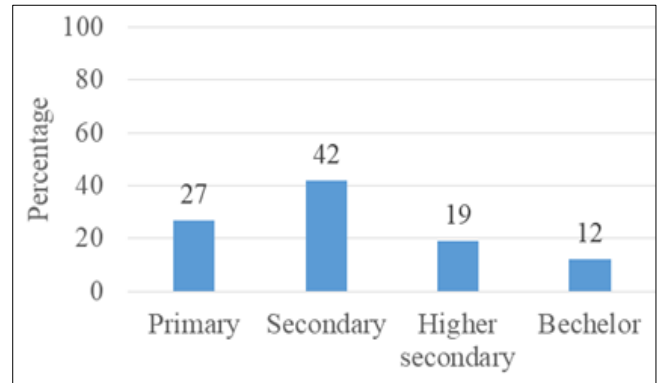


Fig 7: Farmer's children education status in Sabarkantha district

3.11 Size of the Pond of Fish Farmers

Among the 130 farmer, the small farmers (62%) had pond size of 0.5 ha and marginal farmers (38%) had pond size of 1 ha (Table 4).

Table 4: Pond area of farmer in Sabarkantha district

Pond size (Hactor)	No. of Respondents	Respondents (%)
0.5	80	62
1	50	38
Total	130	100

3.12 Starting Year of Fish Culture by the Farmers

On the basis of the year of the starting of aquaculture fish farming it has been observed that aquaculture was not very traditional culture in this area. Almost 19% farmers have joined aquaculture practice within five years. Moreover, 27% farmers engaged in aquaculture within 6-10 years and 54% within 11-15 years (Table 5).

Table 5: Starting year of farmers in aquaculture in study area

Involvement (Year)	No. of Respondents	Respondents (%)
01-05	25	19
06-10	35	27
11-15	70	54
Total	130	100

3.13 Training of Fish Farmers

In the study areas, all the selected farmers (Table 6) received training on fish culture which was provided by local NGO. Some farmers had got training from Department of Fisheries (DoF). The training was performed by the Sabarkantha district Fisheries officer. It was found that 69% farmers had training on fish farming and rest 31% farmers had no training on fish farming.

Table 6: Receiving of training of fish farmers in Sabarkantha district

Training receive	No. of Respondents	Respondents (%)
Yes	90	69
No	40	31
Total	130	100

3.14 Finance Source

In the study area, most of the farmers invested their own money to fish pond for fish culture management and other purpose. It was found that 65% farmers used to invest their own credit. and rest of 35% farmers used money taken from bank, NGO, money lender and broker agency as a loan (Fig. 8).

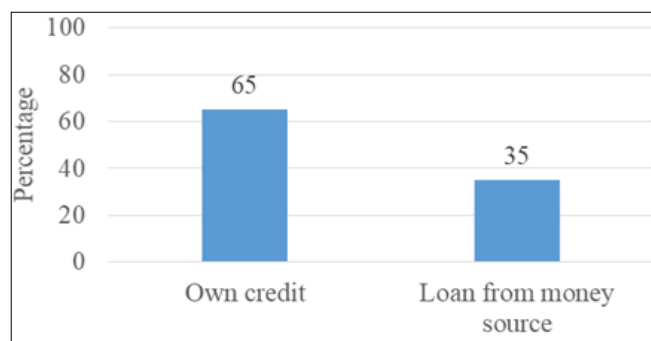


Fig 8: Finance source of farmer

4. Discussion

Ali *et al.* (2009) ^[3] mentioned that 50% fish farmers were belonged to age group of 31 to 40 years in Mymensingh district. Ali *et al.* (2008) ^[4] observed that maximum fish farmers religion was Muslims (94%) while small proportions were Hindus (6%) in some selected areas of Bagmara Upazilla under Rajshahi district. Islam *et al.* (2017) ^[9] observed that 3.33% fish farmers were engaged with primary occupation as aquaculture. Total 73.33% farmers were involved in agriculture, business (10%), service holder (3.33%), students (3.33%) and rest of (6.67%) involved with other occupation. Asif and Habib (2017) ^[2] found that about 66% of farmers lived in joint families and 34% in nuclear (separated) families in of Jessor district of Bangladesh. Hossain *et al.* (2015) ^[8] mentioned that the largest family size was in Cast net fishermen and smallest family size was in hogra fishermen of Doba Beel. Most of the fish farmer were belonging from 4 to 5 member's family in Mymensingh district. Asif and Habib (2017) ^[2] observed that total 12% fish farmers had semi-concrete house and 88% had concrete house. Ali *et al.* (2008) ^[4] investigated that farmer's sanitary condition were very poor. Among the farmers total 28% farmers had good sanitary facilities. Many farmers were suffered from diarrhea and cholera due to poor sanitary condition. Ali *et al.* (2009) ^[3] recorded that total 100% fish farmers were using tube well and among them 90% used their own tube well and 10% used neighbour's tube well. Akter *et al.* (2018) ^[1] recorded in his study that 30% farmers have attained secondary level education and 12% had no education. Among them 20%, 16%, 12% and 10% had primary, SSC level, HSC level and bachelor level of education respectively in Rajshahi district of Bangladesh. Hossain *et al.* (2015) ^[8] investigated in Rajshahi that 64% of fishermen were found to send their children to school whereas 36% did not send children for schooling. Islam *et al.* (2017) ^[9] mentioned that the average pond size was about 5-15, 16-25 and 25 decimal for small, medium and large pond respectively. Islam *et al.* (2017) ^[9] reported that almost (53.33%) farmers came to aquaculture practice within five years. Moreover, (20%) farmers came within 6-10 years, (20%) within 11-15 years, 3.33% within 16-20 year and 3.33% within above 20 years in aquaculture. Hossain *et al.* (2015) ^[8] stated that only 20% fishermen had training on one or more than one related matter, 80% have no any training. Sarwer *et al.* (2016) ^[13] mentioned that 91% of the farmers have used their own money for fish farming and 6% of the farmers got loan from bank for farming related activities. 3% of the fish farmers received loan from other sources.

5. Conclusion

Socio-economic study is very important to know the farmers

actual status in society. According to the results of the present study, it can be concluded that fish culture has large socio-economic benefits for all of the fish farmers. There is need to give training to fish farmers which will used for economic and possibility to record more profit as output. Fish farming is a fruitful business that can help the farmers to uplift their livelihood situation as well as economic criteria. The present study has provided a baseline data about the socio-economic condition educational qualifications and the technical information about the farmers. On this basis we can identify the lesser trained farmer groups and impart training to them for increase aquaculture production.

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