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Assessment of the socio-economic status of fisherfolk communities from Chandragiri estuary, Kasaragod, Kerala

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Abstract

Fishing is an important source of income for fishing communities that rely on estuaries for their livelihood. The goal of this study was to gather information on the economic and livelihood conditions of fishermen to identify significant concerns that could be considered in sustaining their livelihoods and ensuring their participation in fish biodiversity conservation. Data was gathered by interviewing 50 people who were chosen at random from 2020 to 2021. According to the survey, 32% of the respondents are between 41-45 years. The family size of the fishing community usually consisted of 2-9 members and 86% of them were nuclear families. About 20% of them were illiterate, and 82% of the respondents live in their own homes. Sixty-six per cent of houses were tiled, while 34% were concrete houses and all the families were found to have electricity facilities. The majority of them (42%) had their well water as a drinking source. Fifty-eight per cent of houses have sanitation facilities with a septic tank. Around 72% of the households use both wood and gas as a source of cooking. The majority of the respondents have their crafts and gears. Thirty six percent of the respondents have experience ranging from 21 to 30 years. Depending on the season, an average of 3-10kg of fish is caught per day. The average gross revenue per trip is Rs. 200-1000/-, with an operating cost of Rs. 60-150/-. The monthly average income of fishermen was around Rs. 10,000-25,000/-. BPL cards are held by 86% of households. They spent a majority of their money on food. Fishermen preferred to borrow money from self-help groups. The present study has shown that the fishermen require additional institutional, organizational, and technical assistance to improve their socio-economic and livelihood situation.

Keywords: Conservation, economy, estuary, fishermen, social status

Introduction

Fish are a valuable natural resource, providing humans with a wide range of benefits. Most importantly, they are source of livelihood for a large section of the population who are economically backward. It has been recognized as a powerful economic engine that spurs the growth in several subsidiary industries and provides cheap and nutritious food, in addition to being a source of foreign exchange. India has a wide variety of occupations in the world, but most people are involved in agriculture and related sectors, such as fishing. It is estimated that more than 12 million people are directly involved in fishing activities, and about 60 million people rely on fisheries for their livelihood in India (Rao *et al*., 2016) [24].

Kerala has a coastline of 590 kilometres and a continental shelf of 41 square kilometres. There are a total of 65,213 hectares of estuarine area spread out over 10 districts in Kerala. The fishermen's population is about 10,44,361 people (including men, women, and children) of which 45,239 are from Kasaragod district, which includes 44,230 numbers from marine and1,009 numbers from inland sector scattered in and around the Kasaragod district (Anon, 2020) [1].

The fishing community is often considered vulnerable in many ways, and a series of studies have been conducted on their socio-economic status in different parts of the world (Flowra *et al*., 2009; Islam *et al*., 2013; Galib *et al*., 2016) [5, 8, 6] including India (Devi *et al*., 2012; Kalita *et al*., 2015; Jasna and Palai, 2016) [3, 10, 9] aimed at improving their livelihoods by identifying the problems and constraints.

Socio-economic status is one of the strongest predictors of people's lives (Kitagawa and Hauser, 1973; Marmot *et al*., 1987) [12, 18]. There is a great lack of knowledge about socio-economic conditions in fishing communities, which makes it difficult to plan and implement programs that could improve their situation(Shankar, 2010; Saxena *et al*., 2014) [27, 26]. The study of the socio-economic status of the fishing community is important to achieve the best possible solutions. As of now no studies have been conducted on the socio-economic status of the fisherfolk community at Chandragiri estuary. Therefore, the present study was conducted to investigate the socio-economic status of the fishermen of the Chandragiri estuary of Kasaragod district in Kerala.

Methodology

A total of 50 respondents were selected randomly from the communities living in the Chandragiri estuary area, Questionnaires were developed to collect primary data on the socio-economic condition, age distribution, household size, literacy, occupation, housing conditions and other economic activities. In addition, face-to-face interviews and

direct observation of housing conditions were systematically conducted. The collected data were numerically tabulated and analysed through simple statistical methods in Microsoft Excel (version 2016).

Results

Age

The highest age of the interviewed fishers is 55. They were classified as young (18-35 years), middle-aged adults (36-40 years), old aged adults (41-45 years), nearly old (46-50 years) old (51-55 years) and very old (above 55 years). The proportion of old aged adults is highest (32%), followed by old (26%), nearly old (22%), very old (10%), middle-aged adult (4%) and the younger generation had the lowest percentage (4%) (Fig.1).

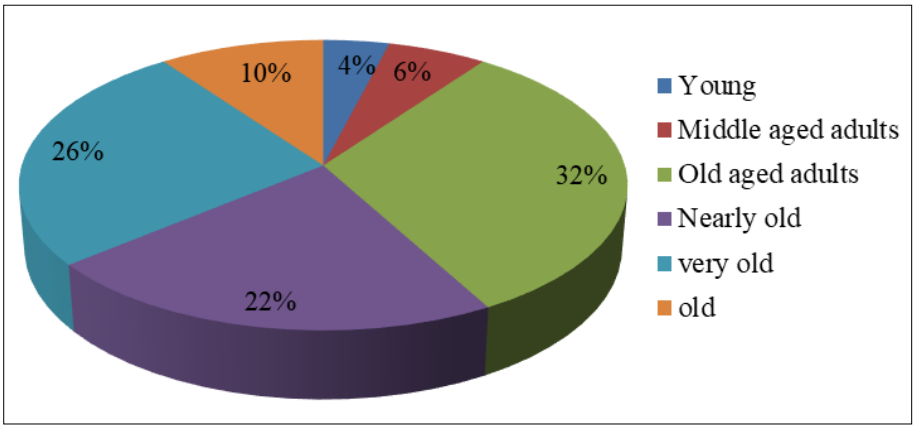

Fig 1: Age structure of respondents

Family type

The family types were mainly divided into nuclear and joint families. The study found that 86% of the respondents live as nuclear families, while 14% had joint families (Fig.2).

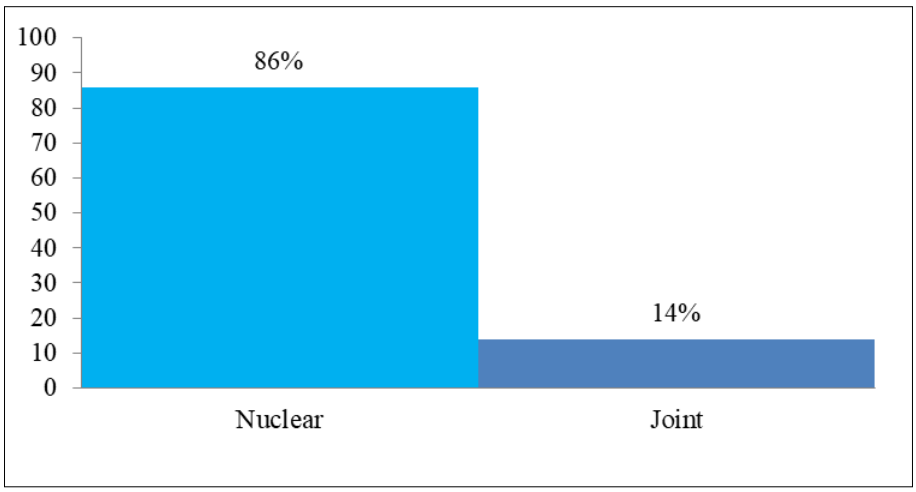

Fig 2: Illustrates the distribution of family types, with 86% of respondents living in nuclear families and 14% in joint families.

Family Size

Family size is an important factor in determining the family welfare. In this study, the family size of the fishermen was divided into three groups based on the number of family members. Small families with less than four individuals accounted for 56%, medium families with five to six members accounted for 36%, while large families with more than seven members accounted for 8% (Fig. 3).

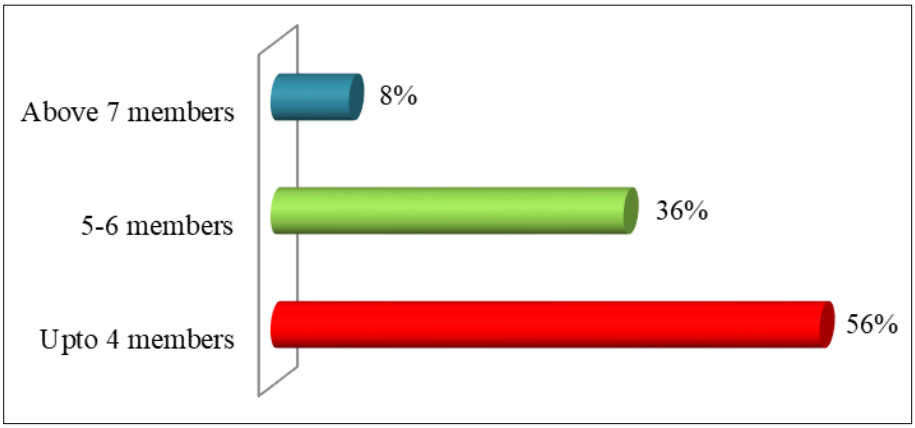

Fig 3: Number of members in fishermen households

Gender

All respondents in the study who were involved in fishing activities were male. No female respondents were found engaged in fishing activities.

Education level

Education is a key criterion for assessing a society's socio-economic well-being. The educational status of the respondent, who is the head of the family, was assessed first, followed by the educational status of the family members, including children. The majority of those who responded had education up to lower primary level (classes 1-IV) 28%, followed by upper primary (V- VII) 26%, secondary education (VIII-X) 22 %, higher secondary education (XI-XII) 4% and illiterate 20%. Fisher's family members had a literacyrate of 90.76%, with 27.69% of them being students. Only 9.24% of the population is illiterate, including children under the age of six (Fig. 4).

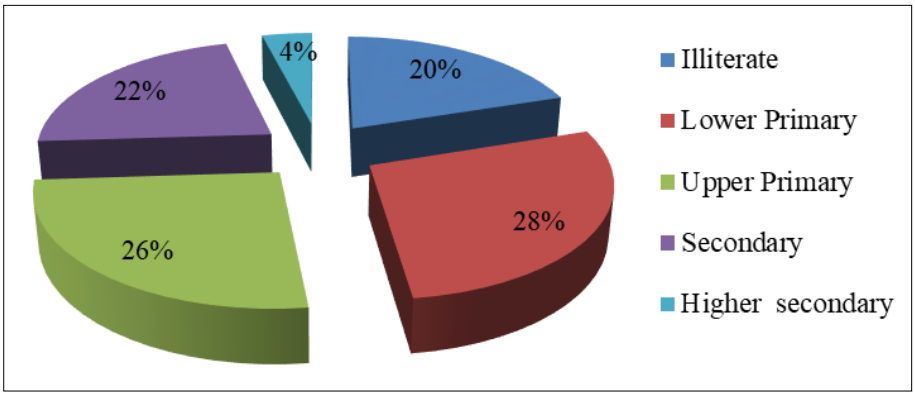

Fig 4: Distribution of fishers on the basis of educational status

House structure

The sample study showed that 82% of the families live in their own houses and 18% of families live in rented houses. The average area of the house is 460 sq feet. Almost 66% of the respondents live in houses with tiled roofs, while 34% live in houses with concrete roofs (Table1).

Table 1: House condition of fishers

House		Number	Percentage
Ownership Of The house	Own	41	82
	Rented	9	18
Type of house	Tiled	33	66
	Concrete	17	34

Drinking water facilities

Fig.5. shows the families' drinking water sources. About 42% of fishers used their well, 14% used their water tap, 14% were using a public tap, 20% used a bore well, while 10% of fishermen obtained their drinking water from a public well.

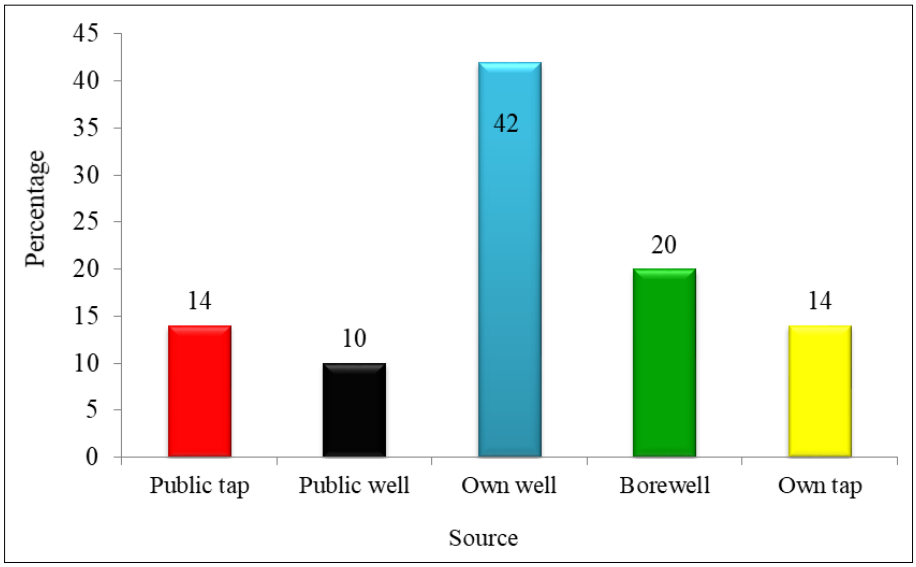

Fig 5: Source of drinking water

Sanitation facilities

The availability and use of toilets are important criteria by which socio-economic characteristics can be measured. As a result, a question was asked to the respondents to determine the availability andusage of toilets. It was found that out of 50 respondents, 29(58%) households have their toilet facilities in their home, but 21(42%) have no toilet facilities and must rely on open spaces for their natural calls**.**

Electricity facilities

The survey found that all respondents in the study area used electricity as a source of lighting with 44% of fishermen paying electricity bills between Rs. 1,000-1,500 per month, followed by 32% in the range of 1,501-2,000 rupees and 10% of households paying less than Rs. 500 per month. They use the kerosene lamp, candle or torch as an alternative source of lighting if electricity fails (Table 2).

Table 2: Electricity bill range of the fishers

Electricity bill	Number	percentage
Below 500	5	10
501-1000	7	14
1001-1500	22	44
1501-2000	16	32
Total	50	100

Source of cooking

From the survey, it was found that a majority of households (72%) use both wood and gas, while 16% use gas and 12% use wood as a source of cooking (Fig. 6).

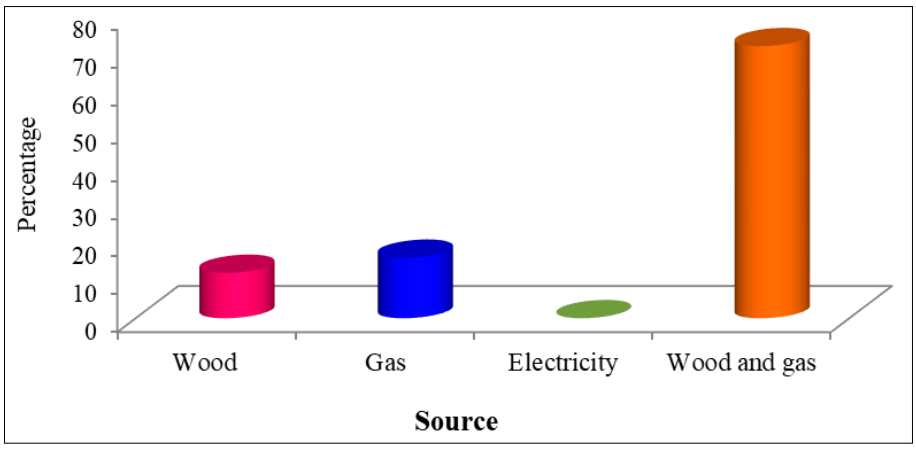

Fig 6: Source of cooking fuel

Craft and gear ownership

Table 3. shows that the majority of respondents (78%) have their crafts, 14% have a partnership boat, and 8% use rented boats. The nets used most commonly in fishing in the study area were gillnets of different mesh sizes. Net ownership has shown that 84% of respondents have their net, while 8% share, and 8% rent. The study found that about 71.44% of fishermen possessed two to four nets.

Table 3: Ownership of craft and gear

Ownership		Number	Percentage
Craft	Own	39	78
	Rented	4	8
	Share	7	14
Gear	Own	42	84
	Rented	4	8
	Share	4	8

Fishing experience

Fishers were divided into four groups based on their fishing experience: less experienced (<20 years), moderate (21-30 years), experienced (31-40 years), and very experienced (>40 years). We evaluated their time of experience (years of practice) in this classification, with no qualitative judgment of each fisher's true experience. The majority of fishing respondents (36%) have experience ranging from 21 to 30 years. 32%, 22% and 10% of the sampled respondents had an experience of 31-40 years, below 30 years and above 40 years, respectively (Table 4).

Table 4: Occupational experience of fisherfolk

Experience	Number	Percentage
Less than 20 years	11	22
21-30 years	18	36
31-40 years	16	32
More than40 years	5	10
Total	50	100

Number of fishing days

Working days are a key tool for analysing the respondent's socio-economic condition and determining the family load. The majority of respondents (38%) work between 250 and 300 days per year; 22% work between 200-250 days, 16% work above 300 days, 14% work between 150-200 days, and just 10% work less than 150 days per year (Fig. 7).

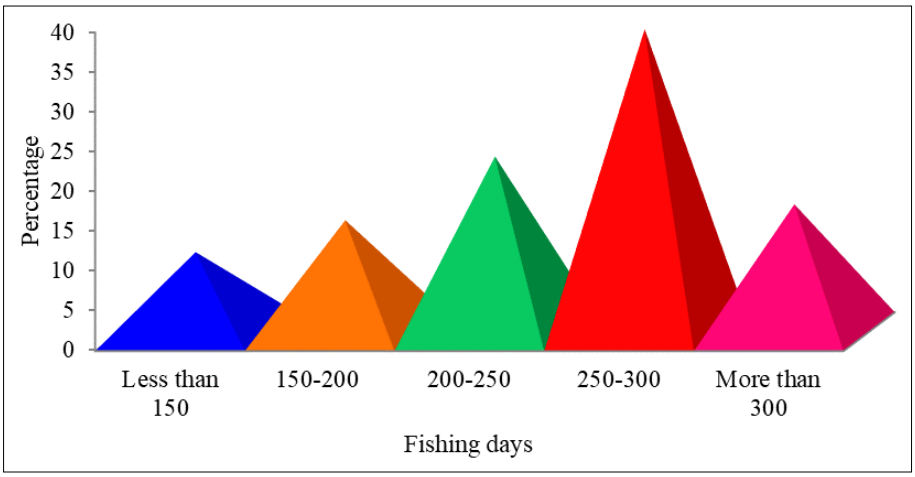

Fig 7: Number of fishing days

Catch details

During the pre-monsoon season, the average catch per day was 2-5 kg/day/fisherman. During and after the monsoon, a respondent's minimum catch per day was 8 kg, with a maximum capture of 12 kg/day. The average gross revenue per trip was between 200-1,000 rupees, with an operational cost of between 60-150 rupees.

Source of annual income

On average, income from fishing and related activities accounts for 52.63% of the annual earnings of fishermen's households. Other family members' income from non-fishing activities accounts for 47.36% of annual earnings. BPL cards are held by 43(86%) households out of 50 families interviewed, the remaining 7(14%) households are APL cardholders.

Monthly household income of respondents

The monthly income of fishers came from mainly fishing activities as well as secondary sources. Among 50 fishermen, almost 40% had an average monthly income of ₹15,000-₹20,000, 24% had a monthly income of 20,000-25,000, 20% had a monthly income of ₹10,000-₹15,000, and only 10% had an average income of less than ₹10,000 and 6% had an average income of more than ₹25,000 per month (Table 5).

Table 5: Monthly household income of fisher

Monthly income (Rs)	Number of household	Percentage
Less than 10,000	5	10
10,000-15,000	10	20
15,000-20,000	20	40
20,000-25,000	12	24
Above 25,000	3	6
Total	50	100

Monthly household expenditure of respondents

Consumption items are divided into two categories: food items and non-food items. Food grains, vegetables, oil, ghee, sugar, milk, meat, poultry, eggs, and fruits are examples of food products. Consumption of non-food items includes clothing, education, health, entertainment, fuel and light, travel, transportation, and so on. Table 1 shows the share of monthly consumption expenditure on different consumption items. They spent a majority of their money on food (63%) followed by health (7%), fuel (6%), education (6%), clothing (5%), rent (2%) and miscellaneous (11%) (Fig. 8).

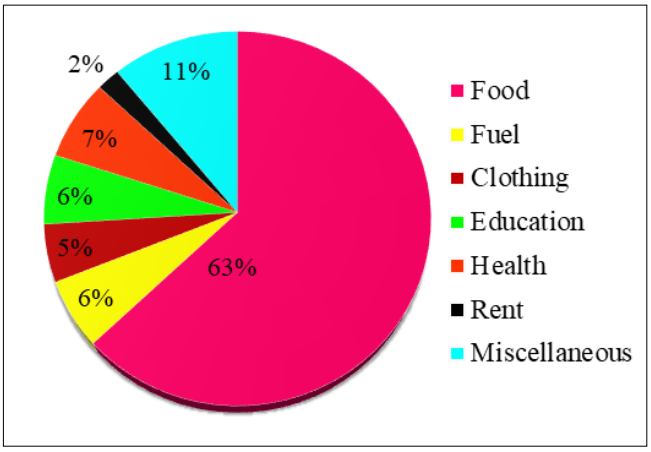

Fig 8: Percentage distribution of monthly income on different expenditure items

Home appliances

It was found that 93.33% of the respondents use mobile phones and 6.67% had no mobile phone. Most of them used a mobile phone for communication and only few of them favored for recreational purposes. However few fishermen were unable to afford a mobile phone. Ten percent of fishermen had television and 6% had mixer only The combination of television, refrigerator and mixer could be seen in 45% of the houses, 18% had a combination of television and mixer, combination of fridge and mixer seen in 18% of the household and 6% had a combination of refrigerator and television but 8% of the household don't have such facility(Fig. 9).

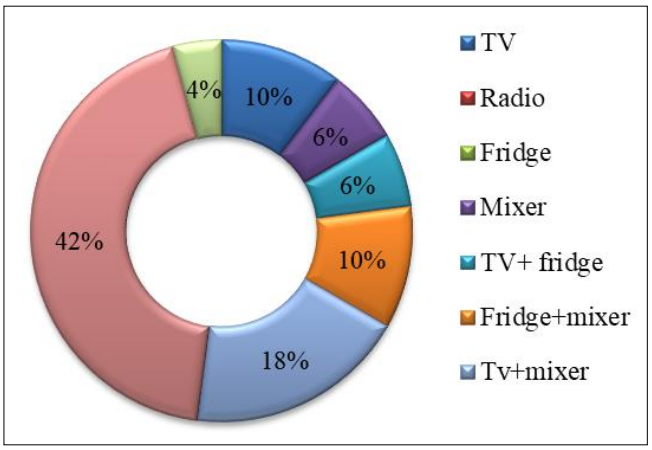

Fig 9: Home applicances of fishers

Indebtedness

Indebtedness is frequently caused by a lack of savings and the need to maintain one's livelihood. In the present study. 16% of the respondent's homes were in debt. The average amount of debt per household was discovered to be rupees one lakh. The healthcare sector has the greatest average debt, followed by marriage.

Preference for sources of credit

Fishermen seek financial assistance from a variety of sources, including private bank, public bank, cooperative societies, an auctioneer/fish merchant, self-help club, and money lenders. Self-help groups are preferred first by the fishermen, followed by cooperative societies, public banks, private banks, money lenders, and auctioneers/fish merchants.

Discussion

Knowing the age distribution of fishers is important in estimating the potential productive human resources available (Hussain*et al*., 2009) [7]. Fishing remained the most preferred activity of fisherfolk in the age group of 41-45, accounting for approximately 32%, while a minimum of 4% of fishermen were in the younger generation due to the availability of substitute employment, and poor income from fisheries, and high labour risk. According to Salim*et al.* (2017) [25], the middle age (36-55 years) group of fishermen involved in fishing in Kerala is the most common.

Family size and type are important socio-economic indicators because they influence household income, food consumption, and socio-economic well-being. Due to household expenses, nuclear families (86%) are more common than joint families (14%) according to the survey. In comparison, the Kerala fisherfolk community has 78.4% joint families and 21.6%nuclear families (Mary and Joseph, 2020) [19]. According to the study, 56% of respondents had less than four family members, 36% had five to six family members, and 4% had more than six family members. Salim *et al.* (2017) [25] observed in their study that the fisher household most usually follows the small family norm (family size of 2-4 individuals).

The cumulative education received by family members is an important component of their socio-economic status. Around 28% of respondents had a lower primary level of education, 26% had an upper primary level of education, 22% had a secondary level of education, 20% were illiterate, and only 4% had a higher secondary level of education. The educational level of the fisherman is quite low, even among literates; the majority has only completed primary school. Kutty (2004) observed similar results from Kasaragod district with 45.33% having primary education and 16% having a secondary level of education, 0.67% having college-level education and 38% were found to be illiterate.

The shelter is an essential need for human beings, It was found that a majority of respondents (82 percent) lived in their own houses, which might be due to the implementation of various schemes by the government of Kerala. Most of the houses they live in are tiled houses (66%).However, the housing structure is generally poor. The present finding is consistent with another previous study where 53.3% of fishermen had tiled houses (Kutty, 2004) [13]

The source of drinking water is an important indicator of good health. Most of the fisher folk are getting drinking water from their well followed by their tap, public tap, or bore well and less dependency on public well. Similar results were noted by (Kutty, 2004) [13] from the Kasaragod district. All houses of the fishermen were electrified due to "Theerajyothi" scheme (electricity distribution scheme) implemented by the government of Kerala in order to electrify the houses of fisherfolk.

The sanitary conditions of fisherfolk were not good. It was found that very few respondents maintained their hygiene properly. Among the total respondents, 58% had sanitation facilities and 42% did not have any such facilities, which

affect the environment adversely. A similar observation was made by Kutty (2004) [13] from Kasaragod district.

Ownership of the craft and gear suggests that the majority of responders have their boat and gear and this indicates that the majority of the people are financially capable to buy or form a partnership to buy it. In this area, gillnets are the most widely employed fishing gear. Gill nets are commonly used in coastal and inland public waters since they are inexpensive and simple to operate (Balik and Cubuk, 2001) [2].

Experience is essential for optimal resource utilisation and improved output in any business, particularly in fisheries. In the current study, 36% of the fishermen had 21-30 years of experience, whereas just 10% had more than 40 years of experience. The majority of respondents went fishing for250-300 days a year (38%). A small fraction of fishermen (10%) does fishing for less than 150 days per year. This group also generates income from various other jobs in their locality.

Income is determined by a variety of elements, including how many members of the same family are active in fishing and other related jobs and ownership of boats and gears. During the period of study, it was found that 40% of respondents had an average monthly income of Rs. 15,000-20,000 while 10% had an average income below ₹10,000. Most of the respondents are BPL cardholders, which indicate that they belong to the below the poverty level according to the state government.

Household expenditure is measured by consumption and saving. It showed that about 38% of families spend an average of 63% of their total income on consumption. Besides, the major consumption expenditure items of this group were health (7%), fuel (6%), education (6%), clothing (5%), rent (2%) and miscellaneous (11%). Khanum (2013) [11] corroborated that, the expenditure was higher on food consumption than on non-food items which including cloth, house, medicine, fuel and education. These were also confirmed by Engel, 1857, that while income decreased the percentage of consumption diminishing.

The availability of household amenities such as cell phone, radio, television, grinder, tape recorder, refrigerator etc. indicates the living situations of family members. The acquisition of additional amenities by a family demonstrates the household's better living and economic situation. Fisherfolk households with a combination of television, refrigerator, and mixer were found in 45% of the residences, while only 8% of the households did not have such a facility.

In general, less indebtedness was observed among fishers due to the growth of self-help groups and microfinance. Fisherfolk looked for credit with low-interest rates, and timely availability, without much hassles and collaterals and securities. Fishers preferred to borrow money mainly from Self-help groups due to their lower interest rate, easy procedure and convenience.

Conclusion

The economic conditions of the fishermen are not ideal and it was observed that majority of fishers were unable to accomplish their basic requirements. The annual income of the fisherfolk primarily depends on fishing assets. However, lack of education, the discontinuing of fish captures, lack of modern fishing gear/nets and lack of alternate employment avenues have contributed to the low status of fishers. It is therefore necessary that the government agencies take necessary steps to help the fisher community improve their livelihoods by providing alternative income-generation opportunities.

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