Asian J. Med. Biol. Res. 2021, 7 (2), 164-173; doi: 10.3329/ajmbr.v7i2.54996

Asian Journal of Medical and Biological Research
ISSN 2411-4472 (Print) 2412-5571 (Online)
www.ebupress.com/journal/ajmbr

Article

Socio-economic status of fisher communities in Dengar beel under Melandah Upazila, Jamalpur, Bangladesh

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Received: 23 May 2021/Accepted: 19 June 2021/ Published: 30 June 2021

Abstract: The current study was conducted to evaluate the socio-economic profile of fisher communities in Dengar beel under Melandah Upazila of Jamalpur district, Bangladesh. A total of 45 fishers were surveyed from November 2020 to April 2021. It was found that the family size of 53% of fishers was medium, consisting of 5-6 members. Most of the fisher communities belonged to the age group above 45 years old, represented by 100% Muslim. About 73% of fishers were less educated, 13% primary level, 7% secondary level, and 7% Secondary School Certificate passed and above, respectively. Most of the fishers (60%) have katcha houses with tin roofing, 7% have katcha house with straw roofs, 13% have semi- pucca houses and 20% have pucca houses. Around 93% of fishers used their own tube-well while only 7% used neighbours' tube-well. All of the fisher household were connected with electricity supply. About 27% of fisher communities used katcha toilets, 46% used semi pucca toilets and 27% used pucca toilets. About 47% of fisher communities were dependent on village doctors, 33% got health service from Upazila health complex, 20% from MBBS doctors, and others. About 46% of fishers were engaged in fishing as their primary occupation while 27% in agriculture with fishing, 20% in daily labour with fishing and 7% in livestock rearing. About 33% of the fishers had low income, 40% had medium income and 27% had high income. The present study revealed that the fishers of Dengar Beel were mostly less educated, less privilege to attain modern technology-oriented training experience, less income and less awareness about sanitation and health facilities. So, provide soft loans to fishers, and strengthening people awareness has been might be helpful to improve the socio-economic status of fisher communities in Dengar Beel.

Keywords: livelihood status; fishermen; Dengar beel

1. Introduction

Bangladesh has a vast amount of open water fisheries resources such as flood plains, rivers, *beels, haors* and estuaries. *Beel* is the most important source of inland capture fisheries in Bangladesh. The *Beel* is a Bengali term which accumulates large amount of surface water through surface runoff and internal drainage channel (Rahman et al., 2016b). Bangladesh is a riverine country and it has huge inland water bodies like *beel* (Akanda et al., 2020). Bangladesh has thousands of *beel*, with the most common names being Dekhar *Beel*, Arial *Beel*, Chalan *Beel*, Gopalganj-Khulna *Beel*, Aila *Beel*, Bamunji *Beel*, Kuri *Beel*, Erali *Beel* and Meda *Beel*. The average production rate from *beel* is 875 kg/ha, which can be increased manifold (DoF, 2020). There are 8.21 lakh ha of close water bodies and 38.9 lakh ha of open water bodies in Bangladesh. The total area of *beels* is 1.14 lakh ha which comprises only 2.93% of total inland open water. In Bangladesh, the total fish production was estimated at 43.84 lakh MT in 2018-19. The fisheries sector contributed 3.50% to the national GDP and 25.72% to the agricultural GDP (DoF, 2020). Currently, Bangladesh becomes a self-sufficient fish producing country that

supplies about 60% of total daily animal protein intake (BBS, 2016). Bangladesh received a substantial number of foreign currencies by exporting fish, shrimps and other fishery products (Islam et al., 2021). Hannan (1994) reported that fishers are traditionally poor, and fishing is considered a low-class profession in Bangladesh. The fisheries sector is one of the substantial incomes and employment-generating sectors in Bangladesh. Approximately 12% of population in Bangladesh depends on fisheries and aquaculture related activities on a full time or part-time basis for their livelihoods (DoF, 2020). The fishermen community are socially, economically and educationally underprivileged and lack their own monetary resources. Fishers are one of the most susceptible communities in Bangladesh, and most live from hand to mouth (Ali et al., 2014). Dengar *beel* at Melandah Upazila of Jamalpur district has been selected as the study area due to the richness of the fisheries resources. Fisheries sector plays a significant role in employment generation, rural development and supplying of food to less privileged fisher's communities. There is not enough information about the status of the fisher's communities in the Dengar *beel*. Considering this backdrop, the present study was carried out to assess the socio-economic condition and livelihood of the fishers' communities in the study area.

2. Materials and Methods

The present study was conducted to assess the socio-economic status of the fisher's community in Dengar *beel* under Melandah Upazila, Jamalpur district for 6 months from November 2020 to April 2021 (Figure 1). This study was conducted based on the collection of both primary and secondary data. Before the collection of primary data, a draft questionnaire was developed and pre-tested with few fishermen where information was added or rejected to the draft questionnaire whenever necessary (Hossain et al., 2015). According to the experience gained in pre-testing, the final questionnaire was improved, reshuffled and modified. The final questionnaire included the questions on the family size, age structure, gender, marital status, religion, educational status, family types, experience and advice received, training exposure, housing condition, drinking water facilities, electricity facilities, sanitation facilities, health facilities, occupational status, income sources, annual income, credit access, fishing nets and gear used etc (Halim et al., 2017). Primary data from 45 fishers were collected through questionnaire interviews (simple random sampling method), Participatory Rural Appraisal (PRA) tools such as Focus Group Discussion (FGD), and Crosscheck Interviews (CI) with key informants. The fishermen were interviewed at home or *beel* sites during fishing. All the collected data were coded and entered into a database system and analyzed by Microsoft® Excel 2010. These data were verified to eradicate all possible errors and inconsistencies. The analysis of collected data was mainly based on tabular description technique.

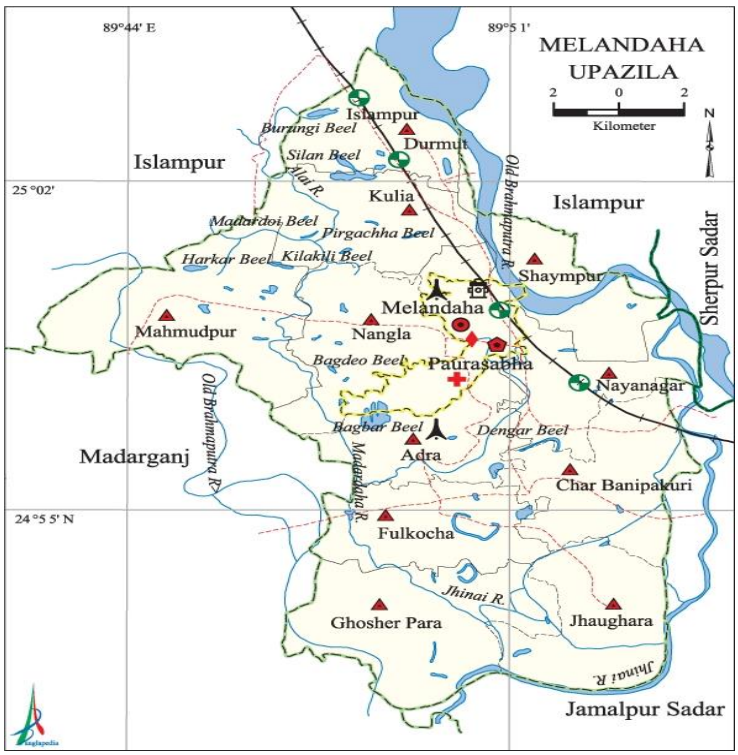

Figure 1. Map of the study area.

3. Results and Discussion

The present study aimed to determine the socio-economic status of fishers. Especially, emphasized was given on such variable namely family size, age structure, gender, marital status, religion, educational status, family types, experience and advice received, training exposure, housing condition, drinking water facilities, electricity facilities, sanitation facilities, health facilities, occupational status, income sources, annual income, credit access, fishing nets and gear used etc.

3.1. Family size

Family size is a significant socio-economic indicator that determines the family status and the interlinked connection with the other families and inter and intra communities. The family size of the fishers was divided into three groups based on their family member such as, small family (2-4 members), medium family (5-6 members) and large family (above 7 members). In this study, 20% family has only 2-4 members, 53% family has only 5-6 members and 27% family has above seven members (Table 1). Halder (2002) reported that in Doba Beel, cast net fishers had the most significant family size (6.67 persons), and hogra fishers had the smallest family size (4.50 persons). Most of the fish farmers (45%) in the Mymensingh district belonged to 4 to 5 family members (Ali et al., 2009). Abdullah et al. (2013) reported that in Baluhar Baor, Jhenidah, Bangladesh, the majority (48%) of the fishermen have a small family (member <5).

3.2. Age structure

The fisher communities were classified into three age groups based on their age limit such as young (18-30), middle aged (31-45) and old (above 45 years). In the present study, 13% has 18-30 years, 40% has 31-45 years and 47% has above 45 years (Figure 2). Hossen et al. (2020b) have observed that 28% of fishers were young (20-35 years), 52% were middle aged (36-50 years), and 20% were old (51-65 years) respectively in Barisal Sadar Upazila of Barisal District, Southern Bangladesh. Ali et al. (2009) reported that most of the fishermen (50%) in Mymensingh district belong to the age group of 31-40 years, which is similar to the present findings. Similar results were also reported by Kabir et al. (2012) that most of the fishermen (50%) age ranged between 31-40 years in adjacent to the Old Brahmaputra River. Rahman et al. (2016b) recorded age group of 20-35 years and 36-50 years were the highest (37.5%), and more than 50 years were the lowest (25%) in the Eshulia Beel at Gouripur Upazila, Mymensingh.

3.3. Gender of the fisher

All respondents engaged in the fishing, of which 100% were male, and no females were found involved in the fishing activities in the study area. Hossen et al. (2020a) have observed that most (96.7%) of the fishers were male where 3.3% were female in Kirtankhola River, Southern Bangladesh.

3.4. Marital status

In the present study, it was found that all of the fishers were married. Halim et al. (2017) stated that 87% of fisher were married while 13% were unmarried in Kafrikhal Beel under Mithapukur Upazila, Rangpur, Bangladesh. Paul et al. (2013) reported that most of the respondents of both Birulia (98%) and Boroibari (96%) were married in the Turag River, Bangladesh.

3.5. Religious status

It was found that all of the fishers were Muslims in the study area. Roy et al. (2020) reported that most of the fishermen (72%) were Hindu where 28% were Muslim in the Shibsa River of Bangladesh. Hossen et al. (2020a) have observed that most of the fishers were Muslim (86.67%) where 13.33% were Hindu in Kirtankhola River, Southern Bangladesh. Rahman et al. (2016a) have observed that 100% of interviewed fish farmers were Muslims in the Dhumki Upazila under Patuakhali District, Bangladesh, which is similar to the present findings. Islam et al. (2015) reported that all of the fishermen belonged to the Hindu religion in Monirampur Upazila, Jessore district in Bangladesh, which is opposite to the present findings. About 87% and 13% of riverine fishers were Muslims and Hindus in Jamuna River in Sariakandi, Bangladesh (Mondal et al., 2016).

3.6. Educational status

Educational qualification intensely influences individual performances, skills, abilities and behavioural patterns. Based on the education level of the fishers, they were classified into four groups viz. (i) Less educated (ii) primary level (One to five) (iii) secondary level (up to X) (iv) Secondary School Certificate passed and above. In the present study, 73% of fishers were less educated, 13% were primary level, 7% were secondary level, and

7% were Secondary School Certificate passed and above (Figure 3). Afrad et al. (2019) was found that majority (41.3%) of the fishers could sign only, where 26% had no education, 22.7% had primary education (up to class 5) and 10% had complete SSC (Class X) in the Titas River of Bangladesh. Hossen et al. (2020a) reported that 60% of fishers were illiterate, 30% were sign only, 8.33% were primary level and 1.67% had only secondary level education in Kirtankhola River, Southern Bangladesh. Similar results also reported by Bappa et al. (2014) that the majority of fishers (60%) were illiterate in the Marjat Baor at Kaligonj in Jhenidah district. It was found that 32.5% of peoples were Illiterate, 40 % can sign only, 15% were primary level, 7.5% were secondary level, and 5% were higher secondary and above in the Eshulia Beel at Gouripur Upazila, Mymensingh (Rahman et al., 2016b).

3.7. Family type

The family type also determines the family status, and in rural communities of Bangladesh, families are classified into two categories: 1) Nuclear family and 2) Joint family. In the present study, 33% family were joint, and 67% were nuclear families (Table 2). Afrad et al. (2019) was found that most (52.5%) of the fishers families were nuclear while 47.5% were joint family in the Titas River of Bangladesh. Bappa et al. (2014) reported that fishers around the Marjat Baor at Kaligonj in Jhenidah district having 44% joint and 56% nuclear family, which is more or less similar to the present findings.

3.8. Experience and advice received

In this study, it was found that 27% of fishers gained their experience from pioneer fisher, 53% from friends and neighbours, 13% from DoF, and 7% attained experience from NGO's (Figure 4). Roy et al. (2020) reported that 55.3% of fishers attained technical advice from relatives, friends and neighbours where 20% from DoF and 24.7% from NGO's in the Shibsa River of Bangladesh. Rahman (2003) have observed that about 49% of farmers obtained fish farming experience from friends and neighbours in the Gazipur district.

3.9. Training exposure

In the present study, it was found that only 10% of fishers receiving training and 90% have no training (Table 3). The training of fishers on modern techniques of fishing and knowledge on causes of loss of biodiversity might be increased. Hossain et al. (2015) reported that only 20% of fishermen have training on one or more related matter, 80% have no training that is more or less similar to the present findings.

3.10. Housing Condition

The nature of the house was representing the social status of the fisher's communities. The survey found that 60% of the fishers were katcha house with tin roofing, 7% households were katcha house with straw roof, 13% households were semi-paka house, and 20% households were paka house (Figure 5). Afrad et al. (2019) was found that more than half (55%) of the fishers had kutcha house, where 32.5% had semi-paka house and 12.5% had half-built house in the Titas River of Bangladesh. Alam et al. (1995) reported that in Basantapur beel, 82.22% of households of fishers were kancha, 11.11% were semi-paka, and only 6.66% were paka. Rahman et al. (2016b) have found that 75% of fishers had katcha houses, 17.5% had tin shed, and only 7.5% had half building in the Eshulia Beel at Gouripur Upazila, Mymensingh.

3.11. Drinking water facilities

It was observed that 100% of fisher communities used tube-well water for drinking purposes. Among them, about 93% of fisher communities had their own tube-well and the remaining 7% used neighbour's tube-well (Figure 6). Abdullah et al. (2013) have observed that 100% of fishermen households used tube-well water for drinking, and among them, 96% used owned tube-well and 4% used neighbour's tube-wells in Baluhar Baor, Jhenidah, Bangladesh, which is similar to the present findings.

3.12. Electricity facilities

It was found that 100% of fishers households were found connected with electricity supply. The electricity facilities in the study area were good due to electricity supply has been increased in Bangladesh. Roy et al. (2020) stated that 69.3% of fishers households were connected with electricity supply in the Shibsa River of Bangladesh. Abdullah et al. (2013) reported that 92% of fishermen households had electricity lines in Baluhar Baor, Jhenidah, Bangladesh.

3.13. Sanitation facilities

In the study area, 27% of fisher communities were used katcha toilets, 46% were semi pucca toilets, and 27% were pucca toilets, respectively (Table 4). Hossen et al. (2020b) have observed that 4% of fish farmers were used katcha toilet where 74% and 22% of fish farmers used semi-pucca and pucca toilet respectively in Barisal Sadar Upazila of Barisal District, Southern Bangladesh. Kostori (2012) reported that 16% of toilets were katcha, 64% were semi-paka and 20% were paka in the fishermen community of Chalan Beel under Tarash Thaha of Sirajganj district which is more or less similar to the present findings.

3.14. Health facilities

It was observed that 47% of fisher communities were dependent on village doctors, 33% got health service from Upazila Health Complex, 20% from MBBS doctors and others, respectively (Figure 7). Roy et al. (2020) reported that 34.7% of the fishermen households depend on kabiraji or hakimi while 38% depend on village doctors or palli chikitsoks and 27.3% took treatment from professional doctors like Upazila in the Shibsa River of Bangladesh. Shahriar et al. (2010) stated that 64% of the fishermen households were dependent on village doctors, 24% got health service from Upazila health complex, and the remaining 12% got health service from MBBS doctors in the Morgangi Beel of Jamalpur district.

3.15. Occupational Status

It was found that fishing is the most common occupation of the fishers in the Dengar beel. However, some were also involved in agriculture, livestock rearing and day labour with fishing. In the study area, 46% of fishers were engaged in fishing as their primary occupation. About 27% were engaged in agriculture with fishing, 20% were involved in daily labour with fishing and 7% were engaged in livestock rearing with fishing (Table 5) which was more or less similar to the findings of Islam (2009) in Bhairab Upazila of Kishorgonj District.

3.16. Income sources

Income is the most essential feature to understand the socio-economic status of fishers. The present study was revealed that 60% of income from fishing activities, 7% comes from livestock, 20% comes from agricultural activities, and 13% comes from day labouring (Figure 8), which was more or less similar to the findings of Hossain et al. (2015) reported that about 45% income of fishermen comes from fishing activities and lowest income from livestock 4% in the Punorvaba River under Sadar Upazila, Dinajpur. Islam et al. (2013) have noted that fishing is the primary source of income for the fishermen in Monirampur Upazila of Jessore district, Bangladesh.

3.17. Annual Income

Based on the annual income of the fishers, they were classified into three groups, and it was observed that about 33% of the fishers had low income (Tk. 50000-80000), 40% had medium income (Tk. 81000-110000) and 27% had high income (Tk. 111000 & above) (Table 6). Roy et al. (2020) reported that 40.4% and 38% fishermen annual income ranged from 60, 000 to 75, 000 BDT and 76, 000 to 85, 000 BDT where 15.3% fishermen annual income ranged from 86, 000 to 95, 000 BDT and 6.3% had annual income above 96, 000 BDT in the Shibsa River of Bangladesh. Rahman et al. (2016b) have noted that about 5% of fishermen had low incomes, 42.5% of the fishermen had medium income, and 52.5% had a high annual income in the fishers communities of Eshulia Beel at Gouripur Upazila, Mymensingh.

3.18. Credit access

In the study area, it was found that there are several organizations such as banks, NGOs like BRAC, Grameen Bank, SSS, Proshika, Asha etc., providing credit to the fishers to purchase fishing gears, nets and boats. After reimbursement, 33% of fishers became self-sufficient, and they did not need monetary help, but 40% borrow money from NGOs, 7% from relatives, and 20% from cooperatives for their fishing business (Figure 9). Similar results were also reported by Kabir et al. (2012) in the old Brahmaputra River, Bangladesh.

3.19. Fishing nets and gear used

Several types of nets and gears were used in the Dengar beel by the fishers as Seine net, Cast net, Lift net, Gillnet, Push net, Hook and Line and Trap (Bair, Chandi bair) etc. Ara et al. (2010) reported that about seven types of gears, eight types of traps, five types of hooks and spears were used in the capture fishery of beel Dakatia in Khulna region.

Table 1. Family size of fishers in the study area.

Family size	No. of fishers (n=45)	% of total fishers
Small family (2-4 members)	9	20
Medium family (5-6 members)	24	53
Large family (above 7 members)	12	27

Table 2. Family types of fishers in the study area.

Family type	No. of fishers (n=45)	% of total fishers
Joint family	15	33
Nuclear family	30	67

Table 3. Receiving of training by fishers in the study area.

Receiving of training	No. of the respondent (45)	% of respondent
Yes	6	13
No	39	87

Table 4. Sanitation facilities of fishers in the study area.

Sanitation type	No. of fishers (n=45)	% of total fishers
Katcha Toilets	12	27
Semi-pucca Toilets	21	46
Pucca toilets	12	27

Table 5. Occupational status of fishers in the study area.

Occupation	No. of the respondent (45)	% of respondent
Fishing	21	46
Agriculture with fishing	12	27
Daily Labor with fishing	9	20
Livestock rearing with fishing	3	7

Table 6. Annual income of fishers in the study area.

Income group	No. of respondents (45)	% of respondents
Low income (Tk. 50000-80000)	15	33
Medium income (Tk. 81000-110000)	18	40
High income (Tk. 111000 & above)	12	27

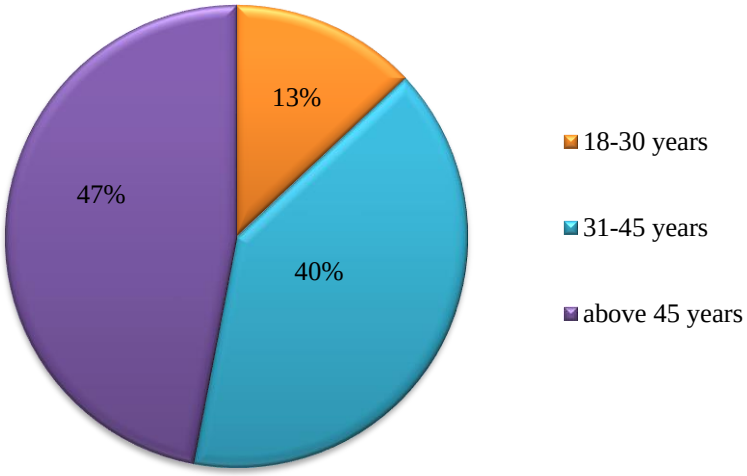

Figure 2. The age structure of fishers in the study area.

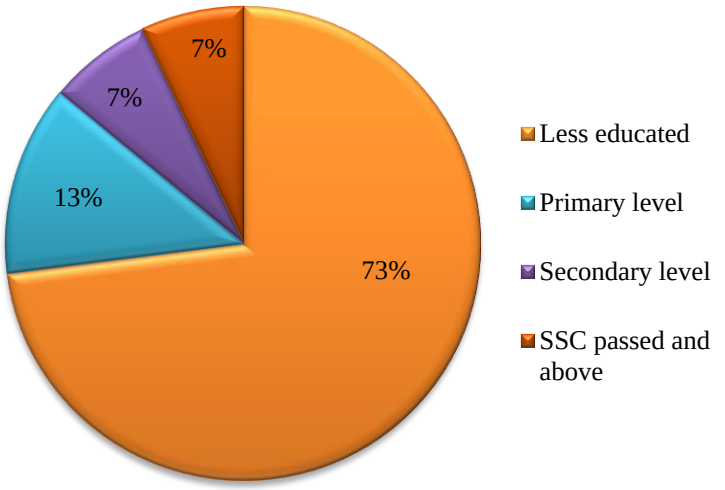

Figure 3. Educational status of fishers in the study area.

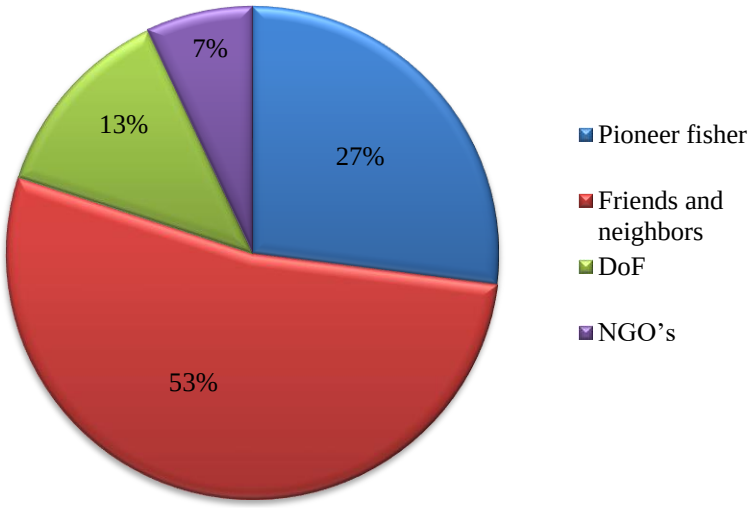

Figure 4. Experience and advice received of fishers in the study area.

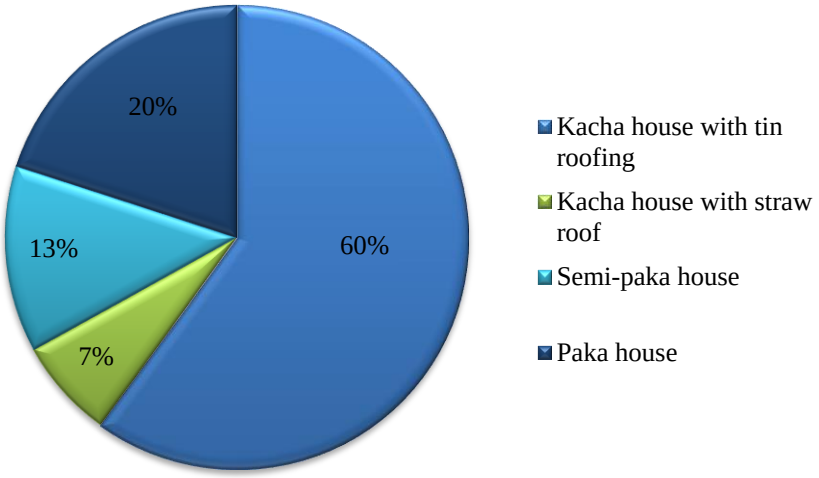

Figure 5. Housing Condition of fishers in the study area.

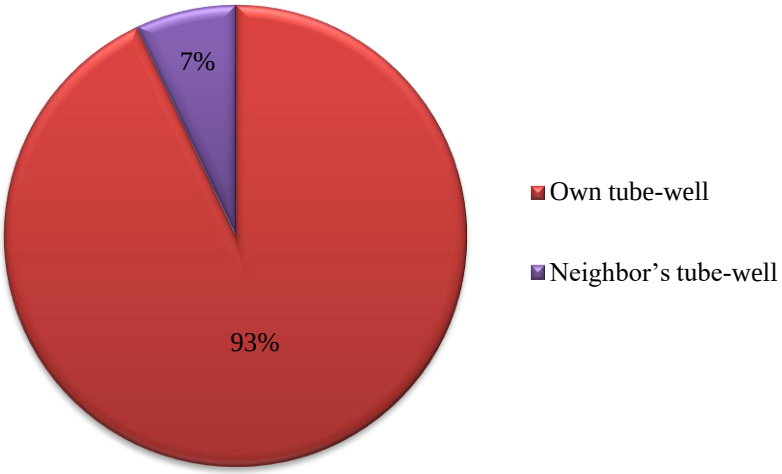

Figure 6. Drinking water facilities of fishers in the study area.

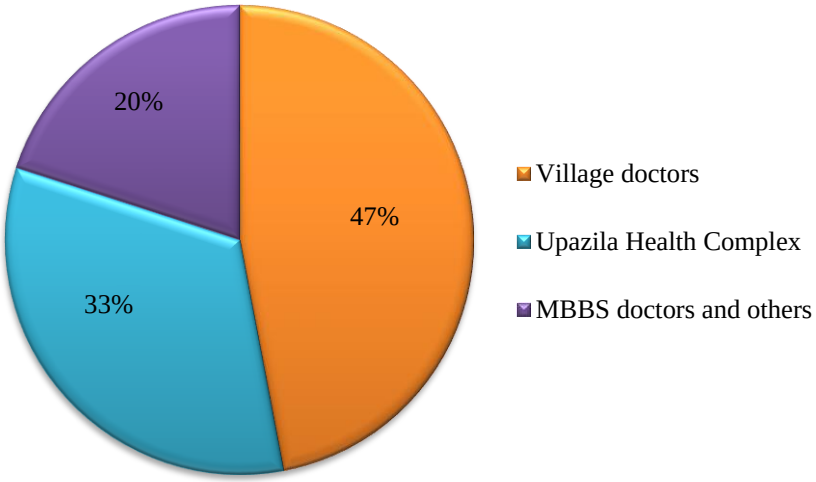

Figure 7. Health facilities of fishers in the study area.

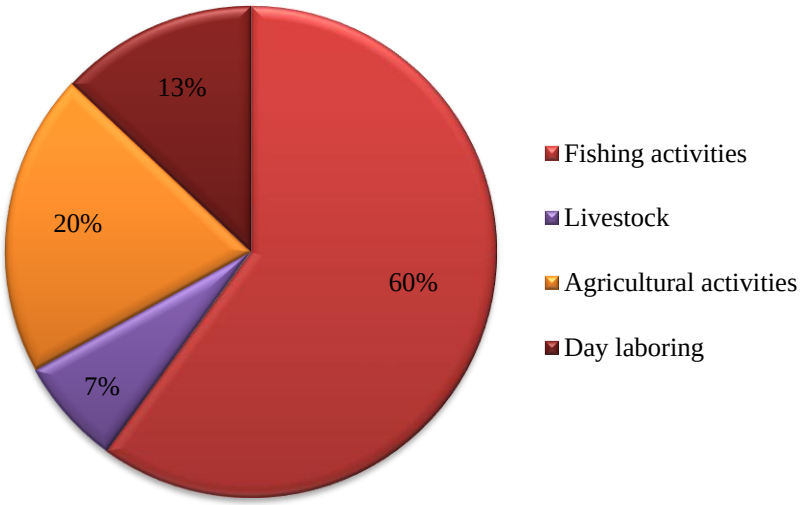

Figure 8. Income sources of fishers in the study area.

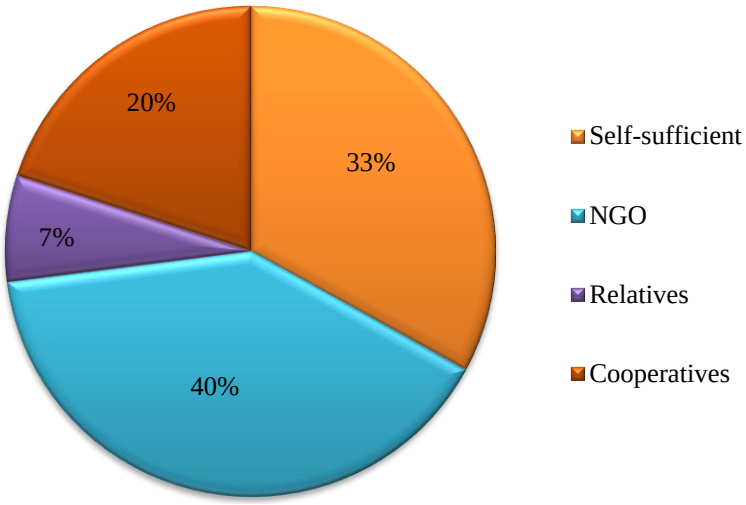

Figure 9. Credit access of fishers in the study area.

4. Conclusions

The socio-economic condition of the fishers in the Dengar *Beel* was not satisfactory. Most of the fishers in the study area were less educated and the income of fishers was poor. The educational status of fishers should be enhanced in the study area. So why, some educational institutes should be established near the study area. Loan facilities from the bank and other institutes should be made accessible to the fishers on easy terms and conditions. Government should take necessary steps to develop sanitary facilities as well as health facilities in the study area. It is therefore recommended that government agencies, NGOs and other organizations should be ensured in the study area that they can supply net, boat and other harvesting equipment to the fishers with less fare.

Acknowledgements

The authors are grateful to the fisher communities of the Dengar *beel* for their cooperation in assembling the necessary information and data. We would also like to acknowledge all of co-authors of the manuscript for their kind cooperation in manuscript writing, data collection, data analysis, and presentation etc.

Conflict of interests

None to declare.

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