



SOCIO-ECONOMIC CONDITIONS OF THE COMMUNITIES OF THE KIRTANIA AND CHANDRABALI VILLAGE (BALASORE) FISHING IN THE SUBARNAREKHA RIVER, ODISHA, INDIA

Mrinmay Ghorai

Centre for Fisheries Research, Department of Zoology
Panskura Banamali College, Purba Medinipur (West Bengal), India

*Corresponding author: mrghorai@gmail.com

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Abstract: Fishing is one of the main important sources of income of the people who live near the riverine ecosystem and it has a significant impact on their livelihood and socio-economic development. The focus of the study was to collect important data on the socio-economic and livelihood conditions of the fishermen communities in the estuarine part of the Subarnarekha river at the Kirtania and Chandrabali villages in the Baleswar district of Odisha from June, 2020 to May, 2021 through the standard questionnaire survey method. Most of the fishermen were from Hindu families and belonged to the age between 31 and 40 (52 %). Illiteracy was found to be one of the vital issues in the study area, as about 28% of respondents were found to be illiterate and only 50% had signatory power. Fishing was the primary occupation of over 72 % of fishermen in the study area, followed by daily labor 18% and agriculture 10%. Around 62 % of fishermen have 5-6 family members, 20% have 7-10 family members, and 18% have only 2-4 family members. The average annual income of most fishermen was between Rs. 25000 and Rs.50000 (46 %). In the study, approximately 58 % of fishermen have a Kuchcha house, 34 % have a semi-kuchcha house, and only 4% have a pukka house. They face several problems, including illiteracy, insufficient credit facilities, a lack of scientific knowledge as well as lack of government funding and so on. To address these issues, the government must be more constructive, and local non-governmental organizations (NGOs) must have to play a vital role in enhancing the local fishing community's socio-economic development.

Keywords: Socio-economic, Estuarine, Fishermen, Livelihood, Literacy, Subarnarekha river.

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INTRODUCTION

The fishery is an imperative sector for many countries around the globe, as it provides nutritionally rich food to the people and establishes a type of food security (Chakraborty, 2021a, 2021b; Prakash, 2021; Verma, 2021). In

India this is a leading potential sector in terms of a protein contribution, generation of employment and outside money acquisition. The fresh water bodies in India contain 195210 km of rivers and canals, 2.9 Million hectares of small and wide reservoirs, 2.4 million hectares of ponds and



lakes, and about 0.8 million hectares of wetlands and water bodies in the flood plain (FAO, 2006). In India approximate 12 million individuals are directly involved in fishing sector and around 60 million are solely depending on it (Manasi *et al.*, 2009).

The river Subarnarekha is one of the major freshwater rivers in India that provide livelihood support to millions of people of Jharkhand, West Bengal, and Odisha. It originates near the Nagri village (23° 18'02"N and 85° 11'04"E) on the Chotanagpur plateau in the Ranchi district of Jharkhand state and joins the Bay of Bengal near Kirtania port (21° 33'18"N and 87° 23' 31" E) in the district of Baleswar of Odisha state. The estuarine portion of the river occupies approximately 50 km out of 474 km of total length of the river and covers the stretch between the sea-face (approximately 1.5 km downstream of Kirtania) and Jaleswar and is confined within the state of Odisha.

Fishing is the main source of income for the fishing community of the Subarnarekha river estuary, but in last few months due to Covid-19 pandemic, economic, social and technological constraints; fishermen were unable to catch the fish properly. This effect badly influenced their eco-socioeconomic conditions over the last few years. It is important to know the basic information for the proper development of the fishing community in order to undertake proper development measures and improve the livelihood of fishermen. Bennett *et al.* (2021) focused to support the efforts of numerous organizations and researchers wishing to

progress the socio-economic and human welfare outcomes in fisheries.

The traditional fishing-caste people in Odisha involved basic fishing activities such as catching, processing, and marketing, but the non-fishing caste people and migrating fishing people conducted additional activities (Naskar, 2018). The different studies were conducted in India on various rivers (Katiha, 2010; Ismail and Mustaquim, 2013; Gogoi *et al.*, 2015; Parashar *et al.*, 2016; Baruah and Hazarika, 2019; Efe and Bemigho, 2021) but there was insufficient information on the socio-economic status of the Subarnarekha river fishing community, especially in the estuaries resources. The main focus of the study was to collect information on the livelihood conditions of fishermen communities in two villages, Chandrabali and Kirtania, along the Subarnarekha estuary in Baleswar district of Odisha state that would be useful in understanding the population's situation and suggesting actions to improve it.

METERIALS AND METHODS

To analyze the livelihood conditions of the fisherman community, author selected two village areas, *namely* Chandrabali and Kirtania, in Bhograi tehsil in the Baleswar district of Odisha in the Subarnarekha estuary (Fig.1). The study was conducted from July, 2020 to June, 2021 and collected the primary data from the fisherman community of study area. Some guidelines to access the socio-economic monitoring and evaluation process given by Bennett *et al.* (2021) have also been followed during the field survey.



Fig.1: Location map of the study area in Odisha.

First, a draft questionnaire was prepared that was pre-tested with a few fishermen in two village areas of Odisha. Finally, a standard questionnaire was developed to analyze the socio-economic situation, age distribution, family size, educational qualification, occupation, health facilities, source of income, annual income, annual expenditure, etc. The primary data was collected through household surveys in the study area. Various methodological Participatory Rural Appraisal (PRA) tools such as Focus Group Discussion (FGD) and Crosscheck Interviews (CI) were also used for secondary data collection. A complete description of the socioeconomic data collection process is followed by the Handbook for Fisheries Socio-economic Sample Survey-Principles and Practice (Pinello *et al.*, 2017) to enrich the knowledge.

All the collected data were accumulated and analyzed in form of frequencies and percentages by using descriptive statistical tools MS-excel and SPSS V 20.0 developed by SPSS (Mac).

RESULTS AND DISCUSSION

Religion and Age Structure

In the study, it was noticed that all the study area of Bhograi tehsil under Baleswar district was dominated by Hindus fishermen. About 92% fishermen were Hindus and only 8 % fishermen were Muslims. A similar type of observation was made by Rahmatullah *et al.* (2015) in their study on the socioeconomic ground of a traditional fishing community in Bangladesh. The age of a fisherman has major effect on his decision to pursue fishing as a career. Author classified the respondents into five demographic classes to investigate the age structure: under 20, 21-30, 31-40, 41-60, and over 60. In figure 2, the result obtained is shown. Author found that 6% fishermen were in the age group of below 20 years, 24% belong to the age group of 21-30 years, 52% belong to the age group of 31-40, 14% to the age group of 41-60 years and only 4% fishermen above 60 years. As a result of the study, the majority of fishermen (52%) were in the age group of 31-40 years, while the minority (4%) is over 60 years. The author recently noticed that the younger generation has moved away from fishing and has taken up other professions to earn the money for better living.

Family Size

Fishermen families were divided into three

categories: small (2-4 members), medium (5-6 members), and big (7-10 members). The study revealed (Fig. 2) that 18% of fishermen have just 2-4 family members, 62 % have 5-6 family members, and 20% have 7-10 family members. In the study area, the majority of the fishermen (62%) belonged to a family of 5-6 members.

Educational Status

In the present study, the fishermen educational status was divided into four categories based on their level of education: illiterate, illiterate but sign, below class V and class VI-X. Out of 50 fishermen from two villages, Chandrabali and Kirtania along the Subarnarekha river, 28 % were uneducated (illiterate), 50% fishermen can only sign, 18% had below class V and only 4% had VI-X (Fig. 2). But about 29% of coastal fishing communities in India have primary level education, 24% had higher secondary level and 5% had above higher secondary level of education while the rest 42% of the population was no face schooling (Rao *et al.*, 2016). So, it can be said that education level of fishermen community of riverine sector is better than coastal areas.

Marital Status

The current investigation on the marital status of the fishermen community in the villages studied revealed that the majority of the fishermen (82 percent) were married, and only 18% were unmarried (Fig. 2). Kalita *et al.* (2015) found almost similar result in their study and reported about 90.22% fishermen married and rest 9.78% bachelor.

Occupational Status

Fishing is the main source of income for the majority of fishermen in the Subarna Rekha estuary region. Some fishermen depend on fishing as a supplement to their primary source of income, where agriculture and day labourer were their main occupation. In the present study it was observed that 72% fishermen were engaged in traditional fishing work as their main occupation, 18% was in daily labour and remaining 10% in agriculture (Fig. 3). More or less similar result was found by Bordoloi *et al.* (2012) during a study in Jankhana Village of Jorhat District. They reported that 53% respondents work as farmer for other income separately from fishing and the remaining of 47% fishermen work as labourer in sand and stone mining business.

Annual Income

Fishermen annual income was classified into four groups based on income level: below 25,000, 25,000-50,000, 50,000-75,000, 75,000-1,00,000, and above 1,00,000. As per the study, the majority of fishermen (46%) earn between 25,000 and 50,000 rupees per year, with just 2% earn more than 1,00,000 rupees per year. However, 25% fishermen earn between 50,000 and 75,000 rupees while 16% earn below 25,000 rupees per year (Fig. 3). Nongmaithem and Ngangbam (2014) in their study reported that the average income of the fishermen were low in India because cultural diversity is there which reflected in their traditional fishing activities as well.

Annual Expenditure

The annual expenditure of fishermen plays a critical role in determining the socioeconomic condition of fishermen communities. The annual

expenditure patterns of fishermen in the study area were analyzed by measuring the mean values of income spent on different items such as food, clothes, schooling, medical treatment, festivals, and transportation, all of which were expressed in terms of percentage (Table 1). According to the findings of this study, the maximum fisherman spends 64.3 percent of their income on food, and also spends their income on medical, clothing, education, festival, transportation, entertainment and others were 1.6%, 6.9%, 2.5%, 2.1%, 1.2%, 16.1%, and 5.3% respectively. However, it has been found that all the fishermen in the village of Kirtania and Chandrabali spend very little of their income on education and medical because their annual income is very low enough so they spend most of their income on food.

Table 1: Different kind of annual expenditures in rupees.

Items	Expenditure in percentage
Food	64.3
Medical	1.6
Clothing	6.9
Education	2.5
Festival	2.1
Transportation	1.2
Entertainment	16.1
Others	5.3

Use of Nets

Fishermen in the study area used various kinds of nets of different mesh sizes to capture a particular fish species including gill nets, drag nets, cast nets, and mosquito nets. However, it was found that 18% of fishermen used gill nets, 15% used cast nets, 10% used drag nets, and just 7% used mosquito nets for fishing (Fig. 4). In the Beki river at Barpeta of Assam, it was noticed that nearly 27% fishermen used cast nets, 22-28% repliers used scoop nets, 33% fishermen used gill nets, 7-8% used various kinds of traditional bamboo traps and 11-14% fishermen used various types of fishing lines for fishing (Kalita *et al.*, 2015).

Type of crafts used by fisherman

Fishermen in the villages of Kirtania and

Chandrabali used a variety of crafts for fishing, including dugouts, dinghies, non-mech plankbuilt boats, Mech boats, and boat canoes. The study found (Fig. 4) that about 34% of fishermen use dinghies, 24% use dugouts, 22% use boat canoes, 12% use non-mech plank built boats, and 8% use mech boats. Boats are normally 15 to 20 feet long and 2 to 3 feet wide, and are made of arjun or babla wood, costing between Rs. 80,000 and Rs. 1 lakh to build.

Housing Condition

In the current study, author found that all fishermen houses in the villages studied, are divided into three categories: pukka, semi pukka, and kuchcha house, and it was found that about

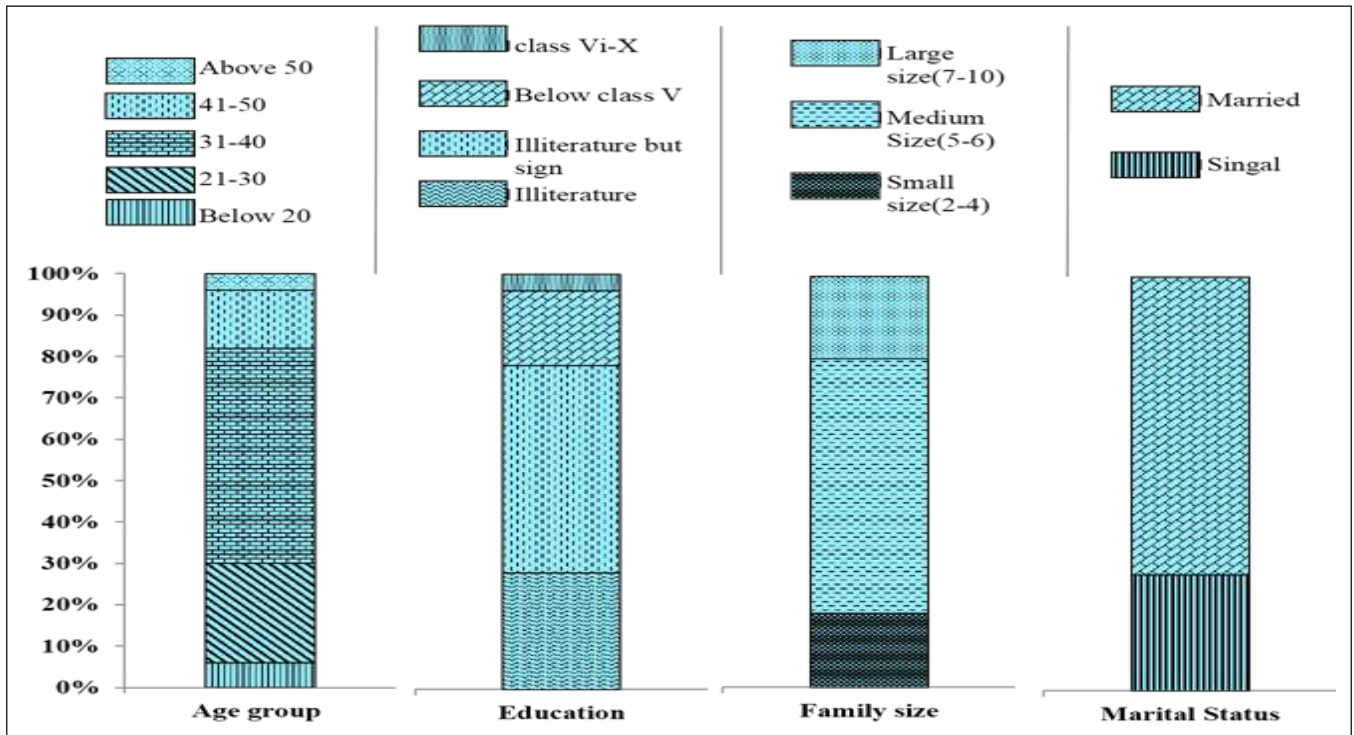


Fig. 2: Distribution of respondents according to their personal information.

58% of fishermen having the kuchcha house, 34% having semi pukka house and only 4% of fishermen having a pukka house (Fig. 5). According to Ujjania and Patel (2011) in the study of Danti village of Gujrat state was found that maximum of fishermen (67 %) had semi-pukka house, fewer fishermen (10 %) had kuchcha house and about (24%) fishermen had pukka

house. In this regard it is told that our riverine fishermen eco-socioeconomic condition is not so better than Gujarat state.

Sanitation

Sanitation is an essential component of hygiene parameter for socio-economic study. During survey, it was observed that the fishermen

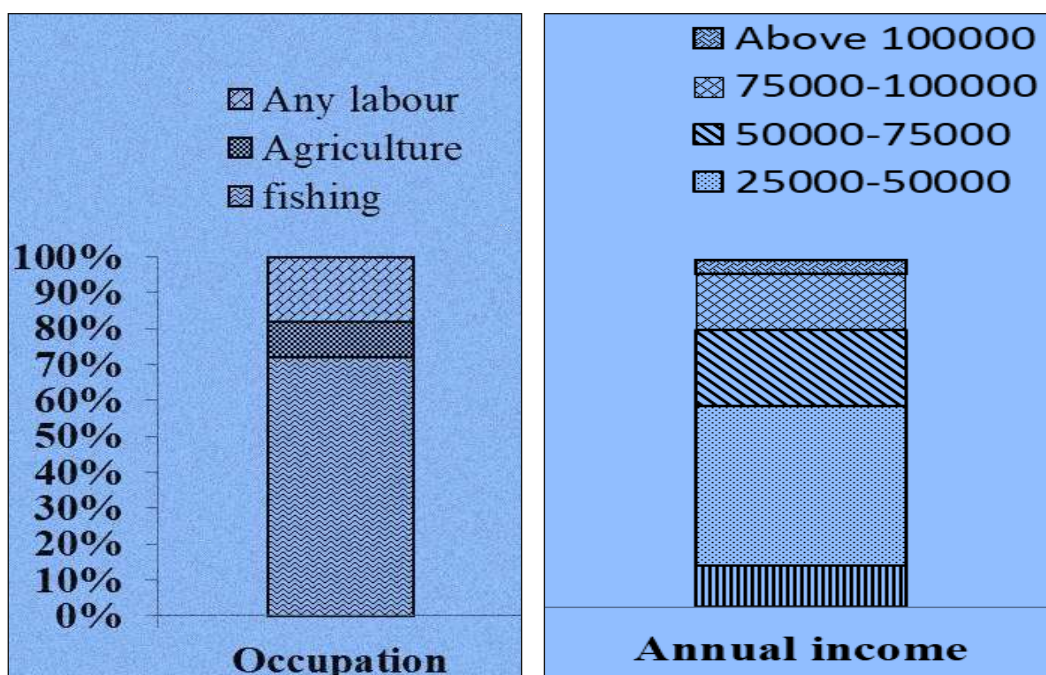


Fig.3: Distribution of respondents according to their Professional information.

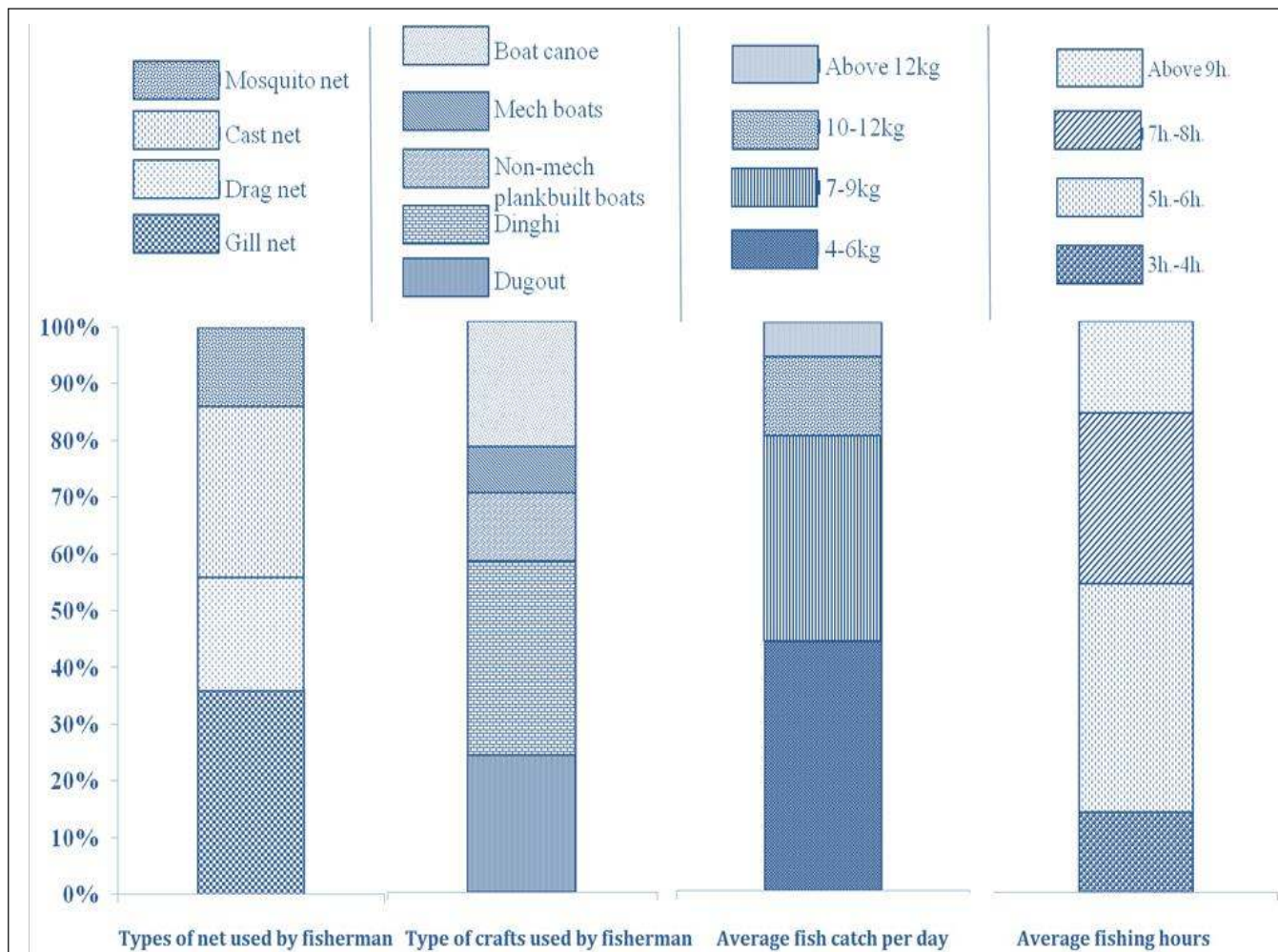


Fig. 4: Distribution of respondents according to their fishing equipment, average fish catch and fishing time.

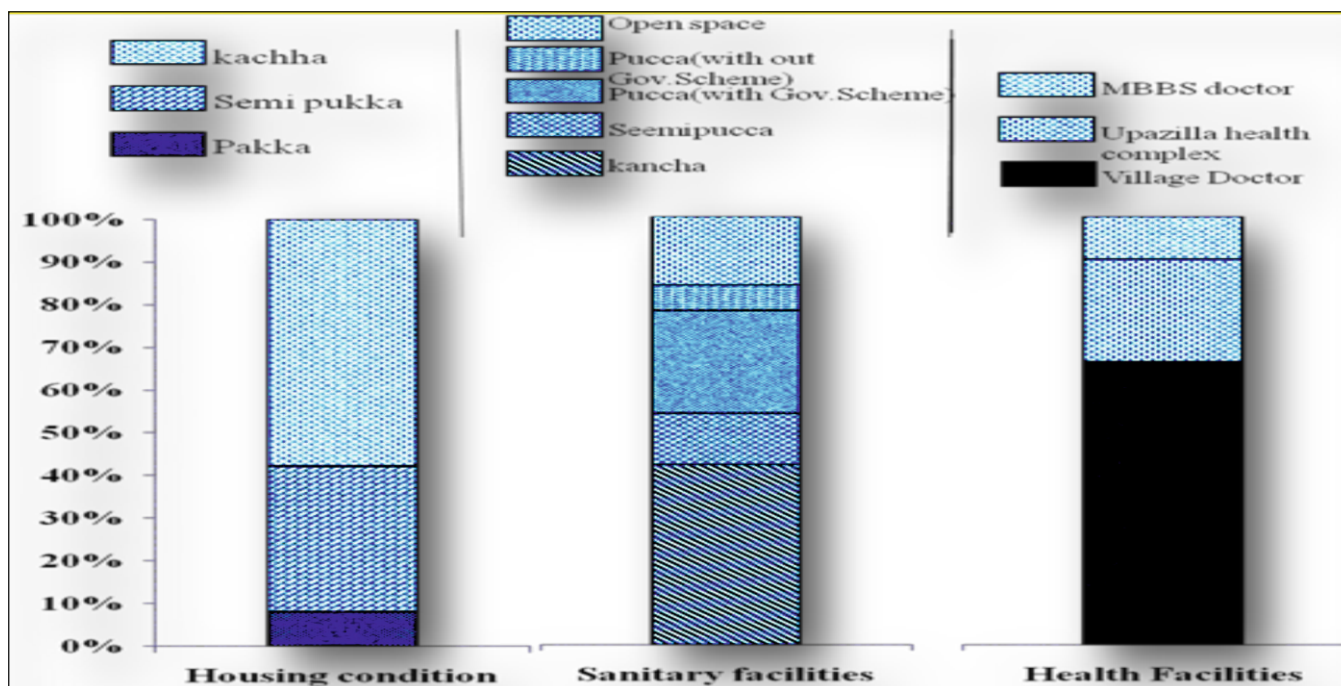


Fig. 5: Distribution of respondents according to their housing condition, sanitary facilities and health facilities.

sanitary conditions were extremely bad. Author found that out of total 100 fishermen, 42 percent have kancha sanitation facilities, 12 percent have semi pucca sanitation facilities, 24 percent have pucca sanitation facilities with government schemes, only 6% have pucca sanitation facilities without government schemes, and 16 percent of fishermen depend on open space for sanitation (Fig. 5).

Health Facilities

The health facilities for fishermen in the villages studied were very low, and it was found that about 66 percent of fishermen relied on the local village doctor, while 24 percent relied on the Upazilla Health Complex, and only 10% relied on the MBBS doctor (Fig. 5). Because of the long distance to the Upazilla Health Centre and the lack of a well-developed communication system, most fishermen were found to rely more on the local doctor.

Drinking water facilities

During the current research, the author discovered that all fishermen families prefer to drink water from tube wells, but due to lack of sufficient number of tube wells, they had to travel long distances for water.

CONCLUSION

The present study revealed that the fishermen in these villages of Kirtania and Chandrabali are socioeconomically poor. Since the money received from selling fish is insufficient to support their families, most of the fishermen also do other jobs in addition to fishing, such as day labour, agriculture, and animal husbandry. It was found that the majority of fishermen in the study region are uneducated, and their sons and daughters are unable to obtain higher education due to financial stress. Author found that the capture fishery trade was completely male-dominated in the villages studied. Although the government has taken some specific measures to improve the education rate of fishermen, further action is needed for their upliftment. During the off-season, fishermen families should be trained to other activities such as beekeeping, horticulture, and handicrafts for additional means of income. In the local region, a cooperative-based association should be

established to investigate the different issues facing the fishing community and formulate a strategy of appropriate management, financial and social assistance, and the introduction of better technology. The local non-government organizations (NGOs) must be established and maintained in order to improve the living conditions of fishermen and provide proper advice and financial support to increase their incomes.

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REFERENCES

1. **Baruah P.B. and Hazarika J.** (2019). Socio-Economic Status of Fishermen of Assam : A descriptive analysis. *International Journal of Fisheries and Aquatic studies*. 7(4):34-39.
2. **Bennett N.J., Schuhbauer A., Skerritt D. and Ebrahim N.** (2021). Socio-economic monitoring and evaluation in fisheries. *Fisheries Research*. 239 (2): 105934. <https://doi.org/10.1016/j.fishres.2021.10593>.
3. **Bordoloi R., Abujam S.K.S., Paswan G., Goswami U.C. and Biswas S.P.** (2012). Socio-Economic Status of the Fisher Folk of Upper Bahmaputra River: A Case Study in Jankhana village of Jorhat District. *International Journal of Applied Biology and Pharmaceutical Technology*. 3(4): 338-341.
4. **Chakraborty B.K., Bhattacharjee S. and Muniya S.** (2021a). A Study on Aquatic Biodiversity of Shuthi-Shaiduli River of Bangladesh. *International Journal of Biological Innovations*. 3 (1): 58-67. <https://doi.org/10.46505/IJBI.2021.3104>
5. **Chakraborty B.K., Verma A.K. and Muniya S.** (2021b). Present Status of Aquatic Resource and Its Catch of Mogra River in Bangladesh. *Sustainable Marine Structures*. 3 (2): 26-38. <http://dx.doi.org/10.36956/sms.v3i2.436>.

6. **Efe Ogidiaka and Bemigho I. R.** (2021). Fish Fauna Composition, Abundance and Distribution of Forcados River Estuary. *International Journal of Biological Innovations*. 3 (1): 139-147. <https://doi.org/10.46505/IJBI.2021.3113>.
7. **FAO** (2006). Food and Agriculture Organization of the United Nations. Indian National Fishery Sector Overview. 2006.
8. **Gogoi B., Kachari A., Dutta R., Darshan A. and Das D.N.** (2015). Fishery based livelihood approaches and management of fishery resources in Assam, India. *International Journal of Fisheries and Aquatic studies*. 2(4): 327-330.
9. **Ismail M. and Mustaquim M.** (2013). Socio economic profile of Bhairubpur village in Malda District, West Bengal. *International Journal of Physical and Social Sciences*. 3 (11): 27-32.
10. **Kalita G.J., Sarma P.K., Goswami P. and Rout S.** (2015). Socio-economic status of fishermen and different fishing gear used in Beki River, Barpeta, Assam. *J. of Entomology and Zoology Studies*. 3 (1): 193-198.
11. **Katiha P.K.** (2010). Socio-economic aspects in Inland fisheries. In: P.K. Katiha, K.K. Vass, A.P. Sharma, U. Bhaumik and G. Chandra (Eds.), Issues and tools for social sciences research in inland fisheries. Bulletin 163, 46-59. Central Inland Fisheries Research Institute, Barrackpore.
12. **Manasi S., Latha N. and Raju K.V.** (2009). Fisheries and livelihoods in Tungabhadra basin: Current status and future possibilities. A by Institute for Social and Economic Change. Bangalore. Working paper 217:1-20.
13. **Naskar P.** (2018). A study of changing livelihoods of Odisha's coastal fishing communities: Reasons and effects. *Int. J. Humanities and Social Science Invention*. 7 (6) Ver. II:14-17.
14. **Nongmaithem B.D. and Ngangbam A.K.** (2014). Socio-economic conditions and cultural profile of the fishers in India- a review. *IOSR Journal of Agriculture and Veterinary Science*. 7(9): 42-48.
15. **Parashar V., Bara S.K., Damde D., Kumar A. and Vyas V.** (2016). Assessment of socioeconomic status of fishermen communities ; a case study from a selected reach of river Narmada, India. *International Journal of Research in Fisheries and Aquaculture*. 6(2):47-59.
16. **Prakash S.** (2021). Present Status of Fish diversity of Davipaton division of Uttar Pradesh, India. *International Journal of Zoological Investigations*. 7(2): 629-636.
17. **Rahmatullah S.M., Aziz A., Rahman M., Bari M.R. and Alam M. A.** (2015). Socio-Economic Status of Fishermen of the Jamuna River in Bangladesh. *Journal of Humanities and Social Science*. 20(10): 63-66. 10.9790/0837-201056366.
18. **Rao G.S., Sathianandan T.V., Kuriakose S., Mini K.G., Najmudeen T.M., Jayasankar J. and Mathew W. T.** (2016). Demographic and socio-economic changes in the coastal fishing community of India. *Indian J. Fish.* 63(4): 1-9. 10.21077/ijf.2016.63.4.44288-01.
19. **Pinello D., Gee J. and Dimech M.** (2017). Handbook for fisheries socio-economic sample survey- Principles and practice. FAO Fisheries and Aquaculture Technical Paper No. 613. Rome, FAO: 1-113.
20. **Ujjania N.C. and Patel A.N.** (2011). Socio-economic Status of Fishermen Community of Danti village in Valsad District (Gujarat) India. *Emerging Trends in Development Research*. 18 (1-2): 25-30.
21. **Verma A.K.** (2021). Ichthyo-faunal diversity of Alwara Lake: Threats and Conservation Status. *International Journal of Zoological Investigations*. 7(2): 479-485. <https://doi.org/10.33745/ijzi.2021.v07i02.023>.