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## Studies on fisheries status and socio-economic conditions of fisher community in Dholi region, Muzaffarpur, Bihar, India

**Dheeraj Kumar, Ruchi Mehta, Rakhi Yadav, Shivam Kumar and Manoranjan Kumar**

#### Abstract

The present experiment deals with the locally availability of fishes under capture fishery from Gandak river in Dholi region as well as culture fishery by pond, and the social status of fisher family of this region is well discussed in this. The experience of the Sahani community with started in the Bihar. The non-sahani community people are also dominating fishing practice in the state. This paper mainly aims to focus socio-economic conditions of fisher family of Dholi village. Both primary and secondary data are collected by asking questionnaire and also with the help of some news articles as well as survey report of Animal & Fish Resource Department, Bihar. The study clearly shows that the condition of fisher family of Dholi village is not good. Regarding educational condition, boys are significantly higher in number than girls. However women come forward through reservation under the road map of Animal & Fish Resource Department, Bihar that allows women to nominate for fishery election. In particular area committees are formed by Sahani people, known as Matshay Jeevi Committee which is also registered under Animal & Fish Resource Department, Bihar. The housing conditions of fisher families are not too bad. In terms of fishing, Sahani community as well as Schedule Caste and Schedule Tribe get subsidy up to 90% and other OBC get up to 50% of subsidy from state government. These all benefits reached to fisher family through Matshay Jeevi Committee with the survey under Animal & Fish Resource Department, Bihar. Training programs are also arranged for fishermen inside as well as outside of the Bihar state. With the implementation of these programs, they should learn the modern technologies and develop fishing.

**Keywords:** Socio-economic condition, fisher family, Matshay Jeevi committee, fishery status and fish production

#### 1. Introduction

Sustainable agricultural development necessitates apt aquaculture at a level which creates least impact on the environment. This is achievable only at what time one cautiously applies the economic and ecological principles to the aquaculture. Presently the majority of the world's fishery resources are close to the point of over exploitation. This is the fact that Bihar is one of the poorest states of India where more than 70 percent population have their livelihood from agriculture and allied activities like aquaculture, dairy, poultry, etc. Aquaculture is one of the hopeful, fast growing foods farming area of Bihar. It positions 12<sup>th</sup> biggest fisheries resources in India and engaged 3<sup>rd</sup> place in inland fish production and 6<sup>th</sup> in fresh water seeds production within India [1]. Fishes are easily digestible protein source and good source of vitamin B and iodine. The liver of fish is good supply of vitamin A and D. The most important impediments of fisheries progress in Bihar is need of knowledge about scientific fish culture, illiteracy and disorganized extension linkages amongst fishermen community. On account of these bulks of fish farmers is still involved fish culture in traditional method. Further, next to the present demand of 4.5 lakh MT. tones of fish, the present production is 2.2 to 2.5 lakh MT. tones [2]. The state Fisheries Extension Services which is supported through Fish Farmers Development Agencies (FFDAs) boast to take part in a significant job to plug the gap of potential production and expansion of the fisheries development of Bihar. There is need for creating the knowledge about the emerging development in aquaculture technology in the fishermen society as reported by [3]. It is essential to systematize short term training for rural youth with importance on learning by doing for creation of self employment opportunities and socio-economic progress of Fishermen community.

Makhana (*Euryal ferox*) cum fish farming and Singhra (*Trapa*) cum Fish farming are the two most economical farming practices in Mithalanchal region (Darbhanga, Sitamarhi and Muzaffarpur) has great scope for development of such type of system as reported [2]. Aquaculture is also a permissible solution for sewage treatment and apart from wastewater treatment it offers additional benefits in terms of fish mass as well as any of culture media grown with this like algal biomass etc. [4]. Mechanization need be enhanced substantially in order to meet the recommended level and to enhance the productivity [5]. Mechanization has been defined as the use of improved hand and animal operated tools [6]. Mechanization of system gives better output as well as serves as a cost recovery option to minimize or recover operational investments, and is mostly eco-friendly [7,8]. Study depicted that pitiable situation of fish marketing practices which are based on exceedingly traditional patterns, unaffected and unfound elsewhere [9]. During past decades, in Bihar fishing practice has significantly elevated. Earlier fishing practice was totally depended on captured fishery but now culture fishing practice is also started. Mechanization of system gives better output as well as serves as a cost recovery option to minimize or recover operational investments, and is mostly eco-friendly [10]. Mechanization need be enhanced substantially in order to meet the recommended level and to enhance the productivity and in this aspect aquaculture with reuse of wastewater namely sewage water or algal pond water is a key solution for bioremediation [11]. Mechanization has been defined as the use of improved hand and animal operated tools. The Dholi region in which Sahani community lived is formerly known as Raini Estate. The present work has been carried out to find out the current social as well as economic conditions of fisher families of Dholi. Therefore fishing is an imperative business in outlook of income, employment generation and in this view the fisher community plays an essential role for this. In spite of, the research associated to socio-economic condition of the fisher community, however, is very insufficient in flood plain wetlands in India causing lack of information on this area to invent developmental programmes for them. The present study is therefore, an attempt with an aim to investigate the socio-economic condition of fisher community of Raini Estate region of Dholi.

## 2. Materials and Methods

The study was descriptive as well as exploratory in nature. This study mainly focused on describing the socio-economic conditions of fisher family of Dholi village. The present study work contains detailed database and information which include secondary data from Animal & Fish Resource Department, Bihar, news articles as well as primary data through primary surveys preparing questionnaires which consists both open ended and close ended questions. The obtained data were analyzed through descriptive statistics and included in numerical results. Both quantitative and qualitative analyses were done and summarized in results.

### 2.1. Project area

The study was conducted in Raini, formerly known as Raini Estate located on the embankment of Gandak River. The study area situated between 25.9951° north latitude and 85.5895° east longitudes, in Muzaffarpur district of Bihar.

### 2.2. Data collection and analysis

The data were collected based on locally availability of

different species of fishes under capture as well as culture fishery, Agricultural practices associated with aquaculture, mechanization gap and available mechanization status. The generated data was encompassed main information regarding inventory of social status of fisher family, distribution as well as market demand of different species of fishes for this region, availability of different mechanized as well as traditional tools for capture fishery practices and water supply structure for culture fishery practices. In addition, survey was also conducted to get information regarding education description of fisher family. The primary data were collected directly as of the sampled respondents by visiting their location a number of times to get necessary relevant information like their family structure, their assets, occupation, investment, expenditure incurred in fish farming etc. with the help of precise and pre-tested schedule-cum-questionnaire.

## 3. Results and Discussion

Study based on the data collected, it has been observed that capture fishing practice is the more common activity of the people found in the adjoining area of Raini Estate, Dholi. However, besides fishing some of them were also engaged in agricultural activities. Some of them were working as a labor under private as well as governmental project besides fishing.

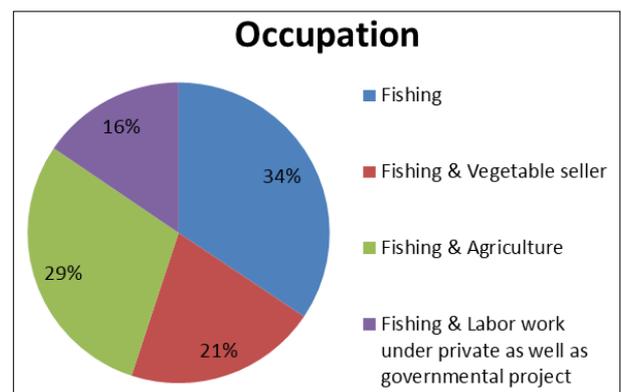


Fig 1: Occupation of people

Generally fisher families are joint families. Data shows 34.44% people of this village are only concern towards fishing practice either capture or culture. About 20.66% of people were working as vegetable seller including fishing practices. Fishing and agriculture practice is done by 29.50% people of this region. Rest remaining about 15.50% people of this region were fisher as well as working as labor. They performed labor work either privately from some social construction work or engaged themselves in any project running under government like Mgnrega. From the data collected and observation found that fishing is one of the most common occupations of the people lived in the adjoining area of Raini Estate region, Dholi. The main reason behind this is due to maximum families belongs to fisher community. However, some of them are also engaged with agriculture such as cereal crops and seasonal vegetable cultivation apart from fishing practice. From the data collected from the fisher families, it is revealed that the highest production of fish and benefit from the same was found from captured fisheries practice. It was also observed that production increased from last decade.

During study, it was found that the age of fishermen surveyed varies from 20 to 60 years or more. The family size of fisher family was categorized into three classes like small, medium

and large size family. Based on study, it was found that maximum family belongs to medium family composed of 5 to 6 members, followed by large family which is composed of 7 or more members. The least number is of small family i.e., composed of 2 to 4 members.

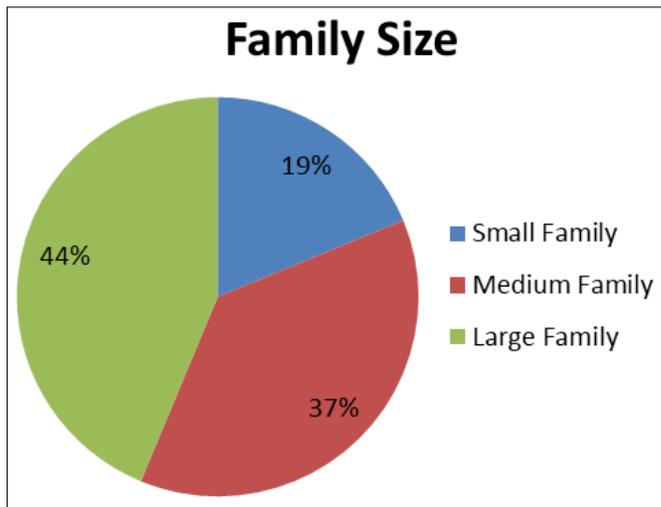


Fig 2: Family size of the fisherman

Data collected from survey shows that the percentage value of small, medium and large family are 18.75%, 37.50% and 43.75% respectively. Among the people surveyed, the maximum number of individuals were illiterate (around 43% and maximum belongs from old generation), even some fisher have never gone to school but somehow they had learned to sign only (around 22.50%).

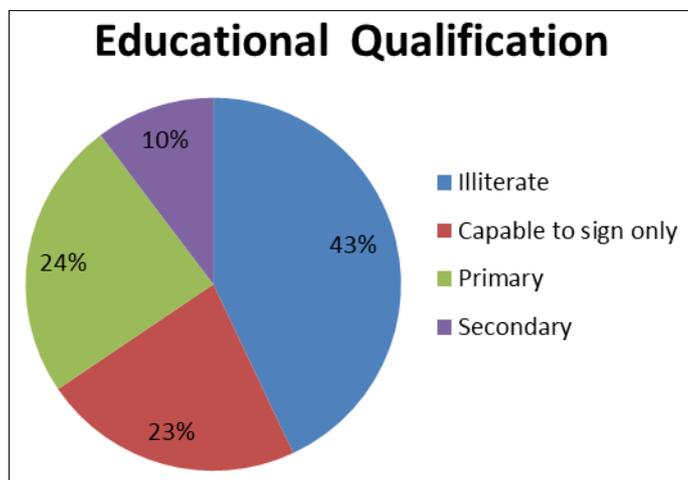


Fig 3: Educational Qualification details

Some of them have studied up to primary level (around 24.25%) and hardly a few individual had gone up to 6<sup>th</sup> standard (around 10%). The maximum number associated to the categories going for study above 6<sup>th</sup> standard is young generation. Young generation comes forward for study, this happens only due to the several attempts made by Government of Bihar. More than 70% of fisher families have their own fishing gear, the rest of same have to depend upon their neighbor, retailer and wholesaler for fishing gears resulting low income.

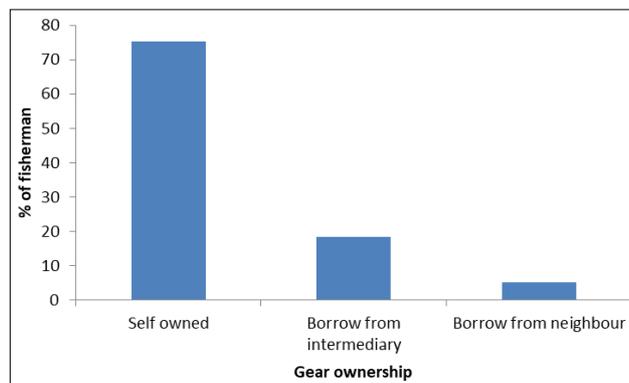


Fig 4: Source of fishing gear

Survey was also conducted for the enquiry of living condition of fisher family. The condition of housing were categorized as: 1. House with straw roof, 2. House with tin roofing, 3. Semi pacca house with tin roof upto base of the window and 4. Pacca house with concrete floor. The survey state that the most of the people have semi-pacca house and pacca house.

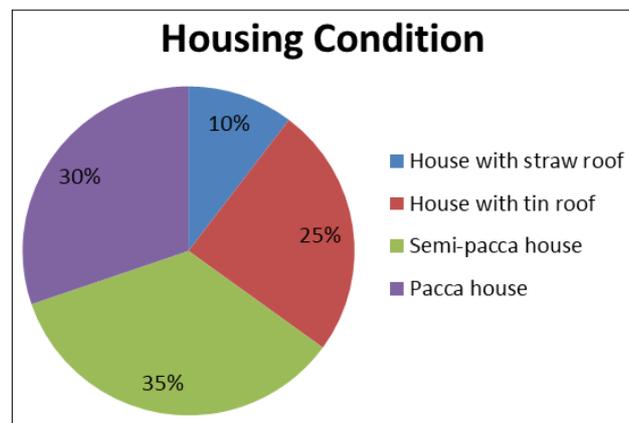


Fig 5: Housing condition of fisherman

Daily working hour of fisherman was also collected through survey. The working hour of fisherman is divided in three different categories as 2-3 hr per day, 4-6 hr per day and almost whole day based on majority of people.

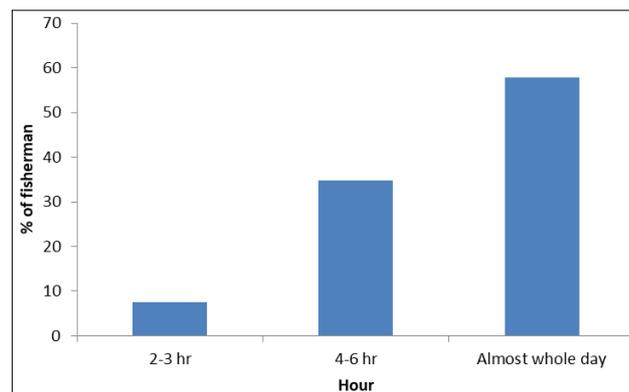
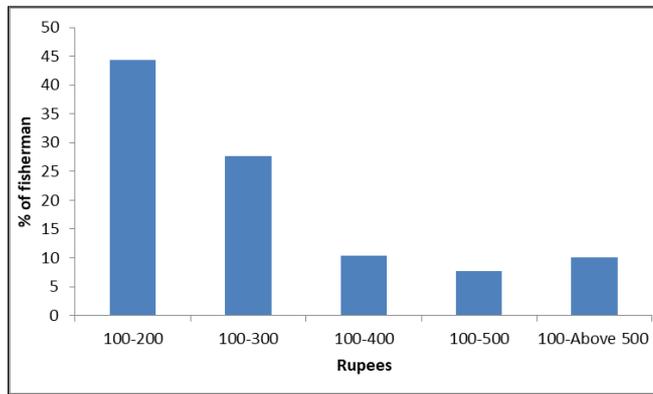


Fig 6: Daily working hour percentage of fisherman

Result obtained from data collected clearly shows the percentage of fisherman as 7.50%, 34.75% and 57.75% for 2-3 hr per day, 4-6 hr per day and almost whole day respectively. The income of fisherman was calculated by averaging the whole month income through all sources.



**Fig 7:** Daily income of fisherman

The result clearly shows that more than 40% of people have income in between 100 to 200 rupees or less. This result shows that the people in the adjoining region of Raini Estate, Dholi were moderate condition and their only source of livelihood is capture fishery in Gandak-river and they did not have any additional water body for their fishing activity. Secondly, educational progress is not satisfactory which is considered as the most necessary requirement for the all-round development to fight against social injustice, because education play a crucial role regarding economical as well as technical information about their livelihood [12]. Being uneducated the fisher families are demoralized by the middlemen [13, 14]. Thirdly, the studied areas are located far away from main town area and due to lack of nearby market; they are fully depend on the wholesalers and middlemen for their fishes to be sold. Due to this they did not obtain the authentic price that they should get for the fishes. This difference of selling fishes at a low price against purchasing household requisite at elevated price contributes to the poor condition of the people in terms of economy [15]. However large family size, non availability of fishing gear/net, scarcity of opportunities for alternate employment etc are the main cause of poverty of fisher families. The study clearly shows that the condition of fisher family of Dholi village is not good. Regarding educational condition, boys are significantly higher in number than girls. However women come forward through reservation under the road map of Bihar government that allows women to nominate for fishery election. In particular area committees are formed by Sahani people, known as Matshay Jeevi Committee which is also registered under Bihar government. The housing conditions of fisher families are not too bad. In terms of fishing, Sahani community as well as Schedule Caste and Schedule Tribe get subsidy upto 90% and other OBC get upto 50% of subsidy from state government. These all benefits reached to fisher family through Matshay Jeevi Committee with the survey under Animal & Fish Resource Department, Bihar. Training programs are also arranged for fishermen inside as well as outside of the Bihar state. With the implementation of these programs, they should learn the modern technologies and develop fishing. Based on surveyed results, the fishing practice is popularized in past two decades but the technologies they were using, is not modern. Due to poverty and no land holding conditions, the fisher community was either directly dependants on natural water resources like Gandak-river or they were working under other ownership. However some of them were working in group and the benefits from this was divided for each on the basis of their input.

#### 4. Conclusion

The fishing practice plays an important role for national economic development of nation. The improvement of fishing family depends on earning in terms of money, which is indirectly linked with mechanization. The implementation of modern technologies depends on successful training programs. The fisher family also trained at College of Fisheries, Dholi. Different fishing programs should be implemented by the Animal & Fish Resource Department, Bihar as it helps them in fishing development in the survey area. However large family size, non availability of fishing gear/net, scarcity of opportunities for alternate employment etc are the main cause of poverty of fisher families. The study clearly shows that the condition of fisher family of Dholi village is not good. Regarding educational condition, boys are significantly higher in number than girls. The condition of educational progress is not satisfactory which is considered as the most necessary requirement for the all-round development to fight against social injustice, because education play a crucial role regarding economical as well as technical information about their livelihood. Sahani community well known through Matshay Jeevi Committee, which is also registered under Animal & Fish Resource Department, plays an important role in developing the fisheries. The housing conditions of fisher families are not too bad. In terms of fishing, Sahani community as well as Schedule Caste and Schedule Tribe get subsidy upto 90% and other OBC get upto 50% of subsidy from state government.

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