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A STUDY ON SOCIO-ECONOMIC PROFILE OF FISHER COMMUNITY OF MADHUBANI DISTRICT IN BIHAR, INDIA

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ABSTRACT : The present study was conducted in Andratharhi block of Madhubani district in the state of Bihar, with an objective to know the demographic conditional status of fish culture practices, marketing facilities and role of fisher in fisheries development. This is amongst the 100 most backward blocks of India. Questionnaire was designed to get information on the demography, socio-economic profile of fisher, the major fisheries activities performed by the fisher, and to find out the problems encountered by the fish farmers for adoption of scientific fish farming practices. The data were collected from randomly selected 101 fishermen and women by administering a specially constructed interview schedule. Majority of the fisher were middle aged, poorly educated, living in medium size joint family, low income and poor economic status. Most of the fisherwomen had poor extension contact and low level of mass media exposure and majority of the fishermen had a low level of knowledge, less social participation and they are traditional in their outlook. The study will help in the planning, developing and execution of fishery policy and programme by the planners and administrators, policy makers and fishery extension educationists in a more meaningful and scientific manner.

Key words : Socio-economic profile, demography, fishermen and women.

INTRODUCTION

Fisheries and aquaculture sectors play a key role in livelihood security and employment generation for the rural population as significant proportion depend upon fisheries, aquaculture and allied activities for their livelihood sustenance and income.

Socio-economic characteristics of fish farmers like age, education, family size, pond area, social participation, family income, caste etc. are important for formulation, designing and successful implementation of developmental programmes (Pandey and Upadhayay, 2012). Libatique *et al* (2004) revealed that development planning is heavily dependent on its socio-economic profile, which outlines the socio-economic characteristics of the locality. However, Udoh (2008) found insignificant relationship between socio-economic characteristics and quality of life in fishing settlements in Nigeria.

Ponnusamy (2004) observed that the age of respondents is an important factor that influence the entrepreneurial behavior. Samantray and Pathak (2001) stated that illiteracy is one of the major impediments in the development of women. Sathiadhas *et al* (2003) stated that there is high literacy rate in Kerala, thereby a good education level was found in Kerelian women aiding them to compete with men and take better decisions, thus achieving a better position in the society. Ponnusamy (2004) stated that type of family may affect entrepreneurial behavior.

Housing is one of the components of physiological need, and the mode of housing actually depicts the level of quality of life (Udoh, 2008). Mukherjee (2003) found that marginal fish breeders-cum-retailers have no proper knowledge of breeding and rearing technologies in respect of most of the native and exotic species. Training is necessary at all levels and it improves technological capabilities of entrepreneurs for obtaining higher yield (Ponnusamy, 2004; Sharma and Das, 2001). Samantray and Pathak (2001) stated that women population is most ignorant in India, thereby, are required to take technical training programmes. Kaur and Talukdar (2007) from their study in Jorhat, Assam, concluded that certain personal and socio-economic characteristic of trainees can have positive influence from training programmes.

Women have a knack for patience, and thus are appropriate for fish culture which requires patience. Aquacultural activities need much less labour and time that can aid women and give her economic return and can give value addition- highest earning per hour (Tripathi and Pathak, 2001; Sathiadhas *et al*, 2003). Sathiadhas *et al* (2003) stated that women constitute nearly half (48.1 percent) of human resources in India. The involvement of women in fisheries activities generates supplemental

income to support their families. Mukherjee (2003) feels that, fisherwomen are an essential part of fisheries community. However, Rahman (2001) considered women as a disadvantage group as the majority of them are illiterate and have low social status, because of many social and religious taboos, thereby have little or no sources of income and often suffer from malnutrition.

This study is carried out to understand the present profile of fisher and their socio-economic status and lifestyle pattern of the people of Andhratharhi block of Madhubani district, to study the major fisheries activities performed by fishermen and women, and to find out the problems encountered by fish farmers for adoption of scientific fish farming practice.

MATERIALS AND METHODS

The study was conducted over a period of six months from November, 2011 to April, 2012.

i. Site description

The survey was conducted in Andhratharhi block of Madhubani district in Bihar (Fig. 1). Madhubani district was selected due to its unique location and climatic conditions. As per the record of SAKHI a non government organization and fishery department of Bihar, there are 2,495 fishermen families residing in Andhratharhi block. The region is gifted with large number of water-bodies. There are more than 3,000 government owned ponds and more than 2,500 private ponds in Madhubani district. There are more than 12 rivers (perennial and non-perennial) flowing through this region. Madhubani comes among the 100 most backward districts in India, and most of the people are below poverty line (Source: Approach paper for 11th five years plan of government of Bihar).

ii. Respondent selection

101 fishermen and women were randomly selected by convenient sampling out of which total female respondents were 77 and total male respondents were 24. The villagers were cooperative and amenable in nature. The status of fisheries of Madhubani district was evaluated on the basis of fish catch data procured from Bihar state fisheries department.

iii. Survey instrument

The survey instrument was a well structured questionnaire 'Interview schedule' developed to gauge the characteristics of the fisher folk of the area. Before administering the schedule, it was pretested in the field. Necessary modifications were made in the schedule after pretesting. It helped to ensure the reliability of the scales used in the study under local condition. The selected 101 respondents were individually interviewed in order to get proper and true information. The local 'Maithili' language was also used to explain the questionnaire to the individuals.

Fig. 1 : Madhubani district of Bihar.

The variables used for the study purpose are personal characteristics (age, education), socio-economic characteristics (family type, family size, local language, religion, caste, occupation status, annual income, total land owned, housing pattern and electrification, health status, marriage age), communicational characteristics (source of information) and psychological characteristics (experience, training needs, fishing characteristics, decision making process, marketing system, transport). The respondents also related their problems faced and gave suggestions for marketing activity/fish sale, seed collection, net weaving, fish harvesting.

iv. Analytical procedures

The collected data were queued in format properly, for making simple comparisons. The frequency tables were constructed and respective percentages calculated.

RESULTS

There are twenty-nine self-help groups in the fisherwomen's cooperative society named 'Andhratharhi Prakhand Mahila Matsyaziby Swabalambi Sahkari Samity Limited'. Among them, 'Matsyajibhi samiti' has provided pucca houses to 118 fishermen families in Usrar village under the programme of 'Rastriya Machhua Kalyan Yojna'.

Personal characteristics

It is clear from the table that majority of the respondents 61 (60.40%) belong to middle age group (30 to 35 years), followed by 22 (21.78%) were above 50 years of age and 18 (17.82%) in the young age group (up to 30 years) (Table 1). The respondents were mostly illiterate with no exposure to modern social, economic

and political development. The results of the study revealed that, of 101 respondents only 30 (29.70%) were literate, of which 3 (2.97%) were educated up to middle level (above Primary but below secondary), and 27 (26.73%) up to primary level (Table 1).

Socio-economic characteristics

All the people of the three villages were found to be fishermen by profession or by caste. They were called Mukhiya (75.25%) or Sahani (24.75%) of fisher folk community (Table 2). It was realized during the survey work, that all respondents used Maithili language. They could understand Hindi, but they felt comfortable in Maithili only. Majority *i.e.* 56 respondents (55.45%) used Maithili language, 26 respondents (25.74%) used Hindi language, and only 19 respondents (18.81%) used both Maithili and Hindi languages (Table 2).

The maximum numbers of family members were found to be 21, and the minimum numbers of members were found to be 2. Out of the 101 respondents majority *i.e.* 82 (81.19%) respondents had a family size of more than 5 members, followed by 17 (16.83%) had family with less than 5 members and only 2 (1.98%) respondents had family size above 15 members. With regards to family, most of the respondents i.e. 77 (76.24%) were from joint family, whereas, only 24 (23.76%) were from nuclear family (Fig. 2).

Majority *i.e.* 52 respondents (51.49%) had no land at all. Of the remaining 49 respondents (48.51%) who possessed land (Fig. 2), 32 respondents (65.31%) have less than 5 kattahs of land, 13 (26.53%) had 5 to 10 kattahs and only 4 (8.16%) had more than 10 kattahs of land. The study indicates that, majority of respondents, i.e. 55 respondents (54.46%) had pucca house and 46 respondents (45.54%) had kuccha house. It was found that, majority of the respondents *i.e.* 83 respondents (82.18%) used kerosene oil for domestic purpose, while, 18 respondents (17.82%) had electric connection (Fig. 2).

It is distinctly clear from the observation that, majority of the respondents (63.37%) were engaged in fishery activities as primary occupation, only 10 (9.90%) were involved in agriculture and 27 (26.73%) were engaged in other activities (Fig. 2). All the fishermen were from lower income group (Rs 21,000-48,000 per annum). It was found that majority of the respondents (88.11%) belong to income group of Rs 20,000-35,000 per annum, whereas, only 11.88% belong to Rs35,000-50,000 per annum (Fig. 2). The study revealed that scales were removed from the washed fish by scrapper or rubbing against a hard object, and cleaned properly. Among the 101 respondents, 55 respondents (54.46%) fried this clean fish adding turmeric and salt. 24 respondents (23.76%) roasted the fish adding only salt and 22 respondents (21.78%) boiled the fish adding salt to it and then smashed the fish properly to make mashed fish paste, specially with magur fish (Fig. 2).

Finding of the survey shows that, early marriage is done in case of females. Majority of females, *i.e.* 53 (68.83%) of the female respondents got married at the age of 11 to 16 years, and 9 female respondents (11.69%) got married below 11 years. In case of males, majority i.e. 10 respondents (41.67%) fell between the age of 14 and 18 years, followed by 4 respondents (16.67%) above 18 years and 10 respondents (41.67%) below 14 years (Fig. 2). During investigation it was found that that the majority of respondents, i.e 40 respondents (39.60%) were suffering from diseases like fever, cough and cold whereas, 33 respondents (32.67%) were suffering from skin diseases and 28 respondents (27.72%) were suffering from other diseases.

Communicational characteristics

The distribution of respondents according to the utilization of resources is shown in Table 3. Out of the 101 respondents, 45 (44.55%) respondents got information from NGO (SAKHI), and 32 respondents (31.68%) got information from radio. Only, 8 respondents (7.92%) got information from krishi mela, 10 respondents (9.90%) got information from their friends, and 6 respondents (5.94%) got information from relatives.

Psychological characteristics

Amount of net weaving by fishermen and women varied from 400 to 1000 feet per year. The survey indicated, out of 101 respondents, 53 respondents (52.48%) made a medium amount of net (600 to 800 feet), 32 respondents (31.68%) made lesser amount of net (400 to 600 feet), and only 16 respondents (15.84%) made high amount of net (800 to 1000 feet) (Figure 3). Majority of the respondents i.e. 35 (34.65%) used chatijal, 25 (24.75%) used cast net, 16 (15.84%) used trap net, 15 (14.85%) used drag net, 6 (5.94%) used ghanijal, and 4 (3.96%) fishermen used gill nets for fishing (Fig. 3).

The study indicated that the majority of the respondents *i.e.* 60 respondents (59.41%) had 15 to 29 years of experience in fisheries activities. 22 respondents (21.78%) had less than 15 years of experience and 19 respondents (18.81%) had more than 30 years of experience (Figure 3). It is clear from the given Figure 3 below that majority of the respondents *i.e.* 64 (63.37%) felt that they needed training programme for their skilled

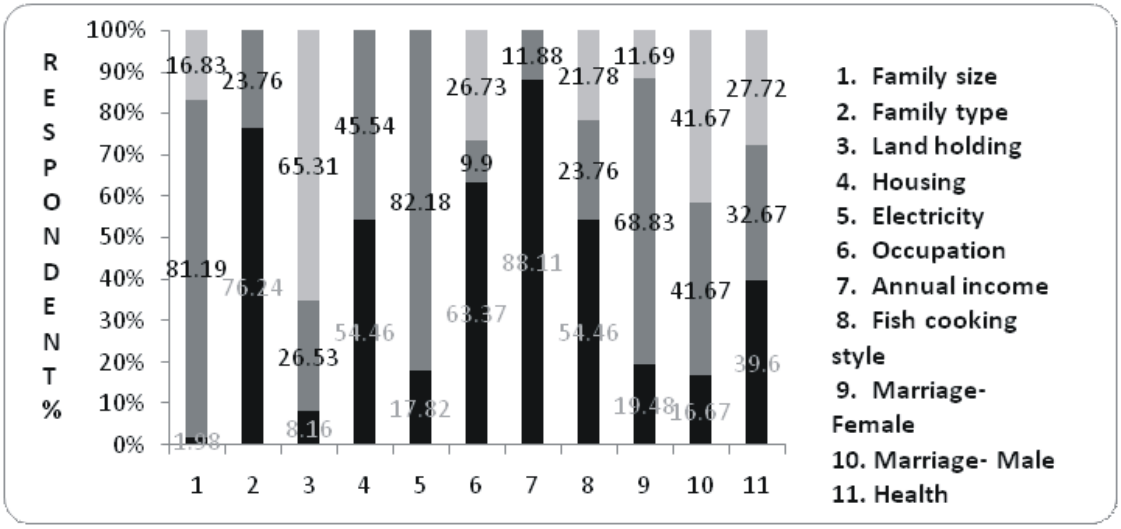

Fig. 2 : Distribution of respondents according to socio-economic characteristics (N=101).

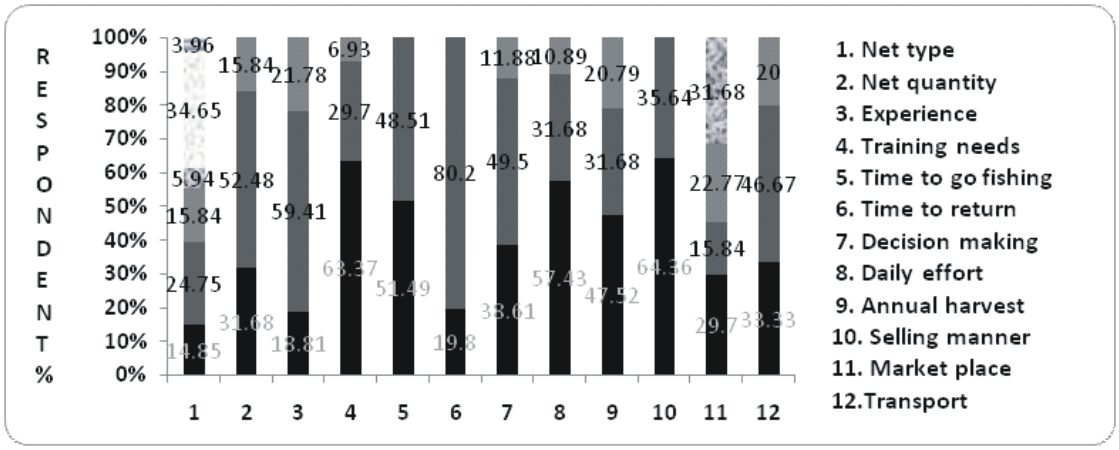

Fig. 3 : Distribution of respondents according to psychological characteristics of respondents (N=101).

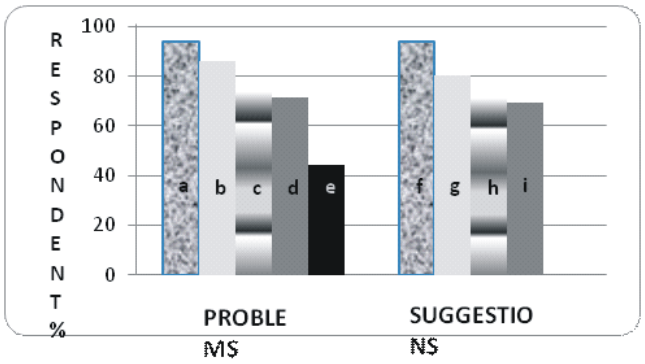

Fig. 4 : Problems faced and suggestions given by farmers for improving their condition.

and updating knowledge. From the survey study, only 7 respondents (6.93%) of the respondents did not feel the need of any training programme for fisheries activities. It is clear from Fig. 3 given below. The majority of the respondents, *i.e.* 52 respondents (51.49%) go for fishing between 7am and 10am. In case of returning, majority of the respondents *i.e.* 81 respondents (80.20%) generally return back between 5pm and 7pm, 20 respondents (19.80%) return between 3pm and 5pm.

The study revealed that the majority of the respondents *i.e.* 50 (49.50%) indicated that wife only took decisions, whereas, 39 respondents (38.61%) indicated that both husband and wife took decisions, whereas, only 12 respondents (11.88%) indicated that, only husband took decisions (Figure 3). Average number of hours spent to sell the fish is more than other household activities (Fig. 3). It was observed during the survey study, that 32 respondents (31.68%) were engaged for 3 to 8 hours with an average of effort of 5 to 6 hours daily, 58 respondents (57.43%) were engaged for more than 8 hours daily, whereas, only 11 respondents (10.89%) were engaged for less than 3 hours daily (Fig. 2). The quantity of fish harvested by fishermen and women varied from 100 to 300 kg/year. The study indicated that, out of 101 respondents, 48 respondents (47.52%) harvested 100 to 150 kg of fish per year, 32 respondents (31.68%) harvested 150 to 250 kg of fish per year, and only 21

(20.79%) respondents harvested 250 to 300 kg of fish per year (Fig. 3).

The survey work revealed that, each respondent had a different manner of selling (Fig. 3). 65 respondents (64.36%) sold their fish as raw fish and 36 respondents (35.64%) sold their fish as cutting it to pieces. It is clear from the table drawn below that, out of 101 respondents, 30 respondents (29.70%) went to local market-Andhratharhi fish market, 16 respondents (15.84%) went to Jhanjharpur fish market, 23 respondents (22.77%) went to Gandharayan Hatt and the majority, *i.e.* 32 respondents (31.68%) went door to door or from one village to another or nearby roadside, to sell the fish (Figure 3). The survey revealed that, majority of the respondents used to cover miles of distance on foot (*i.e.* 71 or 70.30% respondents). Only 30 respondents (29.70%) have transportation facility, of which 14 respondents (46.67%) preferred bicycles, 10 (33.33%) preferred vehicles, and only 6 respondents (20.00%) used both bicycles and vehicles for transport (Fig. 3).

Problems faced and suggestions given by fishermen and women

During data collection, the 101 respondents were asked to narrate problems faced by them relating to their occupation and to provide suggestions for improvement of their socio-economic conditions as well as improvement in fishery sector.

The respondents related five different problems relating to this occupation (Fig. 4a-4e). The problem indicated by 95 respondents (94.06%) was lack of transportation facility. The problem faced by lowest number of respondents was the incapability to buy net materials and sewing machines (by 45 respondents or 44.55%). Other problems like, no monetary input by government; not getting fair price according to effort; and, fish market distance with lack of fish shade were indicated by 87 (86.14%) respondents, 75 (74.26%) respondents, and 72 (71.29%) respondents, respectively.

Four important suggestions were given by the fishermen and women to improve their socio-economic condition and development in fishery sector (Fig. 4f-4i). The two most important suggestions given were requirement of transportation facility indicated by 95 (94.06%) respondents and financial assistance to fishery sector by government (indicated by 81 or 80.20%respondents). 72 respondents (71.29%) pointed out that net materials and sewing machines should be provided at lower costs and 70 respondents (69.31%) pointed out that fish markets for selling fish should be in the village itself, or near catchment areas.

DISCUSSION

An investigation on the socio-economic status of fishermen of selective villages of Andhratharhi block in Madhubani district was carried out on the basis of some important determinants as discussed below.

Knowledge, Family type and size, annual income play important role in developing the attitude of respondents towards scientific fish culture practices (Goswami, 2012). During the present study it was found that, the majority of respondents were of middle age group. They form the most active group in fishing sector of Madhubani district of Bihar. Sathiadhas *et al* (2003) found that, majority of Keralian women in fishing activities belong to age group of twenty to forty years, and for fish vendors, for forty to sixty years. Goswami (2012) doing the survey in the district of North 24 Parganas, West Bengal concluded that the farmers belonging to young and middle aged brings new ideas and are responsible for adopting more scientific approach. Pandey and Upadhayay (2012) found out from their study in West Tripura that, majority of the fish farmers belong from middle to young age group. Their studies indicate that fish farming practices have attracted the interest of the younger generation.

Education is an important socioeconomic factor, which bears understanding and adopting fish farming technologies by fish farmers (Pandey and Upadhayay, 2012). The result of the present study revealed that out of 101 respondents, only 29.70% respondents were found literate. Within this literate group, majority of the respondents were educated up to primary level. So, it can be said that, illiteracy is one of the barriers to increase fish production in Madhubani district. Similar finding was made by Ponnusamy (2004). Goswami (2012) found education level to have positive and significant relationship with attitude of fish farmers of North 24 Parganas, West Bengal. Pandey and Upadhayay (2012) found out from their study in West Tripura that, majority of respondents (92.50%) involved in fish production were literate and only 7% were illiterate. Out of total literate fish farmers, 30% possessed middle level of education, implying that fishfarmers are well educated. An interesting find of Pandey and Upadhayay (2012) was that, graduates are taking part in fish farming practices. Samantray and Pathak (2001) suggested that, to ensure rapid progress in the literacy rate, the participation of voluntary organizations would be useful.

The size of the family has a direct influence on expenditure and income of family (Pandey and Upadhayay, 2012). As the fish production is a labour intensive activity hence family size influences the fish

production involving more members as aid. During the study it was found that majority (81.19%) of respondents have family size of 5 to 15 members, indicating that average number of dependant embers of family exceeds the average number of earning members per family. Pandey and Upadhayay (2012) found out from their study in West Tripura that, 70% of the respondents had larger family size (more than five members), and, 25% had medium size of family (three to five members). Karmakar and Pandit (1999) claimed that, the average family size of fishermen in different zones of estuarine wetlands was worked out as 4 to 7 members. 22.8% family members were earners, with 75% male and 25% female. Seventy four percent of respondents belonged to nuclear and twenty six percent to joint family in Tamil Nadu respondents (Ponnusamy, 2004).

In the present study, 54.46% have pucca house and 45.50% have kacha house. Udoh (2008) found from his study in Nigeria, that, 55.3% lived in thatched roof with mud walls while 25.6% lived in thatched roof with thatched walls making them vulnerable to fire outbreak. Lack of electricity affect acquisition of luxury goods (Udoh, 2008). In the present study, 17.80% respondents have electricity, ad 82.18% respondents were found to have kerosene in their houses.

Sharma *et al* (2013c) found from their study in Jorhat, Assam, that trained farmers had significantly higher level of knowledge and farming practices than those of untrained farmers. The present study revealed, majority of respondents (93.07%) felt an urgent need of training for improving their knowledge as well as wanting to keep in touch regarding scientific fish culture so that they can develop their skills. Similarly, Kaur and Talukdar (2007) found that 70.19% of trainees of Farm Women Training Centre, Jorhat, Assam thought the trainings to be very much useful for technical knowledge gain, technical skill development, performing day-to-day activities with the help of knowledge gain and skill developed during the training, fulfilling their needs and benefiting from group interactions among the trainees during trainings. Sharma *et al* (2013b) found out from their study in Karnal, U.P., that, age and technology adoption was inversely proportional, thus younger farmers have a tendency to adopt the methods learned. In the present majority (85%) were found belonging to Muslim, and majority (82.50%) belonged to general caste followed by 20% scheduled tribes (ST), 17% other backward communities (OBC) and 15% scheduled castes (SC). Siddiqui (1996) observed that the castes like Majhi, Behera, Jalari are the dominant fishermen castes of Orissa and Bharatar, Cheruman, Devendrakulathan, Pallan, Sambhavar are the dominant fishermen castes in Tamil Nadu. Karmakar and Pandit (1999) observed that hundred percent of the fishermen caste belong to scheduled caste.

Annual income is positively and significantly related to scientific fish culture (Goswami, 2012). Pandey and Upadhayay (2012) found in West Tripura study that, low level of income was not sufficient for the farmers to maintain their normal livelihood, thus not having much for fish culture activities. During the study it was found that, majority of the respondents (88.11%) belong to lower income group. The level of income varied due to seasonal condition of area- during rainy season and flooding, they face several problems for fishing activities, thereby lowering their income. In general, employment and income determine the standard of living of people.

The study results indicate that majority of respondents (51.49%) were landless. And, the rest percentage of respondents have less than 10 kattahs of land as maximum possessed land according to the information given by them. Small pond area owned and single ownership was found in West Tripura study by Pandey and Upadhayay (2012). The study also revealed that, majority of respondents were found suffering from various types of diseases like skin disease, fever malnutrition, which reduces potency for work. It might be due to lack of awareness regarding health and hygienic conditions. Flooding may also be a reason for these disease occurrences as much of the district is flood prone.

Decision making is an important aspect, adding to agricultural success. The finding of this study indicated that, in majority (49.50%) of the families, wife alone took decision regarding fishing activities, whereas, in 38.61% of families, both husband and wife took decision. Goudappa *et al* (2012) found that a large percentage of women in Karnataka participated in decision–making process and initiated solutions for problems in agricultural operations, although men took the final decision. Srivastava and Singh (2012) found few overlapping agricultural activities performed jointly in Jodhpur, Rajasthan. The result of the study also revealed that 70.30% respondents used to walk miles, covering village after village, due to lack of transport or money to hire. This also indicates that there is a lack of organized place for fish shade for fish marketing in each unit. Poor marketing system was also reported by Sen *et al* (1997) in West Bengal.

Provision of infrastructural facilities by government, loans to fishing household by financial institutions, and storage facilities and other basic social amenities to the inhabitants will improve the quality of life of the

Table 1 : Distribution of respondents according to personal characteristics (N*=101).

	Age			Education		
	Upto 30 yrs	**30-50 yrs**	**>50 yrs**	**Illiterate**	**Primary**	**Middle**
Frequency	18	61	22	71	27	3
Percentage	17.82	60.40	21.78	70.30	26.73	2.97

*N = Sample size.

Table 2 : Distribution of respondents according to surname and language (N=101).

	Category	**Frequency**	**%**		**Category**	**Frequency**	**%**
Surname	Mukhiya	76	75.25	**Spoken language**	Maithili	56	55.45
	Sahani	25	24.75		Hindi	26	25.74
					Both	19	18.81

Table 3 : Distribution of respondents according to the information sources (N=101).

Category	**Frequency**	**%**
NGO (SAKHI)	45	44.55
Radio	32	31.68
Friends	10	09.90
Krishimela	8	07.92
Relatives	6	05.94

respondents. Well constructed market and improved housing structures to reduce fire incidents are eminent. Formation of cooperative societies and the provision for resident extension personnel will help in training of the fisher folks with new methods of fishing and creating of marketing avenues to improve on their income and therefore quality of life. Akinbile (2003) revealed that extension services rendered to fish farmers on pond construction, stocking, pond management, fish breeding, credit, fish harvesting, feed formulation, group formulation and marketing outlets were perceived as effective as they demonstrated positive attitude towards the services. Tyagi *et al* (2007) opined that appropriate policy and administrative interventions at grass-root level can make local people organizations active partners in co-management of freshwater fisheries resources, by providing institutional support. Addition to knowledge or improvement in existing knowledge and skill base of farmers is a tool for empowering farmers (Kaur and Talukdar, 2007).

Government of India is in the process of establishing low interest loans, venture capital funds, and have established 'aqua gyan choupals' or village knowledge centres in some villages in India. An alliance with all stakeholders, private and public institutions, commercial and co-operative banks etc. through information and communication technologies is also in the plans (Sharma *et al*, 2013a). Department of fisheries, Government of Bihar, through C.E.O. have conducted different training programmes have provided fishers with information about fishery development. During 2006-2007, Madhubani district has been paid a sum of Rs. 30,40,000 from government financial schemes; and under 'Rastriya Kalyan Yojana', a sum of Rs. 40,000 has been given to each of the fishermen, and 6 hand pumps with one community hall has been provided to them under this programme (Draft policies on fisheries, 2008). Bayer healthcare- animal health's aqua division, in 2013, is promoting education through Shiksha Abhiyan in 2013. As part of an initiative they are awarding eight scholarships worth Rs. 25,000 each to children of Indian aqua farmers, who score highest in 12th standard science stream.

In conclusion, some steps can be suggested for the socio economic betterment of fishers. Fishermen should be integrated in more economic activities of fishery sector to increase their capacity for overall development of family and also in their area. Need based training should be organized in order to improve their knowledge and skills in different aspects of fishery sector. Greater emphasis is needed to educate the fishermen regarding time of fishing, place of marketing, place of harvesting. Upliftment of socio-economic condition of fishermen to give them leadership in their area is very important. Special emphasis should be paid on the improvement of transport facility to facilitate selling their products in the market in time. The Government should pay attention in marketing of catches with the establishment of open market to avoid the fish shade problems. Concerted educational efforts are needed to remove illiteracy. It is also urgent to duly recognize economic role of rural fishermen and women.

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