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Fishers in Post-harvest Fisheries Sector in India : An Assessment of Socio-economic Status

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Abstract

This paper presents the results of study carried out during 2009-11, to assess literacy, health and income status of fishers in India with reference to post-harvest sector which covered fishers in marketing and processing. The study covered five states and one union territory, covering 11 districts reaching 548 households. About 52.19% of the respondents fell in the age group of 36-55. The average male-female ratio was 1.03 and 66.61% of the families were in the small family category of 2-4 members. It was observed that the literacy rates among fishers in post-harvest sector in different states ranged from 63.74 to 95.81%. In general, the literacy rates were comparable to the national average. Maternal and child mortality were low in the sample studied and the average birth weight of infants was 2.68 kg. The average monthly income was Rs. 7027.45 with a daily income of Rs. 234.25. About 44.70% of the households had no savings and 47.81% of households were in debt.

Keywords: Processing, marketing, income, literacy, health, fishers

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Introduction

India is the third largest fish producing country in the world. The sector has high potential for rural development, domestic nutritional security, employment generation as well as export earnings. Indian fisheries sector has been witnessing a steady growth, and the annual fish production has risen to 7.85 million t during 2009-10 (CMFRI, 2011). It is estimated that fishing, aquaculture and allied activities provide employment to over 14 million people. Marketing and processing are two important ancillary activities and important links in the fisheries value chain, providing livelihood and income to large number of households. More than 70% of the fish produced in the country is utilised by the domestic market, while the rest is processed and exported and its contribution is to the tune of Rs. 99 210 million in foreign exchange. Processing industry in India has been almost entirely export-oriented and employs mainly women. Approximately one million people are engaged in seafood processing industry, spread along the coastal states of the country. Altogether there are 369 seafood processing units in India, of which 265 are EU approved. While considering the marketing activities, the landing centers serve as primary markets and the wholesale markets situated at a distance away from actual fish landing centers act as secondary markets. The retail markets normally situated closer to the consumer are the tertiary markets. In some cases, wholesale markets may also have a separate retail section. Assessment of the demographic pattern, educational status, health and income generation activities will provide baseline

information for streamlining future poverty reduction and livelihood enhancement activities among the fisherfolk in India.

Poverty reduction and improvement of livelihoods have been the focus of recent policy initiatives in the fisheries in developing countries (Neiland & Bene, 2004). Education and literacy of fishing community can play a major role in ensuring and sustaining livelihoods (Maddox, 2007). The relationship between the income generated and livelihood are often supplemented by the literacy level and health status of the people engaged in various activities. FAO and ILO have advocated that "literacy and numeracy are essential for workers to increase their productivity and income". Accessibility to educational institutions and programmes will improve the livelihood of fishermen, by diversifying their income generating activities (FAO, 2006). Likewise, health is an essential requirement for engaging in any physical activity or work, including marketing and processing in the fisheries sector. Other factors like long periods of absence from home and risky nature of the work also affect the health of the fishing community. With this background, the present study tries to throw light on the general demographic, occupational, financial, educational and health status of fisher households engaged in fish marketing and processing activities across various states of India.

Materials and Methods

The study was carried out during 2009-11 among households engaged in fish marketing and processing activities in five states, *viz.*, Kerala, Gujarat, Andhra Pradesh, West Bengal, Madhya Pradesh and the union territory, New Delhi. The sample size for various states for the two post-harvest sectors *viz.*, processing and marketing is given in Table 1. Random sampling was followed for collection of the information based on a pre-tested questionnaire designed for the study.

Data on four parameters, the general particulars, literacy, health, and income were collected and results are presented as ratios and percentages. The level of literacy among persons in the fish marketing and processing sectors were studied by assessing the level of literacy among respondents, status of drop-outs and their access to educational institutions. The health status of persons engaged in these allied post-harvest activities in fisheries was studied with reference to the vaccination regime, discontinuation of vaccinations, birth weight of infants, incidence of maternal and child mortality, incidence of common diseases and special ailments including lifestyle diseases. Disease management aspects like access to health care and problems and suggestions for better health care facilities were also assessed.

Results and Discussion

The demographic characteristics observed were household particulars, family size, age composition and adult-child ratio. Most of the respondents fell in the category of 36-55 years (52.19%). This trend was observed in Andhra Pradesh, Gujarat, Kerala, Madhya Pradesh and West Bengal. In New Delhi, the dominant age group was below 35 years. Only 10.95% of the respondents fell in the age group above 56 years. Marketing and processing are generally carried out by persons in the active working age group, as it requires skill and physical

Table 1. Detailed sampling frame of the study

State / UTs	Districts	Sample size	
		Processing	Marketing
Andhra Pradesh	Vishakapatnam	97	100
New Delhi	New Delhi	-	50
Gujarat	Junagadh, Porbandar	50	50
Kerala	Calicut, Malapuram, Ernakulam, Kollam, Thiruvananthapuram	51	50
Madhya Pradesh	Bhopal	-	50
West Bengal	Howrah	-	50

exertion. The family size of 66.61% of respondent households was in the group 2-4, indicating that the small family norm has been widely adopted in the households engaged in marketing and processing of fish. The overall average family size was 3.41, less than the mean household size in India which stood at 5 (Census, 2011).

It can be observed from Table 2, that males out numbered females, with the male-female ratio being 1.03 and this trend was seen in New Delhi, Madhya Pradesh, Maharashtra and West Bengal. The overall sex ratio for the states under study was 967, which is better than the national average of 933 (Census, 2011).

In many studies, it is empirically proven that the fishing communities have educational disadvantages which may be due to geographical marginalization (Kurien & Achari, 1998). However, in general, persons engaged in marketing and processing had better literacy skills as they constantly interact with outsiders, and in such situations education is an added advantage to their trade.

On the whole, 78.57% of the respondents were literate. The proportion of illiterates was more in Andhra Pradesh (36.26%), followed by Madhya Pradesh (29.17%), New Delhi (20.50%), West Bengal (18.06%), Gujarat (15.08%) and least in Kerala

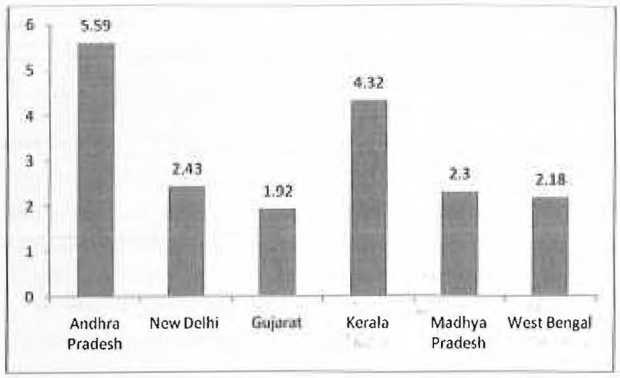

Fig. 1. Adult – child ratio in respondent households

(4.19%). Therefore, it is evident that the initiatives taken by the state in the field of education did have an impact on the fishing communities as well, and the general trend in the state is reflected in the fishing and allied sectors; the high literacy rates as recorded in Kerala being an example (Census, 2011). George & Domi (2002) reported that higher literacy rate in Kerala can be attributed to cultural and educational traditions, economic policy and widespread access to schooling.

About 46.30% of the respondents were educated upto the secondary level and 25.80% upto primary level. Only 6.47% of the respondents had college education. The overall literacy level among the fishers engaged in post-harvest activities was far

Table 2. Household particulars of the sample respondents in fish marketing and processing

States	Households (Number)	Male (Number)	Female (Number)	Total (Number)	Male-Female Ratio	Sex ratio
Andhra Pradesh	197	290 (48.90)	303 (51.11)	593	0.96	1045
New Delhi	50	103 (53.65)	89 (46.35)	192	1.20	864
Gujarat	100	198 (49.50)	202 (50.50)	400	0.98	1020
Kerala	101	199 (48.54)	211 (51.46)	410	0.94	1060
Madhya Pradesh	50	122 (57.82)	89 (42.18)	211	1.37	730
West Bengal	50	124 (53.45)	108 (46.35)	232	1.15	871
Total (All states)	548	1036 (50.83)	1002 (49.17)	2038	1.03	967

(Figures in parentheses indicate percentages to total)

higher than the national average (64.80%) as observed in the Census of India (2011).

Drop-out was more at secondary level (75.70%), and was surprisingly high for New Delhi (100.00%). The drop-out at primary level was 19.80%. College drop-outs were high in Madhya Pradesh (12.87%). The continuing drop-out ratio was 0.92 on the whole and varied from 0.69 for Gujarat, 0.57 for West Bengal, 0.35 for Madhya Pradesh, 0.34 for Kerala and 0.24 for New Delhi. Retaining children in school is a challenge, and one way to do this would be to make initiatives like the mid-day meal scheme more extensive and effective.

Access to education is of primary importance in ensuring a literate population. Though various socio-economic factors determine whether a person is able to attend school or not, for the purpose of this study, the access to educational institutions was assessed by observing the distance to the nearest educational institution. It was observed that atleast one educational institution was located within a radius of 6.55 km; a primary school within 1.47 km, a secondary school within 3.05 km, a college within 8.64 km and a professional college within 13.05 km (Table 3). Thus, it is clear that the access to education as far as location of educational institutions is concerned, is reasonably good for the households engaged in fish marketing and processing.

It was observed that the routine vaccinations like BCG, MMR and Polio were regularly given to children below 15 years of age by all the households covered under the study. No instance of discontinuation of vaccinations was observed. Consistent campaigns by the central and state Governments regarding the health benefits of vaccinations have had an impact on the community (Bonu et al., 2003).

Birth weight is a key indicator of health (Wilcox, 2001) and according to WHO (2004), India had one of the highest rates of low birth weight babies; less than 2.80 kg. From the present study it can be observed thatthere is wide spatial difference in the birth weight of babies in the case of fisheries communities under study. Average birth weight of males was 2.84 kg and that of females was 2.64 kg (Table 4). The average birth weight ranges from 2.40 kg in Madhya Pradesh to 3.06 kg in New Delhi. In most states, the birth weight of male children was higher than that of female children.

In all, five cases of maternal mortality were observed *viz.*, three from New Delhi and one each from Gujarat and Madhya Pradesh from among the respondent households. Eight child mortality cases were also recorded (four in Gujarat, two in New Delhi and one each in Andhra Pradesh and Madhya Pradesh). The reasons for maternal mortality were delivery related complications and for child mortality it was jaundice and pre-mature delivery.

The most frequently occurring health problems were fever and body aches. Diahorrea, and gastro-enteric disorders were also reported. Reproductive disorders were also reported in females. Skin problems, especially on the hands, are commonly found in seafood processing workers due to constant exposure to wet and cold conditions.

It has been reported that the work stress and health hazards of the fish processing workers are considerably high due to the productivity demand and the low levels of technology used. People working in

Table 3. Access to education of respondent households

States	Distance to nearby educational institution (in km)				Average
	Primary School	High School	College	Professional College	
Andhra Pradesh	2.10	2.70	4.70	9.95	4.86
New Delhi	1.20	2.30	11.32	14.86	7.42
Gujarat	1.94	6.61	15.29	17.82	10.42
Kerala	2.11	3.68	10.88	23.14	9.95
Madhya Pradesh	0.80	1.50	2.60	3.20	2.03
West Bengal	0.67	1.52	7.04	9.34	4.64
Average (for all states)	1.47	3.05	8.64	13.05	6.55

Table 4. Birth-weight of infants in the respondant households

States	Weight (kg) Male	Female	Average (both male & female)
Andhra Pradesh	3.00	2.50	2.75
Delhi	3.14	2.97	3.06
Gujarat	2.93	2.59	2.76
Kerala	2.89	2.65	2.77
Madhya Pradesh	2.40	2.40	2.40
West Bengal	2.65	2.71	2.68
Average (all states)	2.84	2.64	2.74

the cold rooms had skin injuries as well as respiratory disorders (Heus et al.,1995; Gopal et al., 2007, 2009). Nag & Nag (2007) reported that 72% of the people working in the processing industries were found to have blanched fingers, 67% had body ache and discomfort, 44% had headache, 22% had respiratory irritation and cough and 10% had skin irritation.

The households access to health care with reference to the distance shows that the nearest PHC was at a distance of 2.86 km and the nearest hospital was at a distance of 6.46 km on an average. It is important to note that at least one PHC is available within a distance of 1 to 6 km in all states and the maximum distance to a hospital is around 13 km. It had been observed in earlier studies that fishermen were the most vulnerable group for infection and most likely to be left out of the healthcare services and schemes because of their mobility coupled with irregular working hours (Seeley & Allison, 2005).

The major problems in health management as opined by the respondent households were non-availability of specialists and paramedics in health centers (26.77%), difficulty in accessing hospital facilities due to distance (16.67%), lack of adequate medicines (15.15%), poor infrastructure (10.86%), problems of cleanliness/sanitation (8.59%) and non-availability of drinking water (5.56%). Non-availability of medicines was the major reason in Madhya Pradesh, while poor infrastructure, lack of effective medicines, lack of cleanliness and sanitation and drinking water were problems highlighted in Kerala. The reason for the non-availability of doctors and lack of medicines were due to lack of transportation and distances to health care services.

Some of the suggestions putforth by the respondents included, availability of sufficient medicines free of cost (37.65%), construction of well equipped hospitals (21.18%) and provision of suitable facilities for doctors in these centres so that they are available round the clock (18.43%). The other suggestions include increasing the number of doctors and specialists (10.59%), provision of drinking water (9.80%) and provision of ambulances in case of emergencies (2.35%).

Income profiling of the respondent households was done by looking at the monthly income and expenditure patterns; savings and indebtedness; and sources and use of credit. The major income sources were classified into fishery-related, labour, agriculture, business and others. The highest monthly average income generated by the total respondents was through fisheries sector with an average amount of Rs. 21 898 (74.08% of the total income) followed by income from labour sector at Rs. 5071 (17.16%), other sectors at Rs. 1 587 (5.37%), business at Rs. 882 (3.00%) and agricultural sector at Rs. 116 (0.39%). Since the respondents were primarily engaged in fish marketing or processing, the primary source of income was from this activity (Sathiadhas et al., 2011). In West Bengal, entire household income is from fisheries. However, in absolute terms it was the lowest at Rs. 2 305 among the states studied. The involvement of respondent households in non-fisheries activities is indicative of the fact that post-harvest activities alone are no longer sufficient to support the households.

The major household expenses include expenditure on food, clothing, fuel, medicine, education, entertainment, personals and durables. On an average, 31.54% of the expenditure was on food in the respondent households indicating that the standards of living is still low, as a major share of expenditure goes into meeting basic household necessities. About 29.17% of expenditure was on durables, while medical expenses accounted for 6% and 4.98% of income went for education of children.

It was observed that 44.70% of the respondents did not have any savings. Most of the respondents had total savings of less than Rs. 50 000 (41.67%). About

5.30% of respondents had savings ranging from Rs. 50 000 to Rs. 100 000 and 0.25% had more than Rs. 100 000. About 39.84% of respondents in Andhra Pradesh, 20.32% in Kerala, 10.06% in Madhya Pradesh, 8.05% in Gujarat and 1.61% in New Delhi had savings, but generally less than Rs. 50 000. Savings of respondents in cities like New Delhi were obviously low because of very high cost of living in urban areas. Chandra et al. (2010) and Sathiadhas et al. (2011) also had worked out the savings pattern of fishers of Assam and found that in general, the savings habit was poor among fisherfolk.

Of the total indebted families, 36.26% were in Andhra Pradesh, 29.01% in Kerala and 17.18% in Madhya Pradesh (Table 5). The average amount ranged from Rs. 1 76 729 in Kerala to Rs. 17 600 in Andhra Pradesh. The maximum amount repaid was also in Kerala to the tune of Rs. 38 308. On the whole, the average debt was Rs. 431 280 and the repayment was Rs. 52 209.

Most of the respondents in the post-harvest fisheries sector had availed loans from various lending organisations. Hypothecating jewellery for loans was most popular in Andhra Pradesh (34.10%). Banks, friends and relatives also formed the major source of credit for the respondents (together contributing about 30.81%), followed by Co-operatives (16.39%). Interestingly private money lenders do not seem to be so popular among the respondents in this sector, with the dependence being only 8.52%.

Table 5. Indebtedness of the sample respondents

States	Indebtedness	
	Number of persons	Average amount per person (Rs)
Andhra Pradesh	95 (36.26)	17600 (4.08)
New Delhi	20 (7.63)	113833 (26.39)
Gujarat	24 (9.16)	41538 (9.63)
Kerala	76 (29.01)	176729 (40.98)
Madhya Pradesh	45 (17.18)	580 (0.13)
West Bengal	2 (0.76)	81000 (18.78)
Total	262 (100.00)	431280 (100.00)

(Figures in parenthesis indicate percentage to total)

The major purpose of credit requirement was fishery related, other uses being for health and social security, house construction/ purchase of land and education. A state-wise analysis indicates that major use of credit was on fishery related activities in Andhra Pradesh, on education in New Delhi and for house construction in Kerala.

Regulation of fish marketing through institutional arrangements was one of the major suggestions offered (50%) by the respondents. The income of persons involved in allied post-harvest fishery activities like marketing and processing is greatly affected by intermediaries and 47.06% of respondents suggested that institutional financial support like micro credit through SHGs must be made available.

The study showed that the literacy rates among fishers were comparable to the national average of 74.04% (Census, 2011). Maternal and child mortality were low in the sample studied and the birth weight of infants was normal though slightly less than 2.8 kg, recommended by WHO (OECD/WHO, 2012). Access to health was reasonably good, though respondents opined that changes were needed to make it more effective. Diversification of livelihoods to non-fisheries related activities is observed, mainly to improve household incomes. In general, savings habit is still poor. Regulating the fish marketing through institutional arrangements and institutional financial support like micro-credit through Self Help Groups will improve the socio-economic status of the fishers involved in marketing. Improvements in working conditions and wages of processing workers should also be given priority and might be easier to implement as it is a more organized sector.

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