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**PRIMARY, SECONDARY AND TERTIARY SECTORS IN MARINE FISHERIES OF
KARNATAKA, INDIA: A SOCIO-ECONOMIC PROFILE**

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Abstract

Marine Fisheries sector is a conglomeration of different categories of stake holders. The present study was conducted at Malpe fisheries harbour of Udupi district of Karnataka. The major categories of stakeholders were identified in the primary sector, the secondary sector and the tertiary sector. The socio-economic characteristics of each of these categories have a major bearing on the fisheries economy of the country. The study was conducted among a sample of 300 respondents, consisting of 74 from the primary sector, 133 from secondary sector and 93 respondents from the tertiary sector. The findings of the study revealed that among primary sector stakeholders, 86.66 percent of the Purse-seine operating laborers had undergone high school level of education. With respect to the average monthly income, the purse-seine operating owners had the highest average monthly income of Rs. 3.63 lakhs. This was followed by mechanized multi-day trawler operating owners with an average monthly income of Rs. 60,000. The purse-seiner single day labourer had an average monthly income of Rs. 9316 followed by the multi-day trawler labourer who had an average monthly income of Rs. 6700. Majority (60 percent) belonging to mechanized multi-day trawler operating owner category had availed loans during the current year. The major sources of loans were public banks. Among the secondary sector stakeholders, the wholesalers (58.06%) had high school level of education. 70.00 % of the women fish vendors had undergone lower primary level of education. With respect to the average monthly income, wholesalers had the highest average monthly income of Rs. 21,096. Decision making with respect to investments in business were done largely by men among the secondary sector stakeholders. Among the tertiary sector stakeholders, it could be observed that, majority of the petty shop owners of landing centres (80.64%) had undergone high school level of education. The average monthly income was maximum for the suppliers of auxiliary items.

Introduction:

Fisheries sector in India is a congregation of different types of stakeholders. Three different kinds of stakeholders exist among the marine fisher folk in the country. The Primary sector consists of the fishermen who are involved exclusively in active fishing, the secondary sector consists of the fishermen exclusively involved in fishery related activities in the pre or post harvest sector and tertiary sector stakeholders are those who are engaged in activities other than fishing /post harvest sector.

These sub sectors within themselves are very significant. (Raje et al, 2001). It is estimated that 0.933 million people are employed in the marine fisheries on a full time basis, 1.01 million on a part-time basis and 1.39 million are engaged in ancillary activities. (Yadava, 2006). Sathiadhas and Kanagam (2000) have reported that the post harvest operations in the fisheries sector provide more employment for labour than the production sector. Against this background, an attempt was made to analyse the socio-economic profile of the stakeholders belonging to these 3 distinct categories.

Methodology:

In Udupi district Malpe landing centre was selected for the study. Based on the secondary data collected, the population of stakeholders under primary, secondary and tertiary sectors in Malpe landing centre was found out. Accordingly, there was a total population of 5000 stakeholders in the primary sector, 20,000 in the secondary sector and 800 in the tertiary sector. The total population of stakeholders in all the three categories was 25,800. The total sample size for the study was fixed as 300. Thus the proportionate random sampling method was used with slight modification to suit the requirements of the study. Accordingly, 74 respondents from the primary sector, 133 from the secondary sector and 93 respondents from the tertiary sector was drawn from the population, to form a sample of 300 respondents for the study.

The primary sector in the study area included sub categories such as mechanized sector, motorized sector and non-motorized sector.

The predominant stakeholder categories in the mechanized sector were non-operating owners, operating owners and labourers of single day, multi day trawlers, single day purse-seiners, and motorized gill netters. The secondary sector employed a major work force consisting of women workers in operations such as sorting, loading, unloading, fish vendors and men in activities such as fish vehicle driving, wholesalers, fuel/diesel suppliers and net makers.

The tertiary sector consisted of stakeholders such as tiffin shop/small hotels, suppliers of eatables and suppliers of auxiliary items such as nuts, bolts and spare parts.

Table 1: **Profile characteristics of the Primary sector stakeholders in Marine Fisheries of Karnataka**

(N=60)

Sl.No	Profile characteristics	Mechanized multi-day trawler operating owner (n=15)		Purse-seine operating owner (n=15)		Multi-day trawler labourer (n=15)		Purse-seiner single day labourer (n=15)	
		No	%	No	%	No	%	No	%
1.	Age								
	Young (< 35 years)	2	13.33	2	13.33	4	26.67		33.33
	Middle (36-45 years)	13	86.66	11	73.33	11	73.33	5	60.00
	Old (> 45 years)	0	0.00	2	13.33	0	0.00	9	6.67
								1	
2.	Educational status								
	Illiterate	0	0.00	0	0.00	0	0.00	0	0.00
	Lower primary	2	13.33	1	6.70	0	0.00	0	0.00
	Upper primary	2	13.33	3	20.00	3	20.00	0	0.00
	High School	7	46.67	3	20.00	10	66.67	13	86.66
	Higher Secondary	4	26.67	7	46.70	2	13.33	2	13.33
	Degree	0	0.00	1	6.70	0	0.00	0	0.00
3.	Average Monthly Income	Rs.60,000		Rs. 3,63,510		Rs. 6,700		Rs. 9316	
4.	Number of days employed (season wise)								
	a) Peak season (September-November)	80 Days		45 Days		30 Days		25 Days	
	b) Medium season (February-May)	50 Days		40 Days		20-25 Days		20 Days	
	c) Lean season (December-January)	25 Days		26 Days		16-20 Days		15-20 Days	
5.	Average turn over/day	Rs. 8266.00		Rs. 20,000.00		Rs.350.00		Rs.650.00	
	Average Daily take home Income	Rs. 1000.00		Rs.15,000.00		Rs. 300.00		Rs.600.00	
	Average volume of goods handled/day	0.5 tonnes		5 tonnes		3 tonnes		2 tonnes	
	Average duration of work per day	12 hrs		12 hrs		12 hrs		12 hrs	

Sl.No	Profile characteristics	Mechanized multi-day trawler operating owner (n=15)		Purse-seine operating owner (n=15)		Multi-day trawler labourer (n=15)		Purse-seiner single day labourer (n=15)	
6.	Adoption of family planning (Adopted by wives)	No	%	No	%	No	%	No	%
		15	100.00	15	100.00	15	100.00	15	100.00
7.	Indebt ness	No	%	No	%	No	%	No	%
	No of people who availed loans during the current year	9	60.00	1	6.66	1	6.66	1	6.66
	Average amount taken as loan	Rs.6.80 lakhs		Rs.6.80 lakhs		Rs. 20,000		Rs.5000	
	Average interest charged	12.88 %		12 %		12-14 %		12 %	
	Purpose of taking loans	Investing in the occupation		Investing in occupation and for maintenance of family		Maintenance of Family		Maintenance of Family	
	Average savings per year	Rs.42,555		-		-		Rs.75,000	
	Source of loans	No	%	No	%	No	%	No	%
	a) Public banks	15	100.00	15	100.00	14	93.33	15	100.00
	b) Co-operative societies	-	-	-	-	1	6.67	-	-

Sl.No	Profile characteristics	Mechanized multi-day trawler operating owner (n=15)	Purse-seine operating owner (n=15)	Multi-day trawler labourer (n=15)	Purse-seiner single day labourer (n=15)
	Average operational cost/trip (Rs)				
	1. Fuel	34,000.00	10,000.00	-	-
	2. Ice	3400.00	1000.00	-	-
	3. Food/provisions	1,166.00	1566.00	-	-
	4. Berth charges	-	-	-	-
	5. Wages	1438.00	3000.00	-	-
	6. Repair/maintenance charges	680.00	200.00	-	-
	7. Auction commission	-	-	-	-
	Total operational cost/trip	Rs.40,684.00	Rs.15,766.00	-	-
	Fixed cost				
	1. Resale value in lakhs				
	a) Craft	32.67	35.00	-	-
	b) Gear	2.16	4.03	-	-

Table 2: **Profile characteristics of the Secondary sector stakeholders in Marine Fisheries of Karnataka**

(N = 128)

Sl.No	Profile characteristics	Wholesale traders (n=31)		Loading/Unloading workers (n=30)		Sorters at harbour (n=37)		Fish vendors (women) (n=30)	
		No	%	No	%	No	%	No	%
1.	Age								
	Young (< 35 years)	0	0.00	27	90.00	13	35.13	0	0.00
		16	51.61	3	10.00	25	67.57	16	53.33
	Middle (36-45 years)	15	48.39	0	0.00	0	0.00	14	46.67
	Old (> 45 years)								
2.	Educational status								
	Illiterate	-	-	5	16.67	4	10.81	2	6.67
	Lower primary	-	-	20	66.67	20	54.05	21	70.00
	Upper primary	13	41.93	5	16.67	12	32.43	7	23.33
	High school	18	58.06	-	-	1	2.70	-	-
	Higher secondary	-	-	-	-	-	-	-	-
	Degree	-	-	-	-	-	-	-	-
3.	Average monthly income	Rs.21,096.00		Rs.2,240.00		Rs.3329.00		Rs.3516.00	
4.	Engagements at work (av: no of days / month)								
	Peak period	30 Days (Sept-Nov)		30 Days (Sept-Nov)		30 Days (Sept-Nov)		30 Days (Sept-Nov)	
	Medium period	25 Days (Dec-May)		22 Days (Dec-March)		30 Days (Dec-March)		25 Days (Dec-April)	
	Lean period	20 Days (June-Aug)		17 Days (March-May)		19 Days (March-May)		19 Days (May-August)	
5.	Average investment in present avocation	3.90 lakhs		-		-		Rs.1862	

Sl.No	Profile characteristics	Wholesale traders (n=31)		Loading/Unloading workers (n=30)		Sorters at harbour (n=37)		Fish vendors (women) (n=30)	
6.	Average wages/day	Rs.706.00		Rs. 150.00		Rs.142.00		Rs. 150.00	
Sl.No	Profile characteristics	Wholesale traders (n=31)		Loading/Unloading workers (n=30)		Sorters at harbour (n=37)		Fish vendors (women) (n=30)	
7.	Average duration of work/day	9.87 hours		5.6 hours		10-12 hours		10 hours	
8.	Decision making at home	No	%	No	%	No	%	No	%
	Decisions in family taken mostly by husband	31	100.00	29	96.67	37	100.00	30	100.00
	Decisions in family taken by both husband and wife	-	-	1	3.33	-	-	-	-
	Husband is the custodian of money	31	100.00	6	20.00	18	48.65	-	-
	Wife is the custodian of money	-	-	23	76.67	19	51.35	30	100.00
	Decisions regarding fishing investment is taken by husband	31	100.00	29	96.67	37	100	30	100.00
	Decisions regarding fishing investment is	-	-	1	3.33	-	-	-	-

	taken by wife								
	Participation in Social events								
	Husband taking decision	-	-	2	6.67	2	5.40	1	3.33
	Wife taking decision	1	3.22	-	-	-	-	-	-
	Husband and wife taking decision	30	96.77	27	90.00	35	9.46	29	96.67
a)	Facets of social life	31	100.00	24	80.00	37	100.00	30	100.00
	Practice of dowry								
	Average amount in cash	Rs. 1.17 lakhs		Rs. 33,500		Rs. 34864		Rs.4800	
	Average amount in gold	37.74 sovereigns		13.95 sovereigns		17 sovereigns		15 sovereigns	
b)	Adoption of family planning	20	64.52	8	26.67	13	35.13	30	100.00
Sl.No	Profile characteristics	Wholesale traders (n=31)		Loading/Unloading workers (n=30)		Sorters at harbour (n=37)		Fish vendors (women) (n=30)	
9.	Average earnings /day of the stakeholder	Rs. 680.00		Rs. 84.00		Rs. 151.00		Rs. 161.00	
10.	Average personal expenses/day	Rs. 193.55		Rs.31.00		Rs. 44.00		Rs. 57.00	
11.	Average total earnings of the family	Rs. 680.00		Rs. 84.00		Rs. 151.00		Rs.161.70	
12.	Average household expenses/month	Rs. 6730.65		Rs. 1406.70		Rs.1448.60		Rs.1574.00	
13.	Indebt ness	No	%	No	%	No	%	No	%
	No of people who availed loans during the current year	31	100.00	7	23.33	24	64.86	20	66.67
	Average amount taken as loan	Rs.3.42 lakhs		Rs. 4000		Rs. 3729.70		Rs. 5950.00	
	Average	10 %		12 %		10 %		9 %	

	interest charged Purpose of taking loans	For purchase of new vehicle	Family maintenance	Family maintenance	Family maintenance
	Average savings per year	Rs. 5887.00	Rs. 7464.00	Rs. 6502.00	Rs.753.00
	Source of loans A) Public banks B) co-perative societies C) Friends D) Private banks E) Money lenders	Rank i Rank iii Rank iv Rank v Rank ii	Rank v Rank iii Rank i Rank iv Rank ii	Rank ii - Rank i Rank iii -	Rank i Rank ii - - -

Table 3: **Profile characteristics of the Tertiary sector stakeholders in Marine Fisheries of Karnataka**

(N = 94)

Sl.No	Profile characteristics	Petty shop owners of landing centres (n=31)		Suppliers of eatables (n=33)		Suppliers of auxiliary items to fisherfolk (n=30)	
		No	%	No	%	No	%
1.	Age						
	Young (< 35 years)	13	41.94	20	60.60	1	3.33
	Middle (36-45 years)	14	45.16	12	36.36	28	93.33
	Old (> 45 years)	4	12.90	1	3.03	1	3.33
2.	Educational status						
	Illiterate	-	-	-	-	-	-
	Lower primary	2	6.45	3	9.09	3	9.09
	Upper primary	1	3.22	6	18.18	6	18.18
	High School	25	80.64	22	66.67	22	66.67
	Higher Secondary	3	9.67	2	6.06	2	6.06
	Degree	-	-	-	-	-	-
3.	Average Monthly Income	Rs.3,374.00		Rs. 3239.40		Rs. 5736.70	
4.	Number of days Employed/month (season wise)						
	a) Peak season	27		28		29	

	(September-November)	25		24		27	
	b) Medium season (February-May)	22		17		25	
	c) Lean season (December-January)						
5.	Average turn over/day	Rs. 867.74		Rs. 703.03		Rs. 4586.66	
6.	Average Daily take home Income	Rs. 180.00		Rs. 110.30		Rs. 220.00	
7.	Adoption of family planning (Adopted by wives)	No	%	No	%	No	%
		31	100.00	33	100.00	30	100.00
8.	Indebtness No of people who availed loans during the current year	No	%	No	%	No	%
		0	0.00	4	12.12	0	0.00
Sl.No	Profile characteristics	Petty shop owners of landing centres (n=31)		Suppliers of eatables (n=33)		Suppliers of auxiliary items to fisherfolk (n=30)	
	Average amount taken as loan	Nil		Rs.23,750.00		Nil	
	Average interest charged	Nil		11.25 %		Nil	
	Purpose of taking loans	Nil		For investing in business		Nil	
	Average savings per year	-		Rs. 40,000		-	
	Source of loans	No	%	No	%	No	%
	a) Public banks	31	100.00	33	93.94	30	100.00
	b) Co-operative societies	28	90.32	26	78.78	29	96.67
	c) SHGs	2	6.45	25	75.75	30	100.00
	d) Private banks	27	87.09	27	81.81	29	96.67
	e) Money lenders	-	-	-	-	-	-

Results and Discussion:

A perusal of Table 1 revealed the socio-economic characteristics of the primary sector stakeholders in marine fisheries. The primary sector stakeholders are those category of fishermen who are directly and exclusively involved in active fishing. Four categories of stakeholders were studied under this sector namely the operating owners of mechanized multi-day trawlers, the operating owners of purse-seiners, the labourers of multi-day trawlers and the labourers of single day purse-seiners. Among all the four categories studied it was observed that majority of the fishermen were middle aged (36-45 years of age), namely 86.66 percent were middle-aged among mechanized multi-day trawler operating owners, 73.33 percent among purse-seine operating owners, 73.33 per cent among multi-day trawler labourers and 60.00 percent among the purse-seine single day labourers. The study of Balasubramaniam et.al (2003) on the associated factors of fishermen in Gujarat and Kerala revealed that majority of the fishermen belonged to the middle age category.

With respect to the educational status of the respondents, it was observed that among the mechanized multi-day trawler operating owners, majority of the respondents (46.67 percent) had undergone high school level of education, and among purse-seine operating owners, majority (46.70 per cent) had undergone higher secondary level of education. Among the labourer category it was observed that 66.67 percent among multi-day trawler labourer had high school level of education and a vast majority under purse-seine operating labourer (86.66 percent) had undergone high school level of education. It is however interesting to observe that none of the respondents in all the four categories studied were illiterate. Studies conducted by Tasaduq etal (2003) on the socio-economics of fishers of Dal lake in Jammu and Kashmir, revealed that 45.90 percent of the respondents were illiterate and 54.00 per cent of the respondents were literate. Studies conducted by Rahman et al (2002) on the Socio-economics of a traditional fishing community beside the Old Brahmaputra river in Bangladesh revealed that 74.19 percent of the fishermen were illiterate.

With respect to the average monthly income it was observed that the purse-seine operating owners had the highest average monthly income of Rs. 3,63,510. This is because the main catch of the purse-seines are mainly highly valued commercial fishes for table purposes namely mackerel and oil sardines which have high market demand. This was followed by mechanized multi-day trawler operating owners with an average monthly income of Rs. 60,000. The purse-seiner single day laborer had an average monthly income of Rs. 9,316 followed by the multi-day trawler labourer who had an average monthly income of Rs.6,700. In India, the crew men are always paid a share of the value of the catch and not a fixed wage rate. In the study area namely Malpe it was observed that 30 percent of the net income received by the boat owner is shared equally by the total number of crew members for each trip undertaken.

Table 1 further revealed the average number of days of employment, season wise for the different categories of fishermen. It was observed that in Dakshina Kannada district under which the study area falls, the peak season of fishing was September-November, followed by

medium season namely February-May and the lean season was during the months of December-January. At present the mechanized multi-day trawlers go for fishing for a period ranging from 7 to 17 days. The purse-seiners go for a single day. The purse-seiners set out at 5 AM in the morning and return by 12.30 PM in the night or 6 PM in the evenings.

The average number of days of employment for a mechanized multi-day trawler operating owner during the peak season was 80 days followed by 50 days in the medium season followed by 25 days during the lean season. With respect to the purse-seine operating owners, it was observed that the average number of days employed during the peak season was 45 days, 40 days during the medium season and 26 days during the lean season. For multi day trawler labourers it was observed that the average number of days employed during the peak season was 90 days followed by 60-75 days during the medium season and 48-60 days during the lean season. As far as the Purse-seiner single day labourers were concerned, the average number of days employed during the peak season was 75 days followed by 60 days during the medium season and 45-60 days during the lean season.

The average turn over/day was Rs. 8266 for the mechanized multi-day trawler operating owners, followed by Rs. 20,000 for Purseine-operating owners, followed by Rs. 350 for Multi-day trawler labourers and Rs. 650 for Purse-seiner single day labourers.

Further perusal of the table revealed that, the average daily take home income was highest for the purse-seine operating owner category ie Rs. 15,000. The average daily take home income was least for the Multi-day trawler category Rs. 300. The average volume of goods handled /day was highest for the Purse-seine operating owner i.e 5 tonnes and the least was for the mechanized multi-day trawler operating owner ie 0.5 tonnes. The average duration of work per day was 12 hours.

Further it is interesting to observe that family planning was practiced by wives in all the four categories of stake holders. Rahman etal (2002) in their study on the socio-economic conditions of the fishermen in Old Brahmaputra river, Bangladesh observed that 60 per cent of the fisher families practiced family planning. In most cases the females used oral contraceptives.

A cursory perusal of Table 1 revealed that majority of the stakeholders (60.00 per cent) belonging to mechanized multi-day trawler operating owner category had availed loans during the current year and among the other categories of stakeholders it was only 6.66 per cent who availed loans. Indebtedness has been observed to be chronic in the life of fishermen communities. (Prasad, 1987; Bhaumik, 1998). Bhaumik etal (2005) in their study on the fishermen of twin pronged flood plain wetlands in West Bengal reported that 51.60 per cent of the fishermen borrowed money often.

The average amount taken as loans was Rs. 6.80 lakhs in the case of mechanized multi-day trawler operating owners, Rs 6.80 lakhs in the case of Purse-seine operating owners, Rs.20,000 in the case of Multi-day trawler labourers and Rs.5000 for Purse-seiner single day labourers. The average rate of interest payed by the stakeholders ranged from 12-14 per cent. The main purpose of taking loans by mechanized multi-day trawler operating owners was for investing in the occupation, by purse seine operating owners for investing in occupation and for maintenance of family and by multi-day trawler labourers was for maintenance of family and by purse-seiner, single day labourers for maintenance of family.

As far as the source of loans was concerned, cent percent of the respondents of mechanized multi-day trawler operating owner category and Purse-seine operating owners opined that public banks were the major source of loans.

A study on the average operational cost/trip incurred by the operating owners of the crafts, revealed that the maximum operational cost incurred for the mechanized multi-day trawler operating owners was Rs. 40,684 followed by the Purse-seine operating owner category which was Rs. 15,766. The maximum resale value for the crafts was for purse-seines which was to the tune of 35 lakhs and for the gears it was 4.03 lakhs.

Secondary Sector stakeholders in Marine fisheries of Karnataka:

The secondary sector stakeholders form a major work force in marine fisheries. These categories of stakeholders are mainly involved in post-harvest activities. The major categories of work force include wholesale traders, loading /unloading workers, sorters at harbour and fish vendors. A perusal of Table 2 showed the profile characteristics of the secondary sector stakeholders. Among the whole sale traders it could be observed that a little more than half the number (51.61 per cent) belonged to the middle age group, followed by 90.00 per cent among the loading/unloading categories who belonged to the young age. This implies that since loading and unloading requires a lot of physical labour the majority of the stakeholders in this category were young people. Among the sorters at harbour, 67.57 per cent belonged to middle age group followed by 35.13 percent who belonged to the young age group. Among the fish vendors a little more than half the total number of respondents (53.33 per cent) belonged to the middle age group followed by 46.67 per cent who were old.

With respect to the educational status, it could be observed that among the various categories of stakeholders studied in the secondary sector, the wholesalers had relatively more of educational qualification ie 58.06 per cent of the respondents in this category had high school level of education. This is because the wholesalers were involved in trade related transactions which demanded more of educational qualification when compared to the other categories. With respect to the women fish vendors it could be seen that majority (70.00 per cent) had undergone lower primary level of education. Studies on the educational level of fisherwomen by Sathiadhas etal (2003) revealed that more than 60 per cent of the fisherwomen in Kerala State had at least primary level of education.

Studies conducted by Rahman (2002) on the socio-economic features of a traditional fishing community besides the old Brahmaputra river in Bangladesh highlight that, fishermen have a positive attitude about educating their male children. But female education beyond primary level is still unthinkable among the fishermen. It is largely due to early marriage and lack of social security for female children.

The average monthly income among the various categories of stakeholders studied in the secondary sector was highest with respect to the whole sale traders. The average monthly income of the wholesale traders was Rs 21,096. The average monthly income of the loading/unloading workers was Rs 2,240 followed by sorters at harbour with an average monthly income of Rs. 3,329 followed by fish vendors with an average monthly income of Rs. 3516.

Campbell J. and Ward A. (2004) reported that markets are also linked and trade flow have increased dramatically in recent years with more than 40% of the world's fish production by weight now entering international trade making it the most international form of food production. An obvious role of telecommunications in globalising the post-harvest sector is the use of the internet to buy and sell fish.

But even fishermen are realising the potential benefits of improved market knowledge. Small-scale fishermen in Kerala, South India, are using mobile phones to sell their fish in advance of it arriving at the beach.

Further perusal of the table revealed the average number of days engaged at work per month by the different categories. The peak period of employment for the wholesale traders is from September to November. They are employed all the 30 days of the month during this period. This period also coincides with the peak fishing season. The medium period of employment of this category was during December–May ie 25 days per month and the lean period of employment was during June-August ie 20 days per month. As far as the loading/unloading workers were concerned, the peak period of employment was during September to November when they were employed for 30 days in a month and the medium period of employment was 22 days per month during December-March and the lean period of employment was 17 days per month during March-May. As far as the sorters at harbour were concerned, the peak period of work was during September to November, medium period of work was during December-March when they were employed for 30 days per month and the lean period of employment was during March-May when they were employed for 19 days per month. The average number of days employed per month for fish vendors was 30 days during the peak season of September- November, 25 days per month during medium period of December-April and 19 days per month during May –August for the lean period.

The average investment made by whole sale traders per month in their avocation was Rs.3.90 lakhs, and by fish vendors was Rs. 1862. The average volume of goods handled /day by wholesale traders was 13.17 t, by loading/unloading workers was 5.00 t, by sorters at harbour was 7.00 t and 1t by women fish vendors. The average wages/day obtained by wholesale traders was Rs. 706, by loading/unloading workers was Rs.150, by sorters at harbour was Rs. 142 and by women fish vendors was Rs 150. The average duration of work hours per day was 9.87 hours for wholesale traders, 5.60 hours for loading/unloading workers 10-12 hours for sorters at harbour and 10 hours for women fish vendors.

Further perusal of the table showed the decision making capacities of the various categories of stakeholders. It could be observed that decision making was mainly in the hands of the husbands as far as the wholesale traders were concerned. The wholesalers were all men and cent per cent (100.00 per cent) opined that decisions in the family was taken mostly by husband and they were the custodians of money in the household. Besides the decisions regarding investments in their business were taken by the men. As far as the participation in social events was concerned, a vast majority (96.77 per cent) among the whole salers opined that both the husband and wife jointly took part in the decision making. The decision making in the case of loading/unloading workers and sorters were mainly in the hands of the husbands. But it is interesting to observe that 76.67 percent of the loading/unloading workers and 51.35 per cent of the sorters said that the wives were the custodian of money. In the case of women vendors, it could be observed that cent per cent (100.00 per cent) of the respondents opined that decisions in the family were taken mostly by the husbands but however cent percent (100.00 per cent) said that the wives were the custodians of money.

Socio-cultural values and norms also exert considerable influence on the fisherwomen's role in decision making. Anbarasan (1985) has noted two types of decision making in the family relating to home management and relating to occupation and production. Fisherwomen play a significant role as home managers and exercise an important influence over the control and management of the household budget.

Firth (1946) in his classical study on Malay fisherfolk noted that women often act as bankers and financial managers to their husbands. It is customary for the fishermen to surrender their incomes or daily earnings to their wives and the spending and saving decisions are left entirely to women.

FAO and UNDP (1982) studies reveal that cultural norms and tradition prohibit women from participating in decision-making at the village and community level which remained very much the domain of men.

A study on the facets of social life revealed that the practice of dowry existed among all the secondary sector stakeholders, with 64.52 per cent of respondents among whole sale traders opining that they practiced family planning, followed by 26.67 per cent among loading/unloading workers, 35.13 per cent among sorters and 100.00 per cent of the women fish vendors who practiced family planning. FAO studies (1982) illustrate that fisherwomen however do not appear to play decisive roles in matters pertaining to family planning, number of children desired, education of their children and general economic and social improvements of their families.

It was further observed that the average earnings/day of the stakeholder was found to be highest for wholesalers (Rs. 680.00) among the secondary sector of stakeholders studied. The average household expense was also highest for the whole salers (Rs. 6730.65).

A study on the indebtedness pattern of the categories revealed that cent per cent of the respondents had availed loans. The next in order were the women fish vendors (66.67 per cent) who availed loans. The average amount taken as loans was highest for the wholesalers to the extent of Rs.3.42 lakhs. The purpose of taking loans was for purchase of vehicle for trading of fishes and for family maintenance by the other categories.

As far as the source of loans was concerned, it could be inferred that public banks were ranked as the first preferred source of loans by the wholesalers. The loading/unloading workers and the sorters preferred friends as the most important source of loans and the women fish vendors ranked public banks as the first important source of loans followed by Co-operative societies as the second important source of loans.

The financial assets or capital of the poor stakeholders is the amount of money that they can use to get to get more of the other assets. (SCL Newsletter, 2000). According to the studies conducted by Rahman (2002), on the fisher folk of Bangladesh, the sources of financial capital for the poor fishermen are the informal credit market and the quasi-formal credit market. The chief actors of the informal credit market are the money lenders or usurers.

He further observed that the fishermen have no access to the formal credit market (scheduled banks) due to the absence of or insufficient collateral security and that the fisher folk have easy access to credit from the money lenders with flexible repayment terms as well as for a wide range range of needs.

Tertiary sector stakeholders in Marine Fisheries Sector of Karnataka:

The tertiary sector stakeholders also form an important work force in the marine fisheries sector. They include petty shop owners of landing centers, suppliers of eatables and suppliers of auxillary items to fisher folk. It could be observed from Table 3, that most of the respondents (45.16 per cent) among the petty shop owners were middle aged, 60.60 per cent of suppliers of eatables were young and 93.33 per cent of the suppliers of auxillary items to fisher folk were middle aged.

With respect to the educational status of the respondents it could be observed that none of the respondents among the three categories studied were illiterate. Majority of the respondents (80.64 per cent) among petty shop owners of landing centres had undergone high school level of education, followed by 66.67 per cent under suppliers of eatables and suppliers of auxillary items category.

Further perusal of the table revealed that the average monthly income was maximum for the suppliers of auxillary items Rs. 5736.70 followed by petty shop owners of landing centres (Rs. 3,374.00) and suppliers of eatables (Rs.3239.40).

It could be also observed that, as far as the season wise employment was concerned, there was not much variation in the number of days employed per month during the peak, medium and lean seasons which implied that their employment pattern was not dependent on the seasonality but rather they were permanent establishments whose services were utilized by the fisher community through out the year.

Family planning was adopted by cent percent of the respondents in all the three categories studied and in all categories studied it was the wives who adopted it. With respect to the indebtedness or loans availed by the respondents it could be observed that a meager per cent (12.12 per cent) among the suppliers of eatables had availed loans during the current period. The average amount taken as loan by this category of respondents was Rs. 23,750 with an average interest rate of 11.25 per cent. The loans were mainly availed for investing in business.

Among the sources of loans utilized by the respondents among petty shop owners it could be inferred from the study that, cent percent (100.00 per cent) of the respondents utilized the public banks as the sources of loans followed by private banks (87.09 per cent). The same pattern could be observed among the suppliers of eatables also. As far as the women fish vendors were concerned, it could be observed that 100 per cent of the respondents utilized the Public banks and Self-help groups for the source of loans.

Conclusion: The findings of the above study revealed that, the 3 major categories of stake holders in the marine fisheries sector namely the primary, secondary and tertiary sector are indispensable for the effective functioning of the marine fisheries sector.

It is evident from the study, that the secondary and tertiary sectors are dependent on the primary sector for their livelihood. The primary sector stakeholders who are fishermen directly involved in fishing for a livelihood have to be educated on sustainable fisheries production.

Research studies have implied that the rate of growth in marine fisheries production is plateauing if not declining. The open access nature of marine resources and the veritable lack of an enforceable property rights regime or unanimously agreeable regulatory mechanisms has led to dwindling fishery resources.

There is an urgent need for initiating management options that promote sustainable resource utilisation and stable livelihood security for the Coastal community.

During the lean period of fishing i.e. . December-January the number of days involved in fishing is less. Nevertheless, the fishermen have to invest in fuel, ice, food and labour inspite of an unassured catch. Besides during the ban period from June to August the mechanized sector remain largely unemployed. So during these periods, the fishermen have to be gainfully employed in other income generating activities such as value addition of fish and fishery products and mariculture activities which are feasible and location specific.

Fishermen need to be educated by various extension methods on management measures such as closed season, regulation of fish length, control of fishing effort, regulation of gears.

The secondary and tertiary sector which depend on the primary sector for their livelihood have to be empowered effectively by strengthening of the self-help groups through government intervention by sanction of loans through the Rural development programmes. Wavering of loans and supply of free electricity in line with the farming sector are other viable options from the point of view of policy and governmental interventions.

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