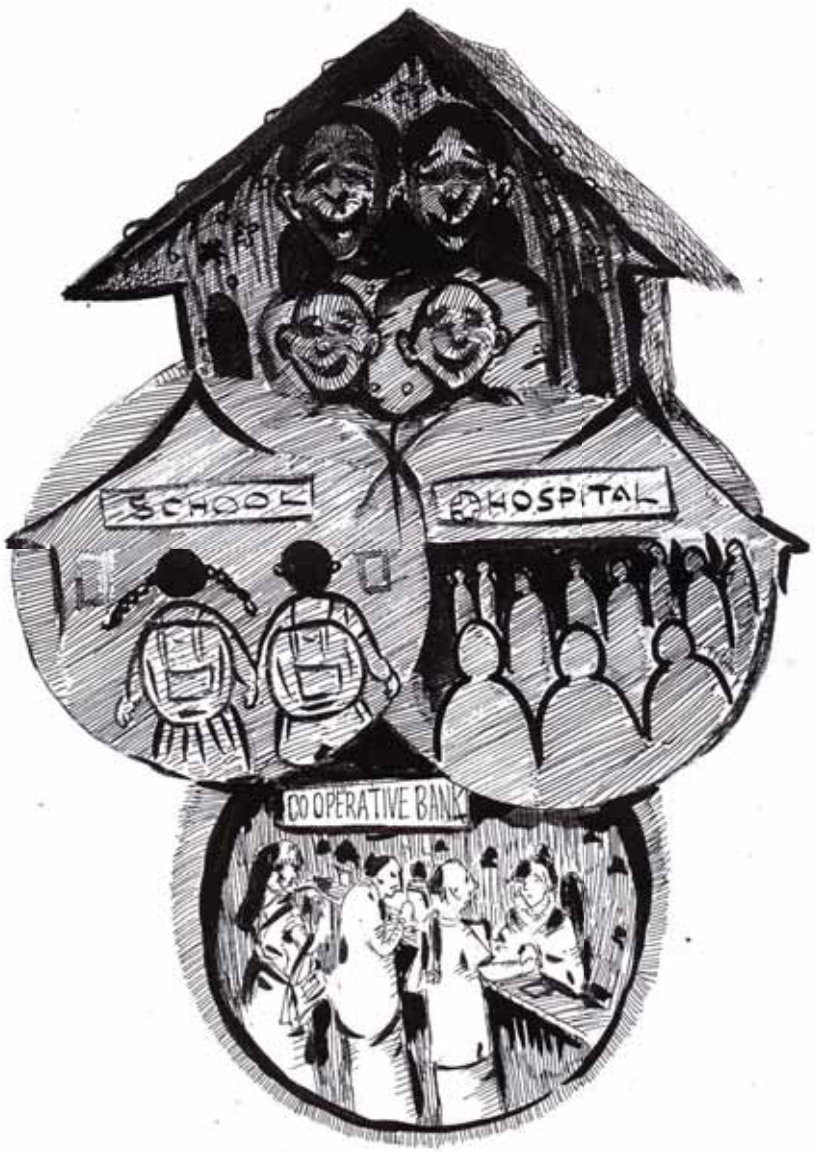
Literacy, Income and Health of Fishers in India

09



09

Literacy, Income and Health of Fishers in India

Shyam.S.Salim, R.Sathiadhas, and R.Narayanakumar

Indian fisheries and aquaculture is an important sector of agriculture, providing employment, food and nutritional security particularly to the rural poor and better access to protein rich food for all. Globally, the capture fisheries and aquaculture produced 154 million tonnes of fish in 2011 with a per capita food fish supply of 18.8 kg. During the year, India contributed 5.33 per cent of the world total fish production (4.57 per cent of the total capture fish production and 6.63 per cent in aquaculture production). India ranked second after China in the world aquaculture production. Though India is one of the largest consumers of the fish in the world, per capita consumption of fish, at 4.78 kg/head/year, is one of the lowest in the world.

The fisheries sector has been one of the major contributors of foreign exchange earnings through export. The marine products exports from India continue to surge up new heights and unabated by global recession. During 2010 the growth assumed higher significance with the exports touching around 2.3 billion dollars by January 2011 and is expected to touch 2.5 billion dollars with an expected growth of 15 per cent in terms of quantity and value. Frozen shrimp accounted for 46.92 per cent of the earnings followed by frozen fish and cephalopods. European Union is the prime geographic destination followed by US, China and South East Asia, for Indian seafood.

The general awareness about fish as a healthy food and health concerns greatly influenced the consumption of fish in the country. The demand for fish and fishery products is increasing considerably both at domestic and export markets. The total demand for fish is projected at 9.74 million tonnes for 2012 and 11.85 million tonnes by 2017. The supply projections fall short of the demand so the production and productivity issues of both inland and marine fisheries and aquaculture are to be addressed. Concerns about the quality and hygiene and greater demand for improved and value added fish and fishery products are the other areas to be addressed. Thus the current plan should address the demand and supply of fish and fishery products along with quality concerns.

Literacy, income and health are interlinked for overall development of the personality of an individual and development of the society. Education gives respect and value to an individual in a society and grades in him high among the population especially in rural communities. Education is a basic right for all human beings and an essential prerequisite for infusing self-confidence, reducing poverty, improving living conditions and building a food-secure world.

Literacy and numeracy are integral to the livelihoods of many small-scale fishing communities. Despite the educational marginalization faced by many fishing communities, there appears to be rich cultures of literacy with often-high levels of motivation for functional literacy learning. Fishing communities often face educational disadvantage due to geographical and social marginalization (FAO, 2006).

Income of the household is an important indicator of the socio economic status in a community. The fisheries sector in India has undergone rapid changes over the last six decades to develop from a sustenance fishing to the status of a multi-crore fishing industry. However the economic and social benefits associated with this transformation have not trickled down to the grass root level of the Indian fishing community. The income distribution in the sector is highly skewed in favor of the mechanized sector, which controls over 70 per cent of the total fish landings, though they account for only 30 per cent of the stake holders. The per capita area available per fishermen is gradually declining over the years. The per capita earnings also vary among the fishermen working in the three different sectors of the fishery.

Assessment of health status of fishing communities is very important. There are many factors that influence people's health. These factors are often interactive and out of individual's control. An unhealthy condition in a family has psychological and economic impact not only on the concerned individual but also on the entire household. A global study by UNICEF has estimated that in urban households of some under developed countries, the family which lost one member due to AIDS, have their income reduced by 52-67 per cent, while their expenditure increased four folds. In India, the weak, marginal section of the society is vulnerable to all sorts of health hazards including TB, lung and skin infection, AIDS, cancer and related ailments. The small and marginal section of the fishing community, which lies in the bottom of the socio economic strata, is no exception to this.

The three parameters viz., literacy, health and income are the building blocks of the pyramid of socio economic development of the community. Hence the project to assess the literacy, income and health status of the fisher folk in India was initiated to develop a strong data base for the use of administrators, policy makers, researchers and academicians. The overall objective was to assess the status of literacy, health and income of marine and inland fishers, fish farmers and workers in allied activities both in capture and culture systems. The entire fishing arena was divided into marine and inland sectors and further classified into capture and culture sub sector. The distribution of samples for the entire study were as follows.

Table 9.1: Distribution of samples for the entire study

Sl. No:	Sector / Sub sector	Samples	States Represented
I.	Marine Sector		
A.	Marine Capture	1649	Kerala, Karnataka, Goa, Maharashtra, Gujarat, West Bengal, Orissa, Andhra Pradesh
B.	Mariculture	225	Kerala and Tamil Nadu
II.	Inland		
A.	Inland capture		Kerala, Karnataka, Gujarat, West Bengal, Orissa, Andhra Pradesh
1.	Lakes, Riverine, Reservoir	981	Kerala, Karnataka, , Gujarat, West Bengal, Orissa, Andhra Pradesh, Tamil Nadu, Assam, Kerala, Uttar Pradesh, Madhya Pradesh, Jharkhand, Bihar
2.	Cold water	50	Himachal Pradesh and Uttarakhand
B.	Inland culture		
1.	Freshwater Aquaculture	502	Assam Andhra Pradesh Punjab, West Bengal, Orissa , Tamil Nadu
2.	Brackish water Aquaculture	409	Andhra Pradesh , Odisha, Kerala and Tamilnadu
III.	Marketing and Processing	648	Kerala, Gujarat, Andhra Pradesh, Maharashtra, Delhi
	Total	4464	

The data was collected with the pre-tested schedule from the selected sample respondents giving due representation for different regions and fishery activities.

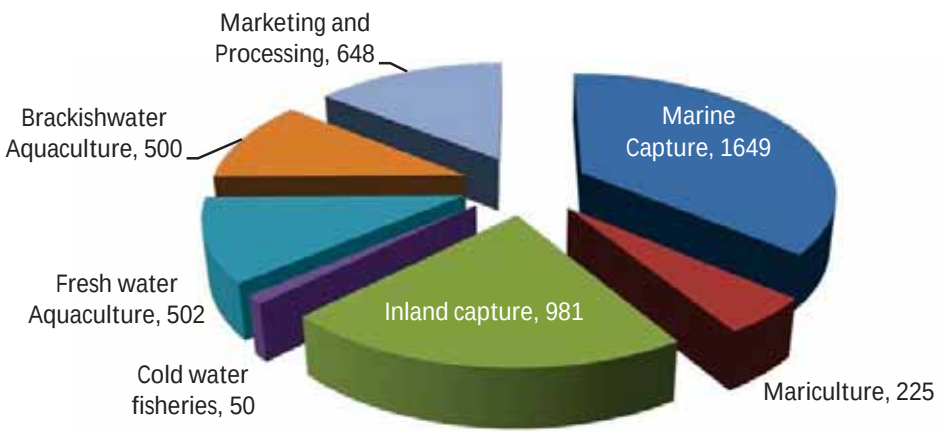


Fig. 9.1: Distribution of respondents across sector

The results on the assessment of the literacy, health and income of the respondent households across the different sectors and sub sectors were discussed in the preceding Chapters 2 - 8.

The summary and conclusion chapter attempts to compare the results across the different themes and discuss on their status. The comparison is discussed under the following heads

(A) General particulars
(B) Literacy status
(C) Health status
(D) Income status

A. General particulars

The general particulars of respondent's households included age, family size, family composition etc.

Table 9.2: Age distribution of the sample respondents (Years)

Sl. No.	State	<35	36-55	>56	Total
1.	Marine Capture	425	887	337	1649
2.	Mariculture	57	142	26	225
3.	Inland capture	353	456	172	981
4.	Cold water fisheries	13	28	9	50
5.	Freshwater Aquaculture	172	240	90	502
6.	Brackishwater Aquaculture	65	254	90	409
7.	Marketing and processing	213	355	80	648
8.	Total	1298	2362	804	4464

(i) Age distribution

The age distribution of respondent households are given in Table 9.2. The age distribution of the sample respondents across the different sectors indicated that 51.75 per cent of the respondents were of the age group of 36-55 and 30.76 per cent of the respondents were of the age group less than 35. The age group of more than 56 years was represented by 17.50 per cent of the sample respondents across the sector. It is heartening to note that the fisheries sector continues to attract the young and medium age group (Figure 9.2)

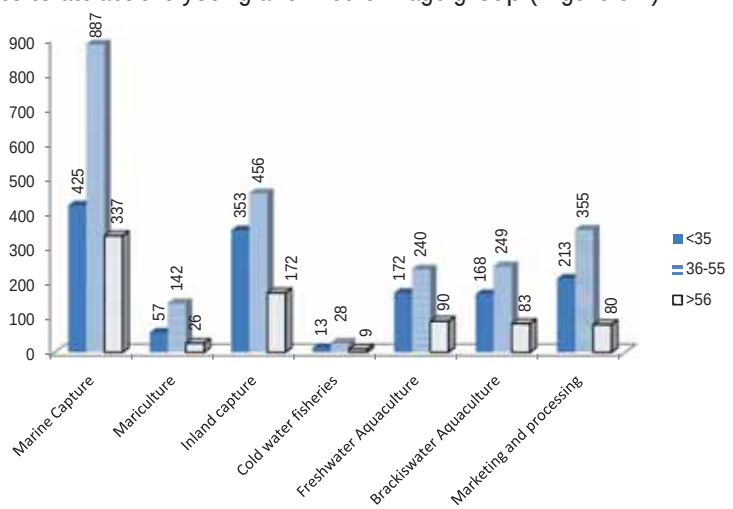


Fig. 9.2 Age distribution of respondent households across sectors

(ii) Family composition

The family composition of the respondents is indicated in Table 9.3

The family composition of the respondents in terms of male and female indicated that the male outnumber the females and the male - female ratios was estimated as 1.13.The male female ratios ranged from 1.04 in marketing and processing sector to 1.47 in the case of cold water fisheries. The results are in conformity with the national average of 1.15.

Table 9.3: Family composition of the respondent households –Male and Female (Number)

Sl. No.	Sector	House-holds	Male	Female	Total	Male Female Ratio
1.	Marine Capture	1649	3954	3570	7554	1.11
2.	Mariculture	225	441	393	834	1.12
3.	Inland capture	981	243	215	458	1.13
4.	Cold water fisheries	50	122	83	205	1.47
5.	Freshwater Aquaculture	502	1000	805	1805	1.24
6.	Brackish water Aquaculture	500	895	758	1653	1.18
7.	Marketing and processing	648	1265	1214	2479	1.04
8.	Total	4555	7920	7038	14988	1.13

(iii) Family size

Family sizes of the respondent households are given in Table 9.4 the small family norm is mostly adopted by the fisher households of India. The average size of family in India worked out to be 4.34 ranging from 3.70 in mariculture to 4.78 in fresh water aquaculture. It is interesting to note that 46.76 per cent of fisher households have a family size of 2-4 members and 38.99 per cent of the households in India is housing 5-6 members and hardly 4.61 per cent of households are having more than 7 members in the family. There exists no difference in the family size across the different sectors which indicate the popularization of the small family norms across the states (Figure 9.3).

Table 9.4:Family size of the respondent households (Number)

Sl. No.	Sectors	Family Size					Total	Average family size
		<2	2-4	5-6	7-10	>10		
1.	Marine Capture	0	840	629	180	30	1649	4.56
2.	Mariculture	1	184	40	0	0	225	3.70
3.	Inland capture	3	468	386	115	9	981	4.68
4.	Cold water fisheries	4	4	21	22	3	50	4.10
5.	Fresh water Aquaculture	6	299	147	48	8	502	4.78
6.	Brackish water Aquaculture	3	312	135	43	7	500	4.51
7.	Marketing and processing	0	27	418	190	13	648	4.03
8.	Total	17	2130	1776	598	70	4555	4.34

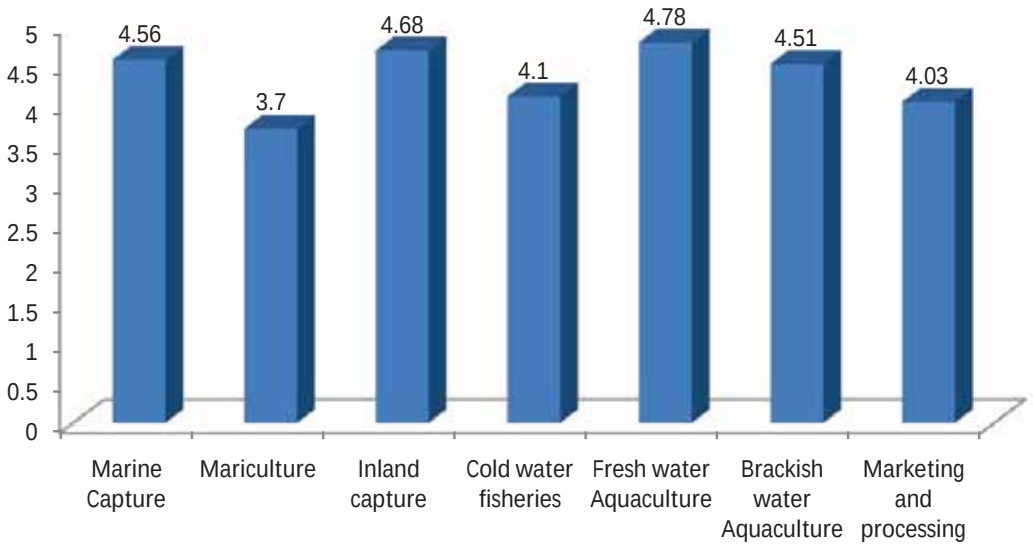


Fig 9.3: Average family size of the respondent households

(iv) Age composition

The classification of fisher population as adults (above 15 years) and children (less than 15 years) is given in Table 9.5.

The male - female ratio of the adult group (>15 years) was found to be 1.10:1.00 whereas the same for the children (<15 years) was found to be 1.14:1.00. Adult males in the age group of above 15 year outnumber the females in all the sectors and it was also noticed among the the children (<15years) The adult to child ratio was found to be 2.45 for the total sample and it ranged from 1.51 in inland capture sector to 3.73 in brackish water aquaculture(Figure 9.4).

Table 9.5: Age composition of the respondent households (Number)

Sectors	Adult (> 15 years)		Children < 15 years)		Total		Depend-ency Ratio
	Male	Female	Male	Female	Male	Female	
Marine Capture	2717	2567	1194	984	3911	3551	2.43
Mariculture	339	310	102	83	441	393	3.51
Inland capture	1479	1282	953	877	2432	2159	1.51
Cold water fisheries	84	55	38	28	122	83	2.11
Fresh water Aquaculture	843	792	240	210	1083	1002	3.63
Brackish water Aquaculture	772	592	188	178	960	770	3.73
Marketing and processing	904	867	244	232	1148	1099	3.72
Total	7138	6465	2959	2592	10097	9057	2.45

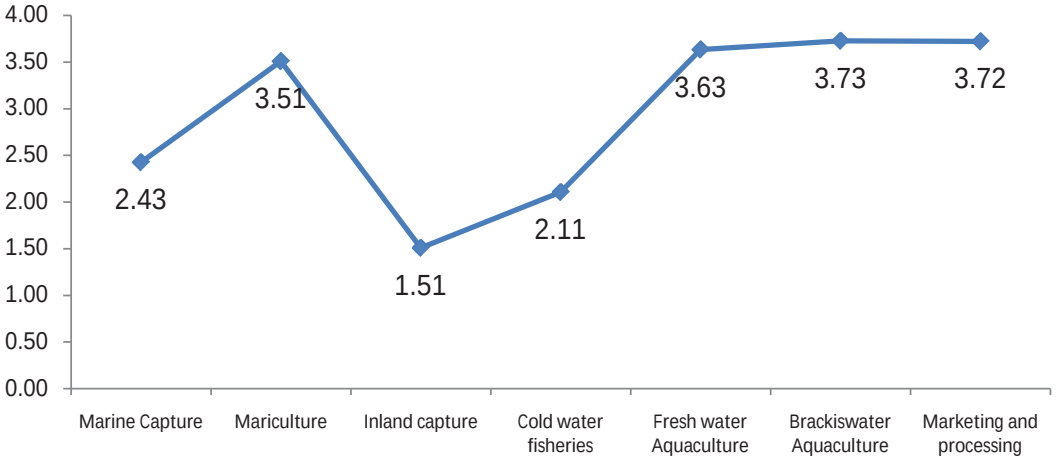


Fig 9.4 Dependency ratio of respondent households across sectors

B. Literacy status

The literacy status of the respondent households was analyzed through the literacy level, educational status – continuing and dropouts and access to educational facilities. The illiterate indicates fisherfolk without any formal education and who don't even possess functional literacy.

(i) Literacy status

The literacy status includes the level of education as indicated by primary, secondary and collegiate. The primary level indicates schooling till fourth grade, secondary level is indicated by high school, secondary and vocational education. The collegiate level of education was denoted by collegiate and professional education.

The general literacy rate of India as a whole was 73.52 per cent (Census-2001) against the literacy rate of 64.64 per cent among the fisherfolk. The results indicate that among the literates 32.85 per cent have primary level of education, 53.88 per cent have secondary level of education and 13.10 per cent have collegiate level of education. The overall literacy rate for the total samples was found to be 79.37 per cent much higher than the sector literacy rate across the country.

The literacy rate ranged from 70.99 per cent in inland capture sector to 95.44 per cent in mariculture. The results indicated that the literacy does not seem to be skewed towards any particular sector among the fisher population. Also the literacy indicates higher level when compared to the state and sector average.

Table 9.6: Literacy status of respondent households (Number)

Sl. No.	Sector	Total	Illiterate	Literate	Primary Level	Secondary Level	Collegiate Level	Literacy rate
1.	Marine Capture	7486	1504	5765	1761	3268	736	77.01
2.	Mariculture	834	11	796	280	468	48	95.44
3.	Inland capture	4226	1226	3000	1265	1518	217	70.99
4.	Cold water fisheries	215	52	163	81	55	21	75.81
5.	Freshwater Aquaculture	2139	201	1689	460	821	408	78.96
6.	Brackish water Aquaculture	1730	352	1322	412	652	258	76.41
7.	Marketing and processing	2391	462	1930	558	1120	247	80.96
8.	Total	19021	3808	14665	4817	7902	1935	79.37

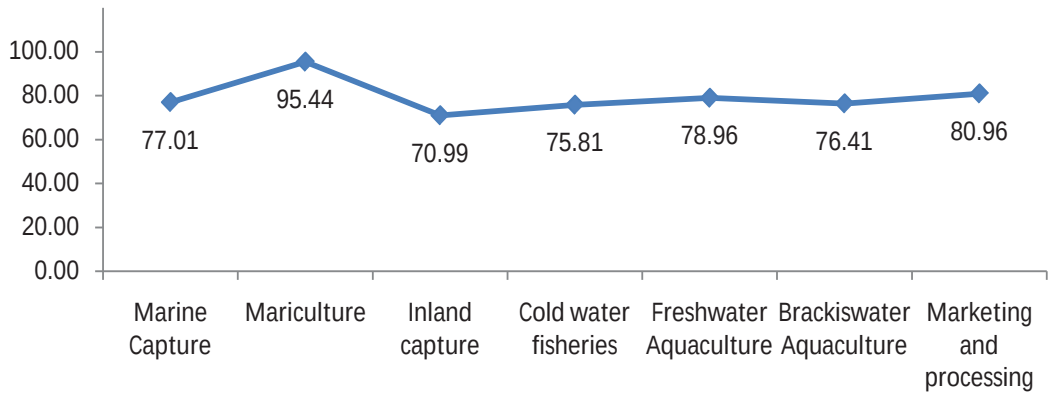


Fig 9.5: Literacy rates of respondents across sector

(v) Educational profile

The information on education of the respondents in terms of continuing and discontinuance of education would provide the scope for employment opportunities, possible migration, and alternative avocation of the sample households. Thus continuing and dropout ratios were calculated among the respondent households across the different sectors.

The dropouts were more at secondary level of education with 50.90 per cent while the dropout at primary level of education was about 41.08 and that of collegiate level was 8.02 per cent . The continuing and dropout ratios was 0.62 for the entire sector ranging form 0.44 in brackish water sector to 0.99 in the case of marketing and processing sector. Alternative source of livelihood, possibility of seeking employment in fisheries enterprises, scope of labour can be the reasons for the increasing dropouts among the urban States (Figure 9.6).

Table 9.7: Educational status of respondent households - Continuing and Dropout Number)

Sl. No.	Sector	Con-tinuing	Drop outs				CD Ratio
			Primary	Sec-ondary	Colle-giate	Total	
1.	Marine Capture	1721	942	1698	292	2932	0.59
2.	Mariculture	208	175	226	15	416	0.50
3.	Inland capture	1142	733	896	174	1803	0.63
4.	Cold water fisheries	56	57	29	7	93	0.60
5.	Fresh water Aquaculture	805	873	394	70	1337	0.60
6.	Brackish water Aquaculture	761	812	813	105	1730	0.44
7.	Marketing and processing	769	142	570	66	778	0.99
8.	Total	5462	3734	4626	729	9089	0.62

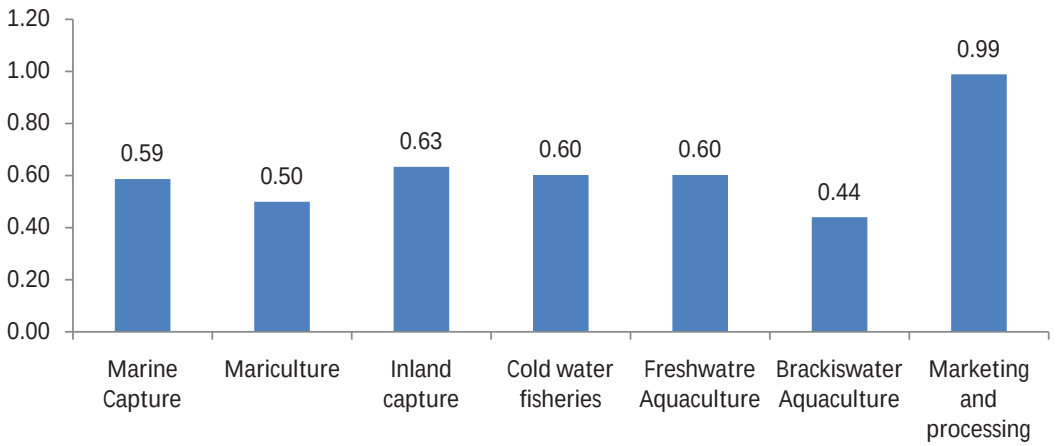


Fig 9.6: Continuing Dropouts ratio among respondent households

(iii) Access to educational institutions

Access to education is an important yardstick to measure the socio-economic well being of a society. The proximity of the educational institutions like primary school, high school, college and professional college provides a major impetus when it comes to continuing education. This was something the fisherfolk were said to be denied earlier which was disproved by this analysis.

The access to education was analyzed by finding the distance to nearby educational institutions. The average distance from fishing villages to nearby primary, high school, college and professional institution is given in table 9.8. As a whole the average distance to a primary school is 1.46 km, high school 3.40 km, college 13.33 km and professional institution 19.48 km from fishing villages in India. The average distance to primary school ranges from 0.90

km in freshwater aquaculture to 3.23 km for brackish water aquaculture. The average distance to high school ranges from 1.90 km in freshwater aquaculture to 6.67 km for brackish water aquaculture. The average distance to colleges ranges from 8 km in marine capture to 24.24 km for mariculture sector. The average distance to professional colleges ranges from 11.90 km in marketing and processing sector to 29.04 km for mariculture. The results very clearly indicate the reasons for growing literacy among the fisherfolk. Thus the analysis clearly indicate that the improved or increased access to educational facilities has helped to increase the literacy level of the fisherfolk.

Table 9.8: Access to education (km)

Sl. No.	Sector	Distance to nearby educational institution (in km)			
		Primary School	High School	College	Professional College
1	Marine Capture	1.05	2.59	8	12.44
2	Mariculture	0.92	2.16	24.24	29.04
3	Inland capture	1.32	4.23	11.73	19.83
4	Cold water fisheries	1.38	3.22	21.04	27.79
5	Fresh water Aquaculture	0.9	1.9	11.3	21.2
6	Brackish water Aquaculture	3.23	6.67	8.26	16.23
7	Marketing and processing	1.41	3	8.73	11.9
8	Total	1.46	3.40	13.33	19.78

C. Health status

The average life expectancy of people in the country is worked out at 65.5 years ranging from 62.8 years for male to 68.2 years for female.

The health status of the respondent households was studied based on the parameters like administration of vaccines, incidence of discontinuation, birth weight of infants, incidence of maternal and child mortality at the time of birth, incidence of common diseases and special ailments among adults and children. Disease management aspects like access to health care, problems in health management and suggestions to improve the health care facilities are also dealt in this session.

(i) Vaccination regime of infants / children (less than 15 years)

The average age of administration of vaccination and incidence of discontinuation among infants/ children with age less than 15 years in the different fishing sectors of India is furnished in table 9.9. The vaccination for Pox, BCG, MMR and Polio were regularly taken by all the families covered under the study. The average age at which the vaccination for pox was given to the child worked out to 1.79 years ranging from 1.00 year in freshwater aquaculture sector to 6.20 years in the case of cold water fisheries sector .The average age at which the vaccination for BCG was given to the child worked out to 1.08 years ranging from 0.69 years in cold water fisheries and inland capture sector to 2.62 years in the case of marine capture fisheries sector. The average age at which the vaccination for MMR was given to the child worked out to 1.21 years ranging from 0.96 years in inland capture fisheries sector to1.90 years in the case of cold water fisheries sector. The average age till which the vaccination for polio

was given to the child worked out to 4.67 years ranging from 3.58 years in inland capture sector to 5.70 years in the case of cold water fisheries sector.

Table 9.9: Vaccination regime of infants / children (less than 15 years) – Average age of administration and incidence of discontinuation

Sector	Average age of administration and incidence of discontinuation (percentage)									
	Pox		BCG		MMR		Polio		Others	
	Age	IOD (per cent)	Age	IOD (per cent)	Age	IOD (per cent)	Age	IOD (per cent)	Age	IOD (per cent)
Marine Capture	1.05	Nil	2.62	Nil	1.20	Nil	4.50	Nil	0.10	1.05
Mariculture	1.13	Nil	0.75	Nil	1.20	Nil	4.44	Nil	Nil	Nil
Inland capture	1.05	6.81	0.69	1.14	0.96	1.47	3.58	0.63	Nil	Nil
Cold water fisheries	6.20	17.30	0.69	56.25	1.90	59.15	5.70	40.15	6.20	55.63
Freshwater Aquaculture	1.00	Nil	0.67	Nil	0.98	Nil	5.00	Nil	Nil	Nil
Brackish water Aquaculture	1.02	Nil	0.89	Nil	1.12	Nil	5.00	Nil	Nil	Nil
Marketing and processing	1.05	Nil	1.24	Nil	1.09	Nil	4.50	Nil	0.10	1.05
Total	1.79		1.08		1.21		4.67		2.13	

Normally polio administration continues till the age of 5 years

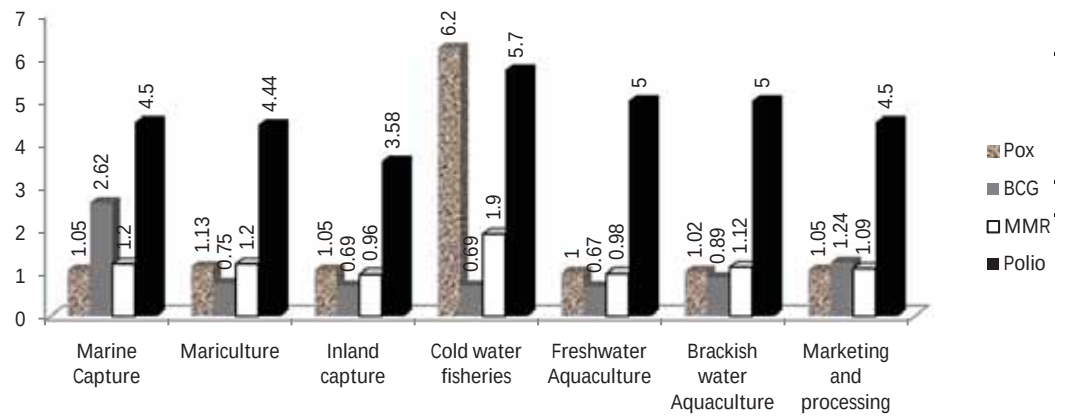


Fig 9.7: Average age of administration of vaccines

The reason for the discontinuation of vaccination regime of infants is given in Table 9.10. The traditional beliefs and lack of awareness about the availability of vaccines, lack of time to access the vaccination, lack of sufficient doses of vaccine at the locality and poor reliability on vaccines provided by government agencies were listed as the reasons for discontinuation of vaccination in the questionnaire. However in Indian fisheries sector sporadic cases of discontinuation of vaccination among the infants of fisherfolk were reported in the inland capture and cold water fisheries sector.

Table 9.10: Vaccination regime of infants / children - Reason for the discontinuation (Frequency)

Sl. No.	Reasons	Marine Capture	Mariculture	Inland capture	Cold water fisheries	Fresh water Aquaculture	Brackish water Aqua-culture	Marketing and pro-cessing
1	Traditional beliefs	1		22	7	Nil	Nil	Nil
2	Lack of awareness about the availability of vaccines	0	Nil	25	6	Nil	Nil	Nil
3	No time to access the vaccination	0	Nil	16	5	Nil	Nil	Nil
4	Lack of sufficient doses of vaccine at the locality	3	Nil	11	20	Nil	Nil	Nil
5	Poor reliability on vaccines provided by government agencies	1	Nil	8	Nil	Nil	Nil	Nil

(ii) Birth weight of infants

The birth weight of infants in fisher households for the sector is given in Table 9.11. The average birth weight of males was 2.72 kg and female was 2.67 kg. The average weight of male infants ranges from 2.60 kg in inland fisheries sector to 2.90 kg in the case of freshwater aquaculture. The average weight of female infants ranges from 2.57 kg in inland fisheries sector to 2.80 kg in the case of freshwater aquaculture (Figure 9.8)

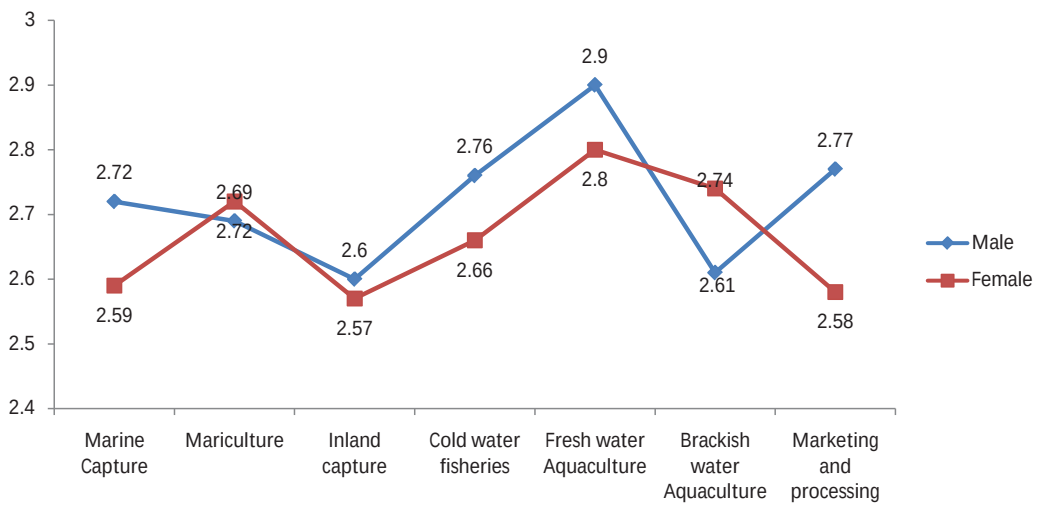


Fig 9.8: Birth weight of infants

Table 9.11: Birth weight of infants (kg)

Sl. No.	Sector	Weight (kg)		
		Male	Female	Total
1.	Marine Capture	2.72	2.59	2.65
2.	Mariculture	2.69	2.72	2.71
3.	Inland capture	2.60	2.57	2.59
4.	Cold water fisheries	2.76	2.66	2.71
5.	Fresh water Aquaculture	2.90	2.8	2.85
6.	Brackish water Aquaculture	2.61	2.74	2.68
7.	Marketing and processing	2.77	2.58	2.68
8.	Total	2.72	2.67	2.69

(iii) Incidence of mortality among mother/child during birth

Maternal and child mortality at the time of birth and infant mortality has been pressing concerns over the past. It was found that there exists no incidence of maternal mortality

Table 9.12: Incidence of mortality among mother/ child during birth (Number)

Sl. No.	Sector	No. of delivery	Mortality of mother/ child during birth				
			Mother	Maternal mortality rate	Child	Child mortality rate	Total
1.	Marine Capture	410	3	5.94	15	2.57	18
2.	Mariculture	8	0	0.00	0	0.00	0
3.	Inland capture	860	6	0.70	37	4.30	43
4.	Cold water fisheries	51		0.00	2	3.92	2
5.	Fresh water Aquaculture	312		0.00		0.00	0
6.	Brackish water Aquaculture	382	2	0.52	9	2.36	11
7.	Marketing and processing	342		0.00		0.00	0
8.	Total	2365	11	0.20	63	1.88	74

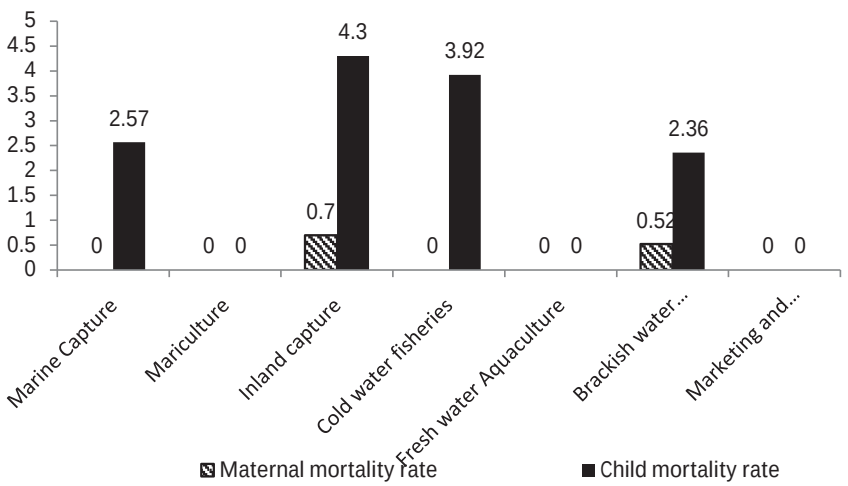


Fig 9.9: Maternal and Infant Mortality rates across sectors

across all selected respondent fisherfolk across the different sectors and is found to be 0.20 per cent for maternal mortality rate and 1.88 per cent for infant mortality rate . The maternal mortality rate was 5.94 for marine capture sector and 2.57 per cent in marine capture fisheries. (Table 9.12).Generally in India; adequate care is being taken now to reduce the incidence of maternal and infant mortalities.

(iv) Incidence of diseases among adults and children

The incidence, frequency, and previous occurrence of diseases among the adult family members and children across the different sector revealed that the major diseases found among the respondents were categorized under two groups, viz; common diseases and special ailments. Fever/flu, body ache, diarrhoea, gastroenteric disease, skin disorder, reproductive disorders were the common diseases studied on. Special ailments include diseases like cardiac failure, tuberculosis, anaemia, diabetics, blood pressure, AIDS and others were also considered.

The most common diseases found among the respondent families were fever and body ache. On an average most recent occurrence of fever/flu found among male members of the respondent families was 2.17 months and it was 2.98 months among female members .In the case of body ache the previous occurrence was found in 2.23 months in males and 0.89 months ago in females. Occurrence of diarrhoea and skin disorder was seen among male members only in the last quarter of the year.

Major diseases found among the children in the study area were fever/flu, body ache, diarrhoea, gastroenteric disease, skin disorder etc of which fever was the most popular disease found among the children. The average frequency of fever among male children was 2.15 times per year and a total of 71 male children were affected by fever across the different sectors last year. In the case of female children a total number of 48 were affected by fever with an average annual frequency of 2.19 times per year.

Incidence of diarrhoea was also high among the children with a total frequency of 1.90 times per year among the male children and 1.65 times per year among female children. Body ache and skin disorder were also found among children of respondent families .Occurrence of special ailments among the children was found to be very low compared with that of common diseases. Only anaemia was reported among the children of respondent families across the sector.

(v) Access to health care

The access to health care is also an important parameter, which determines the continued health of the fisherfolk. Often the distance leads to the non treatment or its delay. The access to health care was measured using the distance required to avail the same. (Table9.13). The results indicate that there exists considerable access to the primary health centre and hospital. The access to primary health centre ranged from 1.67 km in the mariculture sector to 8.31 km in the case of cold water fisheries. The access to hospitals ranged from 4.32 km in the mariculture sector to 21.3 km in the case of brackish water fisheries. (Figure 9.10)

Table 9.13: Access to health care (km)

Sl. No.	Sector	Access to Health care (km)	
		Primary Health Centre	Hospital
1.	Marine Capture	2.31	7.51
2.	Mariculture	1.67	4.32
3.	Inland capture	2.31	11.1
4.	Cold water fisheries	8.31	15.24
5.	Fresh water Aquaculture	2.3	6.8
6.	Brackish water Aquaculture	2.9	21.3
7.	Marketing and processing	2.68	6.63
8.	Total	3.21	10.41

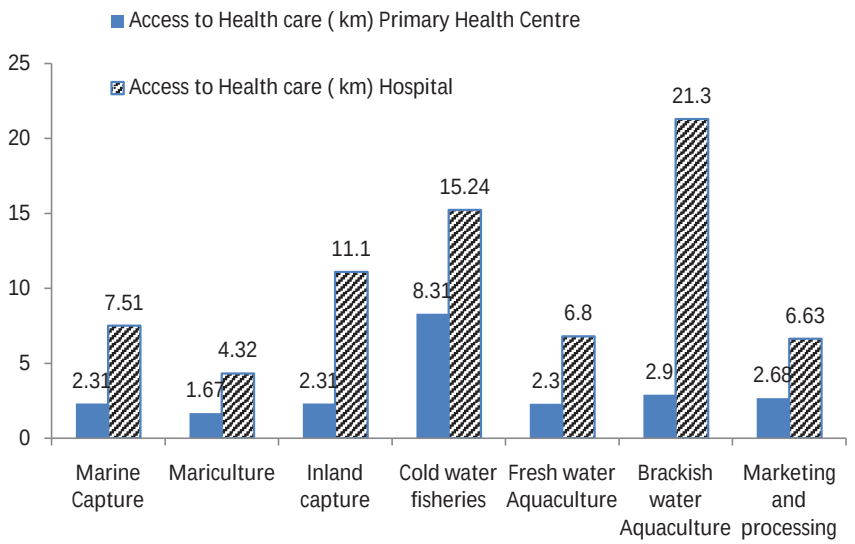


Fig 9.10: Access to health care facilities(km)

(xv) Problems in health management

The major problems in health management was analyzed based on the opinion of the sample respondents. The major reasons cited by the respondents are indicated in Table 9.14. The major problem suggested include non availability of specialist and paramedicines in health centres, difficulty in accessing the hospital due to distance, problems on cleanliness/ sanitation, lack of adequate effective medicines, poor infrastructure, drinking water problem and work related stress. Some of the respondents perceived work related stress as a problem in health management. Drinking water problem was found to be a significant problem in the capture sector.

Table 9.14: Problems in health management (Frequency)

Sl. No.	Problems	Marine Capture	Mariculture	Inland capture	Cold water fisheries	Fresh water Aquaculture	Brackish water Aquaculture	Marketing and processing	Total
1	Difficulty in accessing the hospital due to distance	45		155	25	28	89	66	405
2	Non availability of specialist and paramedicines in health centers	213	40	167	34	58	32	106	1081
3	Poor infrastructure	136	22	159	22	37	12	43	431
4	Lack of adequate effective medicines	207	28	190	22	29	23	60	559
5	Problems on Cleanliness/ Sanitation	80	50	341		38	34	34	577
6	Drinking water problem	95	79	198	28	12	11	22	445
7	Work related stress	17	17	54	23	29	43	1	184
9	Total	793	236	1264	154	231	244	332	3685

D. Income status

The income profiling of the respondent households are analyzed using income patterns, respondents involvement in non fisheries activities and expenditure pattern. In addition the indebtedness and savings were analyzed using details on savings, indebtedness , sources of lending organization, purpose of availing loan and suggestions for enhancing the income and employment generation.

Table 9.15: Income status of the respondents across sectors (Monthly Rs.)

Sl. No.	Sector	Enterprise					
		Fishery	Labour	Agriculture	Business	Others	Total
1.	Marine Capture	6757	957	270	577	182	8742
2.	Mariculture	4720	1785	175	85	44	6809
3.	Inland capture	1333	576	297	377	74	2657
4.	Cold water fisheries	1997	889	812	255	164	4117
5.	Fresh water Aquaculture	4976	287	549	274	81	6166
6.	Brackish water Aquaculture	4768	702	751	846	438	7505
7.	Marketing and processing	5865	724	17	194	227	7027
8.	Total	4345 (70.68)	846 (13.77)	410 (6.67)	373 (6.07)	173 (2.81)	6146 (100)

Figures in parenthesis indicate percentage to total

The income sources of the respondent households comprised of income from fishery, business, agriculture, labour services, and other service sectors. The highest monthly average income was through fisheries sector with an average amount of Rs. 4345 (70.68 % of the total income) followed by income from business sector at Rs. 846 (13.77 %), labour at Rs. 410 (6.67 %) for agriculture, Rs 373 (6.07 %) for business and Others Rs. 173 (2.81 %).

The highest average monthly income was noticed in marine capture sector at Rs. 8742 and the least was noticed in inland capture sector (Figure 9.14).The fisheries monthly average income was most for marine capture fisheries sector followed by marketing and processing and the least for inland capture. Labour monthly average income was most for mariculture (Rs. 1785) and the least for freshwater aquaculture (Rs. 287). Agricultural monthly average income was most for cold water fisheries (Rs. 812) and least for marketing and processing sector (Rs. 17).

The details of the income pattern of the respondent household across the different sectors are given in Figure 9.11 and 9.12.

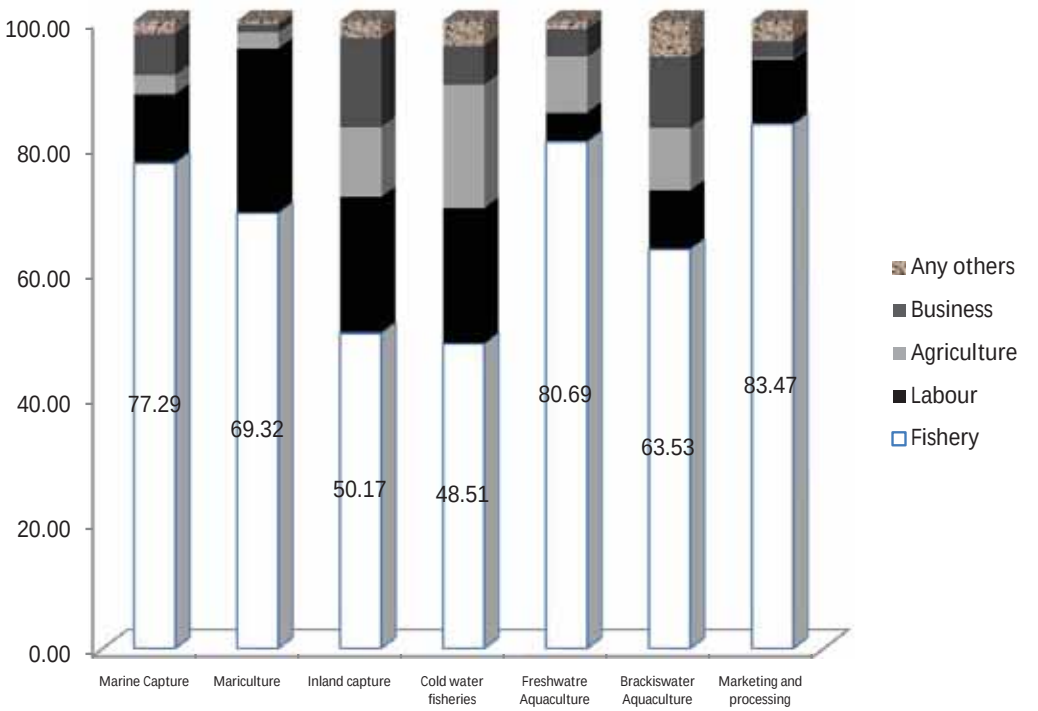


Fig. 9.11: Income from different enterprises across different sector

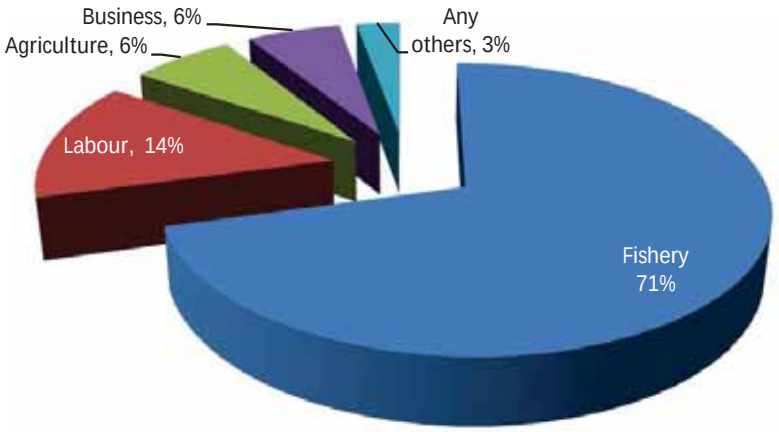


Figure 9.12: Income patterns of respondents across sectors

(i) Involvement in non fisheries activities

The Involvement of respondents' households in non fisheries activities are illustrated in the Table 9.16.

The analysis on the respondents' households involvement in the non fisheries activities indicated that 71.45 per cent of the total respondents were involved in non-fisheries activities, which provided an additional source of income. Among the non fisheries activities it was found that labour was the most important source of income followed by business. The labour as a source of income was highest for fresh water and brackish water aquaculture. The major non fishing activities involved by respondents were business, labour, and other service sectors. The total number of respondents involved in business was 769. The result clearly indicated the existence and practice of alternative avocation in the selected households across the different sectors (Figure 9.13 and 9.14).

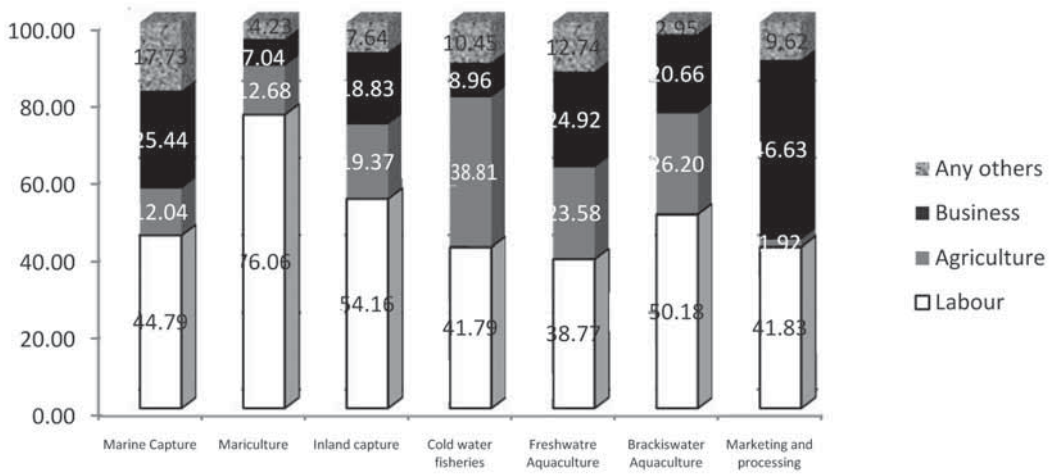


Fig 9.13. Respondents involvement in different enterprises

Table 9.16: Respondents involvement in non-fisheries activities

Sl. No.	Sector	Labour	Agri-culture	Busi-ness	Any oth-ers	Total
1	Marine Capture	331	89	188	131	739
2	Mariculture	54	9	5	3	71
3	Inland capture	397	142	138	56	733
4	Cold water fisheries	28	26	6	7	67
5	Freshwater Aquaculture	347	211	223	114	895
6	Brackish water Aquaculture	272	142	112	16	542
7	Marketing and processing	87	4	97	20	208
8	Total	1516	623	769	347	3255

(ii) Pattern of expenditure

The average monthly expenditure pattern of the different heads worked out that on an average Rs. 5107.90 was incurred on the households with a share of Rs.1910.75 (40.31 per cent) for food, Rs.698.65 for personal expenses, Rs 696.10 for durables, Rs.440.70 for education, Rs. 484.13 for clothing and Rs. 391.04 for medical facilities. The maximum monthly expenditure per family was observed in marine capture fisheries sector and least for inland capture fisheries (Table 9.17).

It is seen from the table that food contributed to the maximum share of family expenditure. Education, Entertainment and Social Security measures hold increasing proposition in the family expenditure across the selected coastal states.

Table 9.17: Pattern of expenditure of the fisher family (Monthly Rs)

Sl. No.	Sector	Items								
		Food	Clothing	Fuel	Medical	Education	Entertain-ment	Personal	Durables	Total
1.	Marine Capture	2741.98	547.48	374.78	665.22	487.58	424.70	893.04	826.57	6961.37
2.	Mariculture	2341.37	479.00	340.00	397.00	410.15	240.00	1916.00	245.00	6368.52
3.	Inland capture	1056.37	186.05	96.61	166.37	195.27	65.04	150.80	167.69	2084.20
4.	Cold water fisheries	886.00	454.50	267.00	413.50	732.50	107.00	463.00	145.50	3469.00
5.	Freshwater Aquaculture	1306.42	218.50	109.25	186.63	341.40	100.14	423.34	1866.32	4552.00
6.	Brackish water Aquaculture	3036.26	461.23	390.00	446.98	533.65	249.31	499.81	318.76	5936.00
7.	Marketing and processing	2006.86	1042.14	238.14	461.57	385.00	403.29	544.57	1302.86	6384.43
8.	Total	1910.75	484.13	259.40	391.04	440.79	227.07	698.65	696.10	5107.9

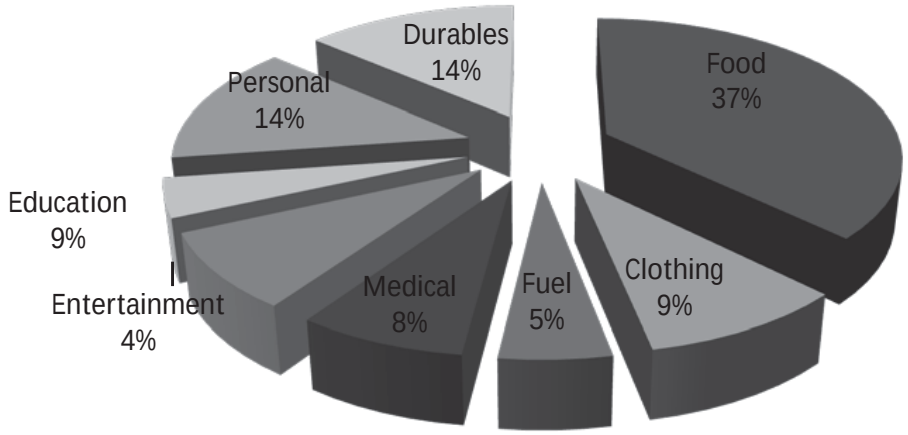


Fig: 9.14: Pattern of expenditure of the fisher family (Monthly Rs.)

(iii) Indebtedness and Savings

The saving details of the respondent's household indicated that 59.10 per cent of the respondents have no savings. 30.97 per cent of the respondent households possessed a saving of less than `50000, 5.99 per cent of the respondents have a saving of between Rs. 50,000 to 1,00,000 and 3.65 per cent of the respondents had a saving of more than one lakh rupees (Figure 9.16 and 9.17).

It was found that around 10 per cent of the respondents from the freshwater aquaculture and brackish water aquaculture sector possess saving of more than a lakh.

Table 9.18: Saving details of respondent households

Sl. No.	Sector	Frequency of respondents having Savings				Total
		Nil	< 50 k	50-100.00k	>100.00K	
1.	Marine Capture	1081	499	59	2	1641
2.	Mariculture	173	32	16	4	225
3.	Inland capture	275	407	77	17	776
4.	Cold water fisheries	22	28	0	0	50
5.	Freshwater Aquaculture	352	62	42	46	502
6.	Brackish water Aquaculture	378	33	36	52	499
7.	Marketing and processing	206	236	21	32	495
8.	Total	2487	1297	251	153	4188

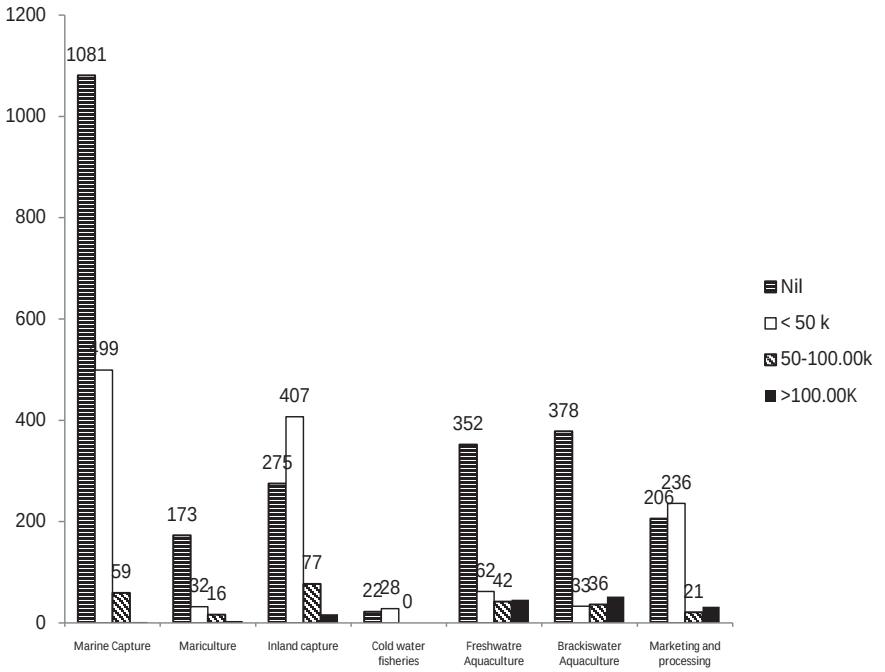


Fig: 9.15: Savings details of respondent fishers across different sector

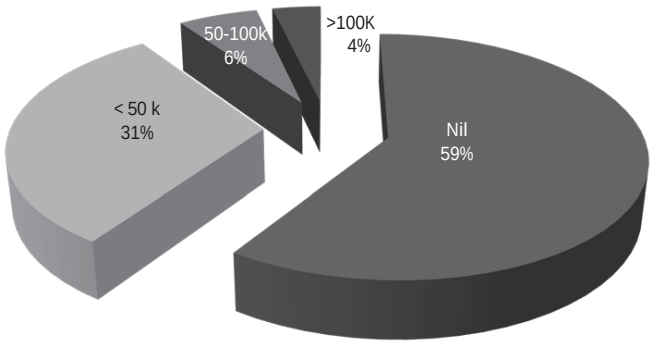


Fig 9.16: Details of respondent fishers possessing savings across different sector

(iv) Indebtedness

The lack of savings and the need for the sustenance of the livelihood often lead to indebtedness.

The results indicated that the average amount of indebtedness per person was Rs. 39,807 and the average amount repaid was Rs. 9149.23.The average level of repayment was found to be 25.93. The per cent level of fishers indebted was found to be 48.12 per cent.

The average level of amount indebted was highest for marketing and processing (Rs. 70643.14) and the lowest was for inland capture sector (Rs. 21133.40). The repayment was the highest for inland capture (46.27 per cent) and lowest for marketing and processing (10.56 per cent) . The level of fishers indebted was most in brackish water sector (55.20 per cent) and lowest for cold water fisheries sector (30.00 per cent) (Figure 9.17 and 9.18)

Table 9.19: Level and extent of indebtedness across sector

Sl. No.	Sector	Number of persons	Average	Average	Per cent repaid	Total	per cent fishers indebted
1.	Marine Capture	785	32027.66	6941.82	21.67	1649	47.60
2.	Mariculture	101	29931.85	5945.27	19.86	225	44.89
3.	Inland capture	478	21133.40	9778.51	46.27	981	48.73
4.	Cold water fisheries	15	35946.00	14269.00	39.70	50	30.00
5.	Fresh water Aquaculture	238	48797.00	12456.00	25.53	502	47.41
6.	Brackish water Aquaculture	276	40173.00	7197.00	17.92	500	55.20
7.	Marketing and processing	299	70643.14	7458.43	10.56	648	46.14
8.	Total	2192	39807.44	9149.43	25.93	4555	48.12

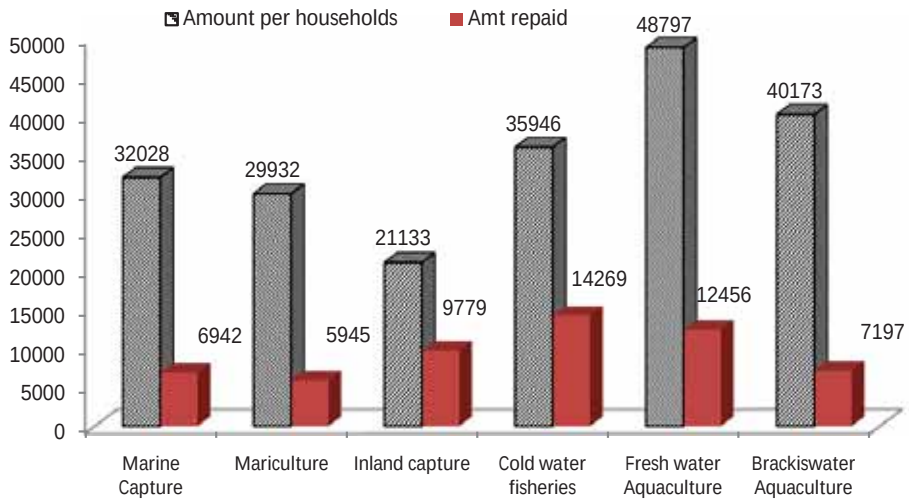


Fig: 9.17: Average Level of indebtedness

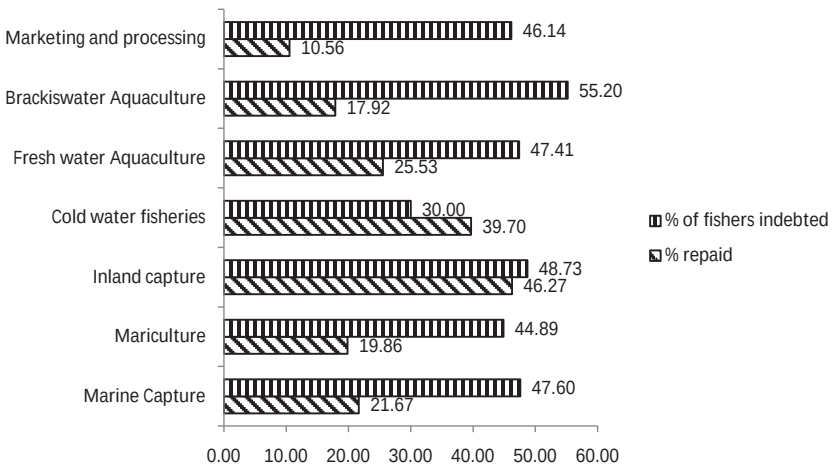


Fig 9.18: Level of repayment

(v) Sources of lending

The indebtedness often results in availing loans from different institutions. The major sources of lending organizations include banks, co-operatives, private money lenders, friends/ relatives and jewel loans. The details of the sources of money lending as availed by the respondent households is furnished in Table 9.20.

A total of 1966 respondents had availed loans for various purposes. It was found that banks provided the maximum (501) followed by private money lenders (482).

Private money lenders were the major source of lending for the marine capture, inland capture sectors. Jewel loans were found to be a major source for lending in the marine capture and marketing and processing sector (Figure 9.19).

Table 9.20: Sources of lending

Sl. No.	Sources	Marine Capture	Mariculture	Inland capture	Cold water fisheries	Fresh water Aquaculture	Brackish water Aquaculture	Marketing and processing	Total
1.	Banks	179	40	105	2	77	38	60	501
2.	Co-operative	76	30	54	5	9	42	50	266
3.	Private money lenders	246	21	142	8	21	18	26	482
4.	Friends / Relatives	37	0	16	0	2	6	60	121
5.	Jewel loans	169	6	2	0		12	118	307
6.	(SHGs)	132	5	68	0	42	10	32	289
7.	Total	839	102	387	15	151	126	346	1966

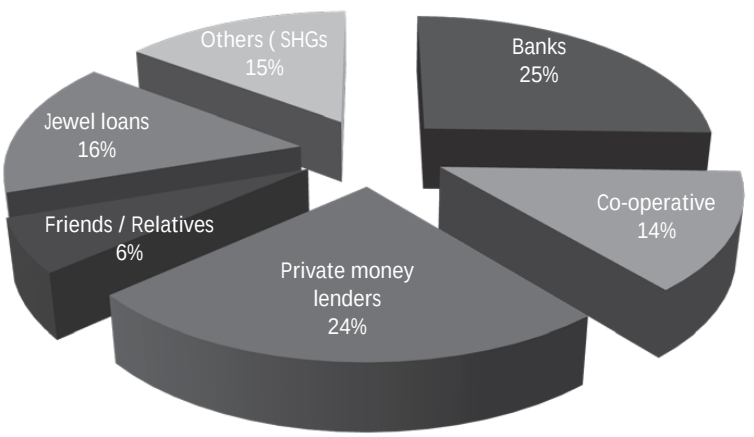


Fig 9.19. Sources of lending

(vi) Purpose of availing loans

The details on the purpose of availing loans and number of loans availed by the respondent households are indicated in Table 9.21.The major purposes for which loans were availed included purchase of craft/ gear and other fishing related equipment/aquaculture , house construction / land purchase, marriage expenses., education and health and social security etc (Figure 9.20).

Fisheries and aquaculture related activities like purchase of gears and other fishing related equipments were found to be the purpose of availing loans amongst 34.99 of the respondents across the sector .The purpose of house construction and land purchase was the major reason for availing loans among 12.27 per cent of the respondents across the sector. Marriage expense, Security and Education and Health was found as the reasons for availing loans among 7.51, 5.60 and 4.97 per cent of the respondents across the sector.

It was found that on an average only 34.99 per cent of the loans availed were used for the fisheries and aquaculture related activities ranging from 24.39 per cent in inland capture to 80.00 in cold water fisheries (Figure 9.20).

Table 9.14: Purpose of availing loans

Sl. No.	Purpose	Marine Capture	Mariculture	Inland capture	Cold water fisheries	Fresh water Aquaculture	Brackish water Aquaculture	Marketing and processing	Total
1.	Purchase of craft/ gear and other fishing related equipments / Aquaculture	280	31	90	8	366	245	149	1169
2.	House construction/ Land purchase	128	0	52	2	69	93	66	410
3.	Marriage expense	50	41	98	0	0	19	43	251
4.	Education	53	11	31	0	20	32	19	166
5.	Health and Social Security	43	8	1	0	3	10	122	187
6.	Any others (business and purchase)	160	8	97	0	44	101	34	444
6.	Total	714	99	369	10	502	500	433	3341

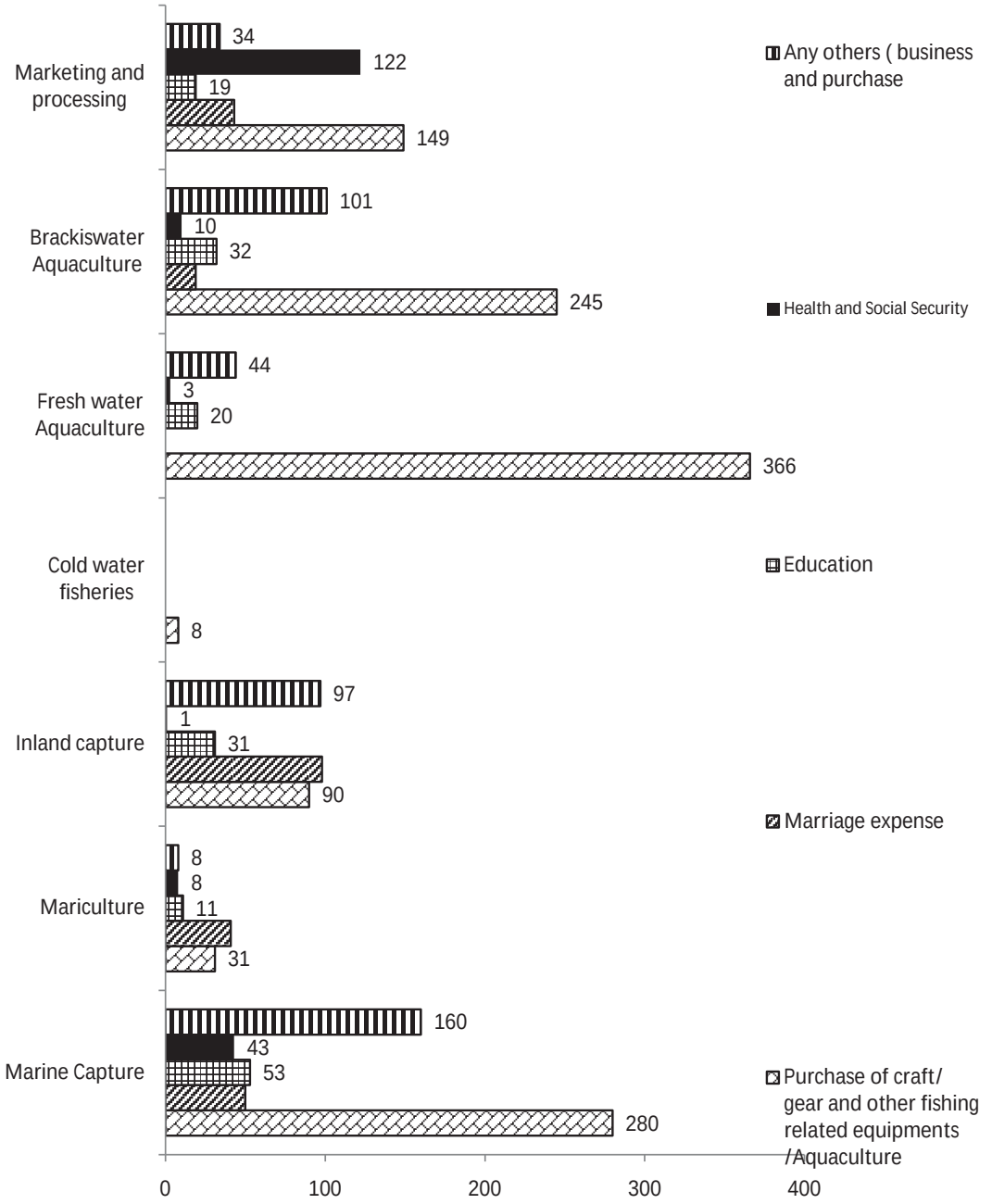


Fig 9.20 Purpose for availing loans

Conclusion

The study on the assessment of the literacy, income and health of the fishers concluded that

- The fishers literacy levels are comparable with agriculture households
- The access to educational institutions are good or even better of when compared to agriculture
- The health status appears appreciable with no life style disease noticed
- The health parameters related to child birth rate, mortality rate are highly appreciable on comparison
- Marginal infant and maternal mortalities are reported
- The income levels doesn't indicate any poverty among the household even though relative poverty exists
- The level of indebtedness is high but with more than 20% repaid
- Major sources of lending organisation was found to be institutional credits
- 25 per cent or more of the loans was facilitated through private money lenders
- The usage of loans had been mostly for non fisheries purposes leading to NPAs

AN ASSESSMENT OF LITERACY, HEALTH AND INCOME OF FISHERS IN INDIA

SURVEY SCHEDULE

A.	Name of the fisher / farmer				
(i)	Primary Occupation If Allied Specify	Capture / Culture / Allied			
(ii)	Address				
1.2	Phone No. / Mobile No. with STD code				
I	**Literacy Profile**				
	Family members	Age	Sex	Educational level	Continuing (C) / Drop out (D)
(i)					
(ii)					
(iii)					
(iv)					
(v)					
(vi)					
(vii)					
2.0	**Distance in km to nearby**				
(i)	Primary school				
(ii)	High school				
(iii)	College				
(iv)	Professional colleges				
II	**Health Profile**				
1.0	**Vaccination regime of infants / children (less than 15 years)**				
	Disease	Done at what age (year)		Has ever been discontinued (Y/N)	If Yes Why?
(i)	Pox				
(ii)	BCG				

(iii)	MMR								
(iv)	Polio								
(v)	Any Others								
2.0	**Birth weight of infants**								
	Sex	Weight (kg)							
(i)	Male								
(ii)	Female								
3.0	**Is there any death of mother/ child during delivery in your family?**								
(i)	If yes, mother or child?								
(ii)	Reasons								
4.0	**Problem / Disease** (F- Times in a year) (P- Previous occurrence-months back)	Adult				Child (Both 5-15 &<5 yrs)			
		M		F		M		F	
		F	P	F	P	F	P	F	P
(i)	Fever / Flu								
(ii)	Body Ache								
(iii)	Diahorrea								
(iv)	Gastroenteric disease								
(v)	T.B.								
(vi)	Cardiac failure								
(vii)	Skin disorder								
(viii)	Reproductive disorders								
(ix)	Anemia								
(x)	AIDS								
(xi)	Any other								
5.0	**Disease Management**								
(i)	Distance to nearby	PHC : km				Hospital: km			
(ii)	Are u satisfied with the facilities	Y/ N		If No Then why?					
(iii)	Problems in health management								
(iv)	Suggestions								
III	**Income profile**								
1.0	**Share of total income (Weekly) of the fisher family**								
	Source	Income (Rs.)							
(i)	Fishery								

(ii)	Labour	
(iii)	Agriculture	
(iv)	Business	
(v)	Any Other	
(vi)	Total	
2.0	**Pattern of expenditure of the fisher family (Weekly)**	
	Item	Expenditure (Rs.)
(i)	Food	
(ii)	Clothing	
(iii)	Fuel for cooking	
(iv)	Medical expenses	
(v)	Education	
(vi)	Entertainment expenses	
(vii)	Personal expenses	
(viii)	Durables (Annual)	
3.0	**Indebtedness and Savings**	
(i)	Saving Details	
(ii)	Is there any indebtedness	Yes or No
(iii)	If Yes Amount :	
(iv)	Lending organization	
(v)	Purpose	
(vi)	Details of repayment	
(vii)	Reason for non repayment	
(viii)	Suggestions	

Signature of the investigator: : _____

Name of the investigator: _____

Date:

Place: