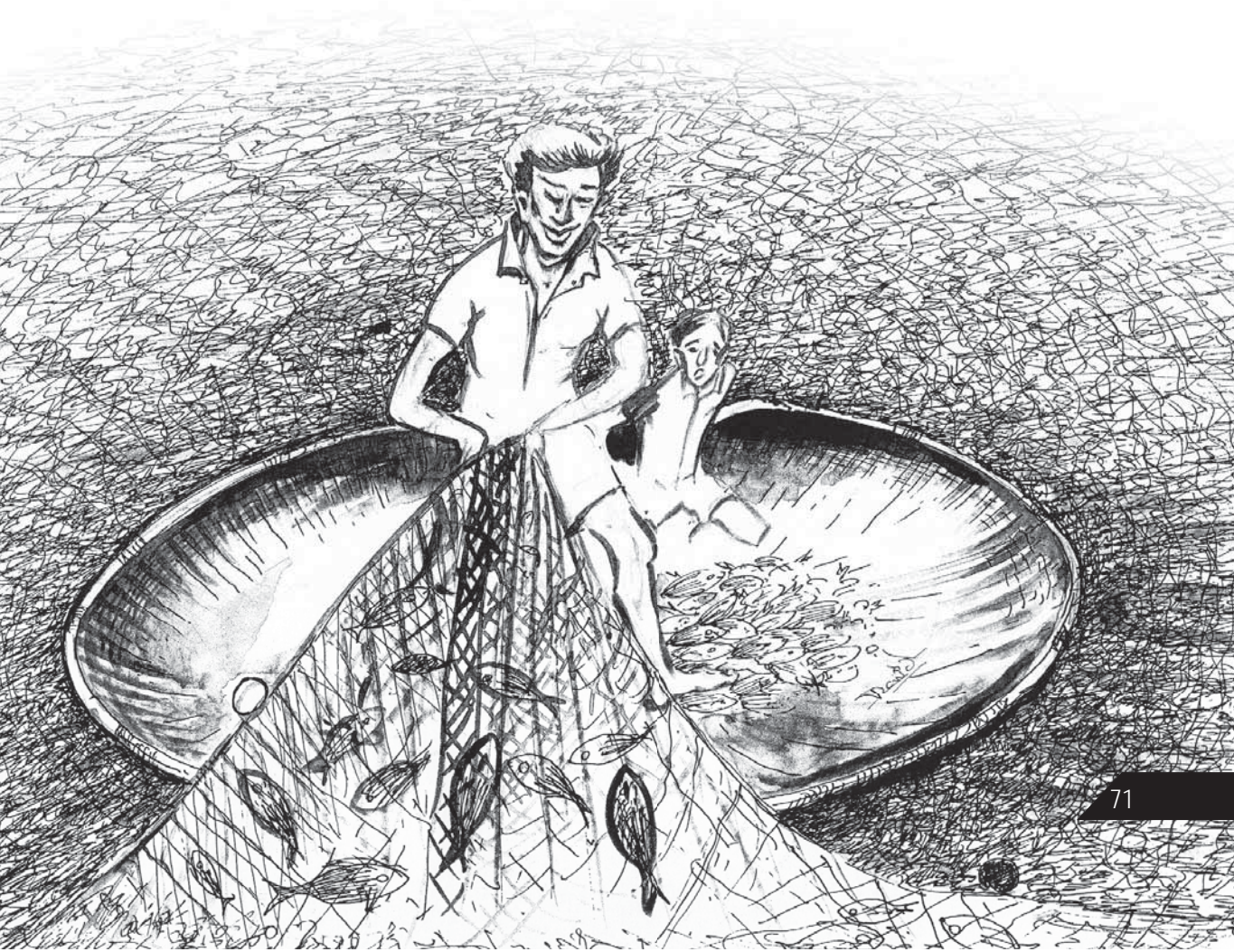


Inland Fisheries

04



## Livelihood Status of Fishers in India



## **Inland Fisheries**

Pradeep Katiha, Shyam S. Salim, B.Ganesh Kumar, Nagesh Kumar Barik, R.Narayanakumar, M.Krishnan, Nikitha Gopal, K.Ponnusamy

### **Introduction**

The Indian fisheries date back to time immemorial, but, the saga of success has been related to early post independence years. With renewed accent on optimum utilization of country's aquatic wealth for fisheries, the Government of India earmarked an ambitious programme of mechanization and modernization through upgradation of technology during early fifties. Therefore, Indian fisheries witnessed impressive transformation from a highly traditional rural activity to technologically sound well developed industry.

Indian fisheries sector has growing steadily from the first plan onwards with the annual fish production of 0.754 million tonnes during 1950-51 to the level of 9.57 million tonnes during 2012-13.

Contribution of the sector to agriculture and national GDP increased steadily over the past years. The GDP of fisheries sector reached at Rs. 78,000 crore during 2012-13 from about Rs. 9,000 crore during 1993-94. Currently, fisheries contribute 0.83 per cent to national GDP of the country and 4.74 per cent of agricultural and allied activities.

### **The paradigm shifts in Indian fisheries**

During the last decade paradigm shift from marine fisheries to inland fisheries in terms of production became clear. Further increasing contributions from aquaculture over fisheries during last two and half decades in inland sector established freshwater aquaculture as major contributor to Indian fisheries. The encouraging signals of growing inland culture-based fisheries in reservoirs and flood plain wetlands and mariculture are observed during XI plan (Katiha 2009, 2009 a, b). Diversification has been significant at all stages from production to consumption. It is from food fish to ornamental fish, carp to catfish, coastal fisheries to deep sea fisheries, exportable items (from shrimp to a variety of products) and from domestic to overseas markets of number of countries.

### The inland fisheries resources

Indian inland waters include rivers, reservoirs, aquacultural waters (ponds and tanks), estuaries and flood plain lakes. Since, aquacultural waters are covered under other chapter; the brief status of inland open waters in the country is described below.

### Rivers

The river systems of India may be classified into two major groups, namely, Himalayan or extra-peninsular rivers and peninsular rivers (Sinha and Katiha, 2001). The general profile of these groups is mentioned below.

### The Himalayan or Extra-Peninsular Rivers

Originating from the Himalayas to transverse great alluvial Indo-Gangatic plains, these snow and rainfed rivers are characterised by complicated flood regimes and seasonal variations in volume of flow. Descending on the plains, they become sluggish and inundate vast land area. These rivers may be categorised into three systems, the Ganga, the Brahmaputra and the Indus. The Ganga river system has a combined length of 12500 kms and a catchment area of 97.6 million ha. The Ganga, Ghagra, Gomti, Ramganga, Kosi, Gandak, Yamuna, Chambal, Sone and Tons are the major rivers of this system. These rivers are spread over most of the north Indian states (except the hilly states) to extend upto West Bengal through Bihar. In the upland waters the commercial fisheries is virtually absent, due to inaccessible terrain and other exploitation problems. The stretch of river Ganga from Haridwar to Lalgola is recognised as one of the richest source of fisheries in India, comprising highly priced major carps, hilsa and catfishes. Mid September to June are peak months for fishing. During lean period of monsoon months the fishing activities are generally confined to river banks.



Fig. 4.1 River Yamuna

The combined length of the Brahmaputra river system is 4023 km. with catchment area of 51 million ha. Originating from Tibet, the river flows through northern slopes of Himalayas to enter India at north-east corner of Arunachal Pradesh. It has 918 km stretch in India, including 730 km only in Assam. Its northern tributaries Subansiri, Kameng and Manas are large with steep, shallow-braided channels, whereas those on the southern bank,

Buri Dihing, Dhansiri and Kopilli are deeper with meandering channels and low gradient. The Brahmaputra valley is marked for its abandoned river beds (beels) supporting rich fishery. Catfishes, and major and minor carps dominate the commercial catches of upper middle and lower stretches, while the commercial catch in lower-middle stretch primarily composed of catfish and miscellaneous catch.

In case of the Indus river system, main Indus and its tributaries in upper, Beas and Sutlej in the lower reaches are important from Indian fisheries viewpoint. Its headwaters in the states of Kashmir, Himachal Pradesh and Punjab mainly harbour mahseer, snow trout, some cyprinids and exotic trouts. The rivers Beas and Sutlej contain indigenous carps and catfishes, which are commercially exploited.



Fig. 4.2 Brahmaputra river

### **The Peninsular Rivers**

The torrential and rain fed, peninsular rivers have well defined stable course. These include two river systems, the East Coast and the West Coast. The East Coast river system has vast expanse of water in the states of Orissa, Madhya Pradesh, Maharashtra, Andhra Pradesh, Karnataka and Tamil Nadu. This river system mainly has four constituent rivers; the Mahanadi, the Godavari, the Krishna and the Cauvery have a combined length of 6437 km and catchment area of 121 million ha. This system drains entire Peninsular India and east of Western Ghats in the west and south parts of central India. Besides its own fish fauna of several carps, catfishes, murrels, and prawn, the system is repeatedly enriched by transplantation of Gangatic carps.

The combined length of rivers of West Coast river system and catchment area are 3380 km and 69.16 million ha, respectively. The Narmada and the Tapi are the longest rivers of system along with 600 small rivers. Its rivers are distributed in the states of Gujarat, Maharashtra and Madhya Pradesh. The fish fauna of the system consists of carps, catfishes, mahseers, prawns, etc.

The riverine resources has major share in inland capture fish production. But, during past few decades riverine ecosystem witnessed marked alterations, due to mammoth human interventions in the form of water abstraction, dam construction, sedimentation, and irrational fishing. These have discerningly disturbing affect on natural riverine fish production, which showed continuous declining trends. The fisheries of anadromous hilsa have declined by 96

## Livelihood Status of Fishers in India

per cent above Farakka after construction of Farakka barrage in 1974. These examples of Ganga river system may be extended to depict the status of fish production in all the rivers of India. The restoration of riverine fisheries would entail an integrated approach encompassing the requirements of fisheries along with other uses of land and water. It will help to uplift the socio-economic status of riparian fishers.

### Reservoirs

During post independence period, large number of river valley projects created a chain of impoundments, which are highly amenable for fishery activities. These manmade water bodies created by obstructing the surface flow, by erecting a dam of any description, on a river, stream or any water course are called reservoirs (Sugunan, 1995). These are generally classified into small (<1000 ha), medium (1000-5000 ha) and large (>5000 ha). The area under these water bodies is on a continuous increase by adopting more and more reservoirs for fisheries. At present in India total area under reservoirs is 3.15 million ha, out of which small reservoirs occupy 1.49 million ha followed by large 1.14 million ha and medium 0.52 million ha. Among the states, maximum percentage area under reservoirs is in Madhya Pradesh (14.6) followed by Andhra (14.54), Karnataka (13.87) and Tamil Nadu (11.38).

Among different sized reservoirs, maximum annual production was from small reservoirs (49.9 kg/ha) followed by medium (12.3 kg/ha) and large 11.43 (kg/ha) with overall average of 20.13 kg/ha in mid nineties. Despite the amenability for fish production and a production potential in the range of 50-300 kg/ha, the present yield from reservoirs in India was very



Fig. 4.3 Reservoir in Uttar Pradesh

low (Katiha, 2007). The large and medium reservoirs are generally managed as stocking cum capture fisheries resources. The management policies based on norms of stock manipulation through selective stocking and harvesting operations have been suggested to rectify the imbalances in species spectrum and to increase fish yield. For small reservoirs, culture based management is considered the best. During XI Five Year Plan under a massive Reservoir Fisheries Development Programme of NFDB, the reservoirs were stocked in most of the states of country. An assessment of impact of this programme indicated the fish yield from

small reservoirs at 174 kg/ha and overall 110 kg/ha (Katiha et al., 2011). The potential of reservoir fisheries is estimated as follows

Table 4.1 Projected fish yield from reservoirs

Sl. No.	Category	Area (lakh ha)	Yield (kg/ha) (1994-95)	Yield (kg/ha) (2010)*	Targeted yield (2017) (kg/ha)	Yield gap (kg/ha)
1.	Small	14.9	50	174	250	76
2.	Medium	5.3	12	94	125	31
3.	Large	11.4	11	33	50	17
4.	Total	31.5	30	110	166	56

Table 4.2 Projected fish production from reservoirs

Sl. No.	Category	Area (lakh ha)	Production (1994-95) (lakh t)	Production (2010) (lakh t)	Targeted production (2017) (lakh t)	Expected increase (lakh t)
1.	Small	14.9	0.74	2.59	3.73	1.14
2.	Medium	5.3	0.07	0.50	0.66	0.16
3.	Large	11.4	0.13	0.38	0.86	0.48
4.	Total	31.5	0.94	3.47	5.25	1.78

## Estuaries

The estuarine capture fishery forms an important component of inland fisheries. The open estuarine system includes Hoogly-Matlah and Mahanadi estuarine systems. Godavari estuary is the main estuary of peninsular India, with Adyar Mankanam and Mandovi as other estuaries and Chilka, Pulicat and Vembanad as important brackish water lagoons (Katiha 2002a, b). These estuaries and lagoons are recognised as excellent sources of naturally occurring fish and prawn seed. The fisheries of the estuaries are considered as above the subsistence level. The average yield varies between 45-75 kg/ha.

## Flood plain lakes

India has extensive flood plains in the form of oxbow lakes (mauns, beels, chauras and jheels) especially in the states of Assam, Bihar and West Bengal. These are shallow, nutrient rich water bodies formed due to change in course of the river. Some of these retain connection with the main river, at least in monsoons, while others have lost it permanently. Due to their high production potential these are adopted for aquaculture based capture fisheries. The areas having river connections can be exploited optimally by keeping the deeper central zones exclusively for capture fisheries and renovating the marginal pockets for culture fisheries. The fish yield and production potential of these waters is mentioned below:

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Fig. 4.4 Floodplain wetland with katal in Assam

Table 4.3 Projected fish yield from the floodplain wetlands

Sl. No.	States	Area (lakh ha)	Yield (kg/ha) 2000-01	Yield (kg/ha) (2010)	Targeted Yield (2017) (kg/ha)	Yield gap (kg/ha)
1.	West Bengal	0.43	225	500	2000	1500
2.	Bihar	0.40	120	250	500	250
3.	Assam	1.00	150	400	1200	800
4.	Uttar Pradesh	1.52	175	320	900	580
5.	N.E. States	0.19	75	150	500	350
6.	Total	3.54	162	347	1050	703

Table 4.4 Projected fish production from the floodplain wetlands

Sl. No.	Category	Area (lakh ha)	Production in 2000-01 (lakh t)	Production (2010) (lakh t)	Projected (2017) (lakh t)	Expected increase (lakh t)
1.	West Bengal	0.43	0.10	0.21	0.85	0.64
2.	Bihar	0.40	0.05	0.10	0.20	0.10
3.	Assam	1.00	0.15	0.40	1.20	0.80
4.	Uttar Pradesh	1.52	0.27	0.49	1.37	0.88
5.	N.E. States	0.19	0.01	0.03	0.10	0.07
6.	Total	3.54	0.57	1.23	3.72	2.49

Inland capture fishery is a labour intensive activity, represented mainly by traditional fishers, fishing in natural community or common property waters, while the aquaculture in the country witnessed an impressive transformation from highly traditional activity to well developed industry. The sector has vast production potential particularly for inland aquaculture and culture-based fisheries resources. It showed an average growth of 4.43 per cent over the plan periods. Inland fishery sector has grown steadily to about 1.1 million tonnes within 2010-11 (Ayyappan, 2011). Although, evolved as a livelihood activity, fisheries sector in India had made rapid changes and transformed itself favouring aquaculture, but the importance of inland fisheries is still recognised due to the major source of original fish germplasm and



extensive livelihood, food and nutritional support to rural populace in the country (Katiha, 2009).

The central and state governments have taken number of steps to improve fish production and productivity, and to organise the fishermen community and initiate schemes for their development. These resulted in formation of 16818 primary fisheries co-operatives, 113 district/regional level federations, 21 state level federations and one national level federation. The primary co-operative societies have above 22.7 lakh members (Mishra, 2011). Number of schemes/organisations aimed at improving fish production and productivity through horizontal or vertical expansion, and increase in adoption of improved technologies. Despite these sincere efforts, production from fishery waters is much below potential, and for some of the capture fishery resources, it is declining. The impact of fisheries developmental activities could not be realised as per expectations due to the very nature of resource under use, which has multiple water use rights and may be designated as common pool resource (CPR). Furthermore, most of the fishing waters belong to state governments, except some under the private property right. The government authorised various agencies to manage the fishery activities in these waters. It also led to exploitation of the fishers. Till date no comprehensive investigation has been done to study the fisher community of inland open waters of rivers, reservoirs, floodplain wetlands and estuaries, the studies conducted are in piece meal (Sinha and Katiha, 2001). In this context, it is pertinent to have an in-depth study of their socio-economic conditions to have better idea of demographic pattern, literacy, health, employment and income status of this poor community. With this background, present study is planned and implemented in different states of the country.

### **Scope of the study**

The study will provide a framework for drawing suitable programmes for the upliftment of traditional fisher folk with particular focus on their literacy, health, employment and income profiling. In short, the study will be highly useful to researchers, planners and policy makers in overcoming the problems of the socio economic parameters which determines the sustained development of the fisher folk.

### **Objective**

The overall objective of the study is to document the socioeconomic status of fishers in fisheries across the different inland states in India. However the specific objectives are to assess the status of literacy, health and income of inland fishers in India.

### **Methodology**

The study was based on the data collected from primary and secondary sources. The primary data was collected from selected respondents using comprehensive and pre-tested questionnaires. The primary data provided concise, clear, complete, and unbiased information about the respondent. The important variables considered for the study were gender, age, literacy, health, employment income and indebtedness parameters

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The inland open waters are distributed all over the country including maritime states. They include rivers reservoirs, floodplain wetlands, estuaries and lakes. The study covered 981 respondent households from twelve states: Andhra Pradesh, Assam, Bihar, Gujarat, Himachal Pradesh, Jharkhand, Kerala, Madhya Pradesh, Orissa, Tamil Nadu, Uttar Pradesh and West Bengal.

The sampling was done with random sampling method from the selected states, according to the magnitude of particular type of resource in that state. At the second stage important districts and area having the constituent water bodies were selected. Ultimately, the fishers operating in these inland waters were selected to collect the primary data. The study covered all the inland resources, and combined results of all the selected states are presented for study parameters. The total households representing the inland capture fisheries sector is given in Table 4.5, 4.6 & 4.7 and the distribution of the sample household across the country is also indicated in Figure 4.5 and geographical distribution is depicted in Figure 4.6.

### Data Collection

Table 4.5 Resource wise distribution of sample respondents in inland capture fisheries sector

Sl. No	State	Resource	Districts	Sample size
1.	Andhra Pradesh	Reservoir	Warangal, Khammam	52
2.	Assam	River	Kamrup	50
		Wetland	Nagon, Barpeta, Morigaon	50
4.	Bihar	Wetland	Begusarai, Muzzaffarpur	60
4.	Gujarat	Estuary	Surat	46
		River	Surat	50
5.	Himachal Pradesh	Reservoir	Bilaspur	50
6.	Jharkhand	Reservoir	Ranchi, Gumla, Ramgarh, Dhanbad	97
7.	Kerala	Reservoir	Palakkad, Thrissur	51
		Estuary	Alappuzha, Ernakulam, Kottayam	50
8.	Madhya Pradesh	Reservoir	Raisen, Sehore, Bhopal	64
9.	Orissa	Estuary	Khurda	59
10.	Tamil Nadu	Reservoir	Krishnagiri, Pollachi	51
		Estuary	Thiruvallur	50
11.	Uttar Pradesh	Reservoir	Jhansi	50
		River	Allahabad	50
12.	West Bengal	Estuary	South 24 Parganas, Hooghly	51
		Wetland	North 24 Parganas	50
13.	Total			981

Table 4.6 Resource wise distribution of sample

Sl. No.	Resource	Sample size
1.	Reservoir	415
2.	River	150
3.	Wetland	160
4.	Estuary	256
5.	Total	981

Table 4.7 State wise distribution of sample respondents in inland capture fisheries

Sl. No.	State	Sample
1.	Andhra Pradesh	52
2.	Assam	100
3.	Bihar	60
4.	Gujarat	96
5.	Himachal Pradesh	50
6.	Jharkhand	97
7.	Kerala	101
8.	Madhya Pradesh	64
9.	Orissa	59
10.	Tamil Nadu	101
11.	Uttar Pradesh	100
12.	West Bengal	101
13.	Total	981

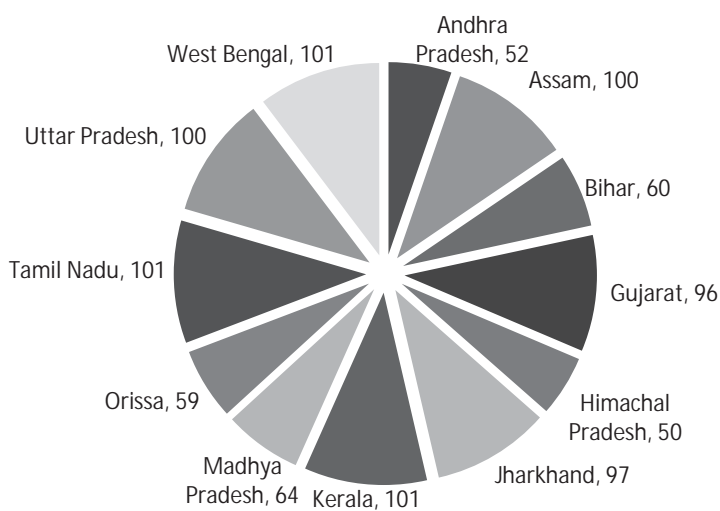


Fig. 4.5 Distribution of sample across states

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Fig. 4.6. Geographical distribution of the sampled households

The data collection was done using a pre structured survey schedule (Annexure-I) after a reconnaissance survey from the selected sample respondents. The data was collected on four parameters viz., the general particulars, literacy, health, and income profiling. It covered both urban and rural households and also represented different inland fisheries sectors mentioned above. The data collection was done by the project team in most cases and in some location trained enumerators were employed. The data collected were tabulated and the results were analyzed.

## **Tools of Analysis**

Conventional tools of analysis and percentage analysis was done to process the data and bring out the literacy, income and health status of the fishers in India and to arrive at meaningful conclusions. The data obtained from the respondents were systematically tabulated for the purpose of analysis.

## **Limitation of the study**

The present study relied on primary data collected through the questionnaire survey methodology. The inherent faults and limitations in the primary data collection like respondents' recall bias –due to the absence of proper records on their income, health details, expenditure, savings and indebtedness, etc with the respondents are to be recognized. The information was collected from the respondents based on their memory and experience and the bias cannot be eliminated fully. But in the context of the study, care was taken to avoid personal bias while giving information. Apparent limitations like getting only seasonal information, having data that is for a specified period of time, depending on data that is word of mouth (with its inherent contradictions) as primary data should be considered. The income and expenditure pattern and health parameters of the respondents are subject to change in the short run as well as long run, also need to be considered. This study was confined to the randomly selected states of India.

## **Results and Discussions**

The results and discussions are presented 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.

#### **(i) Age distribution**

The age distributions of the respondent households are furnished in Table 4. 8 and Figure. 4.7.

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Table 4.8 Age distribution of the sample respondents (Years)

State	<35	36-55	>56	Total
Andhra Pradesh	15(28.85)	23(44.23)	14(26.92)	52(100.00)
Assam	31(31.00)	42(42.00)	27(27.00)	100(100.00)
Bihar	20 (33.33)	24 (40.00)	16 (26.67)	60(100.00)
Gujarat	42 (43.75)	39 (40.63)	15 (15.63)	96(100.00)
Himachal Pradesh	12(24.00)	29(58.00)	9(18.00)	50(100.00)
Jharkhand	43(44.33)	41(42.27)	13(13.40)	97(100.00)
Kerala	34(33.66)	51(50.50)	16(15.84)	101(100.00)
Madhya Pradesh	33 (51.56)	31(48.44)	0(0.00)	64(100.00)
Orissa	14 (23.73)	36 (61.02)	9 (15.25)	59(100.00)
Tamil Nadu	29(28.71)	61(60.40)	11(10.89)	101(100.00)
Uttar Pradesh	35(35.00)	53(53.00)	12(12.00)	100(100.00)
West Bengal	45(44.55)	26(25.74)	30(29.70)	101(100.00)
Total	353 (35.98)	456 (46.48)	172 (17.54)	981 (100.00)

Figures in parentheses indicate percentage to total of each state

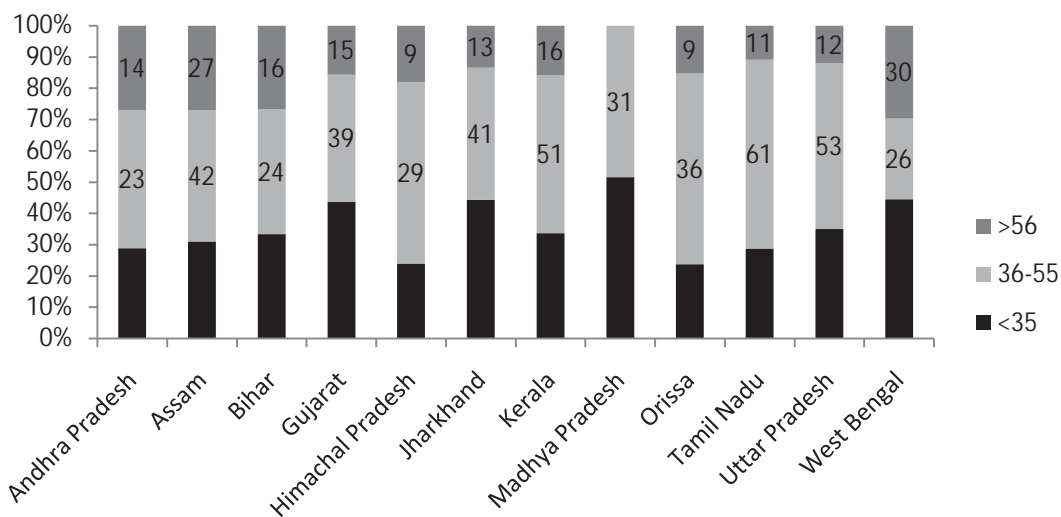


Fig 4.7 Age distribution of the sample respondents (Years)

The age of the respondents are categorized into three sub groups viz, young (15-35 year), middle age (36-55 year), old (>56 year), etc. Fishing continued to be an activity mostly of fisher folk in the age group of 36-55 which constituted about 46.48 per cent of the respondents. The distribution also indicated the representation of young (age less than 35) at 35.98 per cent. The fisher folk with age more than 56 had the least share at 17.53 per cent in total. The continuation of old age fisher folk in fishing indicated the growing complexities of the fishing operation at old age. Considering the low income from this enterprise and high labour and risk, an occupational shift was observed among the younger groups.



Fig 4.8. The young fishermen of the respondent community

The state wise age distribution of the inland fishers indicated that the age group of less than 35 years featured less than average in most of the states Orissa, Himachal Pradesh, Tamil Nadu, Andhra, Assam, Kerala and Uttar Pradesh, while higher for the states of Madhya Pradesh, and West Bengal, Jharkhand and Gujarat. It may be also seen that the percentage of younger people involved in active fishing was found to be comparatively less in these states, on account of available alternative avocations and the diminishing popularity of fishing business among the younger generation. In the state of Madhya Pradesh it was heartening to note that younger fishers (>50 per cent) are involved in fishing activities. The percentage of middle aged group fishers was > 40 per cent for most of the states, barring West Bengal (25.74 per cent). It was highest for Orissa (61.02 per cent) followed by Tamil Nadu (60.4 per cent). The old age fishers had highest percentage in West Bengal (29.70 per cent) followed by Assam, Andhra (27 per cent) and Bihar (26.67 per cent). The result also indicated no old fisher in Madhya Pradesh and 10.89 per cent in Tamil Nadu. Interestingly there is not even a single fisherman belonging to old age category in Madhya Pradesh and only a small percent(10.89) belong to the same category in Tamil Nadu

## **(ii) Family composition**

The family composition of the respondents given in Table 4.9 and Figure. 4.9 & 4.10 indicated that the males outnumber the females in most of the inland states except Jharkhand and Kerala, where the male –female ratio was 0.95 and 0.99. The male - female ratio for the entire sample was 1.13 which indicated that for every 1000 females there were 1130 males. It is in parity with the national scenario. The male -female ratio ranged from 0.95 in Jharkhand to 1.27 in West Bengal followed by 1.24 at Himachal and 1.23 at Assam and Orissa.

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Table 4.9 Family composition of the respondent households –Male and Female (Number)

Sl. No.	State	Household	Male	Female	Total	Male-Female Ratio
1.	Andhra Pradesh	52	126 (51.85)	117 (48.15)	243 (100.0)	1.08
2.	Assam	100	270 (55.10)	220 (44.90)	490 (100.0)	1.23
3.	Bihar	60	191 (54.26)	161 (45.74)	352 (100.0)	1.19
4.	Gujarat	96	224 (52.46)	203 (47.54)	427 (100.0)	1.10
5.	Himachal Pradesh	50	125 (55.31)	101 (44.69)	226 (100.0)	1.24
6.	Jharkhand	97	221 (48.79)	232 (51.21)	453 (100.0)	0.95
7.	Kerala	101	224 (49.67)	227 (50.33)	451 (100.0)	0.99
8.	Madhya Pradesh	64	171 (53.44)	149 (46.56)	320 (100.0)	1.15
9.	Orissa	59	165 (55.18)	134 (44.82)	299 (100.0)	1.23
10.	Tamil Nadu	101	197 (52.12)	181 (47.88)	378 (100.0)	1.09
11.	Uttar Pradesh	100	246 (52.56)	222 (47.44)	468 (100.0)	1.11
12.	West Bengal	101	270 (56.02)	212 (43.98)	482 (100.0)	1.27
13.	Total	981	2430 (52.95)	2159 (47.05)	4589 (100.0)	1.13

Figures in parentheses are the percentage to total of each state

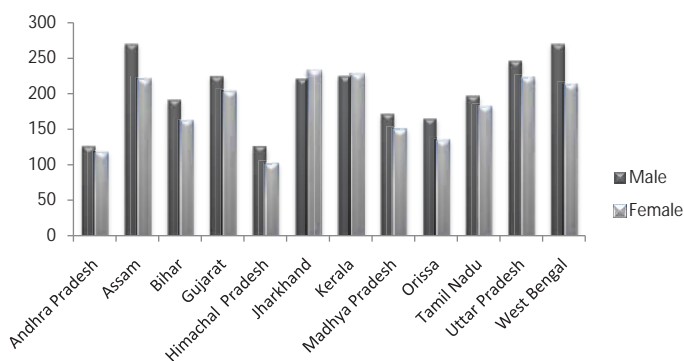


Fig. 4.9. Family composition of the respondent households –Male and Female (Number)

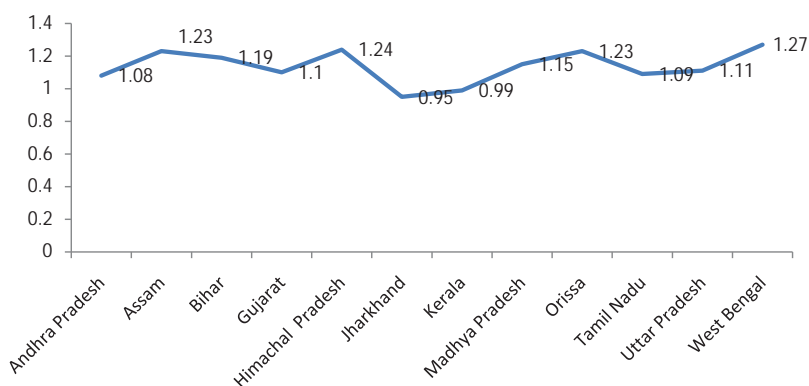


Fig. 4.10. Male-Female ratio for different inland states



### (iii) Family size

The small family norm is mostly adopted by the fisher households of India (Table 4. 6 and Figure.4.11 ).

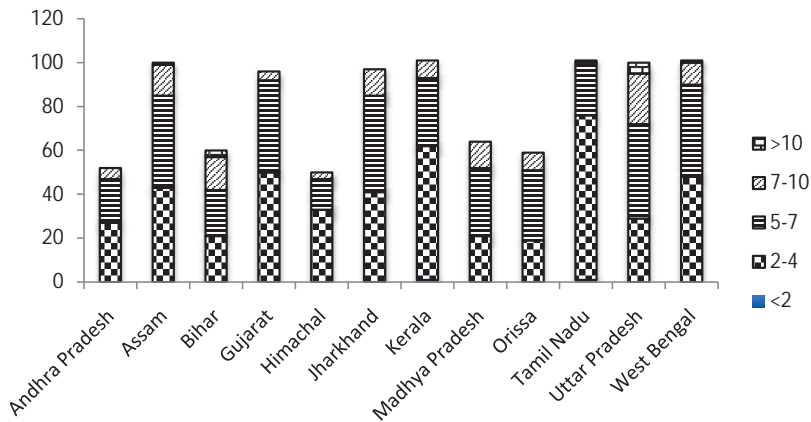


Fig. 4.11. Distribution of sampled households according to family size

The average size of family in India worked out to be 4.68 ranging from 3.74 in Tamil to 5.87 in Bihar. The family type and family size of the respondents exhibited quite similar pattern of distribution in which greater part (87 per cent) of the total respondents were from small to medium family having a size between 2 and 6. It confirmed the shift in family type from joint to nuclear for most of the states. It was found that 47.71 per cent of the respondents belong to the category of family size between 2-4 and about 40 per cent was in family size category of 5-6. The number of families under extreme categories of <2 and >10 were rare at 0.2 and 1.02 per cent of total. The category 7-10 had only 11.71 per cent of total families. The results indicated that large families (>7) were comparatively higher in the states of Bihar (30 per cent) and Uttar Pradesh (28 per cent). On the contrary, nuclear families between 2-4 family members were higher in Tamil Nadu (74.26 per cent) followed by Himachal (66 per cent) and Kerala (60 per cent). The results indicated varied family size for the fisher community across different inland states.

### (iv) Age composition

The age composition of the respondent households is represented in Table 4. 11 and Figure 4.12. The age composition is represented by adults (more than 15 years) and children (less than 15 years). The information was collected both for male and female. The male-female ratio of the adult group was found to be 1.29:1.00 whereas the same for the children was estimated at 1.27:1.00. In concurrence to earlier results, adult females outnumber the males in Jharkhand, Kerala and Madhya Pradesh, while for all the remaining states it was vice versa. The overall number of adult males was 1479 as compared to 1282 females. It justifies the common notion of preference of males over females. The percentage of adult females was maximum in Tamil Nadu (74.59 per cent) followed by Kerala (74.01 per cent). The percentage of female children was highest in Assam (56.82 per cent) followed by West Bengal (53.30 per

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cent). The adult-child ratio was found to be 1.51 for the total samples (Fig 4.13). It was highest for Tamil Nadu (3.15) followed by Himachal (3.04) and Gujarat (2.81) and lowest for Assam (0.79) followed by West Bengal (0.88) and Madhya Pradesh (0.94). In concurrence to these results, the percentage of adults was maximum for Tamil Nadu at 75.93 per cent followed by Himachal (75.22 per cent)

Table 4.10 Family size of the respondent households (number)

Sl. No.	States	Sam-ple	Family Size					Total	Family size
			<2	2-4	5-6	7-10	>10		
1.	Andhra Pradesh	52	0(0.00)	27(51.92)	20(38.46)	5(9.62)	0(0.00)	52(100.00)	5.06
2.	Assam	100	0(0.00)	43(43.00)	42(42.00)	14(14.00)	1(1.00)	100(100.00)	4.9
3.	Bihar	60	0(0.00)	21(35.00)	21(35.00)	15(25.00)	3(5.00)	60(100.00)	5.87
4.	Gujarat	96	0(0.00)	50(52.08)	42(43.75)	4(4.17)	0(0.00)	96(100.00)	4.45
5.	Himachal	50	0(0.00)	33(66.00)	14(28.00)	3(6.00)	0(0.00)	50(100.00)	4.52
6.	Jharkhand	97	0(0.00)	41(42.27)	44(45.36)	12(12.37)	0(0.00)	97(100.0)	4.67
7.	Kerala	101	1(0.99)	61(60.40)	31(30.69)	8(7.92)	0(0.00)	101(100.00)	4.47
8.	Madhya Pradesh	64	0(0.00)	21(32.81)	31(48.44)	12(18.75)	0(0.00)	64(100.00)	5.00
9.	Orissa	59	0(0.00)	19(32.20)	32(54.24)	8(13.56)	0(0.00)	59(100.00)	5.07
10.	Tamil Nadu	101	1(0.99)	75(74.26)	24(23.76)	1(0.99)	0(0.00)	101(100.00)	3.74
11.	Uttar Pradesh	100	0(0.00)	29(29.00)	43(43.00)	23(23.00)	5(5.00)	100(100.00)	4.68
12.	West Bengal	101	0(0.00)	48(47.52)	42(41.58)	10(9.90)	1(0.99)	101(100.00)	4.77
13.	Total	981	2(0.20)	468(47.71)	386(39.35)	115(11.72)	10(1.02)	981(100.00)	4.68

Figures in parentheses indicate percentage to total of each state

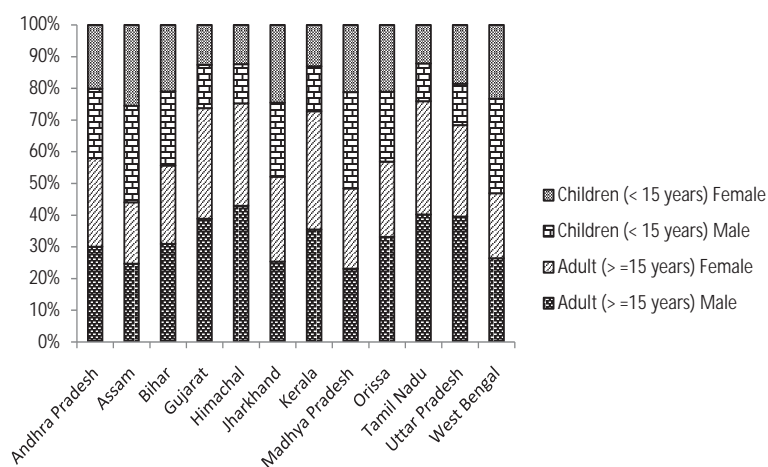


Fig 4.12 Age composition of the respondent households (Number)

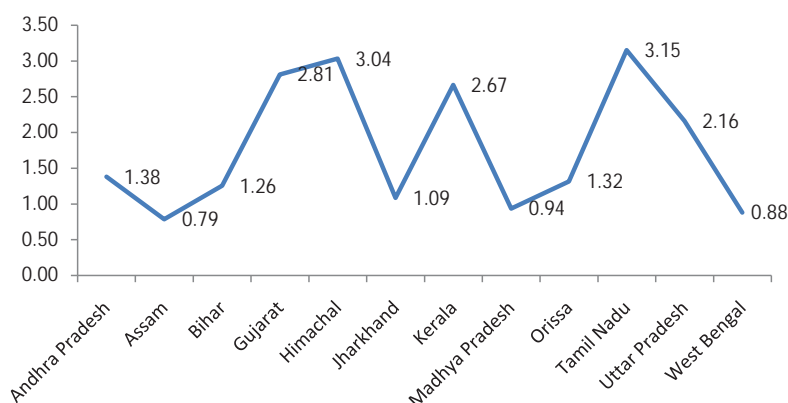


Fig 4.13 Dependency ratio

Table 4.11 Age composition of the respondent households (Number)

Sl. No.	States	Adult		Children		Total		Adult-minor ratio
		(> =15 years)		(< 15 years)		Adult	Children	
		Male	Female	Male	Female			
1.	Andhra Pradesh	73(57.94)	68(58.12)	53(42.06)	49(41.88)	141(58.02)	102(41.98)	1.38
2.	Assam	121(44.81)	95(43.18)	149(55.19)	125(56.82)	216(44.08)	274(55.92)	0.79
3.	Bihar	109(57.07)	87(54.04)	82(42.93)	74(45.96)	196(55.68)	156(44.32)	1.26
4.	Gujarat	166(74.11)	149(73.40)	58(25.89)	54(26.60)	315(73.77)	112(26.23)	2.81
5.	Himachal	97(77.60)	73(72.28)	28(22.40)	28(27.72)	170(75.22)	56(24.78)	3.04
6.	Jharkhand	115(52.04)	121(52.16)	106(47.96)	111(47.84)	236(52.10)	217(47.90)	1.09
7.	Kerala	160(71.43)	168(74.01)	64(28.57)	59(25.99)	328(72.73)	123(27.27)	2.67
8.	Madhya Pradesh	74(43.27)	81(54.36)	97(56.73)	68(45.64)	155(48.44)	165(51.56)	0.94
9.	Orissa	99(60.00)	71(52.99)	66(40.00)	63(47.01)	170(56.86)	129(43.14)	1.32
10.	Tamil Nadu	152(77.16)	135(74.59)	45(22.84)	46(25.41)	287(75.93)	91(24.07)	3.15
11.	Uttar Pradesh	185(75.20)	135(60.81)	61(24.80)	87(39.19)	320(68.38)	148(31.62)	2.16
12.	West Bengal	128(47.41)	99(46.70)	144(53.33)	113(53.30)	227(46.90)	257(53.10)	0.88
13.	Total	1479(60.86)	1282(59.38)	953(39.22)	877(40.62)	2761(60.14)	1830(39.86)	1.51

Figures in parentheses indicate percentage to total

The male female ratio among the adult and children is indicated in Figure 4.14. Comparatively male female ratio for children was lower than adults indicating better percentage of females in this group. It is contrary to the overall national average for whole country. It can be noticed that the male – female ratios among the adult and children followed a skewed distribution with maximum gap for Orissa and West Bengal at 0.52 and almost same for Andhra and Kerala. The overall male female ratio among adult and children were estimated at 1.27 for children and 1.29 for adults. Nevertheless males are the most preferred child over females in the selected sample respondent households.

## Livelihood Status of Fishers in India

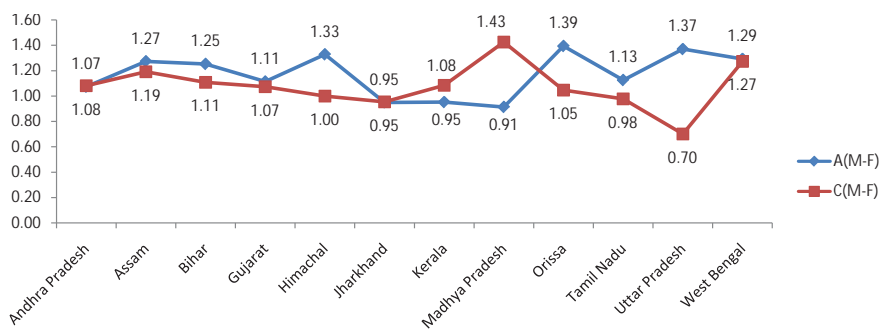


Fig. 4.14 Male female ratio for children and adults

## B. Literacy profile

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 fisher folk without any formal education and doesn'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 indicated schooling till fourth grade, secondary level 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 74.52 per cent (Census-2011) against the literacy rate of 71 per cent among the fisher folk (Table 4.12 & Figure. 4.17 and 4.18). The results indicated that among the literates 30 per cent were primary, 36 per cent were secondary and only 5 per cent reached college level. The analysis of state wise literacy rate revealed highest estimate for Kerala (95 per cent) followed by Tamil Nadu (86 per cent) and West Bengal (78 per cent). The literacy rates were lowest at Madhya Pradesh and Andhra Pradesh (50 per cent) followed by Jharkhand (57 per cent)

The percentage of members literate upto primary level was in the range of 14.71 per cent in Andhra to 51.46 per cent in Orissa. For the literacy upto secondary level highest percentage



Fig. 4.15 Non school going children

was for the states of Kerala (67.67 per cent) followed by Tamil Nadu (60.67 per cent). In this category of literacy level, minimum percentage was for Madhya Pradesh at 8.24 per cent. The persons with collegiate education were maximum in West Bengal (15.35 per cent). For all the other states it was less than 10 per cent with no collegiate in Madhya Pradesh.

Thus it was found that the literacy rate was showing similar tendency in the states of Madhya Pradesh, Andhra Pradesh and Jharkhand, when compared with the general literacy rate of India. It is also important to note that the fishers' literacy rate has improved significantly with 71 per cent obtaining formal education.



Fig. 4.16 Girls on their way to school

High percentage of illiteracy level among respondents in Madhya Pradesh, Andhra Pradesh and Jharkhand indicated that being traditional fisher folk they got limited opportunities in terms of money, facilities, and family support to study. They entered in to this profession at a younger age forcefully and continued this profession due to very weak socio-economic status.

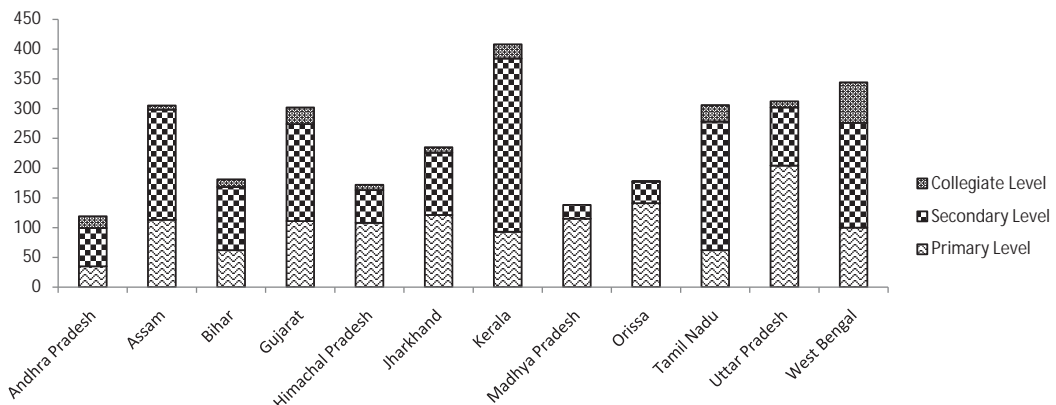


Fig 4.17 Literacy Status of respondent households (Number)

## Livelihood Status of Fishers in India

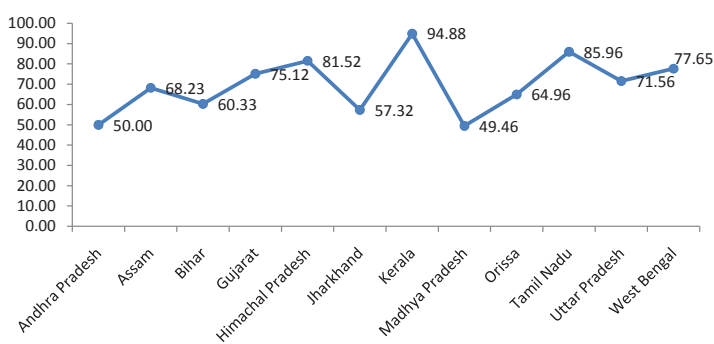


Fig. 4.18 Literacy rate of sampled inland fisher households

Table 4.12 Literacy status of respondent households (Number)

Sl. No.	State	Total	Illiterate	Literate	Primary Level	Secondary Level	Collegiate Level
1.	Andhra Pradesh	238	119(50.00)	119(50.00)	35(14.71)	64(26.89)	20(8.40)
2.	Assam	447	142(31.77)	305(68.23)	113(25.28)	185(41.39)	7(1.57)
3.	Bihar	300	119(39.67)	181(60.33)	62(20.67)	106(35.33)	13(4.33)
4.	Gujarat	402	100(24.88)	302(75.12)	111(27.61)	163(40.55)	28(6.97)
5.	Himachal Pradesh	211	39(18.48)	172 (81.52)	108(51.18)	55 (26.07 )	9(4.27)
6.	Jharkhand	410	175(42.68)	235(57.32)	121(29.51)	105(25.61)	9(2.20)
7.	Kerala	430	22(5.12)	408(94.88)	93(21.63)	291(67.67)	24(5.58)
8.	Madhya Pradesh	279	141(50.54)	138(49.46)	115(41.22)	23(8.24)	0(0.00)
9.	Orissa	274	96(35.04)	178(64.96)	141(51.46)	36(13.14)	1(0.36)
10.	Tamil Nadu	356	50(14.04)	306(85.96)	62(17.42)	216(60.67)	28(7.87)
11.	Uttar Pradesh	436	124(28.44)	312(71.56)	204(46.79)	98(22.48)	10(2.29)
12.	West Bengal	443	99(22.35)	344 (77.65)	100(22.57)	176(39.73)	68(15.35)
13.	Total	4226	1226(29.01)	3000(70.99)	1265(29.93)	1518(35.92)	217(5.13)

Figures in parentheses indicate percentage to total of each state

### (ii) Educational status

The information on education of the respondents in terms of continuance and discontinuance of education would provide the scope of employment opportunities, possible migration, and alternative avocation of the sample households. Thus continuing and dropout ratios were calculated among the respondent households across the inland waters in the country. The continuing drop out ratio indicates extent of growing importance of education between the past and the present.

The dropouts were more at secondary level of education with 48.20 per cent ranging from 31.75 per cent at Bihar to 67.32 per cent at Tamil Nadu (Table 4.13 ). The dropout at primary level of education was 39.68 per cent ranging from 26 per cent at Andhra to 61.49 per cent at Uttar Pradesh The dropout at collegiate level was estimated at 9.47 per cent with range of 0.88 per cent at Orissa to 17.44 per cent at Assam.

The overall dropout percentage in total was 61.23 per cent with nearly 70 per cent for Bihar and Kerala and 39 per cent for Andhra.

It was found that the tendency to drop out from education was more with secondary education followed by primary and least with collegiate education. This is on account of generating source of employment in fisheries related activities even with secondary education as there was no other means of education and also due to following the traditional employment available. The drop outs possessing primary education was comparatively lesser as it was mandatory for the kids to study primary level of education. Collegiate education provided a source of alternate employment and another means of livelihood. In the case of Assam and West Bengal higher number of drop outs during college education indicated the higher level of income from fishing/other source of employment. The lower percentage of drop outs at this level for other states was due to the fact that very limited number of fisher family members reached this level, as they were dropped during earlier levels.

The improved facilities and measures for increasing level of awareness of education among the households also resulted in better literacy, although, they dropped out at primary and secondary levels. It was found that the continuing- dropout ratio (Fig. 4.19) was the highest for Andhra (1.59) followed by Gujarat (1.24). These estimates revealed increased enrolment in school by present generation as compared to past. Further, dropout level also was raised from primary to secondary with better percentage. The continuing to dropout ratio indicates a parameter on increasing education was found to be lowest for the states of Jharkhand (0.38). Alternative source of livelihood, possibility of seeking employment in fisheries enterprises, scope of labour can be the reasons for the increasing dropouts among the fisher families operating in inland waters

Table 4.13 Educational status of respondent households-Continuing and Dropout (Number)

Sl. No.	State	Continuing	Drop outs			Total
			Primary	Secondary	Collegiate	
1.	Andhra Pradesh	73	12(26.09)	28(60.87)	6(13.04)	46(38.66)
2.	Assam	110	57(29.23)	104(53.33)	34(17.44)	195(63.93)
3.	Bihar	55	71(56.35)	40(31.75)	15(11.90)	126(69.61)
4.	Gujarat	167	61(45.19)	56(41.48)	18(13.33)	135(44.70)
5.	Himachal Pradesh	80	44(47.83)	45(48.91)	3(3.26)	92(53.49)
6.	Jharkhand	65	53(31.18)	94(55.29)	23(13.53)	170(72.34)
7.	Kerala	124	79(27.82)	155(54.58)	20(7.04)	284(69.61)
8.	Madhya Pradesh	64	41(55.41)	32(43.24)	1(1.35)	74(53.62)
9.	Orissa	64	70(61.40)	43(37.72)	1(0.88)	114(64.04)
10.	Tamil Nadu	101	56(27.32)	138(67.32)	11(5.37)	205(66.99)
11.	Uttar Pradesh	138	107(61.49)	62 (35.63 )	5(2.87)	174(55.77)
12.	West Bengal	122	78(35.14)	107(48.20)	37(16.67)	222(64.53)
13.	Total	1163	729(39.68)	904(48.20)	174(9.47)	1837(61.23)

Figures in parentheses indicate percentage to total of each state

## Livelihood Status of Fishers in India

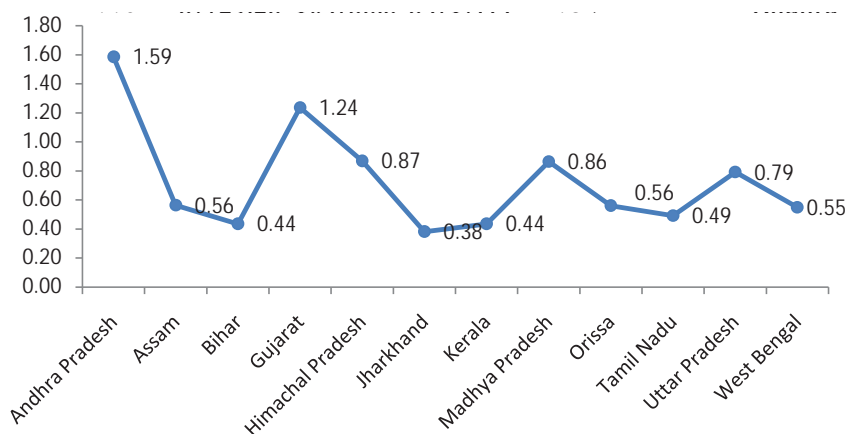


Fig. 4.19: Continuing Dropouts ratio among respondent households

### (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. That was something the fisher folk were said to be denied earlier which was disproved by the findings of the study.



Fig. 4.20. Children playing at school

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 are given in Table 4.14 and Figure 4.21. As a whole the average distance to a primary school is 1.32 km, high school 4.23 km college 11.73 km and professional institution 19.83 km from fishing villages in India. The average distance to primary school ranges from 0.2 km in Orissa to 3.35 km for West Bengal. The distance for high schools ranges from 2.24 km for Andhra to 9.02 km for Uttar Pradesh. The average distance for colleges was between from 1 km in Orissa to 18.70 km in Madhya Pradesh. where as in the case of college, the average distance ranged from 8.00 km for Orissa to 37.8 km for Jharkhand. It is evident



from the results that the improved or increased access to educational facilities has helped to increase the literacy level of the fishers.

4.14 Access to education (km)

Sl. No.	States	Primary School	High School	College	Professional College
1.	Andhra Pradesh	0.86	2.24	4.77	19.56
2.	Assam	0.21	2.71	9.34	13.5
3.	Bihar	1.76	2.50	5.04	9.00
4.	Gujarat	0.43	2.32	8.84	26.70
5.	Himachal Pradesh	0.88	2.26	10.14	10.44
6.	Jharkhand	1.00	3.10	11.70	37.80
7.	Kerala	2.15	3.68	11.80	23.89
8.	Madhya Pradesh	0.90	7.80	18.70	16.80
9.	Orissa	0.20	3.00	1.00	8.00
10.	Tamil Nadu	1.15	3.33	18.21	21.32
11.	Uttar Pradesh	0.88	9.02	16.15	16.48
12.	West Bengal	3.35	5.33	13.81	13.86
13.	Average	1.32	4.23	11.73	19.83

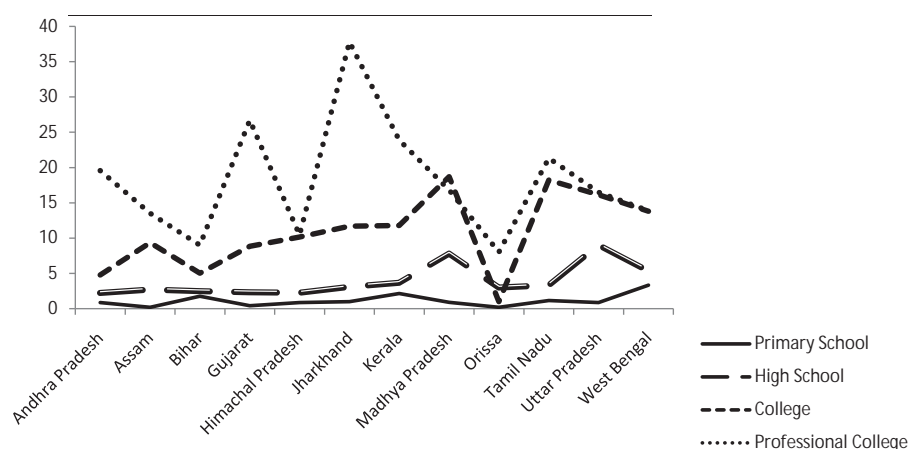


Fig 4.21 Access to educational institutions- Distance in km

### (C) Health status

The health status of the respondent households was studied based on the parameters: 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 selected inland states of India is furnished in Table 4.15. 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 at 1.05 years ranging from at 0.23 years at Bihar to 3.08 years at Himachal. The average age at which BCG was administered was 0.69 years ranging from 0.28 years at Uttar Pradesh to 1.0 year at Andhra Pradesh, Assam, Gujarat, Jharkhand and Orissa. The average age for administering MMR was 0.96 years which varies from 0.42 years at Bihar to 1.5 years at West Bengal. On an average Polio vaccine was administered till the age of 3.58 years varying from 2.24 at Tamil Nadu to 5 years at Andhra Pradesh and Jharkhand (Figure. 4.22)

**(ii) Incidence of discontinuation**

Incidence of discontinuation of vaccination for Pox was noticed in Uttar Pradesh among 42.94 per cent of the children. The next highest discontinuation was for MMR and Polio in Himachal Pradesh at 13.33 and 11.11 per cent (Figure 4.23). The results on the vaccination regime of infants/children indicated that the children were getting vaccinations in most of the states as per the recommendation of ICMR.

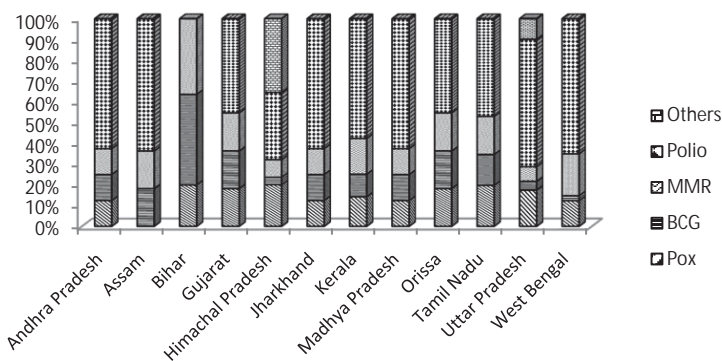


Fig. 4.22 Average age of administration of vaccination

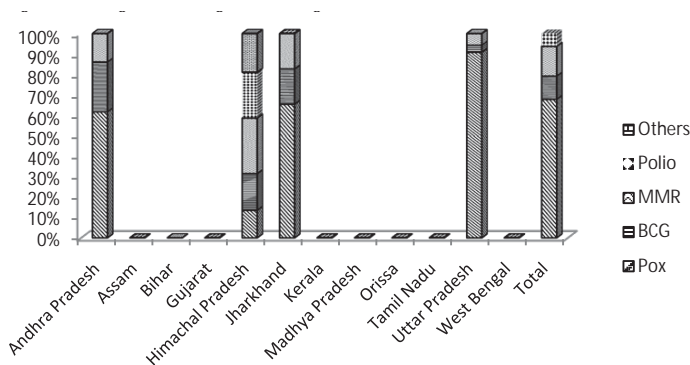


Fig. 4.23 Incidence of discontinuation of vaccination in per cent

Table 4.15 Vaccination regime of infants / children (less than 15 years)  
Average age of administration and incidence of discontinuation

Sl. No.	State	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)
1.	Andhra Pradesh	1.00	5.30	1.00	2.10	1.00	1.20	5.00	0.00		
2.	Assam			1.00	0.00	1.00	0.00	3.50	0.00		
3.	Bihar	0.23	0.00	0.50	0.00	0.42	0.00				
4.	Gujarat	1.00	0.00	1.00	0.00	1.00	0.00	2.50	0.00		
5.	Himachal Pradesh	3.08	6.67	0.54	8.89	1.30	13.33	4.94	11.11	5.43	9.37
6.	Jharkhand	1.00	11.30	1.00	3.00	1.00	3.00	5.00	0.00		
7.	Kerala	0.84	0.00	0.64	0.00	1.02	0.00	3.39	0.00		
8.	Madhya Pradesh	1.00	0.00	1.00	0.00	1.00	0.00	5.00	0.00		
9.	Orissa	1.00	0.00	1.00	0.00	1.00	0.00	2.50	0.00		
10.	Tamil Nadu	0.94	0.00	0.71	0.00	0.86	0.00	2.24	0.00		
11.	Uttar Pradesh	1.14	42.94	0.28	1.64	0.46	2.72	4.00	0.00	0.65	0.00
12.	West Bengal	0.92	0.00	0.17	0.00	1.50	0.00	4.81	0.00		
13.	Average (Total)	1.05	6.81	0.69	1.14	0.96	1.47	3.58	0.63		

**(iii) Reasons for discontinuation**

The reason for the discontinuation of vaccination regime of infants is given in Table 4.16 and Fig. 4.24. Among the total 221 responses, maximum number of responses were for others or miscellaneous reasons (62.9 per cent) followed by lack of awareness about the availability of vaccines (11.31 per cent), traditional beliefs (9.95 per cent), lack of time to access the vaccination (7.24 per cent), lack of sufficient doses of vaccine at the locality (4.98 per cent), and poor reliability on vaccines provided by government agencies (3.62 per cent). However in sample states maximum cases of discontinuation was in Assam (45.25 per cent) followed by Uttar and Himachal Pradesh.

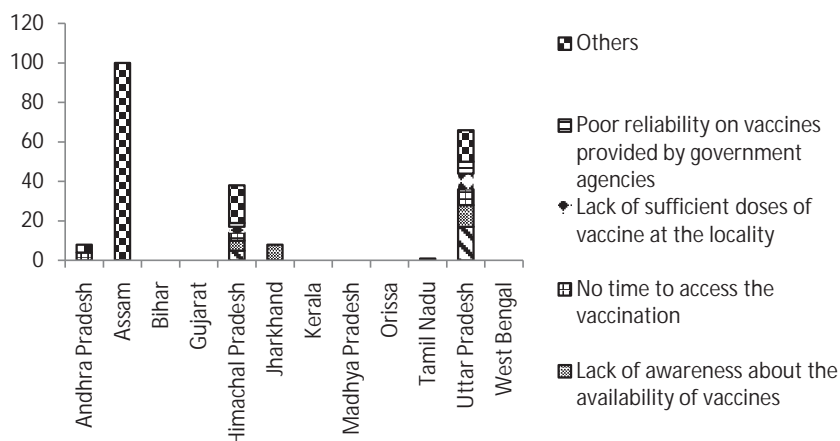


Fig 4.24 Vaccination regime of infants/children - Reason for the discontinuation (Frequency)

## Livelihood Status of Fishers in India

Table 4.16 Vaccination regime of infants/children - Reason for the discontinuation (Frequency)

Sl. No.	Reasons	Reason for the discontinuation of vaccination (frequency)												Total	per cent
		Andhra Pradesh	Assam	Bihar	Gujarat	Himachal Pradesh	Jharkhand	Kerala	Madhya Pradesh	Orissa	Tamil Nadu	Uttar Pradesh	West Bengal		
1.	Traditional beliefs	Nil	Nil	Nil	Nil	5	Nil	Nil	Nil	Nil	Nil	17	Nil	22	9.95
2.	Lack of awareness about the availability of vaccines	Nil	Nil	Nil	Nil	5	8	Nil	Nil	Nil	1	11	Nil	25	11.31
3.	No time to access the vaccination	4	Nil	Nil	Nil	4	Nil	Nil	Nil	Nil	Nil	8	Nil	16	7.24
4.	Lack of sufficient doses of vaccine at the locality	Nil	Nil	Nil	Nil	3	Nil	Nil	Nil	Nil	Nil	8	Nil	11	4.98
5.	Poor reliability on vaccines provided by government agencies	Nil	Nil	Nil	Nil	2	Nil	Nil	Nil	Nil	Nil	6	Nil	8	3.62
6.	Others	4	100	Nil	Nil	19	Nil	Nil	Nil	Nil	Nil	16	Nil	139	62.90
7.	Total	8	100	0	0	38	8	0	0	0	1	66	0	221	100.0
			3.62	45.25	0.00	0.00	17.19	3.62	0.00	0.00	0.00	0.45	29.86	0.00	100.0

Figures in parentheses indicate percentage to total of each state

### (iv) Birth weight of infants

The birth weight of infants in fisher households at selected states is given in Table 4.17. The average birth weight of males was 2.6 kg and female was 2.57 kg. The average weight of male infants ranges from 2.00 kg at Orissa to 2.85 kg at Assam and Tamil Nadu. For female infants it ranged from 1.90 kg at Orissa to 2.85 kg at Gujarat. This is in conformity with the average birth weight of a male and female child in India (Census-2001). The graphical representation of the birth weight of the male and female infants across the coastal states is presented in Figure 4.25.

It was found that except in Gujarat, Kerala, Uttar Pradesh and West Bengal the average weight of the female child was less than that of the male child. The average weight of the children in Orissa was the lowest with 2.00 kg and maximum at 2.84 kg at Kerala.

Table 4.17 Birth weight of infants (kg)

Sl. No.	State	Weight (kg)		
		Male	Female	Total
1.	Andhra Pradesh	2.82	2.69	2.77
2.	Assam	2.85	2.60	2.72
3.	Bihar	2.55	2.22	2.36
4.	Gujarat	2.69	2.85	2.77
5.	Himachal Pradesh	2.84	2.75	2.81
6.	Jharkhand	2.60	2.40	2.50
7.	Kerala	2.83	2.88	2.84
8.	Madhya Pradesh	2.10	2.00	2.10
9.	Orissa	2.00	1.90	2.00
10.	Tamil Nadu	2.85	2.71	2.78
11.	Uttar Pradesh	2.39	2.58	2.59
12.	West Bengal	2.69	2.81	2.74
13.	Average (Total)	2.60	2.57	2.59

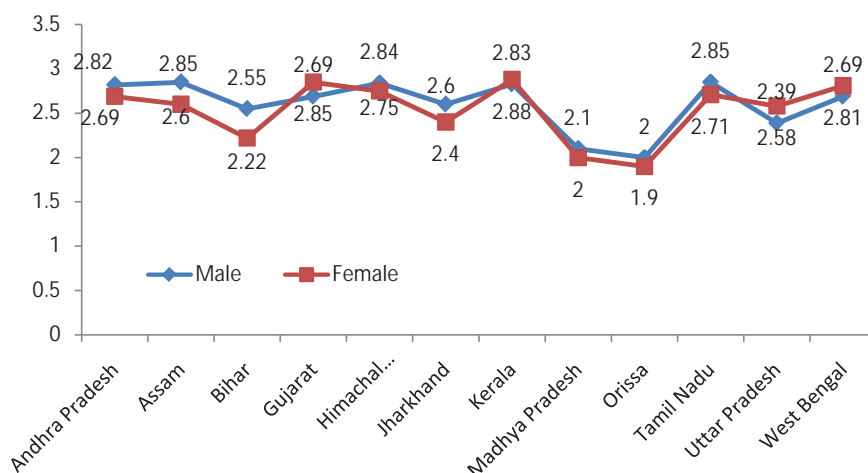


Fig. 4.25 Birth weight of infants (kg)

**(v) Incidence of mortality among mother/child during birth**

The results on the incidence of mortality among mother/child during birth are furnished in Table 4.18. Maternal and child mortality at the time of birth and infant mortality had been pressing concerns over the past. Generally in India, adequate care is being taken now to reduce the incidence of maternal and infant mortality which was recognized by a central report. The results on the incidence of maternal mortality were 0.70 per cent and that of infant mortality was 4.3 per cent. The overall mortality was estimated at 5 per cent with maximum at Jharkhand (10.31 per cent). There was not even a single case of mortality reported in Assam, Himachal Pradesh, Tamil Nadu and West Bengal. Out of the 860 delivery cases reported across the study period it was found that there were 6 cases of maternal death and 37 cases of infant death. The maternal

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Table 4.18: Incidence of mortality among mother/ child during birth (Number)

Sl. No.	State	No of delivery	Mortality of mother/ child during birth				
			Mother	Reason	Child	Reason	Total
1.	Andhra Pradesh	56	0	0	4	0	4 (7.14)
2.	Assam	48	0	0	0	0	0
3.	Bihar	94	3	0	5	0	8 (8.51)
4.	Gujarat	32	0	0	2	0	2 (6.25)
5.	Himachal Pradesh	45	0	0	0	0	0
6.	Jharkhand	97	0	0	10	0	10 (10.31)
7.	Kerala	49	3	0	1	0	4 (8.16)
8.	Madhya Pradesh	64	0	0	6	0	6 (9.38)
9.	Orissa	59	0	0	5	0	5 (8.47)
10.	Tamil Nadu	71	0	0	0	0	0
11.	Uttar Pradesh	134	0	0	4	0	4 (2.99)
12.	West Bengal	111	0	0	0	0	0
13.	Total	860	6 (0.70)	0	37 (4.30)	0	43 (5.00)

Figures in parentheses indicate percentage to total no. of delivery in each state)

mortality was reported in the states of Bihar (3) and Kerala (3). The infant mortality was reported mostly in Jharkhand (10) followed by Madhya Pradesh (6) and Orissa and Bihar at 5. There were cases of infant mortality reported in Andhra Pradesh, Bihar, Gujarat, Jharkhand, Kerala, Madhya Pradesh Orissa and Uttar Pradesh. Accordingly the maternal mortality ratio for Bihar and Kerala was 3.19 and 2.04 (Fig. 4.26), while the child mortality ratio was highest for Jharkhand at 10.31 followed by Madhya Pradesh at 9.38. The major reasons cited for the maternal death was due to malnutrition, complication during delivery and reason for the infant mortality was due to the complication during delivery.

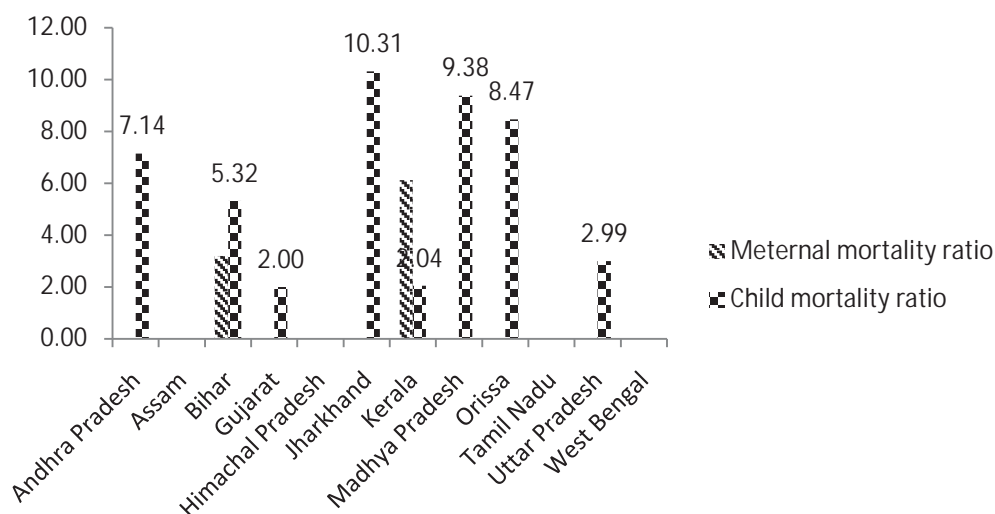


Fig. 4.26 Maternal and Infant Mortality Ratios

### (vi) Incidence of diseases among adults

The incidence, frequency, and previous occurrence of diseases among the adult family members of the respondents across the coastal states are discussed in the Table 4.19A and 4.19 B.

Major diseases found among the respondents were categorized under two groups, viz; common diseases and special ailments. Fever/flu, body ache, diarrhoea, gastro enteric disease, skin disorder and reproductive disorder is included in common diseases. Special ailments include diseases like cardiac failure, tuberculosis, anaemia, diabetics, blood pressure, AIDS and others. For males and females average annual frequency was estimated at 1.62 and 1.31 for fever/flu; 1.37 and 0.87 for body ache; 0.34 and 0.33 for diarrhoea; 0.67 and 0.44 for gastro enteric diseases; 0.42 and 0.21 for skin diseases, respectively. The most frequent disease was fever/flu. Regarding special ailments the average frequencies were much lower than common diseases. The most frequent special ailment was not specified by the respondents (0.8 for males and 0.25 for females). In addition, special ailments like anaemia (0.14 for males and 0.63 for females), cardiac failure (0.14 for male and 0.07 for female) and TB (0.13 for male and 0.01 for female) were reported among the adult family members of the respondents.

Among the family members 776 males and 705 females were affected with fever, and 378 males and 272 females were having body ache. For most of the diseases the frequency of incidence was more for males than females. The incidence of disease varies across the states according to climatic and other conditions, but most prevalent were fever and body ache.

Table 4.19 A Incidence of diseases among adult (male and female) - Annual frequency

Sr. No.	Disease	Assam		Bihar		Gujarat		Himachal Pradesh		Jharkhand		Kerala	
		Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
Common diseases													
1.	Fever/FLue	1.43 (93)	0.97 (79)	0.45 (16)	0.67 (20)	1.28 (93)	1.04 (90)	2.05 (47)	0.14 (2)	1.38 (67)	1.39 (75)	1.96 (80)	1.18 (67)
2.	Body aches	0.41 (34)	0.27 (25)	0.28 (12)	0.47 (15)	0.43 (41)	0.33 (24)	1.02 (34)	0.39 (6)	0.57 (25)	0.17 (9)	1.16 (61)	0.70 (53)
3.	Diarrhoea	0.41 (34)	0.33 (27)	0.05 (3)	0.05 (2)	0.14 (14)	0.15 (15)	0.20 (14)	0.29 (6)	0.01 (1)	0.08 (5)	0.11 (11)	0.05 (6)
4.	Gastro-enteric diseases	0.75 (58)	0.44 (31)	0.18 (3)	0.05 (2)	0.05 (5)	0.14 (13)	0.52 (14)	0.25 (8)	0.61 (28)	0.53 (27)	0.63 (25)	0.26 (13)
5.	Skin disorders	0.07 (6)	0.04 (3)	-	0.03 (2)	-	0.01 (1)	0.29 (14)	0.19 (4)	-	0.11 (6)	0.50 (12)	0.14 (5)
6.	Reproductive disorders	-	-	-	-	0.01 (1)	-	-	-	-	-	-	-

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Special Ailments														
7.	Cardiac failure	-	-	0.0 (1)	0.03 (2)			0.02 (1)	0.02 (1)	0.06 (6)	0.0 (2)	0.02 (3)		
8.	TB	0.01 (1)		0.05 (2)	0.03 (1)	0.01 (1)	0.01 (1)	0.02 (1)		0.01 (1)	0.05 (5)	0.01 (1)		
9.	Anaemia	-	0.21 (20)				0.01 (1)			0.05 (3)	0.13 (8)	0.01 (2)	0.001 (1)	
10.	Diabetes	-				-		0.02 (1)						
11.	Blood pressures	-				-		0.06 (3)						
12.	AIDS	-				-								
13.	Others	0.12 (7)	0.02 (2)	0.20 (11)	0.05 (2)					0.02 (1)	0.20 (11)	0.05 (3)	0.16 (6)	0.20 (4)

Contd. in 4. 14 B.

Figures in parentheses indicate percentage to total

Table 4.19 B : Incidence of diseases among adult (male and female) - Annual frequency

Sl. No.	Disease	MP		Orissa		TN		UP		WB		India	
		Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
Common diseases													
1.	Fever/Flue	1.70 (64)	1.48 (63)	1.70 (57)	1.60 (49)	2.76 (82)	1.58 (72)	1.71 (70)	1.91 (79)	1.20 (107)	1.76 (109)	1.62 (776)	1.31 (705)
2.	Body aches	0.25 (9)	0.06 (2)	2.40 (9)	1.90 (11)	3.57 (69)	0.52 (25)	3.78 (59)	2.39 (45)	0.54 (25)	2.04 (57)	1.37 (378)	0.87 (272)
3.	Diarrhoea	0.03 (2)	0.05 (2)	1.50 (8)	1.50 (2)	0.05 (6)	0.01 (1)	1.34 (35)	1.29 (29)	0.03 (1)	0.05 (4)	0.34 (129)	0.33 (99)
4.	Gastro-enteric diseases	0.08 (4)	0.08 (3)	1.40 (18)	1.70 (15)	0.14 (4)	0.20 (14)	1.53 (32)	0.97 (8)	1.29 (51)	0.37 (13)	0.67 (242)	0.44 (147)
5.	Skin disorders	0.02 (1)	0.05 (3)			0.14 (13)	0.05 (4)	0.88 (13)	1.06 (36)	2.14 (18)	0.36 (13)	0.42 (77)	0.21 (77)
6.	Reproductive disorders										0.24 (2)	0.00 (1)	0.03 (2)
Special Ailments													
7.	Cardiac failure	0.06 (4)		1.00 (4)	1.00 (4)	0.01 (2)		0.51 (2)		0.03 (3)	0.01 (1)	0.14 (26)	0.07 (10)
8.	TB	0.08 (5)	0.02 (1)	1.00 (1)				0.50 (1)	0.01 (1)	0.02 (2)		0.13 (15)	0.01 (10)
9.	Anaemia	0.05 (3)	0.05 (2)	2.00 (1)	1.00 (1)						4.81 (41)	0.14 (9)	0.63 (74)
10.	Diabetes											0.001 (1)	-



11. Blood pressures									0.003 (3)	-
12. AIDS									-	-
13. Others	0.16 (6)	0.08 (3)	1.70 (3)	1.90 (7)	0.01 (1)	0.51 (2)	5.69 (33)	0.37 (4)	0.80 (98)	0.25 (28)

Figures in parentheses indicate percentage to total

### **(vii) Incidence of diseases among adult (male and female) previous occurrence**

The previous occurrence of diseases among adults (male and female) based on the number of months is discussed in Tables 4.20 A and 4.20 B

In continuation with the above table, the major diseases found within the study area under the title of common diseases were fever/flu, body ache, diarrhoea, gastro enteric disease, skin disorder, reproductive disorder etc. The most common diseases prevalent among the respondent families were fever and body ache.

On an average most recent occurrence of fever/flu was found among male members of the respondent families was in 2.81 months and it was in 3.45 months among female members.

In the case of body ache the previous occurrence was found in 2.63 months in males and 3.10 months in females. Occurrence of diarrhoea and skin disorder was seen among male members with a previous occurrence of 4.73 and 7.08 months ago and for females at 7.89 and 4.44 months ago, respectively.

The most common special ailments found among the respondents were cardiac failure, TB and anaemia, etc. Previous occurrence of cardiac failure among the male and female members was found 19.84 and 37.39 months ago, whereas incidence of anaemia was 4.01 and 4.78 month for male and female respondents.

### **(viii) Incidence of diseases among children (Male and Female) - Annual frequency**

The annual frequency on the incidence of diseases among children (Male and Female) is furnished in Table 4.21A and 4.21 B

The important common diseases found among children were fever, diarrhoea, body ache, and skin disorder. Major diseases found among the children in the study area were fever/flu (379 cases for male and 305 for females), diarrhoea (122 male and 100 female), body ache (76 male and 71 females), gastro enteric disease (23 both for male and female), skin disorder (35 male and 32 females), etc. As mentioned above fever was the most popular disease found among the children and it was distributed across all the states. The average frequency of fever among male children was 0.89 times per year for male children and 0.76 times for female child. In the case diarrhoea the frequencies were 0.46 and 0.44 for male and female children. In case of body ache it was 0.28 and 0.25 respectively. The skin disorder and gastro enteric diseases occurred at frequency of 0.18 for male and female child, barring skin disorder for female child at 0.11.

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Table 4.20 A Incidence of diseases among adult (male and female) previous occurrence (Numbers of months)

Sl. No.	Disease	Assam		Bihar		Gujarat		Himachal Pradesh		Jharkhand		Kerala	
		Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
Common diseases													
1.	Fever/Flue	0.50 (2)		4.31 (16)	3.54 (20)	2.87 (93)	2.83 (88)	3.22 (47)	2.64 (2)	2.60 (67)	3.50 (75)	1.63 (80)	1.57 (67)
2.	Body aches	0.50 (1)	0.50 (1)	3.40 (12)	3.34 (14)	2.34 (40)	2.47 (22)	2.48 (34)	2.11 (6)	2.80 (25)	2.30 (9)	1.43 (61)	1.62 (53)
3.	Diarrhoea	-	-	4.20 (2)	5.40 (2)	2.25 (14)	2.16 (16)	0.76 (14)	0.36 (6)	7.00 (1)	3.80 (5)	1.19 (11)	1.00 (6)
4.	Gastro-enteric diseases	0.50 (2)	-	4.00 (3)	4.50 (2)	2.95 (5)	3.07 (13)	0.83 (14)	0.52 (8)	3.00 (28)	3.60 (27)	1.34 (25)	1.14 (13)
5.	Skin disorders	0.50 (1)	0.50 (1)	-	3.90 (2)	-	-	1.58 (14)	0.47 (4)	3.50 (13)	4.00 (6)	1.42 (12)	1.65 (5)
6.	Reproductive disorders	-	-	-	-	1.00 (1)	-	-	-	-	-	-	-
Special Ailments													
7.	Cardiac failure	-	-	6.00 (1)	3.60 (2)	-	-	30.00 (1)	26.00 (1)	4.20 (6)	2.00 (2)	2.83 (3)	-
8.	TB	0.50 (1)	-	3.60 (2)	1.80 (1)	-	-	96.00 (1)	-	4.00 (1)	3.00 (5)	-	0.25 (1)
9.	Anaemia	-	-	-	-	-	-	-	-	4.70 (3)	4.80 (8)	0.50 (1)	0.75 (2)
10.	Diabetes	-	-	-	-	-	-	72.00 (1)	-	-	-	-	-
11.	Blood pressures	-	-	-	-	-	-	48.00 (3)	-	-	-	-	-
12.	AIDS	-	-	-	-	-	-	-	-	-	-	-	-
13.	Others	-	-	3.38 (11)	3.00 (2)	1.93 (1)	-	-	48.00 (1)	48.00 (1)	2.00 (1)	0.50 (2)	0.25 (1)

Contd. in Table 4.15 B.

Figures in parentheses indicate percentage to total

Table 4.20B : Incidence of diseases among adult (Male and Female) Previous occurrence (Number of months)

Sl. No.	Disease	MP		Orissa		TN		UP		WB		India	
		Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
Common diseases													
1.	Fever/Flue	3.60 (64)	4.80 (63)	3.00 (57)	4.58 (49)	2.305 (81)	3.11 (72)	3.15 (86)	4.02 (79)	3.00 (101)	3.58 (101)	2.81 (694)	3.45 (616)
2.	Body aches	3.70 (9)	2.50 (2)	15.08 (9)	15.02 (11)	1.31 (69)	1.44 (25)	3.43 (43)	4.11 (48)	3.16 (25)	2.51 (56)	2.63 (328)	3.10 (247)
3.	Diarrhoea	5.00 (2)	4.50 (2)	25.81 (8)	162.25 (2)	2.33 (6)	6.00 (1)	4.13 (35)	5.25 (30)	2.67 (3)	3.53 (4)	4.73 (96)	7.89 (74)
4.	Gastro-enteric diseases	3.80 (4)	4.30 (3)	12.13 (18)	11.80 (15)	2.63 (4)	4.43 (14)	7.44 (32)	21.50 (8)	3.31 (51)	2.38 (13)	4.35 (186)	5.34 (116)
5.	Skin disorders	4.00 (1)	5.70 (3)	-	-	5.85 (13)	0.20 (4)	24.01 (14)	6.09 (37)	2.61 (7)	1.01 (3)	7.08 (72)	4.44 (65)
6.	Reproductive disorders	-	-	-	-	-	-	-	-	-	1.00 (2)	1.00 (1)	1.00 (2)
Special Ailments													
7.	Cardiac failure	6.30 (4)	-	70.80 (4)	78.18 (4)	-	-	30.00 (1)	-	16.08 (3)	24.00 (1)	19.84 (23)	37.39 (10)
8.	TB	6.40 (5)	8.00 (1)	53.00 (1)	-	0.50 (1)	-	180 (1)	60.00 (1)	9.12 (2)	-	16.00 (15)	9.45 (9)
9.	Anaemia	4.30 (3)	3.50 (2)	29.50 (1)	23.60 (1)	-	-	-	-	-	0.77 (55)	4.01 (8)	4.78 (68)
10.	Diabetes	-	-	-	-	-	-	-	-	-	-	72.00 (1)	-
11.	Blood pressures	-	-	-	-	-	-	-	-	-	-	48.00 (3)	-
12.	AIDS	-	-	-	-	-	-	-	-	-	-	-	-
13.	Others	3.70 (6)	3.70 (3)	45.23 (3)	30.34 (7)	-	-	120.00 (1)	154 (2)	1.38 (53)	4.67 (3)	5.63 (78)	16.18 (20)

Figures in parentheses indicate percentage to total

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Table 4.21 A: Incidence of diseases among children (Male and Female) - Annual frequency

Sl. No.	Disease	Assam		Bihar		Gujarat		Himachal Pradesh		Jharkhand		Kerala	
		Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
Common diseases													
1.	Fever/Flue	0.42 (36)	0.25 (20)	0.27 (14)	0.18 (9)	0.51 (45)	0.40 (35)	0.67 (12)	0.54 (17)	0.64 (27)	0.64 (26)	0.73 (36)	0.66 (36)
2.	Body aches	0.15 (11)	0.21 (19)	0.05 (3)		0.07 (7)	0.04 (4)	0.54 (9)	0.39 (9)	-	0.02 (1)	0.19 (13)	0.08 (9)
3.	Diarrhoea	0.10 (10)	0.06 (5)	0.08 (3)	0.05 (3)	0.33 (25)	0.23 (18)	0.55 (11)	0.21 (7)	0.08 (4)	0.15 (6)	0.35 (23)	0.26 (16)
4.	Gastro-enteric diseases	-	-	0.07 (1)	-	0.07 (7)	0.08 (8)	0.20 (5)	0.13 (4)	0.01 (1)	-	0.03 (4)	0.01 (1)
5.	Skin disorders	-	-	-	-	-	-	0.30 (13)	0.66 (12)	0.02 (2)	0.02 (1)	-	-
6.	Reproductive disorders	-	-	-	-	-	-	-	-	-	-	-	-
Special Ailments													
7.	Cardiac failure	-	-	-	-	-	-	-	-	-	-	-	-
8.	TB	-	-	-	0.02 (1)	-	0.01 (1)	-	-	-	-	0.01 (1)	0.02 (2)
9.	Anaemia	-	-	-	0.02 (1)	-	-	-	-	-	0.01 (1)	0.02 (3)	0.03 (4)
10.	Diabetes	-	-	-	-	-	-	-	-	-	-	-	-
11.	Blood pressures	-	-	-	-	-	-	-	-	-	-	-	-
12.	AIDS	-	-	-	-	-	-	-	-	-	-	-	-
13.	Others	-	-	0.03 (2)	0.02 (1)	-	0.01 (1)	-	-	-	0.01 (1)	0.02 (2)	0.03 (3)

Contd. in Table 4.16 B..

Figures in parentheses indicate percentage to total

Table 4.21 B: Incidence of diseases among children (Male and Female) - Annual frequency

Sl. No.	Disease	MP		Orissa		TN		UP		WB		India	
		Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
Common diseases													
1.	Fever/Flue	1.18 (47)	0.70 (28)	2.10 (29)	1.80 (28)	0.99 (34)	1.00 (33)	1.90 (43)	1.81 (41)	0.63 (56)	0.39 (32)	0.89 (379)	0.76 (305)
2.	Body aches	0.08 (4)	0.03 (1)	-	-	-	0.50 (2)	1.82 (29)	1.28 (25)	-	0.02 (1)	0.28 (76)	0.25 (71)
3.	Diarrhoea	0.12 (7)	0.02 (1)	1.70 (3)	2.00 (3)	0.50 (1)	0.51 (3)	1.51 (33)	1.47 (32)	0.02 (2)	0.06 (6)	0.46 (122)	0.44 (100)
4.	Gastro-enteric diseases	-	-	-	-	-	-	1.38 (5)	1.59 (10)	-	-	0.18 (23)	0.19 (23)
5.	Skin disorders	-	-	1.00 (1)	-	-	-	0.94 (19)	0.71 (19)	-	-	0.18 (35)	0.11 (32)
6.	Reproductive disorders	-	-	-	-	-	-	-	-	-	-	-	-
Special Ailments													
7.	Cardiac failure	-	-	-	-	0.03 (2)	-	-	-	-	-	0.004 (2)	-
8.	TB	-	-	-	-	-	-	-	-	-	-	0.001 (1)	0.004 (4)
9.	Anaemia	-	-	-	-	-	-	-	-	-	-	0.003 (3)	0.01 (6)
10.	Diabetes	-	-	-	-	-	-	-	-	-	-	-	-
11.	Blood pressures	-	-	-	-	-	-	-	-	-	-	-	-
12.	AIDS	-	-	-	-	-	-	-	-	-	-	-	-
13.	Others	0.05 (2)	0.03 (1)	1.50 (2)	1.80 (4)	-	-	-	-	0.17 (4)	-	0.12 (12)	0.12 (11)

Contd. in Table 4.16 B.

Figures in parentheses indicate percentage to total

### (ix) Incidence of diseases among children - Previous occurrence

The previous occurrence of diseases among children based on the number of months is discussed in Table 4.22 A and 4.22 B.

In continuation with the above table, the major common diseases found within the study area were fever/flu, body ache, diarrhoea, gastro enteric disease, skin disorder, etc The most common diseases prevalent among the children of the respondent families were fever and diarrhoea. On an average most recent occurrence of fever/flu was found among male children of the respondent families was 3.13 months ago and it was 3.34 months among female

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children. In the case of body ache the previous occurrence was found in 3.48 months in males and 4.51 months ago in females. Occurrence of diarrhoea and skin disorder was seen with a previous occurrence of 4.43 and 15.58 months among male and 3.83 and 6.83 months for female child, respectively.

The special ailments were also rarely reported among children like cardiac failure (2), TB (6), and anaemia (8).

Table 4.22 A: Incidence of diseases among children (Male and Female) – Previous occurrence

Sl. No.	Disease	Assam		Bihar		Gujarat		Himachal Pradesh		Jharkhand		Kerala	
		Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
Common diseases													
1	Fever/Flue	1.00 (1)	1.00 (1)	3.42 (14)	4.13 (9)	2.50 (44)	3.14 (35)	2.17 (12)	0.88 (17)	2.40 (27)	2.90 (26)	1.46 (36)	1.62 (36)
2	Body aches	-	-	2.60 (3)	1.20 (1)	1.72 (7)	2.04 (4)	1.38 (9)	1.12 (9)	-	1 (1)	1.86 (7)	1.17 (10)
3	Diarrhoea	-	-	1.60 (3)	5.00 (3)	2.50 (24)	3.01 (17)	1.34 (11)	2.52 (7)	2.50 (4)	2.3 (6)	1.34 (23)	1.22 (17)
4	Gastro-enteric diseases	-	-	4.80 (1)	-	3.20 (7)	2.12 (8)	2.51 (5)	0.41 (4)	1.00 (1)	-	0.87 (4)	0.50 (1)
5	Skin disorders	-	-	-	-	-	-	1.59 (13)	1.14 (12)	7.20 (2)	2.00 (1)	-	-
6	Reproductive disorders	-	-	-	-	-	-	-	-	-	-	-	-
Special Ailments													
7	Cardiac failure	-	-	-	-	-	-	-	-	-	-	-	-
8	TB	-	1.00 (1)	-	1.80 (1)	-	3.00 (1)	-	-	-	-	1.00 (1)	1.00 (2)
9	Anaemia	-	-	-	4.20 (1)	-	-	-	-	-	-	2.50 (3)	0.63 (4)
10	Diabetes	-	-	-	-	-	-	-	-	-	-	-	-
11	Blood pressures	-	-	-	-	-	-	-	-	-	-	-	-
12	AIDS	-	-	-	-	-	-	-	-	-	-	-	-
13	Others	-	-	5.10 (2)	4.80 (1)	-	1.00 (5)	-	-	-	5.00 (1)	3.50 (2)	3.50 (2)

Contd. in Table 4.17 B.

Figures in parentheses indicate percentage to total

Table 4.22 B: Incidence of diseases among children (male and female) – Frequency of occurrence

Sl. No.	Disease	MP		Orissa		TN		UP		WB		India	
		Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
Common diseases													
1	Fever/Flue	4.4 (47)	4.90 (28)	6.91 (29)	6.95 (28)	2.19 (34)	2.62 (33)	3.14 (43)	3.25 (41)	2.72 (54)	3.34 (32)	3.13 (341)	3.34 (286)
2	Body aches	3.80 (4)	3.00 (1)	-	-	-	0.50 (2)	6.06 (17)	4.05 (19)	-	3.06 (1)	3.48 (47)	4.51 (47)
3	Diarrhoea	4.30 (7)	4.00 (1)	7.77 (3)	33.43 (3)	0.50 (1)	0.67 (3)	3.47 (34)	3.88 (33)	4.56 (2)	2.81 (8)	4.43 (112)	3.83 (98)
4	Gastro-enteric diseases	-	-	-	-	-	-	22.20 (5)	11.34 (10)	-	-	6.75 (23)	5.76 (23)
5	Skin disorders	-	-	4.00 (1)	-	-	-	14.29 (17)	10.89 (18)	-	-	15.58 (33)	6.83 (31)
6	Reproductive disorders	-	-	-	-	-	-	-	-	-	-	-	-
Special Ailments													
7	Cardiac failure	-	-	-	-	6.25 (2)	-	-	-	-	-	6.25 (2)	-
8	TB	-	-	-	-	-	-	-	-	-	-	1.00 (1)	1.56 (5)
9	Anaemia	-	-	-	-	-	-	-	-	-	-	2.50 (3)	1.34 (5)
10	Diabetes	-	-	-	-	-	-	-	-	-	-	-	-
11	Blood pressures	-	-	-	-	-	-	-	-	-	-	-	-
12	AIDS	-	-	-	-	-	-	-	-	-	-	-	-
13	Others	3.20 (2)	2.00 (1)	59.00 (2)	41.00 (4)	-	-	-	-	4.01 (4)	-	13.14 (12)	10.79 (14)

Figures in parentheses indicate percentage to total

### (x) Access to health care

The access to health care is also an important parameter which determines the continued health of the fisher folk. 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 (Table 4.23). The results indicated that there existed considerable access to the primary health centre and hospital. On an average the primary health centre was available at a distance of 2.31 km and the hospital at 11.1 km. The average distance for the primary health centre ranged from 0.56 km in Tamil Nadu to 5.33 km in Himachal Fig. 4.27.

## Livelihood Status of Fishers in India

Table 4.23: Access to health care (distance in km)

Sl. No.	State	Access to health care ( km)	
		Primary health centre	Hospital
1.	Andhra Pradesh	1.00	4.80
2.	Assam	3.80	9.66
3.	Bihar	2.50	5.50
4.	Gujarat	0.79	8.61
5.	Himachal Pradesh	5.33	11.36
6.	Jharkhand	3.40	6.50
7.	Kerala	1.77	8.44
8.	Madhya Pradesh	5.20	14.20
9.	Orissa	0.80	11.90
10.	Tamil Nadu	0.56	8.97
11.	Uttar Pradesh	3.02	23.96
12.	West Bengal	0.91	15.43
13.	Average (Total)	2.31	11.10

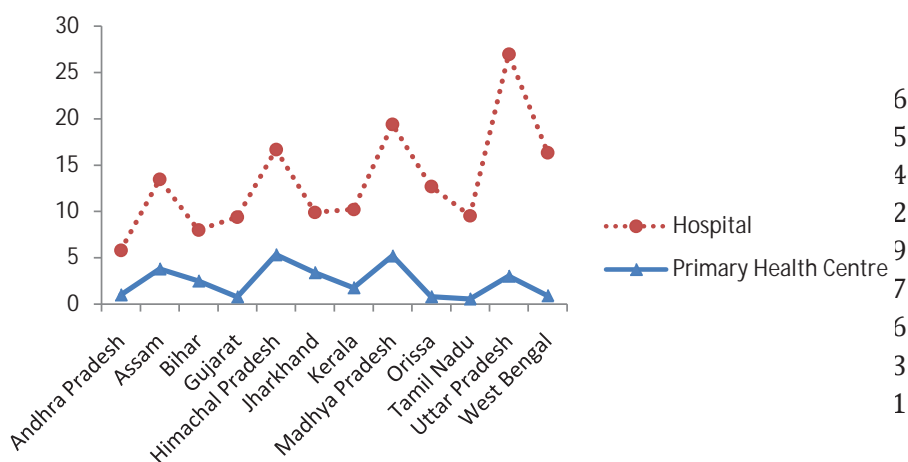


Fig 4.21 : Access to health care (distance in km)

### (xi) Problems in health management

The major problems underwent in health management was analyzed based on the opinion of the sample respondents. The major problems cited by the respondents are indicated in Table 4.24. The major problems reported include problems on cleanliness/ sanitation (20.75 per cent), unspecified problems (17.29 per cent), drinking water problem (12.05 per cent), lack of adequate effective medicines (11.56 per cent), non availability of specialist and paramedicines in health centers (10.16 per cent), poor infrastructure (9.68 per cent), difficulty in accessing the hospital due to distance (9.43 per cent) and work related stress (3.24 per cent).





Fig.4. 28 Glimpse of Government Hospital at Digha



Fig. 4. 29 Children waiting for their turn for mid day meal



Fig 4.30 Public water supply for drinking water

## Livelihood Status of Fishers in India

The state level analysis of the sample respondent households indicated that lack of cleanliness/poor sanitation was the major problem perceived in most of the states. Access to safe drinking water was also one of the major problems perceived by the respondents. Furthermore, infrastructure facilities and unavailability of effective doctors and medicines were the problems needs to be addressed for better medical care.

Table 4.24 Problems in health management (Frequency)

Sl. Problems No.	A.P	Assam	Bihar	Gujarat	H.P.	JH	Kerala	M.P	Orissa	T.N.	U.P.	W.B.	Total
1. Difficulty in accessing the hospital due to distance	0 (0.00)	0	0	0	35 (17.86)	0	24 (16.11)	0	0	0	78 22.29	18 5.68	155 (9.43)
2. Non availability of specialist and paramed-icines in health centers	10 (29.41)	20 (50.00)	0	0	33 (16.84)	0	1 (0.67)	0	0	1 (0.61)	57 16.29	45 14.20	167 (10.16)
3. Poor infrastructure	6 (17.65)	0	4 (4.40)	0	31 (15.82)	23 (23.71)	9 (6.04)	0	0	8 (4.91)	32 9.14	46 14.51	159 (9.68)
4. Lack of adequate effective medicines	15 (44.12)	20 (50.0)	16 (17.58)	0	26 (13.27)	0	1 (0.67)	0	0	3 (1.84)	55 15.71	54 17.03	190 (11.56)
5. Problems on Cleanliness/ Sanitation	3 (8.82)	0	45 (49.45)	0	21 (10.71)	21 (21.65)	44 (29.53)	64 (100)	29 (49.15)	51 (31.29)	21 6.00	42 13.25	341 (20.75)
6. Drinking water problem	0 (0.00)	0	5 (5.49)	0	19 (9.69)	31 (31.96)	54 (36.24)	0	15 (25.42)	5 (3.07)	34 9.71	35 11.04	198 (12.05)
7. Work related stress	0 (0.00)	0	6 (6.59)	0	16 (8.16)	0	8 (5.37)	0	0	0	9 2.57	15 4.73	54 (3.29)
8. Others	0 (0.00)	0	15 (16.48)	83 (100)	15 (7.65)	22 (22.68)	8 (5.37)	0	15 (25.42)	0	64 18.29	62 19.56	284 (17.29)
9. Total	34 (100)	40 (100)	91 (100)	83 (100)	196 (100)	97 (100)	149 (100)	64 (100)	59 (100)	163 (100)	350 (100)	100 (100)	1643 (100.0)

Figures in parentheses indicate percentage to total

Table 4.25: Suggestions to improve health care facilities (Frequency)

Sl. No.	Suggestions	AP	AS	BH	GE	HP	HF	KR	MP	OR	TN	UP	WB	Total	Per-centage
1	Increase the number of doctors/specialists	8 (20.00)	26 (50.98)	0 (0.00)	8 (6.67)	31 (19.87)	0 (0.00)	11 (9.40)	49 (76.56)	8 (13.56)	21 (12.96)	60 (20.91)	23 (14.11)	245	17.41
2	Make quarters facility for doctors so that they are available 24 x 7	6 (15.00)	0 (0.00)	4 (4.40)	0 (0.00)	28 (17.95)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	67 (41.36)	55 (19.16)	47 (28.83)	207	14.71
3	Make available sufficient medicines for all diseases with free of cost	19 (47.50)	25 (49.02)	16 (17.58)	15 (0.00)	25 (16.03)	23 (23.71)	7 (5.98)	15 (23.44)	15 (25.42)	3 (1.85)	46 (16.03)	68 (41.72)	277	19.69
4	Construct the modern hospital with all infrastructure and health care facilities.	5 (12.50)	0 (0.00)	45 (49.45)	29 (12.50)	22 (14.10)	0 (0.00)	11 (9.40)	0 (0.00)	0 (0.00)	21 (12.96)	45 (15.68)	3 (1.84)	181	12.86
5	Provide ambulance for emergency (especially during delivery accidents, etc.)	2 (5.00)	0 (0.00)	5 (5.49)	19 (24.17)	21 (13.46)	0 (0.00)	7 (5.98)	0 (0.00)	0 (0.00)	0 (0.00)	39 (13.59)	2 (1.23)	95	6.75
6	Need of good quality drinking water	0 (0.00)	0 (0.00)	6 (5.49)	7 (15.83)	16 (10.26)	22 (22.68)	39 (33.33)	0 (0.00)	16 (27.12)	50 (30.86)	24 (8.36)	5 (3.07)	185	13.15
7	Other	0 (0.00)	0 (0.00)	15 (16.48)	42 (35.00)	13 (8.33)	52 (53.61)	42 (35.90)	0 (0.00)	20 (33.90)	0 (0.00)	18 (8.36)	15 (9.20)	217	15.42
8	Total	40	51	91	120	156	97	117	64	59	162	287	163	1407	

Figures in parentheses indicate percentage to total

### (xii) Suggestions to improve healthcare facilities

The respondent households opined on the different suggestions for improving the health care facilities and the details are furnished in Table 4.25.

The major suggestions made by the respondents were providing sufficient medicines for all diseases free of cost (19.69 per cent), increasing the number of doctors/specialists (17.41 per cent), others (15.42 per cent), construction of quarters facility for doctors so that they are available 24 x 7 (14.71 per cent), good drinking water facility (13.15 per cent), construction of the modern hospital with all infrastructure and healthcare facilities (12.86 per cent) and provision of ambulance for emergency, especially during delivery and accidents, etc. (6.75 per cent).

It was found that the maximum responses for suggestion were from Uttar Pradesh (287) followed by West Bengal (163), Tamil Nadu (162), Himachal (156) and Kerala (117). For all the other states the responses were less than 100. The suggestions made by the respondents varied across the states. In Uttar Pradesh and Himachal Pradesh maximum respondents opined for increasing the number of doctors/specialists, while in West Bengal demand for availability of free medicine was prominent. The suggestion of making quarters for the doctors to ensure their availability was also highlighted by the respondent across the states.

### D) Income Profile

The income profile of the respondent households were 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.



Fig 4.31 Fisher's house in Assam

### (i) Monthly Income pattern

The income pattern of the respondent household was analyzed using the monthly income across the inland states of India Table 4.26.

Table 4.26 Income status of the respondents (Monthly Rs.)

Sl. No.	State	Enterprise					Total
		Fishery	Labour	Agriculture	Business	Any others	
1.	Andhra Pradesh	5515.47 (56.51)	2983.85 (30.57)	929.1 (49.52)	331.00 (3.39)	0.00 (0.00)	9759.47 (100.00)
2.	Assam	1425.21 (73.00)	202.00 (10.35)	65.50 (3.35)	309.50 (15.85)	0.00 (0.00)	1952.46 (100.00)
3.	Bihar	404.10 (70.29)	108.96 (18.95)	40.97 (7.13)	13.89 (2.42)	6.94 (1.21)	574.86 (100.00)
4.	Gujarat	1157.99 (18.39)	1460.71 (23.20)	1396.39 (22.17)	2282.26 (36.24)	0.00 (0.00)	6297.34 (100.00)
5.	Himachal Pradesh	1512.00 (40.91)	832.00 (22.51)	595.00 (16.10)	480.00 (12.99)	277.00 (7.49)	3696.00 (100.00)
6.	Jharkhand	467.20 (64.24)	131.20 (18.04)	57.50 (7.91)	71.50 (9.83)	0.00 (0.00)	727.30 (100.00)
7.	Kerala	1284.40 (82.20)	206.49 (13.21)	9.88 (0.63)	17.48 (1.12)	44.36 (2.84)	1562.55 (100.00)
8.	Madhya Pradesh	530.50 (99.42)	3.10 (0.58)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	533.60 (100.00)
9.	Orissa	589.00 (94.82)	0.00 (0.00)	3.40 (0.55)	28.80 (4.64)	0.00 (0.00)	621.20 (100.00)
10.	Tamil Nadu	1593.61 (85.12)	254.18 (13.58)	0.00 (0.00)	0.00 (0.00)	24.43 (0.00)	1872.23 (100.00)
11.	Uttar Pradesh	1942.00 (49.96)	844.50 (21.73)	498.50 (12.82)	474.50 (12.21)	128.00 (3.29)	3887.00 (100.00)
12.	West Bengal	685.14 (49.57)	575.38 (41.63)	138.33 (10.01)	204.56 (14.80)	47.03 (3.40)	1382.18 (100.00)
13.	Total	1333.78 (52.15)	576.70 (22.55)	297.37 (11.63)	377.78 (14.77)	74.33 (2.91)	2557.58 (100.00)

Figures in parentheses indicate percentage to total

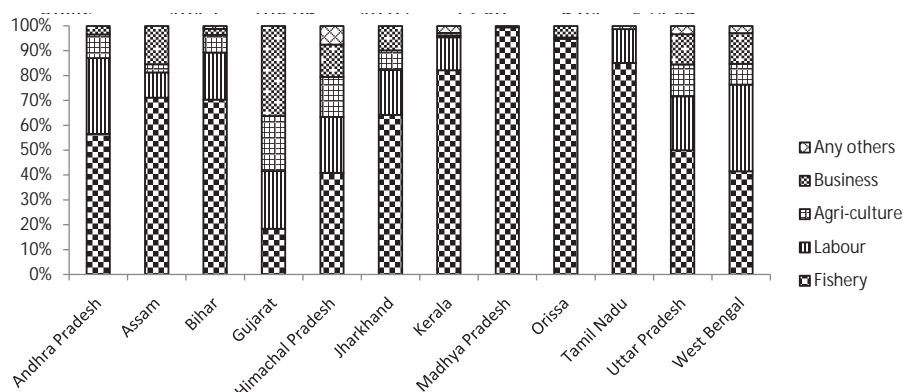


Fig. 4.32 Income percentage of the respondents

## Livelihood Status of Fishers in India

The major income sources of the respondent households were income from fishery, business, agriculture, labour services, and other service sectors (Figure. 4.32). The highest monthly average income generated across the states was through fisheries sector with an average amount of Rs. 1333.78 (52.15 % of the total income) followed by income from labour sector at Rs.576.7 at (22.55 %), business at Rs 377.78 (14.77 %) and agricultural sector at Rs 297.31 (11.63 %).



Fig. 4.33 Fisher boat at river bank with fish catch

The state wise monthly income status of the respondents indicated that Andhra has the highest income from fisheries sector Rs 5515.47 (56.51% of the total income). The lowest income was registered at Madhya Pradesh with Rs 530.5. The monthly income of the fishers of Orissa, Jharkhand and Bihar was less than Rs 1,000/with major share from fisheries reveals poor economic standard of fisher households

The monthly income of fishers of Andhra Pradesh, Gujarat, Tamil Nadu and Himachal from fisheries sector was estimated at Rs. 5515, Rs. 1157, Rs.1593 and Rs.1512 respectively. Other than fisheries sector they were depending on agriculture, business and labour for getting additional income.

### **(ii) Involvement in non fisheries activities**

Involvement of respondent' households in non fisheries activities are illustrated in the Table 4.27 and Figure 4.34.

The analysis on the respondent household's involvement in non fisheries activities indicated that 733 respondents were involved in non-fisheries activities, which provided an additional source of income. The major non fishing activities involved by respondents were labour, agriculture, business, and other service sectors with a participation of 54.16, 19.37, 18.83 and 7.64 per cent of fishers respectively. The total number of respondents involved in labour ranged between 0-100 per cent for Orissa and Madhya Pradesh. For agriculture it varied from 0-38.57 per cent from Madhya Pradesh to Jharkhand. The result clearly indicated the existence and practice of alternative avocation holds good in the selected respondent households.

Table 4.27: Respondent's involvement in non-fisheries activities

Sl. No.	State	Respondents involvement in non-fisheries activities				
		Labour	Agriculture	Business	Any others	Total
1.	Andhra Pradesh	50 (40.98)	40 (32.79)	28 (22.95)	4 (3.28)	122 (100.00)
2.	Assam	24 (27.91)	19 (22.09)	43 (50.00)	0 (0.00)	86 (100.00)
3.	Bihar	31 (68.89)	9 (20.00)	4 (8.89)	1 (2.22)	45 (100.00)
4.	Gujarat	23 (65.71)	12 (34.29)	0 (0.00)	0 (0.00)	35 (100.00)
5.	Himachal Pradesh	21 (42.00)	5 (10.00)	18 (36.00)	6 (12.00)	50 (100.00)
6.	Jharkhand	31 (44.29)	27 (38.57)	12 (17.14)	0 (0.00)	70 (100.00)
7.	Kerala	27 (46.55)	3 (5.17)	7 (12.07)	21 (36.21)	58 (100.00)
8.	Madhya Pradesh	1 (100.00)	0 (0.00)	0 (0.00)	0 (0.00)	1 (0.00)
9.	Orissa	0 (0.00)	1 (12.50)	7 (87.50)	0 (0.00)	8 (100.00)
10.	Tamil Nadu	48 (97.96)	0 (0.00)	0 (0.00)	1 (2.04)	49 (100.00)
11.	Uttar Pradesh	70 (70.00)	10 (10.00)	4 (4.00)	16 (16.00)	100 (100.00)
12.	West Bengal	71 (65.14)	16 (14.68)	15 (13.76)	7 (6.42)	109 (100.00)
13.	Total	397 (54.16)	142 (19.37)	138 (18.83)	56 (7.64)	733 (100.00)

Figures in parentheses indicate percentage to total

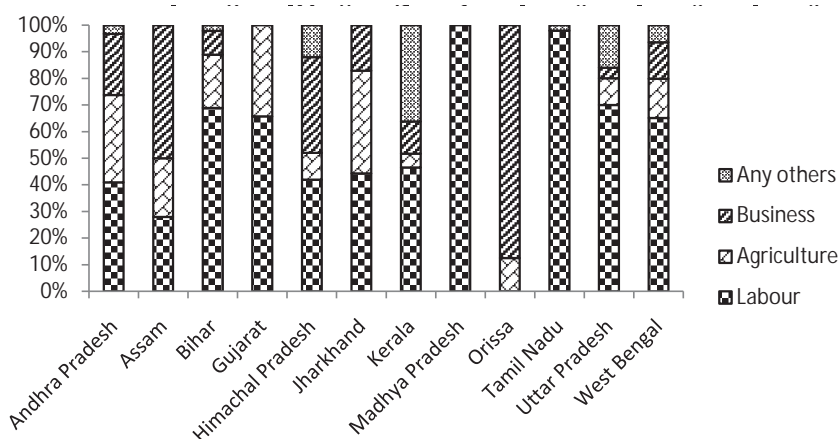


Fig. 4.34: Respondents involvement in non-fisheries activities in per cent

### (iii) Pattern of expenditure

The major household expenses measured include expenditure on food, clothing, fuel, medical, education, entertainment, personals and durables. The result of the pattern of monthly expenditure is represented in Table 4.28 and Figure 4.35.

The average monthly expenditure pattern of the households worked out at Rs. 2084.20. Expenses on food shared 50.68 percent of the total income (Rs. 1,056.37) followed by education with 9.37 percent (Rs. 195.27). The least expenditure was Rs. 65.04 (3.12 %) on entertainment.

## Livelihood Status of Fishers in India

The total expenditure pattern of the selected states indicates that the highest household expenditure was noticed in Andhra Pradesh with an average amount of Rs. 11654.48 and the least in Madhya Pradesh with Rs. 517. The expenses on food were the major item of expenditure for most of the states followed by clothing, education, purchase of durables and other components.

Table 4.28: Monthly expenditure pattern of the fisher family (Rs.)

Sl. No.	State	Food	Clothing	Fuel	Medical	Education	Entertain-ment	Personal	Durables	Total
1	Andhra Pradesh	4653.77 (39.93)	1420.57 (12.19)	480.60 (4.12)	1333.11 (11.44)	1961.08 (16.83)	309.85 (2.66)	416.83 (3.58)	1078.67 (9.26)	11654.48 (100.00)
2	Assam	1012.80 (71.52)	114.71 (8.10)	10.00 (0.71)	126.33 (8.92)	32.00 (2.26)	6.17 (0.44)	114.18 (8.0)	0.00 (0.00)	1416.18 (100.00)
3	Bihar	297.78 (66.89)	24.17 (5.43)	24.17 (5.43)	21.71 (4.88)	27.75 (6.23)	6.11 (1.37)	27.22 (6.11)	16.25 (3.65)	445.16 (100.00)
4	Gujarat	1792.94 (54.24)	304.22 (9.20)	265.84 (8.04)	118.79 (3.59)	313.16 (9.47)	75.26 (2.28)	69.78 (2.11)	365.52 (11.06)	3305.50 (100.00)
5	Himachal Pradesh	995.003 (40.83)	265.00 (10.87)	54.00 (2.22)	260.00 (10.67)	324.00 (13.30)	53.00 (2.17)	233.00 (9.56)	253.00 (10.38)	2437.00 (100.00)
6	Jharkhand	335.90 (55.57)	25.60 (4.23)	62.20 (10.29)	19.90 (3.29)	43.90 (7.26)	33.30 (5.51)	54.70 (9.05)	29.00 (4.80)	604.50 (100.00)
7	Kerala	564.55 (44.66)	91.80 (7.26)	46.98 (3.72)	80.80 (6.39)	58.51 (4.63)	24.53 (1.94)	131.39 (10.39)	265.63 (21.01)	1264.19 (100.00)
8	Madhya Pradesh	289.90 (56.01)	28.50 (5.51)	0.00 (0.00)	37.70 (7.28)	18.80 (3.63)	40.20 (7.77)	101.20 (19.55)	1.30 (0.25)	517.60 (100.00)
9	Orissa	306.80 (57.79)	28.60 (5.39)	33.30 (6.27)	21.00 (3.96)	20.30 (3.82)	48.30 (9.10)	55.50 (10.45)	17.10 (3.22)	530.90 (100.00)
10	Tamil Nadu	552.76 (53.52)	88.07 (8.53)	60.54 (5.86)	118.74 (11.50)	66.64 (6.45)	52.05 (5.04)	25.85 (2.50)	68.20 (6.60)	1032.85 (100.00)
11	Uttar Pradesh	1958.00 (54.98)	242.00 (6.80)	119.50 (3.36)	213.00 (5.98)	121.00 (3.40)	166.50 (4.68)	530.50 (14.90)	210.50 (5.91)	3561.00 (100.00)
12	West Bengal	746.53 (62.90)	48.63 (4.10)	82.25 (6.93)	84.24 (7.10)	69.88 (5.89)	37.56 (3.16)	107.67 (9.07)	10.12 (0.85)	1186.90 (100.00)
	Total	1056.37 (50.68)	186.05 (893)	96.61 (4.64)	166.37 (7.98)	195.27 (9.37)	65.04 (3.12)	150.80 (7.24)	167.69 (8.05)	2084.20 (100.00)

Figures in parentheses indicate percentage to total



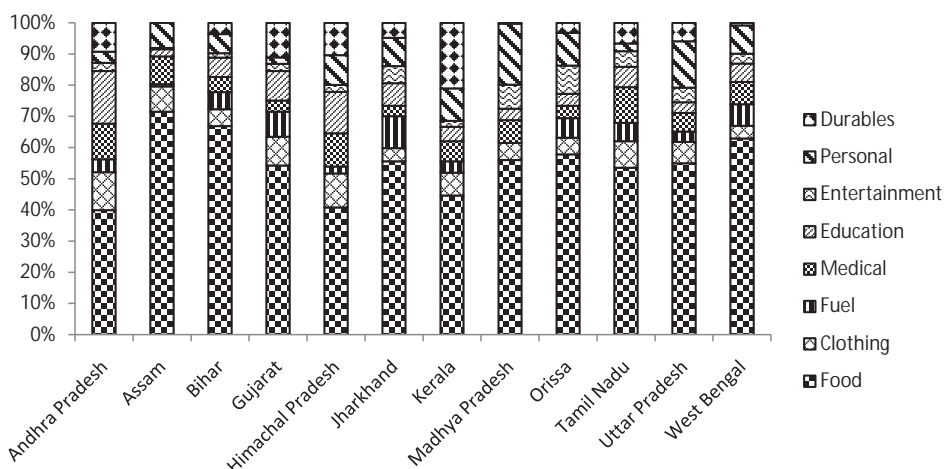


Fig. 4.35 : Pattern of expenditure of the fisher family ( per cent)

**(iv) Indebtedness and Savings**

The saving pattern of the respondent households are indicated in Table 4.29. The saving details of the respondent's households indicated that 35.44 per cent of the respondents have no savings. 52.45 per cent of the respondent households possessed a saving of less than Rs 50000. 9.92 per cent of the respondents have a saving of Rs 50000-100000. Around 2.2 per cent of the respondent households had a savings of more than one lakh rupee. The details on the frequency of respondents having saving across the inland states is graphically represented in Figure 4.36.

It was found that the frequency of respondents possessing savings varied across the states. It was found that not even a single fisherman of Andhra Pradesh was having saving. The amount of saving was very less in the states of Madhya Pradesh, Bihar, Orissa, etc, on account of their poor income levels. But the frequency of respondents with saving was more. On contrary, the percentage of respondents with saving was less for Kerala and Uttar Pradesh, but the amount saved was more.

Table 4.29: Saving details of respondent's households

Sl. No.	State	Frequency of respondents having Savings				Total
		Nil	< 50 k	50-100.00k	>100.00K	
1.	Andhra Pradesh	53(100.00)	0 (0.00)	0 (0.00)	0 (0.00)	53 (100.00)
2.	Assam	10 (12.50)	68 (85.00)	2 (2.50)	0 (0.00)	80 (100.00)
3.	Bihar	7 (11.67)	53 (88.33)	0 (0.00)	0 (0.00)	60 (100.00)
4.	Gujarat	10 (22.73)	29 (65.91)	5 (11.36)	0 (0.00)	44 (100.00)
5.	Himachal Pradesh	0 (0.00)	0 (0.00)	50 (100.00)	0 (0.00)	50 (100.00)
6.	Jharkhand	0 (0.00)	66 (84.62)	3 (3.85)	9 (11.54)	78 (100.00)
7.	Kerala	47 (50.54)	32 (34.41)	7 (7.53)	7 (7.53)	93 (100.00)
8.	Madhya Pradesh	0 (0.00)	12 (75.00)	3 (18.75)	1 (6.25)	16 (100.00)
9.	Orissa	0 (0.00)	43 (100.00)	0 (0.00)	0 (0.00)	43 (100.00)

## Livelihood Status of Fishers in India

10	Tamil Nadu	87 (93.55)	6 (6.45)	0 (0.00)	0 (0.00)	93 (100.00)
11.	Uttar Pradesh	36 (36.00)	60 (60.00)	4 (40.00)	0 (0.00)	100 (100.00)
12.	West Bengal	25 (37.88)	38 (57.58)	3 (4.55)	0 (0.00)	66 (100.00)
13.	Total	275 (35.44)	407 (52.45)	77 (9.92)	17 (2.19)	77 (100.00)

Figures in parentheses indicate percentage to total

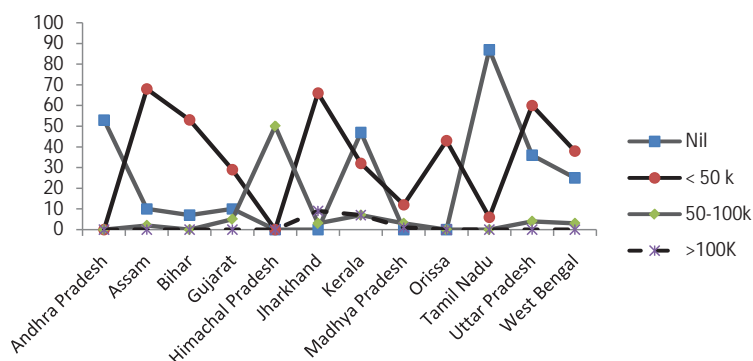


Fig 4.36 Frequency of saving pattern

## (v) Indebtedness of the respondents households

The lack of savings and the need for increased expenditure for mere sustenance often lead to indebtedness. The pattern of indebtedness of respondent households across the different inland states of India is discussed in Table 4.30.

Table 4.30 Indebtedness of respondent's households

Sl. No.	State	Indebtedness			
		Number of persons	Average amount per person	Average amount repaid	per cent repayment
1.	Andhra Pradesh	40	75025	15200	20.26
2.	Assam	4	25000	14236	56.94
3.	Bihar	20	6350	2167.5	34.13
4.	Gujarat	15	7930	6046	76.24
5.	Himachal Pradesh	3	88750	49375	55.63
6.	Jharkhand	78	6547	1076.9	16.45
7.	Kerala	77	38856	14419	37.11
8.	Madhya Pradesh	16	2262.5	1050	46.41
9.	Orissa	43	539	465.1	86.29
10.	Tamil Nadu	75	14927	3749	25.12
11.	Uttar Pradesh	46	14754	3006	20.37
12.	West Bengal	61	40488	23139	57.15
13	Total	478	21133.40	9778.59	46.27

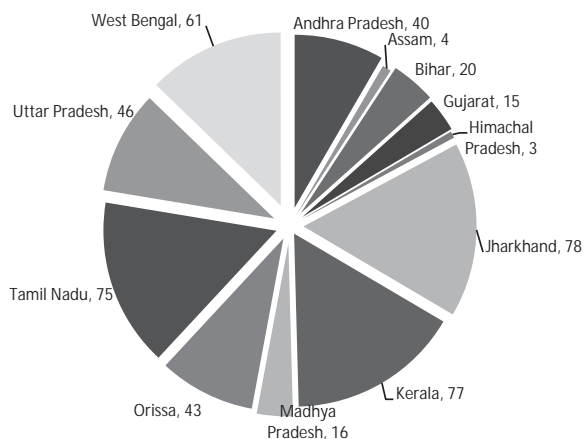


Fig. 4.37 Indebtedness across the states

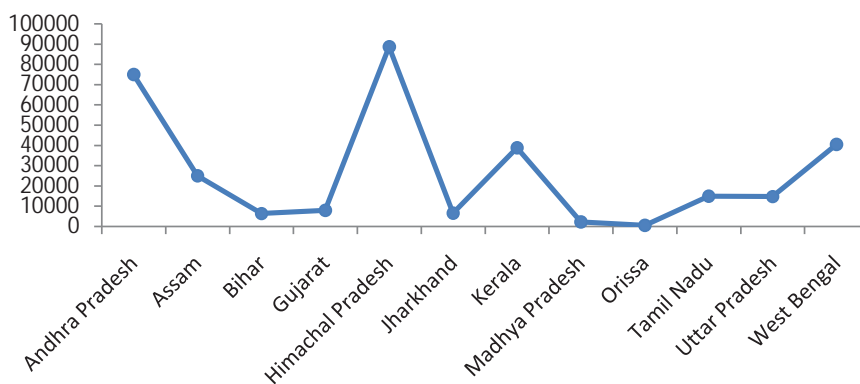


Fig. 4.38 The average loan per person

The results indicated that the average amount of indebtedness per person was Rs 21133.40 in which the highest average amount of indebtedness was recorded in Andhra Pradesh with Rs 75025. The highest number of respondents who borrowed money for different purposes was found in Jharkhand (78) followed by Kerala (77), Tamil Nadu (75), and West Bengal (61). It was found that in Himachal Pradesh and Assam only few have availed credit.

Though the number of persons in indebtedness was high in Jharkhand, the average amount of indebtedness per person was comparatively low with Rs. 6547. The lowest amount of loan was in Orissa at Rs 539 followed by Rs. 6350 for Bihar. The level of indebtedness across the fishers is depicted in Figure. 4.37 and 4.38

On an average 46.27 per cent of the total loan amount was repaid. The analysis of repayment of the loans indicated that 86.29 per cent of loan was repaid by fishers of Orissa and 76.24 per cent of the loan amount by fishers of Gujarat. The lowest repayment percentage was for Jharkhand (16.45) followed by Andhra and Uttar Pradesh at 20.06 and 20.37 per cent. The level of repayment also depends on the age of the loan. But overall scenario of the repayment was comparatively better considering the poor conditions of the fisher community.

**(vi) Sources of lending**

The indebtedness often resulted in availing loans from the different institutions. The major sources of lending include banks, co-operatives, private money lenders, friends/relatives and jewel loans. The distribution of loans across the sources is described in Table 4.31.

A total of 478 respondents had availed loans for various purposes. It was found that private money lenders constituted the major source of lending with 36.69 per cent of loans availed by the households. Banks provided credit to 27.13 per cent of respondents followed by other sources like LIC, SHG, etc., with a contribution of 17.57 per cent (Figure 4.39)

Cooperatives were also a good source of loan for 13.95 percent of respondents and it was the most important funding source in Kerala (47.37 per cent). Whereas banks were the most popular source in Jharkhand (91.67 per cent ) and self help groups were popular in Tamil Nadu (56.00 per cent).

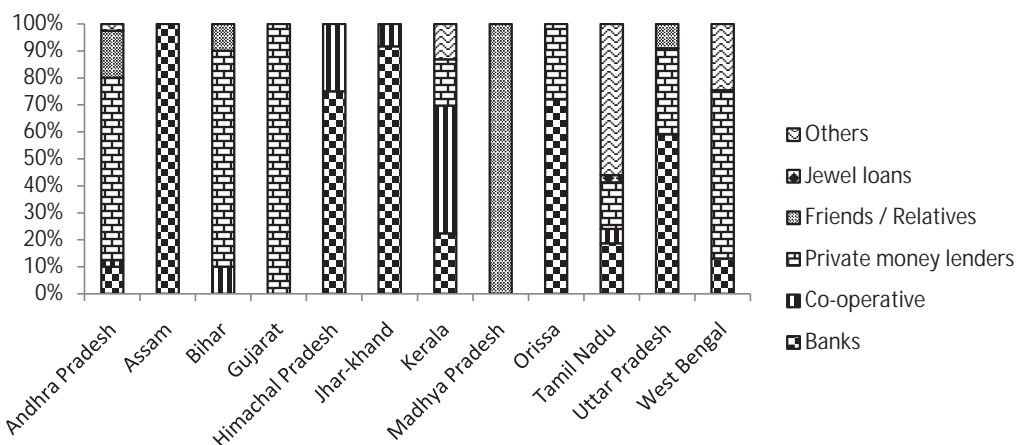


Fig. 4.39: Sources of lending

**(vii) 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 4.32.

The major purposes for which loans were availed included purchase of craft/ gear and other fishing related equipments, house construction/land purchase, marriage expenses., education and health and social security etc.

It was found that of the 387 respondents availed loans, around 25 per cent availed it for business and preparations for marriage in the family. Over 23 per cent of the fishers availed loan for purchase of gears and other fishing related equipments. House construction and land purchase found importance among 13.44 per cent of the respondent households. The loans for education health and social security were taken by 8.01 and 491 per cent respondents. The details on the purpose of availing loans across states are represented in Figure 4.40.

Table 4.31 Sources of lending

Sl. No.	Sources	Andhra Pradesh	Assam	Bihar	Gujarat	Himachal Pradesh	Jhar-khand	Kerala	Madhya Pradesh	Orissa	Tamil Nadu	Uttar Pradesh	West Bengal	Total
1.	Banks	4 (10.00)	4 (100.00)	0 (0.00)	0 (0.00)	3 (75.00)	11 (91.67)	17 (22.37)	0 (0.00)	31 (72.09)	14 (18.67)	13 (41.94)	8 (13.11)	105 (27.13)
2.	Co-operative	1 (2.50)	0 (0.00)	2 (10.00)	0 (0.00)	1 (25.00)	1 (8.33)	36 (47.37)	0 (0.00)	0 (0.00)	4 (5.33)	29 (29.03)	0 (0.00)	54 (13.95)
3.	Private money lenders	27 (67.50)	0 (0.00)	16 (80.00)	16 (100.0)	0 (0.00)	0 (0.00)	13 (17.11)	0 (0.00)	12 (27.91)	13 (17.33)	7 (22.58)	38 (62.30)	142 (36.69)
4.	Friends / Relatives	7 (17.50)	0 (0.00)	2 (10.0)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	5 (100.00)	0 (0.00)	0 (0.00)	2 (6.45)	0 (0.00)	16 (4.13)
5.	Jewel loans	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	2 (2.67)	0 (0.00)	0 (0.00)	2 (0.52)
6.	Others (SHGs/ LIC, etc)	1 (2.50)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	10 (13.16)	0 (0.00)	0 (0.00)	42 (56.00)	0 (0.00)	15 (24.59)	68 (17.57)
7.	Total	40 (100.00)	4 (100.00)	20 (100.00)	16 (100.00)	4 (100.00)	12 (100.00)	76 (100.00)	5 (100.00)	43 (100.00)	75 (100.00)	31 (100.00)	61 (100.00)	387 (100.00)

Figures in parentheses indicate percentage to total

Table 4.32: Purpose of availing loans

Purpose	A.P	Assam	Bihar	Gujarat	H.P	Jhar- khand	Kerala	Madhya Pradesh	Orissa	Tamil Nadu	U.P	West Bengal	Total
1. Purchase of craft/ gear and other fishing related equipments	4 (10.00)	4 (100.00)	0 (0.00)	1 (6.25)	3 (75.00)	1 (8.33)	10 (13.16)	0 (0.00)	31 (72.09)	14 (18.67)	16 (51.61)	6 (9.84)	90 (23.26)
2. House construc- tion / Land purchase	1 (2.50)	0 (0.00)	2 (10.00)	12 (75.00)	1 (25.00)	1 (8.33)	19 (25.00)	0 (00.00)	0 (0.00)	7 (9.33)	3 (9.68)	6 (9.84)	52 (13.44)
3. Marriage expense	27 (67.50)	0 (0.00)	16 (80.00)	0 (0.00)	0 (0.00)	0 (0.00)	17 (22.37)	0 (0.00)	12 (27.91)	2 (2.67)	5 (16.13)	19 (31.15)	98 (25.32)
4. Education	7 (17.50)	0 (0.00)	2 (10.0)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	5 (100.00)	0 (0.00)	6 (8.00)	1 (3.23)	10 (16.39)	31 (8.01)
5. Health and Social Security	0 (0.00)	0 (0.00)	0 (0.00)	1 (6.25)	0 (0.00)	0 (0.00)	6 (7.89)	0 (0.00)	0 (0.00)	9 (12.00)	0 (0.00)	3 (4.92)	1 (4.91)
6. Any others (busi- ness and purchase of vehicle	1 (2.50)	0 (0.00)	0 (0.00)	2 (12.50)	0 (0.00)	10 (83.33)	24 (31.58)	0 (0.00)	0 (0.00)	37 (49.33)	6 (19.35)	17 (27.87)	97 (25.06)
7. Total	40 (100.00)	4 (100.00)	20 (100.00)	16 (100.00)	4 (100.00)	12 (100.00)	7 (100.00)	5 (100.00)	43 (100.00)	75 (100.00)	31 (100.00)	61 (100.0)	387 (100)

Figures in parentheses indicate percentage to total

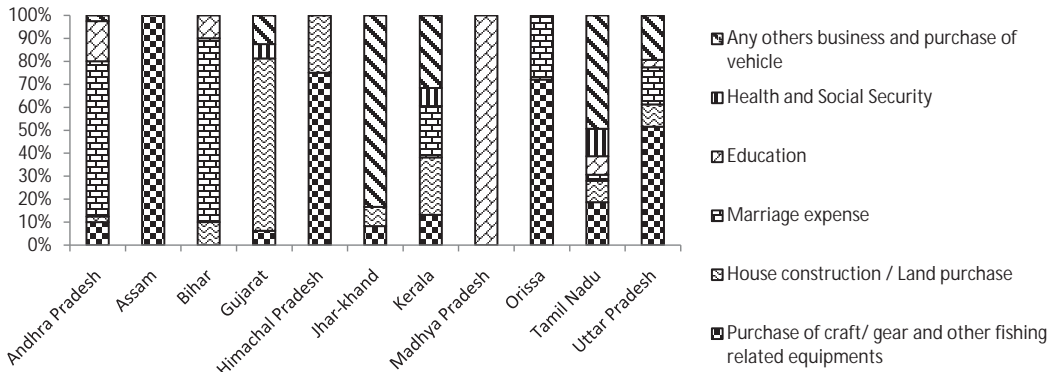


Fig 4.40. Purpose of availing loans (Per cent distribution)

**(viii) Suggestions to enhance the income and employment generation**

Suggestions from respondents regarding various options to enhance income and employment of fishermen is indicated in Table 4.33.

The major suggestions perceived by the households included arranging the institutional financial support like micro credit for fisher folk; SHG, etc, regulation of fish marketing through institutional interventions; vocational training for fisher women to undertake household income activities during dry/off season; regulation of PDS and supply of the basic food items and fuel (like kerosene, LPG etc) by the Govt. agencies and provision of rural infrastructure for general societal/human development.

The first option as perceived by 18.89 per cent of the respondents was arranging institutional financial support like micro credit for fisheries, SHG, etc. It can provide a major impetus for enhancing income and employment. Another 16.46 percent of the respondents suggested the need for making regulation of fish marketing through institutional interventions and vocational training for fisher women to undertake household income activities during dry/off season and provision of rural infrastructure for general societal / human development. Regulation of PDS and supply of the basic food items and fuel (like kerosene, LPG, etc) by the Govt. agencies was found to be a good option for 14.8 percent of the respondents(Fig 4.41)

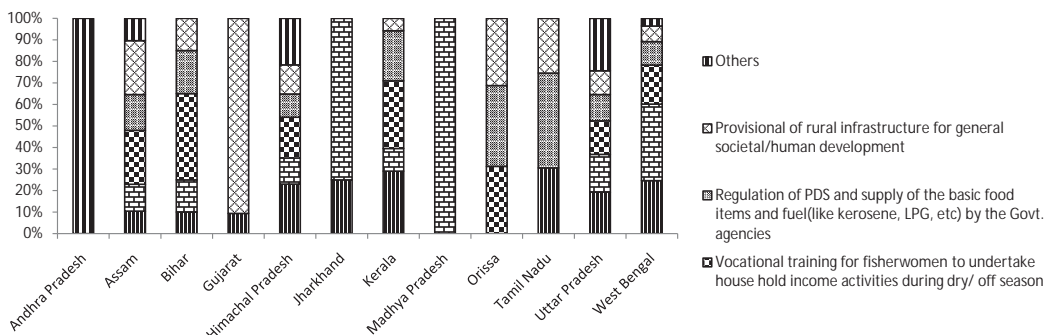


Fig 4.41 Suggestions for enhance the income and employment generation of fishermen (Percentage response)

Table 4.33: Suggestions for enhance the income and employment generation of fishermen (Percentage response)

Suggestions	Andhra Pradesh	Assam	Bihar	Gujarat	Himachal Pradesh	Jharkhand	Kerala	Madhya Pradesh	Orissa	Tamil Nadu	Uttar Pradesh	West Bengal	Total
(i) Arranging the institutional financial support like micro credit for fisheries, SHG, etc	0 (0.00)	5 (10.42)	2 (10.00)	5 (9.43)	17 (22.97)	4 (25.00)	25 (29.07)	0 (0.00)	0 (0.00)	18 (30.51)	84 (19.31)	34 (24.64)	194 (18.89)
(ii) Regulation of fish marketing through institutional interventions	0 (0.00)	6 (12.50)	3 (15.00)	0 (0.00)	9 (12.16)	12 (75.00)	9 (10.47)	5 (100.00)	0 (0.00)	0 (0.00)	76 (17.47)	49 (35.51)	169 (16.46)
(iii) Vocational training for fisherwomen to undertake house hold income activities during dry/ off season	0 (0.00)	12 (25.00)	8 (40.00)	0 (0.00)	14 (18.92)	0.00	27 (31.25)	0.00	15 (31.25)	0 (0.00)	68 (15.63)	25 (18.12)	169 (16.46)
(iv) Regulation of PDS and supply of the basic food items and fuel(like kerosene, LPG, etc) by the Govt. agencies	0 (0.00)	8 (16.67)	4 (20.00)	0 (0.00)	8 (10.81)	0 (0.00)	20 (23.26)	0 (0.00)	18 (37.50)	26 (44.07)	53 (12.18)	15 (10.87)	152 (14.80)
(v) Provisional of rural infrastructure for general societal/human development	0 (0.00)	12 (25.00)	3 (15.00)	48 (90.57)	10 (13.51)	0 (0.00)	5 (5.81)	0 (0.00)	15 (31.25)	15 (25.42)	48 (11.03)	10 (7.25)	166 (16.16)
(vi) Others	45 (100.00)	5 (10.42)	0 (0.00)	0 (0.00)	16 (21.62)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	0 (0.00)	106 (0.00)	5 (3.62)	177 (17.23)
(vii) Total	45	48	20	53	74	16	86	5	48	59	435	138	1027

Figures in parentheses indicate percentage to total