

Socio-Economic conditions of Inland Fishermen: A case study in Angul District of Odisha

Dr.Mitali Krishna Kumari

Lecturer, P.G. department of Economics, Govt. Auto College,

Abstract—The objective of this paper is to analyse the socio-economic condition of inland fisherman in Angul district of Odisha focusing on their demographic characteristics, income, occupation, education, employment, pattern and living standards. The study is based on primary data collected from 250 fishermen from two block of the district. The study highlights that most fishermen belong to economically weaker sections and depend primarily on fishing related activities for their livelihood. The study also observes challenges such as inadequate access to credit, low educational attainment, limited marketing facilities and lack of modern fishing technology. The days of fishing varying from 50 days to 250 days. Only 7 number of fishermen are giving maximum days towards fish cultivation those who are not doing any other work for their livelihood.

Index Terms—Fishermen, Livelihood, Inland Fisheries, Education, Socio-Economic Conditions

I. INTRODUCTION

Fishery has been one of the most ancient but important source of livelihood for a large population. Fishing has been a traditional occupation for millennia, supporting a plethora of communities, both along the sea coast and inland. The sector contributes significantly to employment and is a big foreign exchange earner (Ayyappan, 2004). After agriculture and weaving, fishing is the largest sector in terms of livelihood generation. However, traditional fishermen are under pressure from large scale unregulated industrialization, export-oriented, mechanized fishing and aquaculture. Fisheries sector has been recognized as one of the powerful income and employment generators as it stimulates growth of a number of subsidiary industries. Fish being a source of cheap animal protein, is an important source of diet for a large section of economically backward population of the country. Fishery is the only sector that offers cheap and good animal protein to the people, particularly to the economically weaker sections of the society. Thereby, it serves as a means for ensuring national food security. It is also a major contributor towards foreign exchange earnings for the country through export of fish and fish

products. The potential of forward and backward linkages through boat building, construction of fishing harbors', fish processing etc., contribute further to diversification and strengthening of regional and national economy (Kumar and Madam, 2005) .

Fisheries is not only provide important affirmative source of protein rich food, but also contribute to socio-economic development by generating employment as well as stimulating subsidiary industries. Fisheries contribute to 1.2 percent to overall GDP and account for 21 percent of the total agricultural exports. The fisheries sector has performed well in the district but vast potential that exists on inland fishery house not been harassed. The annual production of fish in the district is about 6000 tonnes which can be doubled. Fish production in Angul district is meant for production of fresh water fishes like Indian major carps, minor carps, exotic carps, cat fishes, fresh water prawn and other both in culture and capture way of production. The total quantity of fish production is 5500 million tonnes with an average per hectare production in around 2 million tonnes. The fish consumption of the district is established at 1800 million tonnes. However the value of total fish production in Angul district is Rs.246.00 lakh per year.

II. AN OVERVIEW OF ANGUL DISTRICT

Angul district was a separate administrative unit during the British period, but became a part of Dhenkanal district after independence. However, on 1st April 1993 it was carved out as a separate district. Angul lies between 20° 31' N & 21° 40' N latitude and 84° 15' E and 85° 23' E longitude. The total geographical area of Angul is 6232 sq.kms, thus it is the 11th largest district among 30 districts of Odisha. Angul shares its borders with Sundargarh in the north, Deogarh, Sambalpur and Sonepur in the west, Boudh and Nayagarh districts in the south, Dhenkanal and Cuttack in the south-east and Keonjhar in the east. The physiography of the district is marked by three major regions. The South and Western part comprises ranges of the Eastern Ghat Super group and the Older Metamorphic Group. The Central portion is represented by sediments deposited in the Satpura. The northern boundaries of Talcher Basin are faulted. On a regional scale, Talcher basin takes the shape of a north westerly plunging syncline with closure in the east and the younger horizon outcropping progressively towards west. On the other hand, the beds dip northerly & number of coal seams increases in that direction indicating a possible homoclinal structure. Three sets of intrabasinal faults trending E-W-NE-SW-WNW-ESE have been recognized. The North and North East part is occupied by hill ranges of Iron Ore Super group. The elevation varies from 76 metre to 1186 metre. The highest peak of the district is Malyagiri of Pallahara Sub-division which is 1186 meter above MSL Banamadali peak in Angul Sub-division is 790 meter in height. In Athamallik Sub-division the main peaks are Panchadhara and Hingamandal hills.

III. REVIEW OF LITERATURES

Ekka et al. (2012) conducted a nation wide assessment of reservoir fishers and reported that literacy levels among fishing communities were lower than the national average. The study revealed low household income, high dependency on fishing, limited healthcare access, and indebtedness among fishermen. These findings are relevant to inland fishermen in Odisha, where reservoir fisheries play a major role in livelihood generation.

Ghorai, M. (2022), has studied about the socio economic conditions of fishing communities in the Subarnarekha River, Odisha. The study reported low educational levels, limited access to institutional credit, inadequate housing facilities and seasonal fluctuations in income. It recommended government interventions for skill development and alternative livelihood opportunity.

Raju et al (2021) examined labour mobility among fishermen in Odisha and found that many fishers migrate in search of better employment opportunity and income. Economic insecurity, seasonal unemployment, and inadequate local opportunities were identified as key factor influencing migration.

Nath, K. and Mitra, A. (2014) explained Agriculture is the predominant sector in Arunachal Pradesh, the eastern most state of India with more than 60 per cent of workforce engaged in agricultural and allied activities. Given the hilly topography only around five per cent land is available for cultivation and continuing dominance of low productive shifting cultivation, diversification of agriculture that raises the earnings of those dependent on agriculture remains one of the fundamental challenges. On the other hand the state has untapped potential for fisheries in terms of many rivers, wetlands, ponds, lakes and area under rice-fish culture system. Hence, in this background the present paper makes an in-depth study of livelihood options in the inland fisheries of Arunachal Pradesh.

Ibrahim, P. (1992) examined the socio-economic impact of the introduction of mechanized techniques of production from outside into a traditional and labour intensive sector, while employs indigenous and conservational technology. After facing the course of mechanization in fisheries, the study aimed at found out its impact on the growth of fish output, employment, income and consumption. It also looked into the changes brought about in the organization and structure of fishing economy with particular reference to distributional justice.

IV. OBJECTIVES OF THE STUDY

- To examine the socio-conditions and livelihood status of inland fishermen in Angul district of Odisha
- To examine the living condition of fishermen with respect to housing, sanitation, drinking water, health, and educational facilities
- To suggest suitable policy measures for improving the socio economic status and sustainable livelihood of inland fishermen in the study area.

V. METHODOLOGY

The study is based on primary data and secondary data to analyse the socio economic conditions of inland fishers in Angul district. A sample size of 250 fisher households from two blocks of Angul district. The secondary data were collected from Fisheries department, Govt. of Odisha, research journals and published literature, books report and Govt. publications on fisheries and rural development. The study has used different statistical methods like mean, standard deviation, regression, correlations.

VI. SOCIAL STATUS OF INLAND FISHERMEN IN ANGUL

In this present study, the study area is Angul district which is concerned with the present topic of inland fish production in Odisha and Angul district. This study highlights the social condition based on housing facilities, education, possession of land area etc. and the economic condition of inland fishermen in Angul district. The social status of inland fishermen in Angul is not worth commenting and the attitude of mainstream society towards them is always negative. They maintain their own special type of social conditions and are hesitant to mingle with their views towards social aspects are somewhat different from that of others. They remain away from the rest of the society and are always suspicious of outsiders and are not willing to accept advice or take an initiative in any of the activities of the society. The present study is covered all about the socioeconomic condition of Angul district of Odisha which also covered the socioeconomic condition of inland fisherman of both Angul and Banarpal block of this district from culture fishery and capture fishery.

6.1 Religion and Caste among Fishermen

As community the fishermen have been isolated and unorganized. "Fishermen community or fishing community means, the society of those who are part of ancestry and culture of fishing" (Thaddeus, 1999). Hence the fishing community includes families and individuals belongs to the caste those who are involved in fishing. The fishing community signifies a social, rather than an occupational group. The villages of inland fishermen vary among themselves on several counts, mainly on religious composition. In Angul the inland fishermen are come from the Hindus are seen involved in fishing. Among all the people of Hindus there are various category like general, OBC, SC and ST and under this category the caste like teli, tanti, keuta, gauda, gudua, khaitriya, khandayat, chasa etc. are living in this district. Most of the inland fishermen household comes from Keuta caste. In the study area 30 numbers of fishermen household are from general category 12 percent of the total sample household. 70 numbers of household from OBC category, 118 numbers of household from SC category which is highest among all category (field survey).

6.2 Sex- Ratio and Average House Hold Size

Angul has a unique position in regard to the sex ratio. In the entire census, females outnumbered the males in Angul district with 941 females per 1000 males (census report 2001) where as it is 972 in Odisha. But the sex-ratio indicated by the number of females/1000 males is 969 in the marine sector and 988 in inland fisheries sector. Empirical analysis of female to male ratio in Odisha reveals that, two communities like fisher folk and scheduled tribe have gender bias in their population, unlike the rest of Odisha. It is found that female proportion among fisher folk and scheduled tribe households in Angul is lower than that of the state as a whole indicating female deprivation in such communities (Kurien and Paul, 2000). It is a biological phenomenon that mortality rate is higher among males than females in human species if life saving societal resources are distributed without any gender bias. This may be the reason why females outnumber males particularly in cross section of general population (Sen, 1998).

6.3 Educational Status of Inland Fishermen

Literacy and educational attainments are the indicators of qualitative improvement in human resources. It is the hall-mark of Angul's social advancement. According to human capital approach, inequalities in income distribution are explained by the productivity differences arising from educational status. Historical data from Odisha suggests that the connection between economic factors and educational attainment was strong and educational development by itself might not bring about educational equalization in a highly structured and hierarchical society (Thomas,1998). Family background influences mental ability of children through pre-natal and postnatal care, intake of food and the ability to go through a sustained educational process. Parental income and ill health indicate the ability of parents to finance the cost of the education of their children (Jagadish, 1973). In equality in access to funds may lead to differences in educational attainments and hence occupational and earning differences. Parental position in the hierarchy of relations is an important aspect of socio-economic background. It develops in children's personality traits corresponding to particular class structures and is re-in forced in the schools (Bowels, 1972).These personality traits play a major role in determining o success in gaining higher incomes.

Fisher folk's low financial capacity and lack of sufficient human capital were the major factors that hindered their educational attainments. (George,1998) claimed that the inadequacy of political mobilization and consolidation of the community, contributed to the educational backwardness of the inland fisher folk. Educational backwardness is an integral part of the overall in-equality and marginalization of the fisher folk. Most of the inland fishermen and their family members in the study area are found to be uneducated i.e. among inland fishermen family the proportion of illiteracy is more. Especially illiteracy is more among the fishermen household those who are involved in capture practices. The education level of village fishermen, especially in (village name) is somewhat less, owing to the lack of proper educational facilities in the village and the necessity of family fishing work. Most of the family members of the fishermen

households could read and write. Illiteracy is sharply declining among the younger generation.. The following table shows the distribution of inland fishermen on the basis of educational status.

Table 6.1 Distribution of Inland Fishermen According to Educational Status

Sl. No	Educational Status	Male		Female		Total	
		No.	Percentage	No.	Percentage	Total	Percentage
1.	Illiterate	471	60	451	70.46	922	64.7
2.	Literate to S.S.L.C	289	36.81	171	47.65	460	32.28
3.	+2 to P.G	20	2.54	18	26.09	38	2.67
4.	Technical	5	0.63	0	2.34	5	0.35
	Total	785	100	640	100	1425	100

Source - Field Study , 2012

The table 6.1 reveals that 64.7 of total fishermen are illiterate, and some of the fishermen household member either studied up to 10th class or passed the S.S.L.C examination. But again the percentage of females entered in the S.S.L.C level is higher (47.65 percent) compared to males (36.81 percent).

Figure 6.1 Distribution of Inland Fishermen Educational Status

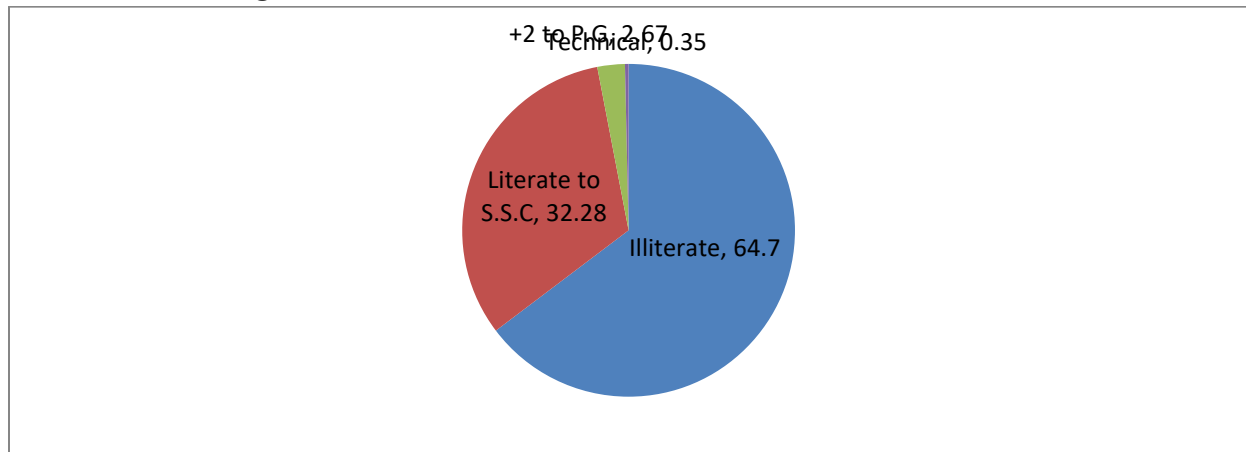


Figure 6.1 shows that, 64.7 percent of fishermen are illiterate in study area and some of the fishermen household member either studied up to S.S.L.C level or passed the S.S.L.C examination. But again the percentage of females entered in the S.S.L.C level is higher (47.65 percent) compared to males (36.81 percent).The number of households with graduates and post graduates is very low in Angul. The folks having technical education are only males and are found to be educated from I.T.C, I.T.I and polytechniques.

6.4 Livelihood Standards of the Fishermen Household

The following set of social indicators shows the livelihood standards of the inland fishing communities in comparison with that of the state.

6.4.1 Housing

One of the most important reasons for the poor quality of life and sub-standards conditions of habitat of the fishing community in Angul district is crowding of the whole community in certain regions, where they get more access to more water bodies nearby. So the housing condition remains poor. This is also seen in the landholding patterns among them. The houses of inland fishermen in the sample area provide a vivid picture. They use different types of materials including bamboo, stone, bricks, cement, wood, sheets etc. to construct walls of their houses and use traditional roof tiles, palm leaves, corrugated and other sheets, asbestoses, cement, R.C.C slabs etc. for roof. They use mud, cement and mosaic as the floor material. The information regarding the types of houses is given in table 6.2.

Table 6.2 Distribution of Fishermen Household According to House

Sl. No	Types of houses	Number of Household	Percentage
1.	Pucca houses	47	18.8
2.	Semi-Pucca houses	78	31.2
3.	Kutchha houses	125	50
	Total	250	100

Source- Field Study

From the table 6.2 , it is found that only 47 numbers of household live in pucca houses made of concrete roof and 3- 4 rooms and a kitchen and they have cement, red-oxide flooring. During monsoon season, the water level around the houses rises and enters into their courtyards and even inside their houses. 78 numbers of household are living in semi pucca houses with two rooms and kitchen and the rest are live in kutchha houses. Of the total population surveyed, 18.8 percent live in pucca houses, 31.2 percent in semi-pucca houses and 50 percent in kutchha houses. So most of the fishermen population are living in kutchha houses.

6.4.2 Access to Safe Drinking Water

As per the census of India, if a household has access to drinking water supplied from a tap or hand pump or tube well, situated within or outside the premises, it is considered as having access to safe drinking water. But as per the report of the Odisha Water Authority 51 percent of the people in the district are having access to safe drinking water. A comparative low percentage is shown in census report, since it has not considered for estimation, a good number of households who are meeting the drinking water requirements away from their houses (Economic Review). The majority of inland fishermen are found living in areas surrounded by water. Most of these waterways are polluted due to the accumulation of pesticides, domestic’s discharges, fertilizers and eutrophication. The fishermen family obtains water from these polluted sources for their domestic needs like washing of clothes, clothes, bathing, cleaning of utensils etc. For drinking purpose they mostly depend on public tap water, which is supplied to these areas only twice a week. Long queues and quarrels are common during the days when the water come

through the taps. They collect this water supplied by the water Authority mostly in plastics vessels and keep it for drinking and cooking purposes. The household with own tap connection was a rare sight among inland fishermen. The sources of drinking water are their own wells and community wells. Most of the households had complaints regarding the water scarcity, intrusion of saline water to water bodies, polluted water, and discolored water etc. especially during summer months. The usage of this water for cooking and drinking is causing many health problems among these people. The table 6.3 shows the drinking water facility to fishermen household.

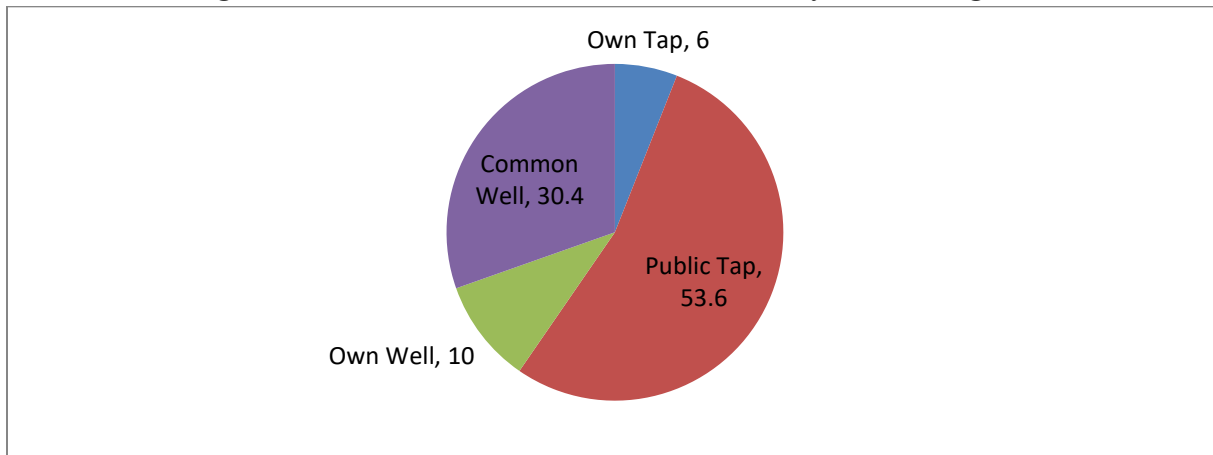
Table 6.3 Fishermen Household and Availability of Drinking Water

Sl. No	Source	Number of Household	Percentage
1.	Own Tap	15	6
2.	Public Tap	134	53.6
3.	Own Well	25	10
4.	Common Well	76	30.4
	Total	250	100

Source- Field Study

Of the sample household surveyed , 134 numbers of household are using public tap for their drinking water which is not in their premises, but a distance of about 100-500 meters. 76 numbers of the households have drinking water away from their premises and depend on common well or public taps. Thus, public taps system near the premises is more prevalent in the inland fishermen villages.

Figure 6.2 Fishermen Household and Availability of Drinking Water



However there are variations in the source of drinking water in the fishermen villages. 53.6 percent of households in the village depend on public taps (Figure 6.2) for their drinking water and only 6 percent have their own water connection while 10 percent have their own wells, only 30.4 percent household depend on common well for taking drinking water. In all the cases, rather than the quantity of water quality requires consideration.

6.4.3 Electrification of Houses

The access of electricity in a house helps the effective utilization of spare time give more entertainment and widening the knowledge base and awareness.

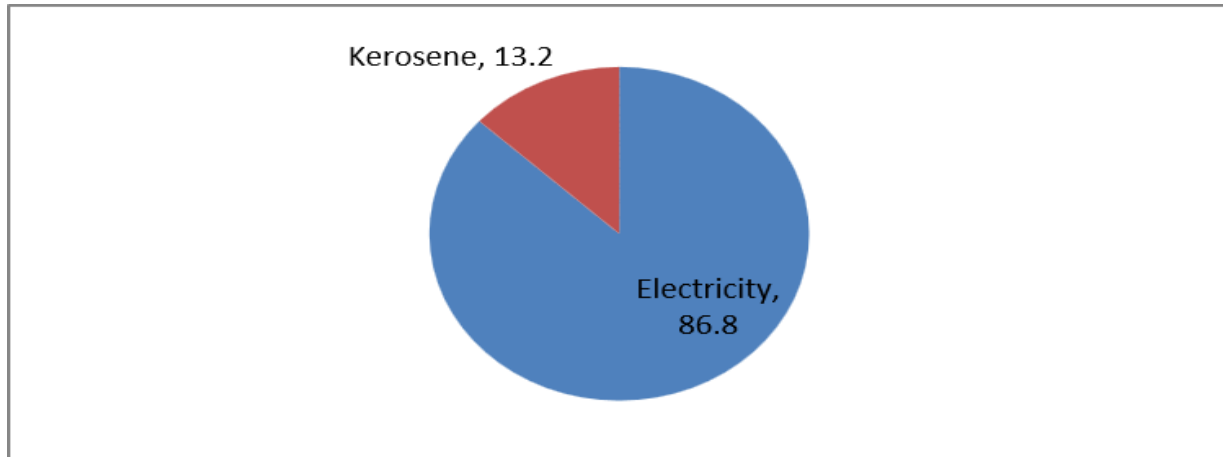
Table 6.4 Sources of Lighting in Fishermen Household

Source	No. of household	Percentage
Electricity	217	86.8
Kerosene	33	13.2
Total	250	100

Source- Field Survey

In the study area from the total sample population, 217 number of the fishermen households are having electric facility and the remaining 33 households depend on Kerosene lamp as the source of lighting.

Figure 6.3 Sources of Lighting in Fishermen Household



The figure 6.3 it is found that only 86.8 percent of the fishermen households are having electric facility and the remaining 13.2 percent of the households still depend on Kerosene lamp as the source of lighting.

6.4.4 Household Amenities

The possession of household amenities like chairs, tables, beds, almirahs, clocks, fans, radio, television, washing machine, grinder, tape recorder, refrigerator etc. is an indicator of the living conditions of the family. The possession of more amenities by a family reflects the better living condition and economic condition of the household. It is found that on the average the number of fishermen households with chairs is 24.8 percent, with table is 14 percent, bed 18.8 percent, fan 8 percent, radio 2 percent, television 4 percent, music 8 percent, tape recorder 2 percent and refrigerator 2 percent of the population studied. The possessions of household amenities are less compared to those of the general population of Angul district.

6.4.5 Food Pattern of Fishermen Household

The analysis of food pattern is important to know the health and nutritional status of the fishing community. Nutritional status is closely related to the health, economic, political and social status and also is directly influenced by food consumption. If the fishermen community has a good nutritional status, the people will have better workability and capacity in which in turn can improve their overall well-being. The major part of the income of an average fishermen household is spent on food; but the daily intake of the fishermen population in the study area on an average lies far below the fishermen population in the study area on an average lies far below the required level both term of quality and quantity. Food and Agricultural Organization (FAO) and World Health Organization (WHO) had recommended a minimum of 2223 calories per day per person for the people of Asia and East (FAO ,1971). In India, the planning Commission had defined the poverty line on the basis of the recommended nutritional requirements of 2400 calories per person per day in rural areas and 2100 calories in urban areas (Government of India, 1978). Considering the age and sex combination of the state’s population, Centre for Development Studies has fixed the calorie norm for the people of Odisha at 2200 per day (UNO ,1975).

The inland fishermen households are not endowed with respect to the food security issues. Only 48.8 percent of the households are considered to be fully able to cover their food needs over the whole year. The food shortage takes place between the end of the dry season and the beginning of the rainy season (May-July), when the fishing activity is low.

Table 6.5 Status of Households in Food Security

Food Security	No. of household	Percentage
Able to cover the food needs throughout the year	122	48.8
Do not cover the food needs throughout the year	128	51.2
Total	250	100

Source- Field Study

Table reveals that 48.8 percent of fishermen households are being able to cover the needs throughout the year whereas 51.2 percent are unable to cover the food needs.

Figure 6.4 Status of Fishermen Households in Food Security

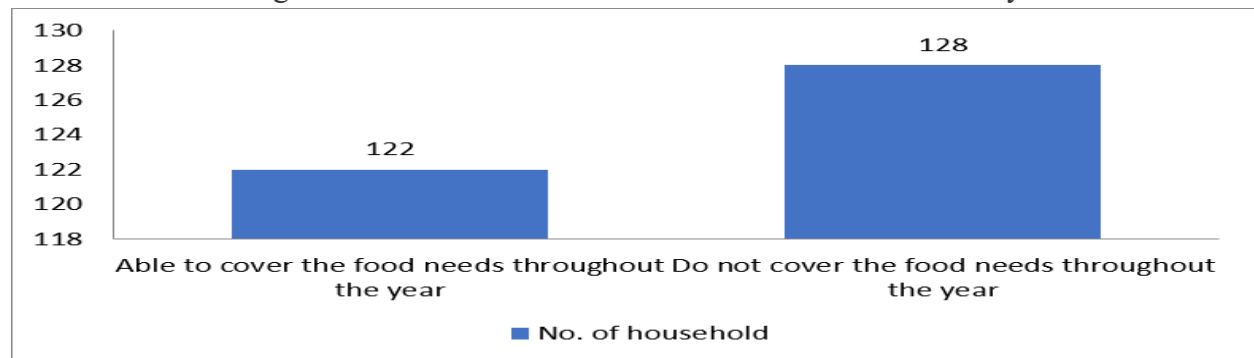


Figure 6.5 reveals that 122 of fishermen households are being able to cover the needs throughout the year whereas 128 are unable to cover the food needs. For those who face this seasonal food shortage, the respondents indicates that the usual copying strategy is to borrow money from rich nearby people or from moneylenders or to sell some household assets, Live socks, therefore seems to play an important role to minimize risk in these situations and can be liquidated at times of economic crisis to earn food. The proportion of agricultural products in the diet is always higher than that of protein food in the case of inland fishermen. The staple food is rice, those who can afford some meet or milk in their diet are fewer, but the contribution of food shows an increase. According to food groups, the availability at the family level is shown in table 6.6 vegetables, fruits, milk and meat are not a regular part in their diet.

Table 6.6 Food Availability at the Family Level

Sl.No	Total Food groups available	No. of household	Percentage
1.	Staple foods and fish	163	65.2
2.	Staple food, fish and meat, milk, fruits, vegetables now and then	25	10

Figure 6.5 Status of Fishermen Households in Food Security

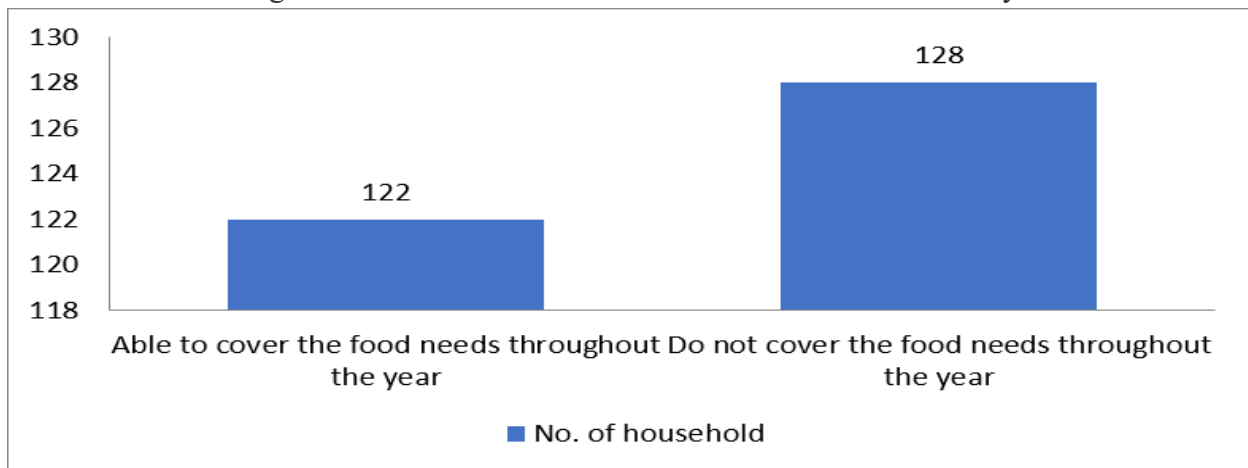


Figure 6.5 reveals that 122 of fishermen households are being able to cover the needs throughout the year whereas 128 are unable to cover the food needs. For those who face this seasonal food shortage, the respondents indicates that the usual copying strategy is to borrow money from rich nearby people or from moneylenders or to sell some household assets, Live socks, therefore seems to play an important role to minimize risk in these situations and can be liquidated at times of economic crisis to earn food. The proportion of agricultural products in the diet is always higher than that of protein food in the case of inland fishermen. The staple food is rice, those who can afford some meet or milk in their diet are fewer, but the contribution of food shows an

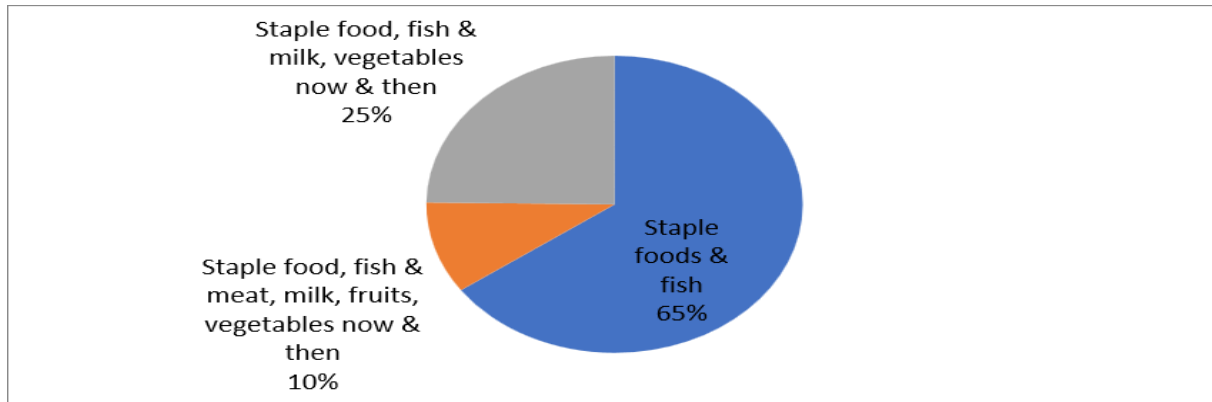
increase. According to food groups, the availability at the family level is shown in table 6.7 vegetables, fruits, milk and meat are not a regular part in their diet.

Table 6.7 Fo od Availability at the Family Level

Sl.No	Total Food groups available	No. of household	Percentage
1.	Staple foods and fish	163	65.2
2.	Staple food, fish and meat, milk, fruits, vegetables now and then	25	10
3.	Staple food, fish and milk, vegetables now and then	62	24.85

Source- Field Study

Figure 6.6 Food Availability at the Family Level



Even through the inland fishermen are catching highly tasteful varieties like etroplus, mullets, chaos and prawns, the kind of inland fish they bring home and consumed is less. In most of the inland fishing villages, the inland fish consumption is very low and they depend on marine species like sardine, mackerel, shell-fish, crabs and small shrimps in their diet. It is observed that the inland fish workers are forced to sell whatever they catch to earn income to clear their debts and so the fish and cash for own consumption are drastically reduced affecting the nutritional standards of the family. Field investigations revealed that the sharing of catch among fishing communities in the background of significant price hike. Some of the fishermen bring home the damaged shrimps and small fishes, which are difficult to sell. The frequency of inland fish brought home for own consumption is given in table 6.8.

Table 6.8 Frequency of Inland Fish Brought Home for Own Consumption

Frequency of Own onsumption	No. of household	Percentage
Every day	63	25.2
1-2 times per week	57	22.8
3-4 times per week	114	44.8
Almost never	10	7.2
Total	250	100

Source - Field Study

The table 6.8 shows the frequency of inland fisherman brought fish for their own consumption. In the study area 25 percent of households brought fish every day for own consumption and 22.8 percent households bring fish to eat 3- 4 times in a week. 25approximatel only 7.2 percent of fisherman household almost never consume in a week. The actual percapita consumption of the major items in the diet of inland fishermen is found to be very low in the studied households of Angul district which is shown in table 6.9. In the case all major food items actual daily food intake of fishermen population is very low compared to the recommended levels of Government of India. In the household survey, a relatively high percentage of carbohydrate is consumed like pulses,vegetables and milk, which are mainly proteinaceous do not form a part of their daily life.

Table 6.9 Actual Per Capita Daily Food Intake of Inland Fishermen

Food Items	Actual amount of Percapita Consumption(in grams)	Deficiency
Cereals	358	82
Pulses	12	32
Leafy vegetables	18	82
Other vegetables	16	24
Roots and tubers	38	12
Milk	63	87
Total	505	319

Source - Field Survey

This leaves the population vulnerable to many diseases. But mostly the protein requirements of the body are met through the regular consumption of fish and prawns in their diet. A large proportion of the population is still facing recurrent shortages and do not seem to be in control of their destiny. The future is essentially dictated by the hazards of the environment. In Areas where, the people livelihood depend so heavily on natural resources, changesbeing.

Economic Conditions of Inland Fishermen

The major of sections of inland fishermen are living in poverty. Poverty is related to flows of income where poverty is low level of per capita income per expenditure. That is to say, people whose income per expenditure is below a threshold level are defined as poverty stricken .In recent debate of poverty alleviation the sustainable livelihood approach has gained much importance(Ellis and Freeman). A livelihood is sustainable when it can cope with and recover from stresses and shocks and maintain or enhance its capabilities and assets both now and in future, without undermining the natural resource base. A livelihood comprises the capabilities, assets and activities required for means of living. The approach laid emphasis on capabilities assets and distinguished five categories of such assets namely human capital, natural capital, financial capital, social capital and physical capital and inland fishermen community are endowed with inland water bodies as natural capital, but they often do not have the human

capital (education and skills) and social capital (organizations), which help to turn natural resources into physical assets and protect those assets from degradation. (Wool cock and Narayan, 2000) point out that those communities with a diverse stock of social network and civic associations often find it difficult to confront poverty and vulnerability resolve disputes and take advantage of new opportunities.

4.4.1 Age and Composition of the Work Force

There is not much information on the importance of age as a factor determining access to fishery resources. The age of entry into the occupation of fishing depends on factors such as the gender of the entrant, level of education desired and the nature of the technology used. From the study it is found that the age of entry of men to fishing ranged from 15-30 years.

4.4.2 Activity Status of Inland Fishermen

Activity status represents the activity performed by person during a particular time period. From the following table we can properly know about the activity status of the people of study area. The activity status categorized as fishing, fish related activities like money lending, auctioning, repairing fishing equipments, procuring and transportation of fish etc. About 1.75 percent forms the workers in fish related activities. the members of most of the fishermen family are directly or indirectly connected with fishing occupation. So it is essential to find out the number of earning or working members in a family. This is shown in table 6.10.

Table 6.10 Number f Earning Family Members

Sl. No.	Number of earning member	Number of fishermen family	Percentage of fishermen
1.	1-2	196	78.4
2.	3-4	31	12.4
3.	5-6	21	8.4
4.	7-10	2	0.8
	Total	250	100

Source- Field Study

It is evident from table 6.10 that maximum number i.e. 78.4 percent of earning members in a fishermen household is between one and two, while the range of 3-4 earning member is 12.4 percent, 8.4 percent of the total households have earning members varying from 5-6 and only 0.8 percent in the case of 7-10 earning members. Thus in most of the households, the earning family members are fewer.

Even though inland fishing is carried out throughout the year, based on variations in the fish catch and availability, the fishing calendar is divided into three seasons. Peak season June-August), Lean season (February-May) and Moderate season (September- January). With the coming of South-West monsoon (June-August), the availability of inland fishes increases and the

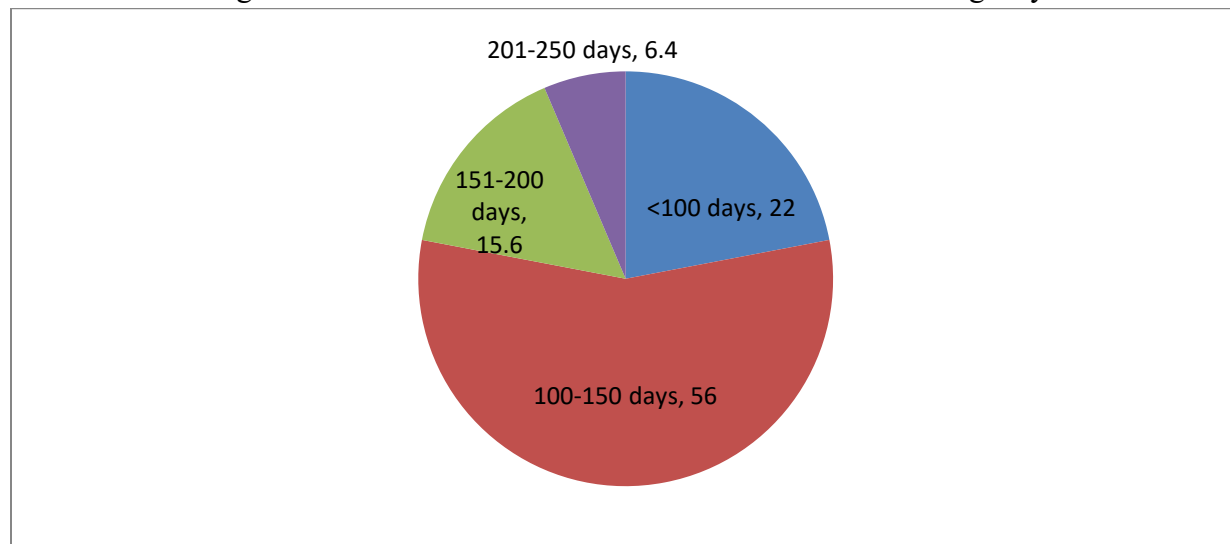
majority of fishermen takes this opportunity for harvesting at their maximum and earn Rs.300/- Rs-500/ per day. But due to bad weather, they are not getting more earning days but they strive very hard to attain maximum days. In the lean season, the availability of fish is very low, especially in the summer months. During this season they do not go for fishing on all days and even if they go, sometimes they return bare-handed and the maximum earning will be between Rs. 30/- Rs. 60/- September to January is considered a seasons the moderate season and they are getting an income between Rs. 50/.Rs.100/ per day. During the peak season, most of the fishermen in study area work for 20-26 days in a month and during the lean season the working days are reduced from 10-16 days a month. It is estimated that an average fishermen in the sampled areas engage in fishing for 6-8 months (180-250) days in a year as is represented in table 6.11.

Table 6.11 Distribution of Fishermen on the Basis of Fishing Days

Sl. No.	Number of Fishing Days	Number of Household	Percentage
1	< 100 days	55	22
2	100-150 days	140	56
3	151-200 days	39	15.6
4	201-250 days	16	6.4
	Total	250	100

Source: Field Survey

Figure 6.7 Distribution of Fishermen on the Basis of Fishing Days



Majority of the fishermen (56 percent) work between 100-150 days in a year; 15.6 percent of fishermen work between 151-200 days, 6.2 percent of fishermen work between 201- 250 days, 22 percent work less than 100 days in a year. It is found that in the study area those working less than 150 days in a year seek some other works in their locality for the remaining days. The data regarding the monthly income of the households from fishing is presented in table

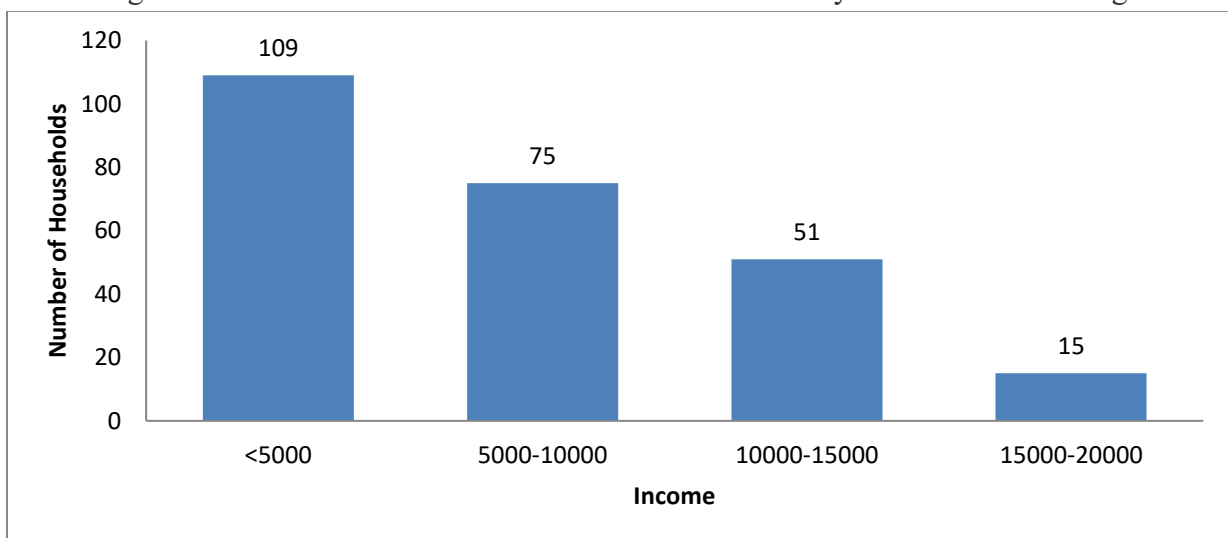
Table 6.12 The distribution of Fishermen Household by Income from Fishing

Sl. No	Income from Fishing	No. of Household	Percentage
1.	<5000	109	43.6
2.	5000-10000	75	30
3.	10000-15000	51	20.4
4.	15000-20000	15	6
	Total	250	100

Source- Field Survey

The monthly income of active fishermen comprises only the income from fishing. But it is widely fluctuating due to the seasonal variations in catches. In certain months, their monthly income is almost nil. Out of the total populations engaged in actual fishing studied, it is found that 43.6 percent households got a monthly income less than Rs.5000/-, 30 percent households got Rs. 5000/-Rs.10,000/ , 20.4 percent members got Rs.10,000/- to Rs.15,000/- per month and only 6 percent household got Rs15000- Rs.20000. The income shown in the table is not the profit, but is the income. From this gross income we have to deduct the gross expenditure. After this we can calculate the net income. The respondents are of the opinion that catch fishing trip incurs an expenditure of about Rs.40/- Rs.55/ for a member. There are two types of fish production cost-variable cost and fixed cost. In variable cost, we can include expenditure on food, cost of net, and cost of fuel, wages and expenses for different activities connected with fishing. In fixed cost, the cost of purchasing a craft and interest on loans etc. are included.

Figure 6.8 Distribution of Inland Fishermen Household by Income from Fishing



The figure 6.8 shows that out of the total populations engaged in actual fishing studied, 109 numbers of households got a monthly income less than Rs.5000/-, 75 numbers of households got Rs. 5000/-Rs.10,000/ only 15 members got Rs.10,000/- to Rs.15,000/- per month.

4.5 Income Analysis of Inland Fishermen in Angul District(Culture and Capture)

The monthly income of inland fish farmer those who are engaged in cultured practices of fish production depends upon the factors like the days of fishing, hours of fishing, age of entry into fishing, the water area of fish production from tanks or ponds, quantity of inputs like fertilizers,lime mahua oilcakes, coddungs, fingerlings, fish feed, cost of net used and labour used in fish production. If the quantity of inputs used for fish production increased then the monthly income from fishing also increased. The study has been taken 125 fishermen household those who are engaged in culture fishing in village tanks or ponds from total of 250 households. The monthly income of fish farmers(Fishermen household) of Angul district(Angul and Banarpal block) given in the table 6.13.

Table 6.13 Distribution of Fishermen Households on Monthly Income from Culture Fishery

Income of Fishermen household (In Rs.)	No. of Household	Percentage
< 5000	23	18.4
5000-10000	44	35.2
10000-15000	43	34.4
15000-20000	15	12
Total	125	100

Source- Field Study

The table 6.13 shows the monthly income of inland fishermen households from fishing is varying from Rs.2000 to Rs. 20000. In the study area ,18.4 percent of total numbers of fisherman households are earning less than Rs.5000. 34.2 percent of households are earning from Rs.5000 to Rs 10000,maximum numbers (35.2 percent) of household are earning Rs.10000 to Rs.15000 but only 12 percent of household earned Rs.15000- Rs.20000 from fish culture fishery.

4.6 Descriptive Analysis of Variables of Inland Fishery

The statistical analysis of various factors related to of inland fish production is given in the table 6.14 .The minimum, maximum, mean and standard deviation of all the variables have been calculated.

Table 6.14 Summary Statistics of Variables

Variables	N	Minimum	Maximum	Mean	Standard Deviation
Age of Entry into Fishing	250	15	35	25.04	4.44
Days of Fishing	250	50	250	129.15	46.38
Income from Fishing	250	2000	20000	7152.80	4918.97
Cost of Net	250	3000	25000	9338.80	3783.540
Hours of Fishing	250	3	7	4.93	1.077

Source- Author’s Own Calculation by using SPSS

The shows the descriptive statistics of the variables taken in the case of production analysis of inland fisherman. The first line represents about the data set for which descriptive statistics have been calculated. N represent the number of observations and the number of observation taken in this study is 250(N=250). It is seen that the age of entry into fishing varies from 15 years to 35 years to with a mean year of 25.04 and a standard deviation of 4.44. Similarly, the days for fishing varies between 50 to 250 days with a mean days of 129.15 and standard deviation of 46.38. The minimum value of monthly income from fishing is Rs.2000.00 and the maximum income of the fisherman household is 20000.00 those who have produced more and more with a mean income of Rs.7152.80 and a standard deviation of Rs.4918.79. The inland fisherman used types of net varying the cost from Rs. 3000 to Rs. 25000, the mean value of cost of net is Rs.9338.80 and S.D is 3783.54.The fisherman household work a minimum of 3 hours in day and 7 hours maximum with mean hours of 4.93 in a days and standard deviation of 1.77.

4.7 Revenue Analyses

In microeconomics, revenue is a function of total output.

$$R = f(\text{Output})$$

$$\text{Revenue} = a + b \text{ Output} \dots \dots \dots \text{Eq.(1)}$$

$$R = a + bO$$

Table 6.15 Regression Results of Revenue Function

LnR	Coefficient	Standard Error	t	P
LnO	0.56*	0.04	11.95	0.000
Constant	7.47	0.33	22.50	0.000

Source-Author’s own Calculation by using SPSS

$$\text{LnR} = 7.47 + 0.56 \text{LnO}$$

$$R^2 = 0.537$$

In the revenue function of inland fisherermen regression coefficient is 0.56 and the p-value is 0.000. which revealed that regression coefficient is highly significant at 1% level and revenue and total output are positively correlated as total revenue earning from inland fish production increases with increase in total output.

Table 6.17 Per Trip Expenditure of a Fishermen

Sl. No	Expenditure For	Amount Rs.
1.	Travelling for House to Craft	5.10
2.	Rent for the craft	10.15
3.	Food	15.20
4.	Taploca for catching the Prawn & Kerosene for lighting the lamp	5.10
5.	Pan/ Beed /Cigarettes	5
	Total	40.55

Source- Field Study

The main expenses for food, rent for the craft hired and for buying fuel for lighting the lamp for fishing trip. The income of the crew members depends on the sharing pattern that exists. The

income after deducting common expenses like expenses for auctioning, commission etc. is equally divided in accordance with the number of crew, each getting an equal portion. The fishermen are required to obtain a license from the local office of the State Fisheries Department for a nominal fee annually and they have to renew it after one year. Nets with different mesh-sizes and length are used depending upon the varieties of fishes to be caught and nature of water bodies. Gill nets, cast nets, Chinese nets, stake nets, traps (koodu), Ottal, Hooks etc are commonly used in inland fishing.

Table 6.18 Distribution of Inland Fishermen According to Cost of Net Used

Sl. No	Cost of net used by Fishermen	Number of Fishermen Households	Percentage
1.	<5000	50	20
2.	5000-10000	119	47.6
3.	10000-15000	67	26.8
4.	15000-20000	14	5.6
	Total	250	100

Source- Field Study

4.8 Time and Mode of Fishing

The inland fishermen follow two types of time schedule for their fishing trip. One group leaves the shore very early (5 am) in the morning and return by 2 p.m or 3 p.m and the other group by 2 p.m and return the next day early morning by 6 a.m. During these trips they usually carry their own food either for the meals or for the supper. They also carry coffee, powder, sugar and water for making kattan and sometimes even cook their food during their fishing trip. On an average each fisherman has to spend 10-17 hours and cover a distance from 12-23 kms for a fishing trip. The decision-making process regarding the time of production is very important in the whole production process and in production analysis. The decision of time of fishing is treated as the time of production. Most of the fishermen are taking their own decision regarding the time of fishing.

Table 6.19 Distribution of Hours of Fishing by Fishermen Households

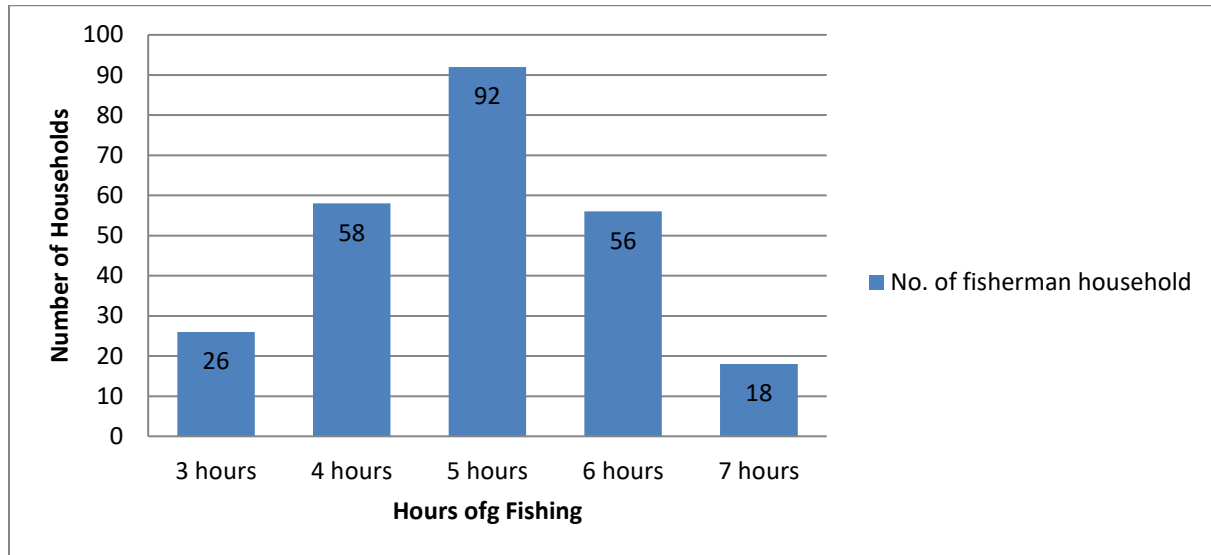
Hours of fishing	No. of fisherman household	Percent
3 hours	26	10.4
4 hours	58	23.2
5 hours	92	36.8
6 hours	56	22.4
7 hours	18	7.2
Total	250	100

Source- Field Study

They have to work hard continuously for a very long time in humid atmosphere. They have to row their crafts for 2-5 hrs to reach their destinations for catching the fish. Other categories of

workers have definite knowledge of the distance from the residence to the working place. But this is not the case with fishermen.

Figure 6.9 Distribution of Hours by Inland Fishermen



Day time fishing is mainly Vellavalical and it is for catching *Etroplus* (Karimeen), which is a delicious food for many of the people. In this method, white tender coconut leaves are tied to rope at certain specified intervals and is pulled through the surface of water, which irritates and frighten the fish and in a panic situation it tries to escape by burying its head in mud for some time. At this time the fishermen plunged into water and capture them by darts or Ottals. This is a very strenuous effort and most of them complain about polluted water, which causes irritation for their skin and eyes. The plunging into water also causes many health problems. Catching of prawn is also interesting. The fishermen use a device called Pongs Kappa which is a long thin string with one end carrying a piece of peeled tapioca and the other end a float. The end carrying the tapioca is dipped into water which riches near the lake bed and the float remain on the surface. The prawns like to eat tapioca and while trying to eat, they drag the string, which also causes the movement of the float. Watching the movement of the float the fishermen spot the location of the prawn and catch them by using cast net. Night fishing in back waters is done mainly with the help of cast nets and Gill nets. The Gill nets are first fixed horizontally about one foot below the water level with the help of floats. Then they row their fishing crafts for some distance and cast net is thrown from it and is pulled back frequently to collect the entangled fish. Depending on the availability of fish, the cast nets are also pulled back and the entangled fishes are collected out. The fishing time is not fixed. The decision about the time of fish catching is taken in the context of weather and availability.

4.9 Average daily Catch and Number of Crew members

Fishing work is a collective, co-operative and joint process. A Person cannot perform the entire fishing work alone. So they form a group of 2-5 members in inland fishing and either hire or own

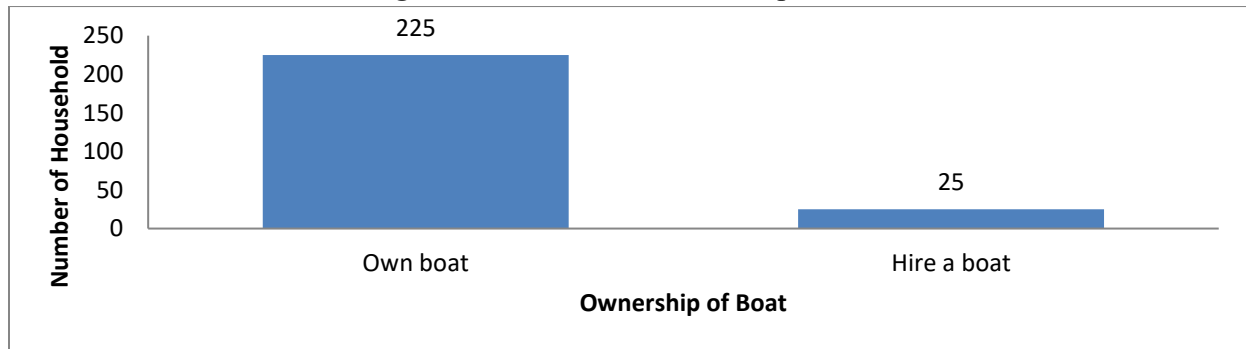
a craft for fishing. If they are hiring a craft, they have to pay a rent of Rs. 1500/- per month to the owner, which is divided among the crew members. It is a pleasant characteristic of inland fishery that there is no destructive or cut-throat competition among fishermen. They are co-operative, natural and friendly in their mutual relationship. In inland fishing sector mechanization is very rare and the fishermen row the wooden country crafts to their destination place. Forming a group of five or less, they try to own a craft (vallom) and a net by taking loans from co-operative societies. A craft costs Rs. 15000/- and a net Rs. 10000/-. This amount has to be refunded with interest and is shared among the partners. Out of the 250 households studied 90 percent owned a craft in partnership basis, and 10 percent hire crafts on monthly rate basis.

Table 6.20 Nature of Ownership of Boat

Sl. No	Nature of ownership	No. of households	Percentage
1.	Own boat	225	90
2.	Hire a boat	25	10
	Total	250	100

Source- Field Study

Figure 6.10 Nature of Ownership of Boat



Out of the member hiring crafts, some may quit the team during severe financial crisis and may independently catch fish from the nearby rivers and other water bodies. There are a few owner-workers of crafts in inland fisheries. He gets the highest return per trip i.e.as remuneration for his work and rent for the craft. The average return occurring to a non-owner worker in an individually owned unit is considerably lower than what is counterpart gets in a collectively owned and operated unit. This may be one of the reasons why there is at present a trend towards collective ownership of crafts and nets in the study area. The information regarding the cost of repairing a craft from our sample fishermen reveals that there is high cost of repairing the crafts. The fishermen who hire a craft is accountable for any damage and has to pay due compensation to the craft owner for repairing the fishing craft. Information regarding the expenditure on nets has also been collected. Nylon nets are prevalent in the study areas and active fisherman use 12-15kg of nets of different kinds. The cost of net varies from Rs. 450/- Rs.750/- per kg. Accessories like strings, weights and floats cost Rs. 125/- Rs.275/-. Each fisherman has to buy about 5-6 kg of net per annum to replace the old net. Mostly the inland fishermen purchase second hand nets from marine fisherman at lower cost. There is no rule or law for individual

fishing area in a water body. Fishermen naturally decide this with mutual goodwill, good conduct, good faith and good disposition. Those who come first in a particular fishing point, other group is doing fishing in and around the precise fishing point and other groups don't come there for the same. There are many problems, hardships, difficulties or calamities in other production sectors; but it is not certain how much quantity of fish can be obtained from a fishing trip. Therefore, the quantity and quality of fish forecasting does not arise. Each fisherman tries to capture the maximum quantity of fish in a trip; but he has no control upon it. He throws the net, watches and waits for the fish. If he fails to obtain a proper quantity of fish, he throws the net again and again. The data regarding per trip average quantity of fish during different seasons is shown in table 6.21.

Table 6.21 Average Fish Catchments Per Trip

Seasons	Average Quantity of Fish in k. g
Peak	10-15 k .g
Moderate	5-10 kg
Lean	0-5 k. g

Source: Field Study

It is found that wide variation occurs about the average amount of fish for fishermen during different season. The per trip quantity of fish is not a true measurement of fishermen's income. High priced and exportable small quantity of fish and prawn give more income. How many trips are possible in a month or during the season is not certain for fishermen. It depends on weather, climate and healthy condition of the fishermen. So in all aspects of fishing, they believe that, it is 'luck' which plays a prominent role in determining the catch. Inland fishing is purely small-scale fishing. They are getting only low quantum of fish during a trip when compared to marine fisher folk. This results in low earning and sometimes they are facing very high economic crisis.

4.10 Choice of Occupation

Skill and efficiency are very essential in fish catching. Training is essential to obtain higher skills and efficiency. This is true for the fisheries sector also. Majority of the fishermen believe that training, fishery-know-how and fishing experience are very essential in fisheries sector. A specific kind of training is not needed but observation of fishing process, involvement and participation are a must for inland fishery sector. Most of the inland fishermen are trained by their father. Remaining fishermen obtain fishing-know-how through observation, and working as assistant of other fishermen. Fish catchments and fish production are dependent upon active fishermen. It is an unfortunate character of Angul fisheries that active fishermen are less in total fishermen population.

4.11 Annual Earnings of Inland Fishermen

It is very difficult to collect information regarding net annual income from fishermen. It is divided from different sources like fishing, fish allied activities, agricultural, livestock's, horticulture and other occupations of family members. In agriculture activities mahu, pollutry,

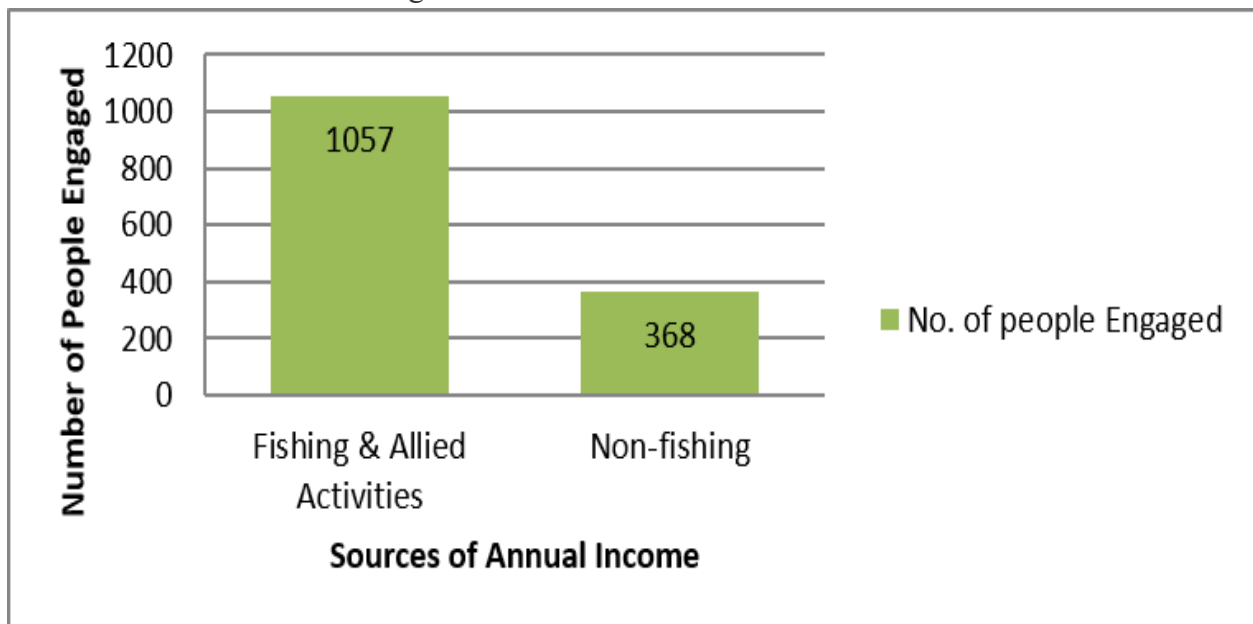
coconut plantations are included in fishermen livelihood. Table 4.22 gives the source of annual income of fishermen households.

Table 6.22 Source of Annual Income

Souces of Annual Income	No. of People Engaged	Percentage
Fishing and Allied Activities	1057	74.17 percent
Non-fishing	368	25.82 percent
Total	1425	100

Source - Field Study

Figure 6.11 Sources of Annual Income



On an average the income from fishing and fish allied activities alone constitute 74.17 percent of annual earnings of the fishermen households. The income from non-fishing activities from other members of the family forms only 25.82 percent of the annual earning.

4.12 Consumption Expenditure

There are mainly food item groups of consumption items namely food item group and non-food items of groups of consumption. Food items include food grains, vegetables, oil, ghee, sugar, milk, meat, chicken, eggs, and fruits. Non-food item group of consumption include clothes, education, health, entertainment, fuel and light, travel, transports etc. Consumption pattern of households is determined by the habits, social customs, income, size of the family, education etc. The item wise consumption expenditure pattern of inland fishermen is shown in the following table 6.32. It is seen from the table that main consumption expenditure is on food items. 100 households spent an amount between Rs.15000/- Rs.20000/- for their food annually and form the

major group. Regarding the repair, construction and maintenance of house, 162 fishermen households spent below Rs. 5000/- and so it is clear from the data they are not giving much importance for caring and keeping their houses in good condition and expenditure on repairing cost of house is not high in total expenditure.

Table 6.23 Annual Expenditure of Inland Fishermen

Items	Amount of expenditure annually(No- of household)						Total
	Below 1000	1000-5000	5001-10000	10001-15000	15001-20000	Above 20000	
Food	-----	9	21	70	100	50	250
Fuel	-----	178	72	-----	-----	-----	250
Housing	-----	290	60	-----	-----	-----	250
Clothing	-----	187	63	-----	-----	-----	250
Miscellaneous	-----	162	78	10	-----	-----	250

Source- Field Study

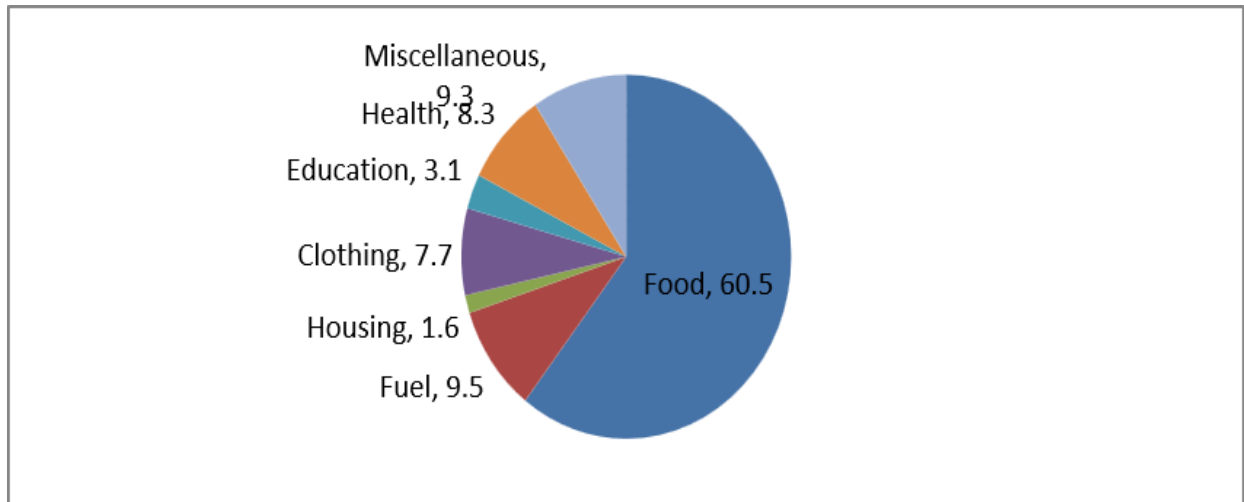
Expenditure on kerosene, electric current, firewood, and L.P.G. for cooking and lighting purpose shows that 178 households incurred an expenditure below Rs.1001-5000/- and 70 households had above Rs.10000/- annually. The expenditure on clothes is also an important segment of total consumption expenditure. The households adopt installment basis for buying clothes for their family, 187 households had expenditure below Rs.5000/- and 63 had between Rs.5000/- Rs.10000/- for their clothing. Expenditure on education, health, entertainments, transport etc is another component of total consumption expenditure, 162 households spent from Rs. 1001/- Rs.5000/- on these items. The health status of men is better in their working period and so the expenditure on health of this category is somehow low, in case of children and women are more. Regarding the food consumption expenditure on different items of Inland fisherman of the study area the inland fishermen also follow the same pattern of general population.

Table 6.24 Percentage Distribution of Monthly Income on Different Items of Expenditure

Items	Percentage to Monthly Income
Food	60.5
Fuel	9.5
Clothing	7.7
Education	3.1
Health	8.3
Miscellaneous	9.3

source- Field Survey

Figure 6.12 Percentage Distribution of Income on Items of Expenditure



61 percent of the total income of household is spent on food, 9.5 percent for the fuel, and 1.9 percent for, 1.6 for housing, 7.7 percent for clothing, 3.1 percent for education, 8.3 percent for health and 8.4 percent for miscellaneous. The household economy of the fishing community is very complex and depends mainly on amount of fish caught daily and transactions done on daily basis, to meet the needs of the day. The fishermen do not know what is wise spending. During the peak season, when catch is in plenty, their expenses shoot and the days are celebrated with drinking and merry making.

4.4.8 Indebtedness of Inland Fishermen

If the income is less than the expenditure, the households have to borrow money for their consumption expenditure. Indebtedness is the main problem for the economic development of the fishermen. The main reason for increase in indebtedness is the lack of regular and proper income from fishing. They also show no effect in saving some income when the catch is in plenty. The entire daily income is utilized immediately or in a short period after its receipt on food, liquor, repayment of loans and other necessities. The habit of maximizing the present consumption is a common characteristic of the poor everywhere. Consequently the poor fisherman does not save any thing and is always in need of money for consumption and investment purposes. Economic crisis and financial difficulties such as insufficient earnings, pressure from different sources like craft owners, banks and other creditors etc. cause fishermen to act in a way that could create dangerous situations. This again forces them to borrow from commercial banks, Co-operative Societies, Private money lenders, merchants, friends and relatives. They have to pay interest for these borrowings. The commercial banks and cooperative societies charge only moderate interest, but the private moneylenders charge very high rates of interest per year. The merchants and shopkeepers issue loans mostly in the form of goods and charge more rates from the fishermen. Usually the loans are advanced to the fishermen to overcome financial crisis during monsoon season.

Table 6. 25 Sources of Finance

Sources	No- of fisherman household	Percent
Commercial bank	165	66
Co-operative bank	55	22
Private Bank	20	8
Money lenders	10	4
Total	250	100

Source - Field Survey

They usually try to repay the loans when the fishing seasons become favorable. But most of the loans taken from commercial banks and co-operative societies are rarely even repaid even after the financial position of the borrower has improved. A study conducted by Nailong Nay (1993) deals with the sources of borrowed finances and whether they have changed over the decade; revealed certain trends. The role of money lenders, merchant's men and others in providing credit to the traditional fishing sector, remains almost intact, despite the entry of banks; and cooperatives. Banks too have limitations because they insist on securities against the loans advanced. Because of these limitations the local moneylenders continue to dominate the economy of the fishermen Community despite the high rates of interest they charge. Only 4 percent of the fishermen in the study area depend on money lenders who charge high rates of interest for borrowing pay interest ranging from 36 percent - 60 percent per annum. This 3-5 times high interest rate itself is a great burden in the economic levels of the fishermen. Distribution of sufficient loans from co-operative societies or banks to fishing community is badly needed to break the exploitation of moneylenders and merchants during the time of economic crisis.

VII. SUGGESTIONS

Since the fishery sector is neglected in the state of Odisha and Angul district of Odisha, the following suggestions are put forward to improve the fishermen household conditions and their standard of living.

- 1.The housing conditions, electricity for lighting, source of drinking water facilities of inland fishermen must be studied in detail by Governmental Agencies and necessary remedial measures should be adopted.
- 2.There should be a simple and timely procedure of subsidized loan facility for the fishermen and Government must increase ceiling of loan and subsidy.
- 3.The establishments of cooperative societies and banks has made no real change in the borrowing pattern of the sample fishermen. They are still exploited by the middlemen and the moneylenders. Consequently easy accessible loan with low interest rate should be given to those poor inland fishermen.

4. The fisheries planning in Angul, by and large, is not a success. This is due to certain inherent weakness in the plans as well as over politicization of the government bodies. So a thorough planning and implementation needs to be done for the up-liftment of this sector.

5. The willing and active co-operation of the fishermen in the district making the plan effective. But they are usually illiterate and conservative and take a traditional view of things and are not prepared to adopt new ways. Awareness programmes must be conducted to make the fishermen co-operative and for implementing the plans in an effective manner.

6. The Fisheries sector is not given due importance in the Five Year Plans, although a number of schemes were proposed in each Five Year Plans, majority of them were shifted to subsequent plans and some were not even started. The official delay in clearing and sanctioning of the schemes by the Government may be one reason for the prolongation and inefficiency. The dishonesty of the implementing officials contributes to this to a large extent. So a monitoring cell, which is transparent in its activities, should be constituted to coordinate and supervise all the activities of this sector.

7. The Fisheries planning is often hampered by the peculiar character of fishermen's rural life. The fishing villages are isolated from the main stream of the society. Lack of suitable roads, proper transport and communication facilities also delays the implementation of different schemes. So providing these facilities to these poor fishermen must be considered seriously by the development schemes introduced by the Government.

8. Lack of coordination among various agencies connected with the implementation of different fisheries programmes to raise the level of fish production is another reason, which hinders the development in the fishing community. Necessary steps must be taken by the Fisheries Department for the effective coordination and implementation of different fisheries programme.

9. Cooperation is best for the fishing sector, necessary policy measures must be taken for organizing fishermen in appropriate organization.

10. Literacy is one of the social indicators of development. Implementation of effective literacy programmes and general awareness programmes must be conducted at local body level to reduce dropout rates from school, among the children of fishermen.

11. Awareness programmes on savings, education, income generating activity and asset creation must be given to these people for improving their standard of living.

12. The fishermen have no sensible ideas about intelligent spending and saving of their income. Educating these fishermen to save an amount from their income and additional income is highly essential to help them to lead a secure life.

13. Alternate employment opportunities and training to do some other works must be given to the fishermen to cope with the lean periods in fishing.

14. A detailed study on all aspects of socio-economic conditions of inland fishermen must be conducted at the local body level and report should be submitted to the government for taking necessary and effective welfare measures.

VIII. CONCLUSION

From the present study it is found that the income from capture fishery is very low in comparison to income from culture fishery because there are lots of uncertainty in catching fish from rivers and reservoirs due to seasonal variation and climate change. The fishermen those who are engaged only in capture practices receive very low income. They came from very poor category and always remain in debt. The study has identified acute shortage of effective and remunerative employment among fishermen. They are facing much exploitation from various sections and cannot hope to escape from debt. Social and economic condition of inland fishermen in Angul district is very low because of low earning from fishing. On an average fishermen in sampled areas engage in fishing for 7- 8 months in a year. The monthly income is widely fluctuating due to seasonal variations in catches and other expenses occurring related to fishing. The per trip quantity of fish is not a true measure of fisherman's income because high income is not possible with high quantity of low-priced fish. So there is lots of uncertainty in fishing. Fishing and fish allied activities are the major source of annual income for 75 % of fishermen. So inland fishery contributes a major proportion of total annual income of fishermen. Illiteracy is high among inland fishermen in study area. Due to lack of education, they give more importance to fishing rather than doing any job in other sectors. The illiteracy rate among fishermen population is 64.7 percent where as only 32 percent of fishermen population are literate to Senior Secondary level. Food items form a major share of total consumption expenditure which constitutes 60.5 % of total monthly income. They spend 8.4 % of their income for clothing and other miscellaneous activities. 8.1 % of the income is spent on health, followed by 7.5 % for fuel. Saving mentality is not popular among the inland fishermen.

Fishermen are always remain in debt as they borrow money from commercial bank, private banks and co-operative societies and also from money lenders. The main reason for increase in indebtedness is the lack of regular and proper income from fishing. Indebtedness is the main problem for the economic development of the fishermen. The analysis of fish production function reveals that the total fish production in Angul block is higher than Banarpal block because in Angul block, fish farmers are using modern technology, using pro-biotic medicines, proper training, research and extension method, proper institutional and financial support are available for fish farmers.

REFERENCES

- [1] Ekka, A., kathia, P.K., Pandit, A., barik n, Salim, S., & Kumar B. G (2012), Socio-Economic status of Fishers of Reservoir in India. Journal of the Inland Fisheries Society of India.
- [2] Ghorai, M. (2022). Socio Economic condition of Fishing villages of orissa. Fishery technology.
- [3] Raju, S.S, Salim, S.S., Pattnaik, P., & Shinu, A.M. (2021). Labour Mobility in Marine sector: A case study from Odisha. Indian Journal of Fisheries.

- [4] Government of India, (2004), Human Development Report, India.
- [5] Government Of Odisha (2011), Hand book of Fishery Statistics, Ministry of Fishery, Odisha.
- [6] Thadeus, P. (1999), Fishing community: Backwardness and Prospects, Programme for Community Organisation, Odisha, p.27.
- [7] Kurien, J. and Paul, A. (2000), Nets for Social safety: an Analysis of the Growth and Changing Composition of Social Security programmes in the State, India., Indian journal of Fishery Science and Society, vol.11, pp.23-28.
- [8] Sen, A. (1998), Morality as an Indicator of Success and Failure, The Economic Journal, Vol.108, pp.1-25.
- [9] Thomas, J. (1998), Education and Economic Development, Anmol Publications Pvt. Ltd, New Delhi.
- [10] Bhagavathi, J. (1973), Education, Class struggle and Income equality, Oxford Journal of World Development, volume.1 (5), PP. 21-35.
- [11] Bowels, S. (1972), Schooling; an Inequality from Generation to Generation, Journal of political Economy, Volume.80(3), PP. 219-251.
- [12] George, M.K. (1998), An enquiry in to the Extent and Causative factors of Backwardness among the Marine Workers of Kerala, Ph.D Thesis, Centre for Educational Studies, Indian Institute of Education, Pune
- [13] Government of Odisha (2010), Economic Review, State Planning Board, Bhubaneswar, Odisha, P.96.
- [14] Grancy, M.M. (1998), Impact of Technological Advancement on Socio-Economic Conditions of women in Fisheries, Technological Advancement in fisheries publication No-1, Agriculture University of Science and technology, India.
- [15] Nair, M. (1998), Women in fisheries in Fisheries, Emancipation through Co-operative, Technological advancement in publication No.1, Agriculture University of Science and Technology, India, pp, 552-558.
- [16] Kurien, J. and Paul, A. (2000), Nets for Social safety; an Analysis of the Growth and Changing Composition of Social Security Programmes in the State, India, Samundra Monograph, I.C.S.F, Chennai, India.
- [17] Ranjan, J.B. (1994), Strategy for the Development of Kerala Fisheries sector, Fisheries Research Cell, PCO Centre, Paper presented in the international Congress on Odisha Studies, August 1994, at Bhubaneswar, Organized by A.K.G Centre for Research And Studies.
- [18] Food and Agricultural Organization (1971), Agricultural Commodity Projection 1970-1980, Rome, p-31.
- [19] Government of India, (2002), Hand Book of Fisheries Statistics, Ministry of Agriculture, Fisheries Division, New Delhi.
- [20] United Nations Organizations (1978), Poverty, Development and Development Policy; A case study of selected issues with reference to Odisha, New York, PP.36.