# STUDY ON
# COASTAL LIVELIHOOD SECURITY OF MARINE FISHING COMMMUNITIES IN GANJAM DISTRICT OF ODISHA: ISSUES AND CHALLENGES

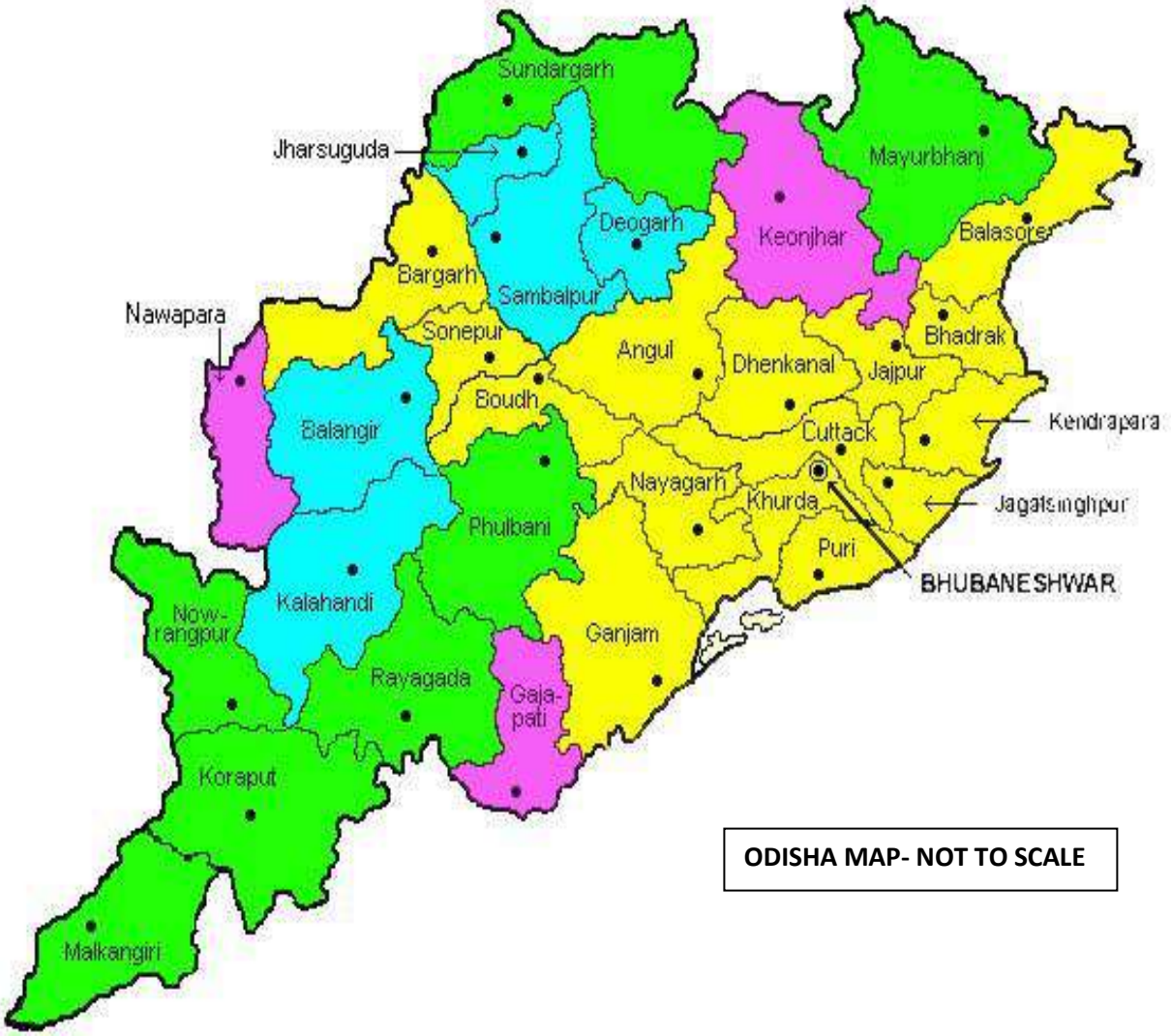



**CONDUCTED BY**

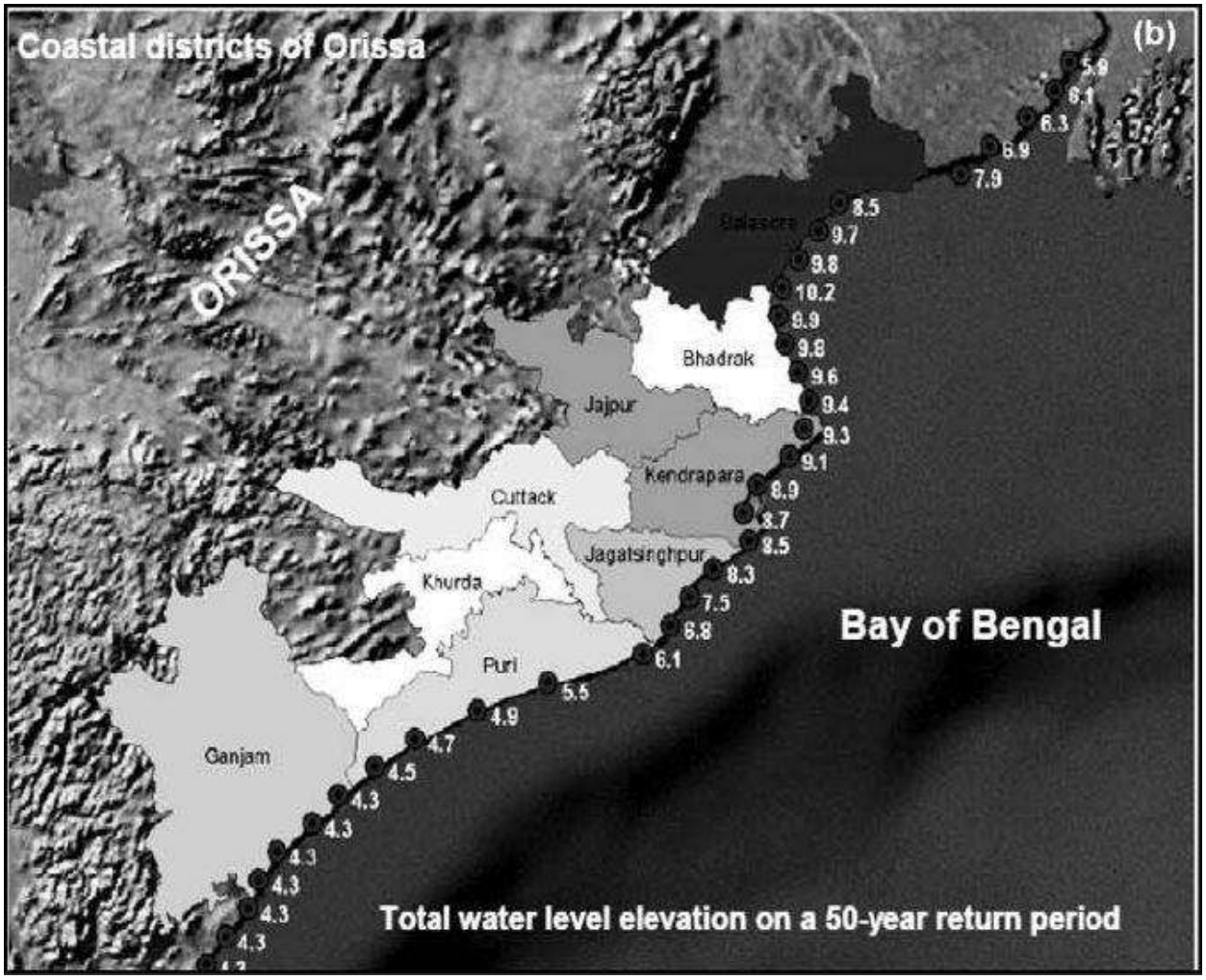
**VIEWS, ODISHA**

**SUPPORTED BY**

**ICCO-INDIA, NEW DELHI.**




**ODISHA MAP- NOT TO SCALE**


Coastal districts of Orissa
(b)
ORISSA
Balasore
Bhadrak
Jajpur
Kendrapara
Cuttack
Jagatsinghpur
Khurda
Puri
Ganjam
Bay of Bengal
Total water level elevation on a 50-year return period

# Acknowledgement

At the outset I would like to extend my gratitude to VIEWS for giving me an opportunity to undertake the Coastal Livelihood security of Marine Fishing communities in Ganjam, Odisha. I also tender my sincere gratitude to the ICCO team members for their support in the study. I am grateful to Mr. S. Bheema Rao, Secretary, VIEWS for sharing his valuable insights and in-depth knowledge regarding the study. Mr. Udit Babu, Project Director, VIEWS, Mr. Sunil Kumar Ghadei, Program Manager, VIEWS and their colleagues, Mr. Saroj Kumar Satpathy, Mr. Mangaraj Nag and Mr. Krishna Murthy provided an enabling environment to undertake the study. The report benefited from their critical observations during field work, discussions and report preparation. I am thankful to Mr. Jacob Thundiyl, Director, PREM, Prof. (Dr.) Haribandhu Panda, Pro-Vice Chancellor, Centurion University, Mr. Smruti Ranjan Das, Rural Development expert, ICZM and Mr. Chintamani Behera, Additional District Fisheries Officer (Marine) for their useful insight to strengthen the study.

**Mr. Sumanta Banerjee**

**Principal Investigator**

# EXECUTIVE SUMMARY

The working group on Fisheries for 11th Five year plan rightly argues that-"Indian Fisheries is a sunrise sector. With third position in fisheries and second in aquaculture, the country has high potential in the sector for rural development, domestic nutritional security, employment generation, gender mainstreaming as well as export earning, that only few other activities can provide".

The study analyses the livelihoods of marine fishing communities in the Ganjam district of Odisha, using the Sustainable Livelihoods Approach (SLA). The study analysed the key issues and challenges affecting the livelihoods of the poor and identified possible areas of intervention in the coastal fishing communities in Ganjam district of Odisha. The wide array of "assets" – i.e. the natural, physical, social, human and financial and the impact of the policies, programs and functioning of institutions related to the subsector was studied and analysed in the context of availability as well as access to the assets for the stakeholders. The study developed qualitative indicators with the help of review of secondary literature, to monitor changes in livelihood and possible factors hindering the growth of the subsector. The rationale of the study to tap the untapped potential for livelihood security for marine fishing communities in Ganjam, taking into consideration the development challenges that have evolved overtime, there is a serious need to assess and study the challenges faced by Odisha in general and Ganjam in particular in the context of livelihood security and enhancement strategies for fisheries sub-sector. The broad objective of the study is to assess the livelihood security of fishing communities in Ganjam district of Odisha.

- To analyse the actors and factors affecting socio- economic condition of fishing communities in Ganjam.
- To analyse the livelihood of marine fishing communities in Ganjam, Odisha using the Sustainable Livelihood Approach (SLA).
- To analyse the policies, programs and institutions in implementing the development agenda of fishing communities in Ganjam, Odisha and its impact on their livelihood
- To suggest key areas of intervention along with the strategy.

The study of livelihood security of marine fishing communities was conducted in 20 coastal villages of Ganjam, Odisha. From these 20 coastal villages, samples were selected on the basis of simple random sampling and then attempt was made to analyze the issues, challenges and opportunities confronting them.

The primary survey was carried out by administering structured questionnaire to different livelihood groups in fisheries sector. Data from primary sources include focus group discussion and individual interaction with key stakeholders (fisher folk, producers, processors, traders, ancillary workers, government officials, PRI members and members of civil society).The secondary sources include review of policies, plans, programs and reports from government and private agencies, and literature review of previous studies conducted by different organizations.

The tools such as environment analysis and stakeholder analysis was undertaken for identifying actors, factors, and key issues, challenges affecting the livelihood security of the fisher folk community. The institutional web for identifying roles and responsibilities of different institutions, institutional stakeholder meeting involving the government, on-governmental organizations (NGOs), bilateral and international aid agencies, banks and other civil society organizations. The PRA tools like resource map analysis, seasonal Calendar, ranking exercise; etc was used to successfully undertake the study. The period of the study was from 10$^{th}$ December, 2014 to 31$^{st}$ March, 2015.

**The key findings out of the livelihood analysis of different livelihood groups:**

- ❖ High dependence on open-access or common property resources (CPRs). The open access nature of resources resulted in too many fishermen chasing too few fish, and consequently wide fluctuations in supply. Thus lack of steadiness in supply and a high degree of perishability makes development of standards and perfect market very difficult.
- ❖ The lack of boat and other necessary fishing gear in the context of traditional/artisanal restricts their access to the sea, despite the open-access or common property resources. Moreover, inadequate investment in modernizing traditional systems and

competition from latest technologies affect the livelihood security of small scale fishermen.

- ❖ The wage- or share-earning fish workers in production, fish processing and trade-related activities and shared owners of motorized fishing craft suffer the effects of a poor asset base, because of declining production(fish catch) and subsequently fluctuating income that are barely sufficient to meet subsistence needs year round.
- ❖ The boat owner is always indebted to the trader and often he is forced to sell his catch at the rate demanded by the trader. The source of the credit is mainly relatives and moneylenders. But it is observed that the relatives help in mobilising credit from the moneylenders and sometimes they also pay from their own pocket. The cost of the credit is very high and often it hovers around 36% to 40% per annum.
- ❖ The unclear terms of ownership of homestead land characterizes the poor. The kutcha house roof is often blown away in cyclone and is also affected in flood. Lack of ownership also means that the poor can be evicted from their place of residence whenever the Government decides to change land use.
- ❖ Fishing activities are affected by seasonal lows. This is reflected in poor intake of food, poor health care, increased alcoholism, gambling and fights among men, dependence on credit at exorbitant rates of interest. The number of boats lying idle on the beach is also an indicator of seasonal unemployment..
- ❖ Fishing is characterized by long and difficult physical labour, uncertainty of catch, high risk (vulnerability to disasters) and lack of insurance. The owners of non-motorized artisanal craft and all wage/share earning crew members are subject to these characteristics. The livelihood groups affected by volatility in income are fish processors and petty traders, who have to compete with larger traders for the landed fish.
- ❖ Minimal return to the fishers in marine value chain. The perishability of the fish, along with limited access to market and lack of credit, favour of buyers in the value chain
- ❖ Absence of transport and storage facilities. The fishers lacked cold storage, processing and packaging facilities as well as transportation to reach other markets.

- The traditional customs and traditions in a way come in conflict with the modern technology and thus impede the development of the fisherman. The class conflicts between the communities prevent them from uniting and presenting a united front before their exploiters and mighty stakeholders.
- Survival Migration or diversification of occupations on a seasonal basis to meet basic subsistence needs is another coping mechanism. Seasonal migration of men (and sometimes women). In this context it is observed that the children education and up bringing get affected and the older people in the households also receives less attention and care. The living conditions at the new working area are often pathetic and full of difficulty. Moreover, the cost of migration is much more than the gains from migration and it indicates that migration was undertaken out of necessity rather than opportunity. Migrant workers also have to contend with partial payment (or sometimes non-payment) of wages.
- In households headed by single women, women's earnings through manual wage labour meet the family's needs regularly or seasonally. Single-woman-headed families are among the most burdened families in fishing villages. Their access to fish declines because of competition and low investment capacity. This is particularly so during lean periods.
- The exploitative nature of fishing markets and the increased emphasis on technology undermined the conventional role of women played in the value chain the fishing trade became a male dominated activity with women reduced to being daily wage labourers.
- The fishing communities in coastal Odisha suffered from poor health. According to state of health report in Odisha, Ganjam district has highest number of people suffering from AIDS. The fact has been verified and validated during the field segment study. It is also observed that many teenagers and adult people migrate to big cities in search of alternative occupation, as they find fishing as an occupation is no longer as remunerative as they expect it to be, and often they get affected to this fatal disease.

- Lack of space inside the house forces many people to cook in the open or under the hut during the rainy season.
- Lack of access to private or public latrines to all households in several villages in Ganjam, irrespective of the social and economic status of a family.
- Large families, including households with at least two couples that have a low proportion of earning members to dependents fall in the poor category.
- Poor families are usually unable to send their children to schools, either because they cannot afford it, or because of their dependence on children's earnings
- A family's economic health can be damaged by the chronic ill health of the main wage earner, disproportionately high expenditures on health care for the family, and poor access to affordable and effective health care. The consumption of alcohol by the fishermen is a part of their daily diet plan. From the field level group discussion and one to one interaction with the fisher folk community validates that on an average they spent around Rs 1200-1500 per month on alcoholic drinks. Sometimes to quench their thrust they borrow from others (moneylenders & relatives) at a monthly interest rate to consume alcohol. The presence of habitual drunkards ultimately drains out the family resources and assets, if at all created.
- The rise in marine exports followed by instant cash payments to fishers led to men retaining control of earnings and spending their income on alcohol. The food security of the households gets affected, alcoholism led to wife beating and ill health among men.
- Marginalization occurs among people when traditional livelihoods are threatened by competition from more efficient systems of production and trade. Traditional boat owners, crew members with no asset base, basket traders, net weavers and menders, are the most vulnerable population in this category.
- Information gap on price and market has reduced the bargaining power of the fisherman. The lack of asymmetry in information on prices and demand of the various species in the bigger markets is the prime reason behind reduced margins to the fisher folk community and particularly small scale fishermen. The player has to completely

depend on the middleman to fix the price of the catch and hence has to compromise on the income aspect

- In the Ganjam district, the lack of adequate infrastructure like storage depot with ice chamber and weighing facility at village level and transportation facilities etc. has forced the phenomenon of "distress selling'. This has been one of the crucial factors limiting the profitability of the fisherman.
- The low pricing of the catch is prevalent in Ganjam district. The consortiums of middlemen through their respective auctioneers deliberately play with the existing prices thus reducing the price of the catch.
- Inefficient execution and implementation of government policies and programs, in a way has delayed the development of the fisher class.

Thus, the overall decline in availability of fish from the coastal waters is also accompanied by a declining access of the poor to the fish resources as a result of changes in fishing technology and in market supply chains. The shift in fishing methods from subsistence-based artisanal activities to sophisticated modern technologies has rendered redundant the traditional skills, knowledge and manual labour abilities of the poor, while also increasing risks and leading to a dependence upon external sources of credit. As fish are sold directly to the traders at the point of landing, fishermen no longer depend on the women to sell them, so the women find themselves marginalized. Apart from the factors having a direct bearing upon fisheries based livelihoods, there have also been changes affecting the quality of life generally, which contribute to, or arise out of, changes in the livelihood patterns and span across the social, political, cultural and economic spheres of life. "Social capital", which is the glue that held together the traditional fishing communities and provided some sort of social security to the vulnerable groups (the aged, widows), has become much weakened. There is evidence that food insecurity is growing in the fishing villages and, coupled with the weakening of the welfare state policies, leading to increasing deprivation among the fisher folk communities. So, in this context the need of the hour is to design a robust plan for holistic management of fisheries with an objective to address the livelihood security issues vis-a vis, the conversation and growth measures.

The development of marine fisheries sector requires multi-dimensional intervention and balance among multiple stakeholders. **The key recommendations from the analysis of issues and challenges are as follows:**

**Production/Sustainable use**

For maintaining the sustainability and health of the Ecosystem:

- The property rights over basic resources have to be clearly defined. In this context, the successful models in dairy and poultry has to be replicated in fisheries. In case of the above mentioned sub-sector the production, process and marketing have a clearly defined property right which is hardly true for fisheries resources. Thus, a clearly defined property right is the need of the day.
- Community based and co-managed institutions for sustainable coastal fisheries management.
- An efficient and effective MCS programme (Monitoring, control and surveillance systems) is the key to sustainable fisheries. MCS tools such as participatory management plans, data collection systems, communication systems need to be developed.

**Policy and Institution**

- The linkages among the institutions of innovation triangle comprising community based organisations R & D organisations and academic establishments and markets should be strengthened
- Primary producers' organizations need to be promoted and strengthened to protect small scale fishers to participate successfully in modern competitive markets. Producers' organizations help fishers to lower transaction costs for sellers and buyers, besides providing technical help in production and creating social capital.
- Existing SHGs need training on financial management, record keeping.
- Efforts should be made to replicate SAMUDRAM success, as a self managed and self generated organisation.
- The dependence syndrome should be eliminated from the members

- An efficient and effective MCS programme (Monitoring, control and surveillance systems) is the key to sustainable fisheries. MCS tools such as participatory management plans, data collection systems, communication systems need to be developed.
- Subsidised interest on NCDC Loan: The NCDC Loans are given to the farmers at 4% interest whereas it is 12% for fishers. So, in this context fishers should be given same status as the farmers.
- A network of small scale fishermen, international funding agencies, government research and training institutions, national fish workers forum and processors and exporters can be developed
- The network can lobby with the government for providing supporting infrastructure, policies and incentives for the growth of the fisheries sub –sector.
- The network can help in development of local databases regarding different species availability and landings, indigenous knowledge systems, standardised processes and selling. So, information dissemination at the local level is the call of the day.
- The network can develop community based institutions, strengthen their capacity and support in meeting the market demand in a competitive and sustainable manner
- The policy advocacy should be in terms of the strict enforcement of regulatory mechanisms by the regulatory bodies.
- Lobbying for enacting of act for creation of fishery produce marketing committees.
- Setting up of FPMC yards at select locales within easy reach of smaller landing centres looking at financial viability and volumes.
- Establishment of a transparent and streamlined auction mechanism under supervision of a committee consisting of fishermen representative, trade representative and government officials.
- Advocacy for establishment of community property rights over near shore fishing activities
- Enacting legislation for disbursement of credit using formal channels, i.e., regional rural banks, micro credit organizations.

**Processes**

- Cost effective technologies to reduce wastage of harvested fish and inexpensive solutions to storage facilities for marine fisheries.
- The primary infrastructure is the key challenge facing the marine fishery sector in Odisha. The government need to facilitate more pre-processing units with state of art technical know-how, proper communication system for utilizing the available modern facilities and international standard laboratories need to be established to ensure quality.
- Infrastructure for secondary marine fishery activities requires improvement of the marketing systems and the cold storage chains supporting the landing centres in the state including a frozen logistic system through roads and sea routes.
- The fish workers organization needs to develop standard process for post-harvest primary processing, manufacturing and quality assurance.

**Marketing & Enterprise Development**

- Developing a robust long term business plan for small scale fisheries. In this regard, the fishing cart business (the cart would cater the demand for hygienic and delicious marine value added and ready to eat products, prepared by the poorest of the poor women) should be promoted as a part of micro-enterprise development. There is a tremendous market opportunity in Gopalpur beach and the adjoining areas for value added marine fish products.
- Given highly perishable nature of the commodity in consideration, an effective and efficient cold chain management of fisheries product with a proper interlink with value chain management to facilitate seamless movement of fisheries product; is essential and instrumental for the growth of the sector.
- Expanding the market through investment in logistical development
- Establishing marketing as well as financial linkages in a program mode for active fishermen

- Reduce transaction costs for small scale fisheries through ready and affordable access to credit.
- Reduce the influence of intermediaries through improved infrastructure for transport and icing, as well as provision of credit;
- Enhance flow of trade information to the producer communities; the recent efforts at setting up potential fishing zone (PFZ) boards at different points along the coast can be a good opportunity to set up market information systems.
- The growth of new supply chains and makes provision for (i) their continued survival in the markets (e.g., through cooperative marketing or provision of affordable credit) and (ii) their diversification into other activities has to be the call of the day.
- Nurturing an ecosystem which promotes entrepreneurship, provides training, capacity building and help establish linkages. In this context the PURA model as envisaged by Dr. APJ Abdul Kalam has a vision to create such rural ecosystem on the basis of the four connectivity. The connectivity is physical, electronic, knowledge and economic connectivity.

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## List of Abbreviation

| | |
|---|---|
| BOBP | Bay of Bengal Program |
| BPL | Below Poverty Line |
| CBO | Community-Based Organization |
| CIFT | Central Institute of Fisheries Technology |
| CMFRI | Central Marine Fisheries Research Institute |
| CMPF | Comprehensive Marine Fishery Policy |
| CRZ | Coastal Regulation Zone |
| DOF | Department of Fisheries |
| EEZ | Exclusive Economic Zone |
| FAO | Food and Agriculture Organization of the United Nations |
| FISHFED | Orissa State Fishermen's Cooperative Federation |
| FLC | Fish Landing Centre |
| FRP | Fibre Reinforced Plastic |
| FSI | Fishery Survey of India |
| GDP | Gross Domestic Product |
| GPS | Global Positioning System |
| GOI | Government of India |
| HDI | Human Development Index |
| HSD | High Speed Diesel |
| IBE | Inboard engine |
| MPEDA | Marine Products Export Development Authority |
| MSY | Maximum Sustainable Yield |
| MT | Metric Tonnes |
| NABARD | National Bank for Agriculture and Rural Development |
| NCDC | National Cooperative Development Corporation |
| NGO | Non-governmental organization |
| NIRD | National Institute of Rural Development |
| NSS | National Sample Survey |
| MCS | Monitoring Control and Surveillance System |
| OBM | Outboard motor |
| OMFRA | Orissa Marine Fishing Regulation Act (1984) |
| OTMFU | Orissa Traditional Marine Fish workers' Union |
| OUAT | Orissa University of Agriculture and Technology |
| PDS | Public Distribution System |
| PFZ | Potential Fishing Zone |
| PFC | Primary Fishermen Cooperative |
| SHG | Self-help group |
| STEP | Support for Training and Employment Program (for women) |
| VMS | Vessel Monitoring Systems |

# CHAPTER I

# INTRODUCTION

## 1.0 Background

Fisheries sector occupies a very important place in the context socio-economic development of the state. It has been recognized as a powerful income and employment generator as it helps in growth of a number of ancillary activities, and is a source of nutritious food besides being a foreign exchange earner. Most importantly, it is the source of livelihood for a large section of economically backward population of the state and country. Development of fisheries can ensure food security as well as tackle unemployment in this region.

Odisha is endowed with rich marine water reserves, perennial rivers and substantial water bodies. The State has enormous scope and potential for inland, brackish water and marine fisheries. The State has a long coastline of 480 km with continental shelf area of 24,000 sqkms along the Bay of Bengal. It offers tremendous opportunities for development of freshwater, brackish water and marine fisheries with scope of fish production together with employment and income generation for socio economic prosperity. According to the Fishery Survey in India (FSI), the fisheries potential of Odisha is 5, 13,667MT. About 4 percent population (16.96 lakh) depends upon fisheries for their livelihood. Of them, 8.90 lakh depend on inland fisheries and 8.06 lakhs on marine fisheries. The fisheries sub-sector contributed about 6 percent to the GSDP share of the Agriculture Sector for the year 2012-13 (advanced estimate).[1]

Climate Change has hit the coastal ecosystem, the worst, with unprecedented decline in coral reefs and loss of fish yield, shift in their occurrence zone and migration routes. This has endangered not only many species like the Olive Ridley Turtle but also the livelihoods of

[1]Odisha Economic Survey 2014-15

fishermen who are poor, illiterate and lack assets, dependent entirely on coastal biodiversity. Moreover, the recent Coastal Management Zone (CMZ) regulation has impoverished them further by giving freeway to the industrial occupations of the coast. Industrial and urban effluents have reduced fish catch.[2]

## 1.1 Introduction to the study

Odisha has historically witnessed higher incidence of poverty. In recent years Odisha has been able to reduce poverty at faster rates. As per estimates made by the Planning Commission based on the Tendulkar Committee methodology, poverty in Odisha declined by 24.6 percentage points from 57.2 percent in 2004-05 to 32.6 percent in 2011-12.But still, the incidence of poverty in southern and northern regions as well as among ST and SC communities still continues to be high and remains a matter of concern.

The new poverty line as per Rangarajan committee report thus work out to monthly per capita consumption expenditure of Rs.972 in rural areas and Rs.1,407 in urban areas in 2011-12. For a family of five, this translates into a monthly consumption expenditure of Rs.4, 860 in rural areas and Rs.7, 035 in urban areas[3]

Odisha has a small but diverse coastline with estuarine, coastal and offshore fish resources. It also has substantial inland water resources that provide freshwater fish from aquaculture and the capture fisheries. A large part of the oceanic stocks however are totally protected or only fished for part of the year due to fishing restrictions imposed for protection of Olive Ridley turtle while the national seasonal ban on mechanized vessels also severely restricts the fishing, processing and marketing income. These restrictions and the relative light

[2]Microfinance for livelihood improvement, Utkarsh Ghate, CCD, Chattisgarh

[3]Report of the Expert group to review the methodology for measurement of poverty ,Government of India ,planning commission ,june,2014

exploitation of deeper oceanic waters means the state's fishing and seafood industry is less developed than those in other Indian states.

## Marine and coastal resources

There are six maritime districts in the state: Balasore, Bhadrak, Kendrapara, Jagatsinghpur, Puri and Ganjam, with Puri district covering more than a third of the coastline. These six districts cover 14.5% of the total land area in the state, but nearly 30 percent of the population in the state resides in the coastal districts. Nearly 89 per cent of the coastal population resides in rural areas. The state has a continental shelf area of 24,000 $Km^2$, of which about 65% is in the 0-50 m depth range (Table 1), and the shelf is widest off the northern district of Balasore (nearly 120 km in width), narrowing toward the south (extending up to 40 km). The availability of a large shelf area up to 50 metres depth gives rise to rich shrimp fishing grounds and facilitates the operation of non-motorised boats in the near shore waters.

### Table 1: Continental shelf area at different depths off Orissa coast

| Depth Range (Mt) | Shelf Area ($Km^2$) |
|---|---|
| Up to 20 Mt | 6820 |
| 20-50 Mt | 8650 |
| 50-100 Mt | 4810 |
| 100-200 Mt | 3550 |
| Total | 23830 |

*(Source: CRISIL, 2006)*

The fisheries sector incorporates a diverse range of livelihood activities, from production and processing to marketing and ancillary functions, but many of the people engaged in these activities remain unrecognized as fish workers. This is a serious situation, as a majority of these people are very poor and extremely vulnerable. Inadequate information exists on their numbers, geographical spread, socio-economic status and function, resulting in poor policy

responses to their needs and a failure to predict possible impact on these groups from policies targeting other people within and outside the sector. The single factor most responsible for the increasing levels of poverty, food insecurity and vulnerability in fishing communities is the steep decline in availability of fish in terms of quantity, quality and variety over the last decade. The seasonal availability of different varieties of fish has become uncertain. Increased population and market demand on the shore have resulted in the spreading of catches more thinly across a larger number of people and/or increasing prices to very high levels and thereby reducing access to fish. For, many stakeholders, the current level of wages or earnings from fishing and trade leaves very little surplus. Majority of fishers are perpetually indebted.[4]

## 1.2 About the Implementing Organization

Voluntary Integration for Education and Welfare of Society (VIEWS) is a registered non-profit organization bringing integrated transformational development through innovative solutions for a better society. Founded in 2002 by a group of development professionals, academics and social workers, VIEWS works to create lasting changes in the lives of the poor and transform communities. We visualize building healthy transformed societies where people live with self-dignity, peace & social justice. The organization aspires to improve the living conditions of the marginalized by adopting strategies through collective community initiative and people's participation.

## About the project

VIEWS implementing Sustainable Livelihood initiatives in Odisha in partnership with ICCO, India in 30 villages of Ganjam district, working towards ensuring livelihood security at household and community level. The study on Coastal livelihood security in Ganjam, Odisha: Issues, Challenges and Opportunities are the key components of the project.

[4]Trends in poverty and livelihoods in coastal fishing communities of Orissa State, India by **Venkatesh Salagrama** Integrated Coastal Management Kakinada, Andhra Pradesh, India

## 1.3 Rationale of the study:

In the light of untapped potential to be harnessed for livelihood security for marine fishing communities in Ganjam, taking into consideration the development challenges that have evolved overtime, there is a serious need to assess and study the challenges faced by Odisha in general and Ganjam in particular in the context of livelihood security and enhancement strategies for fisheries sub-sector.

## 1.4 Objectives of the study:

The broad objective of the study is to assess the livelihood security of fishing communities in Ganjam district of Odisha

### Specific objectives:

1. To analyse the livelihood of marine fishing communities in Ganjam, Odisha is using the Sustainable Livelihood Approach (SLA).
2. To analyse the actors and factors affecting socio- economic condition of fishing communities in that región.
3. To analyse the policies, program and institutions in implementingthe development agenda of fishing communities in Ganjam, Odisha
4. To develop strategies to enhance the livelihood security of fishing communities.

## 1.5 Scope and methodology

**Area of study:** The study of livelihood security of marine fishing communities was conducted in 20 coastal villages of Ganjam, Odisha. From these 20 coastal villages samples was selected on the basis of simple random sampling and then attempt would be made to analyze the issues, challenges and opportunities confronting them.

**Source of Data Collection:** The primary survey phase would be done by administering structured questionnaire to different livelihood groups in fisheries sector. Data from primary sources include focus group discussion and individual interaction with key stakeholders (fisher folk, producers, processors, traders, ancillary workers, government officials, PRI members and members of civil society). The Secondary sources would include review of policies, plans, programs and reports from government and private agencies, and literature review of previous studies conducted by different organizations.

## 1.6 Tools & Techniques for data collection

Some of the tools such as environment analysis would be undertaken for identifying actors, factors, key driver of change and opportunities and threats. The institutional web for identifying roles and responsibilities of different institutions, institutional stakeholder meeting involving the government , non-governmental organizations (NGOs), bilateral and international aid agencies, banks and other civil society organizations. The PRA tools like focus group discussion, resource map analysis, Seasonal Calendar, etc would be used to successfully undertake the study.

**Period of study:** The period of the study would start from 10th December, 2014 to 31stMarch, 2015

# CHAPTER II

# OVERVIEW OF MARINE FISHERIES SUBSECTOR IN ODISHA

## Table 2: Marine Fisheries Resources of India, 2013-14

| State/Union Territory | Approx. Length of Coast Line (Kms.) | Continental Shelf area ('000 Sq. Kms.) | Number of Landing Centres | Number of Fishing Villages | Number of Fishermen families | Fisherman folk population |
|---|---|---|---|---|---|---|
| Andhra Pradesh | **974** | **33** | **353** | **555** | **163427** | **605428** |
| Goa | **104** | **10** | **33** | **39** | **2189** | **10545** |
| Gujrat | **1600** | **184** | **121** | **247** | **62231** | **336181** |
| Karnataka | **300** | **27** | **96** | **144** | **30713** | **167429** |
| Kerala | **590** | **40** | **187** | **222** | **118937** | **610165** |
| Maharastra | **720** | **112** | **152** | **456** | **81492** | **386259** |
| Odisha | **480** | **26** | **73** | **813** | **114238** | **605514** |
| Tamilnadu | **1076** | **41** | **407** | **573** | **192697** | **802912** |
| West Bengal | **158** | **17** | **59** | **188** | **76981** | **380138** |
| A & N | **1912** | **35** | **16** | **134** | **4861** | **22188** |
| Daman & Diu | **27** | **-** | **5** | **11** | **7374** | **40016** |
| Lakshadweep | **132** | **4** | **10** | **10** | **5338** | **34811** |
| Pondicherry | **45** | **1** | **25** | **40** | **14271** | **54627** |
| Total | **8118** | **530** | **1537** | **3432** | **874749** | **4056213** |

*Source: Annual Report, Department of Animal Husbandry, Dairying and Fisheries, Ministry of Agriculture Govt. of India*

## 2.1 Current status of demand and production of marine fisheries in Odisha

Fish is a popular food item in Odisha. The State ranks ninth in terms of production and produced 4.7 percent of the total fish production at all India level during 2010-11. During 2013 -14, Odisha produced 413.89 TMT of fish of which 293.87 TMT came from inland sources and 120.02 TMT from marine sources. The inland fish production included 263.86 TMT from fresh waters and 30.01 from brackish waters. Crab production has increased over

the years. The fish production from Chilika has marginally increased to 12.94 TMT during 2013.14, over 2012-13.

## 2.2 Contribution of fisheries subsector to the state economy

### Fish Production and Consumption in Odisha

Fish is a popular food item in Odisha. The State ranks ninth in terms of production and produced 4.7 percent of the total fish production at all India level during 2010-11.During 2013 -14, Odisha produced 413.89 TMT of fish of which 293.87 TMT came from inland sources and 120.02 TMT from marine sources. The inland fish production included 263.86 TMT from fresh waters and 30.01 from brackish waters. The fish production from Chilika has marginally increased to 12.94 TMT during 2013.14, over 2012-13.
The State Govt. has formulated the policy for fishery development as a part of the agriculture policy, 1996. The policy aims at:

- To increase fish production by adopting scientific method of culture.
- To assist fisher men in more efficient fishing.
- To boost fishing operation in deep sea.
- Transmitting technology both for culture and capture to fisher men and farmers and
- To establish fish feed milks for culture of fish prawn.

During 2013-14, fish production in the State was 413.89 TMT, valued at Rs.4490.24 crore. The value of fish production has increased by 12.49 percent over 2010-11(i.e. Rs. 2,748.44 crore). The value of Inland and Marine fish production has increased by 14.07 percent and 6.92 percent respectively during same period.

During 2012-13, out of total 410.14 TMT fish production, about 84 percent were marketed in raw form while 7.5 percent were kept for sun drying and salting. The per capita fish consumption in the State is also showing an increasing trend. The per capita fish consumption in the State has increased 7.3 kg in 1999-00 to 9.13 during 2012-13 as against 11 kg recommended by the WHO. This indicates the improvement of the standard of living and change in dietary pattern of the people of Odisha. The marine fish production in Odisha is

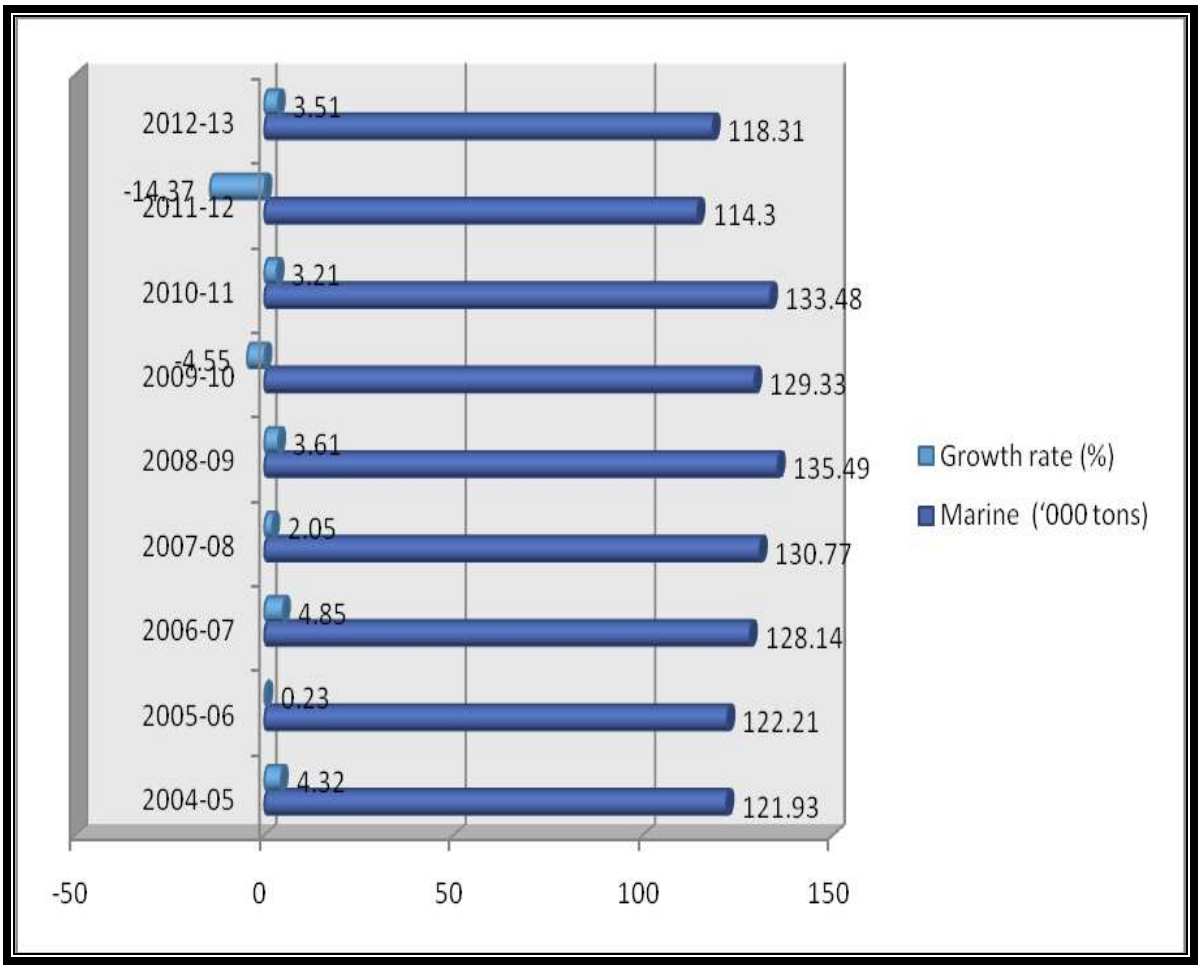
represented in the table 1, it illustrates that there is a considerable decline in fish catch which reflected in terms of negative growth rate in year 2009-10 and 2011-12 subsequently in percentage terms. Thus, the negative growth rate of marine fisheries in Odisha has adversely affected the livelihood security of all stakeholders, especially the small scale fishermen, fisher women and boat owners.

## Table 3: Fish production in Odisha from 2004-05 to 2012-13

| Year | Marine | |
|---|---|---|
| | Marine ('000 tons) | Growth rate (%) |
| 2004-05 | 121.93 | 4.32 |
| 2005-06 | 122.21 | 0.23 |
| 2006-07 | 128.14 | 4.85 |
| 2007-08 | 130.77 | 2.05 |
| 2008-09 | 135.49 | 3.61 |
| 2009-10 | 129.33 | -4.55 |
| 2010-11 | 133.48 | 3.21 |
| 2011-12 | 114.30 | -14.37 |
| 2012-13 | 118.31 | 3.51 |

*Source: Department of Animal Husbandry Dairying & Fisheries (DADF), Govt. of India*

**Figure 1: Marine fish production over the years starting from 2004-05 to 2012-13**




The above graph represents marine fish production over the years starting from 2004-05 to 2012-13. The subsequent growth rate represents the percentage increase or decrease in growth of marine fisheries during the time period mentioned in the above table**.**

## 2.3 Export and Import of Fish

As fish production increases in the State, so do its export and import. This trend from 2006-07 to 2013-14 are shown in Figure 2. It may be observed that the export of fish is showing an increasing trend over the years except in 2011-12. During 2013-14 about 111.85 TMT fish has been exported from Odisha to other States and foreign countries of which 65.99 TMT (59

percent) were exported from marine sector. Generally marine products like frozen shrimp, frozen H.C frozen pompret, ribbon fish, etc. exported to foreign countries like Japan, China, USA, UK, UAE, Indonesia, Hongkong. Export of frozen shrimps constitutes the major portion about one third of the total marine products exported every year. During 2013-14, about 20,368 MT of frozen shrimp worth of Rs. 878.04 crore has been exported to foreign countries. The trend as regards the import of fish is fluctuating. Import of fish varied from about 21 TMT to 59 TMT per year except for the years 2009-10 & 2010-11 when import shot to 92 TMT and 43 TMT respectively. During 2012-13, about 21,217 MT of fresh water fish was imported through private trade channels from the neighbouring State of Andhra Pradesh.

## Table 4: Export of Marine Products to Foreign Countries

| Year | Quantity (In 000 MT) | Value (Rs. in Crore) |
|---|---|---|
| 2004-05 | 9.54 | 241.20 |
| 2005-06 | 9.80 | 259.39 |
| 2006-07 | 10.52 | 304.46 |
| 2007-08 | 14.16 | 351.52 |
| 2008-09 | 14.13 | 357.88 |
| 2009-10 | 14.53 | 428.28 |
| 2010-11 | 19.73 | 606.41 |
| 2011-12 | 21.08 | 792.76 |
| 2012-13 | 23.69 | 908.48 |
| 2013-14(P) | 30.98 | 1817.07 |

*Source: Directorate of Fisheries, Odisha (Provisional)*

**Figure 2: Export of Marine Products to Foreign Countries**

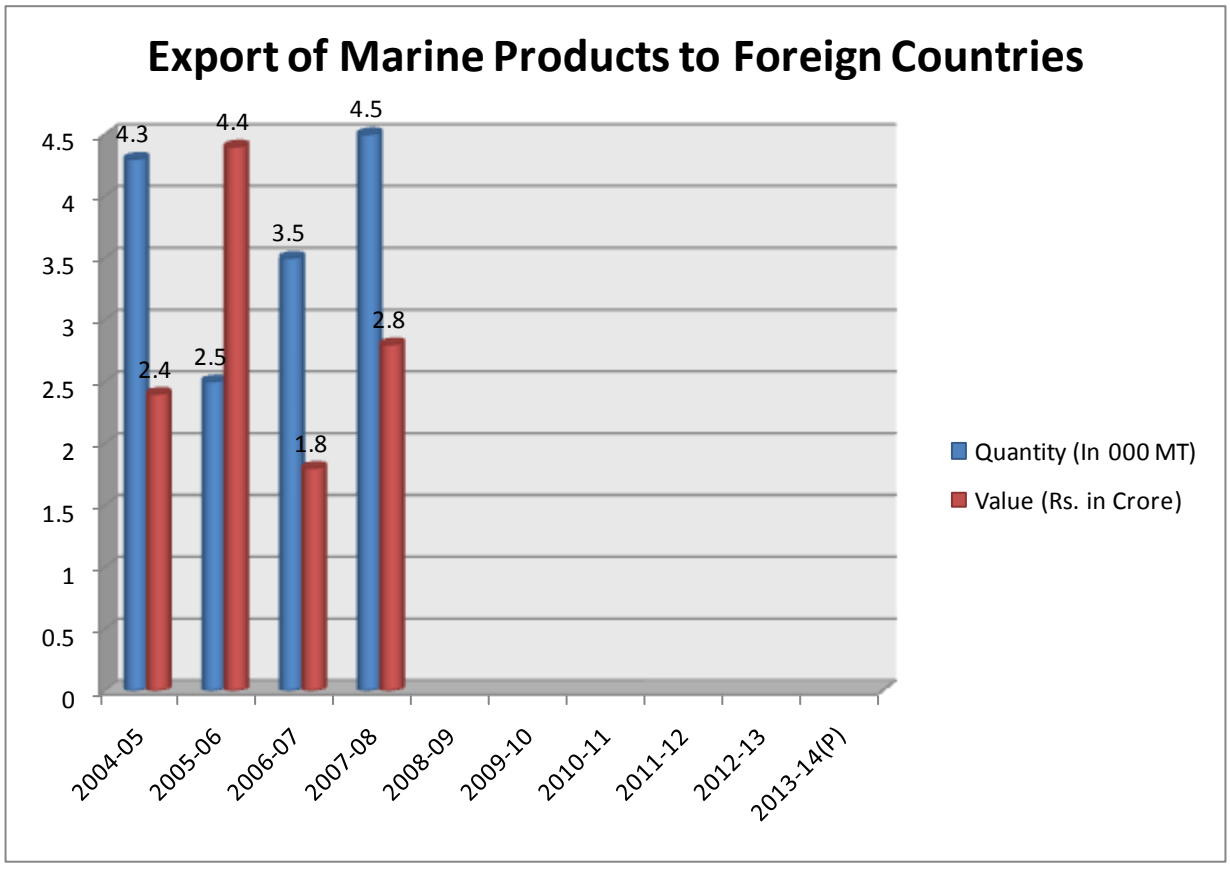
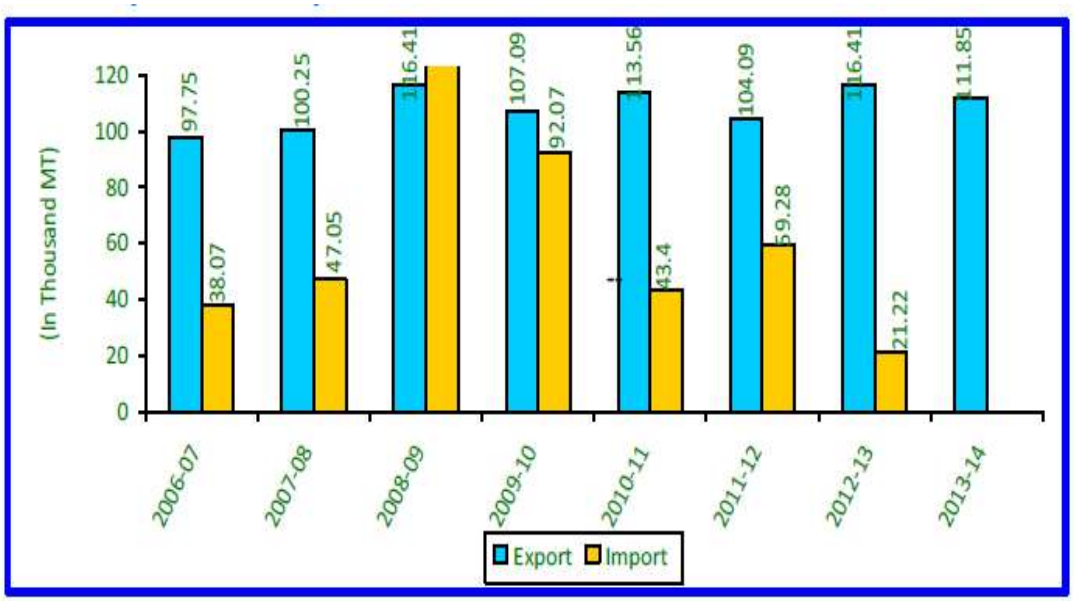


**Figure 3: Export & Import Status**




## 2.4 Investment and financing in Marine fisheries

Stimulated by a growing demand for fish for domestic consumption and export, the artisanal fishing economy along the east coast of India - once subsistence-oriented - has developed into a market-oriented economy incorporating monetary features. The artisanal marine fishing still accounts for a large part of India's as well as Odisha total marine fish production, while the number of mechanized boats has been steadily increasing. A wide variety of fishing methods is employed - both active and passive - in the exploitation of pelagic and demersal resources, although limited to the inshore ranges of the continental shelf. With regard to fishing equipment, natural fibres

and materials have been replaced by synthetic ones wherever technically feasible and economically viable.

To cater to the financial needs of the growing fishing economy, a system of informal credit has been developed. This system, however, has a number of disadvantages for fisher folk due to high interest rates and exploitative terms and conditions regarding the disposal of fish. Furthermore, informal credit sources are limited and unequally distributed, leading to regional shortcomings and disparities. The informal credit delivery system, however, has some important advantages, such as quick delivery and flexible loan conditions.[5]

For a long time, the major source of credit to the fishers was (and still is) the moneylenders, relatives and fish traders who meet over 80% of the credit needs – both production and consumption related – of the fishers. The records of the Madras Fisheries Bureau speak of trader-moneylenders advancing loans to the fishers and fish processors in Ganjam district either for interest (in case of moneylenders) or the supplies (in case of traders). With the evolution of modern fish supply chains (distant urban trade and exports), 'advances' were a mechanism to ensure regular supplies of fish to the traders. As the relationships between the traders and the producers strengthened, this gave rise to ever-increasing investment being made by the traders in fishing. The advances they provided the fishers helped finance the acquisition of new boats, repairs and maintenance and also to pay the crew their annual advances. Soon everyone was beholden to everyone else in this credit web, and few had the capacity to repay or recover the loans.

The trader-intermediaries are a crucial link in the development and continued existence of the new market chains is undeniably true, as is their importance to the fishers in supplying timely credit (on whatever terms) to keep them in the fishing business, especially as there exist no viable alternative sources to finance their operations or to mediate their access to distant

[5]http://www.fao.org/docrep/003/t0274e/t0274e07.htm

markets. It is also the case that, given the vagaries of fishing activity as well as the market conditions, the traders bear a larger proportion of risk than the fishers themselves.

Although the GOI tried to enhance access to credit for rural areas through nationalization of banks in the early 1970s and establishing rural banking networks, the formal financing institutions never really managed to cater to the needs of the fishers even when (or particularly where) development support was linked to institutional credit. While the BOBP's pioneering efforts in 1980s to make institutional credit accessible to the fishers, through the mediation of the DOF, yielded very encouraging results but the short life of the BOBP project and poor follow up from the partner organizations let down the program.

The vast marine resources offer an ample opportunity in fish production and export. The export of marine fish and prawn is one of the major export earnings of the state. This sector attracts big houses for investment in the introduction of Intermediary Crafts and Deep Sea Fishing Vessels since the vast deep sea resources within 50 Kms. to 200 Kms. (within EEZ) is now untapped. The Maximum Sustainable Yield (MSY) is of 1.61 lakhs MT.[6]

## 2.5 Earnings in the fisheries sector

According to the Economic Survey for 2012-13 released by the Odisha Government the average per capita annual income of the State is placed at 24, 134.00 by the end of the 11th Five Year Plan in 2011-12. However, it is still below the national average since 1950-51.In the case of fisheries sector, a white paper on public reforms in Odisha has placed the average per capita annual income atRs.6,787/- compared to the all India average of 10,204/-.[7]

A majority of activities in fishing are in the informal sector and with no record of investments, catches and returns over time, it is almost impossible to arrive at any quantitative estimates of earnings in the sector. In motorized and non-motorized fishing, all members receive shares (along with the boat and net; a motorized boat receives a higher share to accommodate the

[6]http://orissa.gov.in/e-magazine/Orissareview/2013/jun/engpdf/3-11.pdf

[7]Revised Draft Odisha Fisheries policy 2014

costs of operation and maintenance), while in the mechanized operations, the crew receive wages or shares or a combination of both. While the actual incomes from fishing are hard to quantify, it is however possible to draw certain broad conclusions:

Firstly, the incomes from fishing and fish trade, though less certain, are generally higher than those in other occupations (for instance, agriculture). The tendency of the fishers (and fisherwomen), who move into alternative activities during the lean periods but return to fisheries as soon as conditions improve is a good indicator of the viability of operations in the sector. Petty traders and dried fish processors receive an income in a good day's trade that is equal to two or three days of wages in agriculture; in other words, the surplus from a good day of trade is adequate to cover their costs on a day of poor or no trade. However, mounting competition – both from other women as well as from other supply chains – reduces not only the profitability of operations, but also the work opportunities for the women and forces them to settle for alternative, albeit less-paying, occupations.

Secondly, the earnings from fishing are not confined to monetary payments – they frequently include non-monetized income like fish or other consumables or utilities like firewood. Similarly, the cost of operations is not always monetized; a number of activities – like launching and hauling of boats, repairing nets, women gutting fish for drying – involve drawing upon the 'social capital' without which the economic viability of at least some of the activities can suffer.

Equally important is the periodicity of payments – while some of the trades (local petty fish trade) depend on daily turnovers for consumption and business purposes, others (like dried fish trade) have a longer turnover cycle, i.e., about a week or two depending on the size of operations, and some others (distant urban trade and export trade) may have even longer turnover cycles extending up to a month. All this implies that the periodicity of payment to different stakeholders varies (even the same person might be paid at different intervals for fish going into different supply chains), which in turn determines the investment schedules for different categories of people. This is a factor not always taken into consideration while setting up new marketing or credit initiatives, which are developed based on the more conventional monthly income patterns

Finally, in many fishing households, while the earnings from fishing (or fish trade) are perhaps the most important source of income, these are not necessarily the only source. There are temporal and intra-household variations in the occupational patterns, with at least a part of the incomes for the fishers coming from non-fishing related activities seasonally. While agricultural labour is perhaps the most widespread alternative occupation, there are also other opportunities in urban areas, industries, ports, railways, tourism and forestry, based upon the proximity of these activities to the fishing settlements in an area.

# CHAPTER III

# ENIRONMENTAL ANALYSIS AND STAKEHOLDER ANALYSIS

## 3.1 PESTLE ANALYSIS

PESTLE analysis is a tool for understanding and analyzing the macro environment in which the sector is operating and understanding of external environment will bring the advantage of encasing the opportunities and minimizing the threats. The main elements in PESTLE analysis are: political, Economic, Social, Technological, Legal and Environmental. The following table represents the factors, which was being understood and analysed by the investigator, after interaction with the fisher folk community and also from the study and analysis of review of literature on livelihood security of fisher folk community.

### Political Factors

The subject matter of fisheries is in the state list under article 21 of the Indian constitution and hence the management and control of fisheries up to the territorial waters and is vested with the state/union territory government. Though the state government has taken some positive initiatives in strengthening the asset base of fishers i.e., replacement of wooden country crafts with FRP boats, motorization of the country craft, assistance for fish marketing infrastructure for fishermen in terms of providing cycle with ice box, motor cycle with ice box, auto-rickshaw with ice box and also assistance for nets.. But the coverage of schemes in the context of small scale fishermen is inadequate, considering their numbers. According to the planning commission reports 2011, 90% of the fishermen population belongs to category of small scale fishermen. The small scale or artisanal fishermen are perpetually indebted and also lack awareness about the welfare schemes that are operational in the state. Lack of data exists in the context of their geographical spread and numbers.

In this particular context, in Ganjam there has been financial fraud in the schemes meant for small scale fishermen, who were completely deserted aftermath the cyclone phailin which hit

the Gopalpur coast in 2013. This type of financial fraud, where the intended beneficiaries are being duped by the traders. The traders were selected by the government to supply the boats and nets to the affected households. But, neither the bank, nor the government had any clue initially about it. It came into the notice of the bank authorities when the beneficiaries approached the bank and subsequently bank manager lodged a complaint against the traders.

The state government efforts are note worthy in terms of providing low cost housing to the fisher folk community, with all, the basic amenities. The project coverage is satisfactory, but more needs to be done in the context of time of completion. The coverage of the scheme has increased for award of scholarships to meritorious students of the fishermen community and around 3, 20,000/- was disbursed to the students in this financial year 2014-15.

But, the expectation from the government is to strike the balancing act in the context of coastal conservation and management programmes which is currently operational under various state and central government initiatives, involving the department of fisheries, environment, Industries, revenue, coast guard and tourism. The fact of the matter is that various government departments have countervailing agendas and overlapping roles and responsibilities. For instance, one department aims to promote growth and development, while other deals with conservation and management and lack of coordination between them results in loss of livelihoods. The fisher folk community in New Golabandha village is very

much affected by firing practices conducted during trainings in military establishment. Along the military establishment in Gopalpur, almost all adjoining villages are affected during such trainings.

## Economical Factors:

- **Declining production**: The decline in catch affect fishermen income and availability of capital to invest in improvements and it result in reduced share of crew members. The dwindling fish stocks have been due to the implementation of conservation measures and climatic change which results in loss of many species. According to DOF, around 17,546 families, comprising of one lakh people are subjected toloss of livelihood for several months a year because of the ban. The Odisha traditional Fish workers union and **Samudram** (2003) put the number of families affected at 27,825.
- **Cost of operations and Subsidies:** The important concern in the sector is the growing cost of operations brought on by increasing cost of fuel which become aggravated by the diminishing fish catches. As the boats travel farther out in seeking fish, each fishing trip costs a lot more than previously while the returns do not always keep up with the costs as there is no certainty that every trip will ensure a reasonable amount of fish. But, certainly there is a drop in the net profits made. For the motorized boats, the cost of operations is further aggravated by the constant need for maintenance of the engines.

  Apart from fishing fleet owners, the downward effects of the cuts in subsidies are felt by several categories of people (even if they were not direct recipients of subsidies at any time) who depended on the sector for trade or employment and now find that the access to both has become dearer. While the overall economic performance of the sector may improve as a result, the capacity of a large number of people to cope with the changed conditions becomes weaker and their livelihoods less sustainable. Thus, for example, the most important subsidy the fishers receive – i.e., tax rebate on HSD oil – has remained relatively static while the cost of HSD oil has grown manifold in

the meantime. Under the circumstances, the subsidies do not serve the intended purpose, and could be wastage of the scarce resources available to the sector.

- **Transactions Cost and Vicious cycle of credit:** The market arrangements are centered on the system of advances and credit, and those who could not afford to compete in the open auctions with the large scale traders from outside, particularly people in the traditional marketing systems, were marginalized. The monetization of transactions on the beaches has meant a dependence upon moneylenders for meeting production needs, and loan repayments take away a sizeable proportion of their income. The need to service their loans and to finance the next cycle of operations requires that they sell their produce even at a loss, just to keep the activity moving. The cost of credit, i.e. the interest rate is very high and often varies between 36% to 45% on a yearly basis.
- **Institutional credit supply mechanisms:** Inadequate credit delivery and recovery mechanisms to suit the needs of the fisheries sector, bureaucratic & procedural hurdles, lack of banking habits among the credit recipients, failure to reach the needy fisher folk, and several other factors reduced the scope, performance and effectiveness of the formal credit systems in Ganjam. The transaction costs of lending to the poorer people were considered disproportionately high (compared to the actual amount lent), which contributed to a majority of stakeholders in the sector (fishing crews, petty traders and dry fish processors) being left out of the formal credit systems.
- **Lack of trade data and price information.** The lack of trade data and price information on the species landed in Orissa impedes market research and makes business and government planning difficult, a situation that needs remedying without delay given the need to maximize the value of the limited fish stocks available.
- **Marketing Orientation & Facilities:** The state is a major consumer and exporter of fish, but there are few established marketing facilities even in the urban areas. Most fresh fish markets have only rudimentary facilities which constrain rather than facilitate the traders in carrying out their activities. In the dried fish markets, the lack of good storage systems at markets is one reason for resorting to distress sale. The absence of the government control and supervision affects the marginal stakeholders

and it has allowed the proliferation of vested interests at the markets leading to exploitation of both processors and buyers. In major wholesale dried fish markets like Humma, many market intermediaries between the producers and the traders (who often do not speak the same language) collect sizeable commissions from both sides for the service. Further, the lack of lacking proper systems of weighing, pricing and supervising makes things worse for them.

## Sociological Factors

- **Acceptance of low quality fish:** The fisher folk community generally receives the low quality fishes for their consumption at home. It reflects upon the low nutritional value intake of households. The fishes consumed by the households' lacks the required protein intake as recommended by the world Health Organization (WHO).

- **Education as a curse among fishermen communities:** Fishing communities tend to suffer from very low levels of literacy. However, it appears that the situation is changing for the better. Although literacy rates in the coastal villages of Ganjam continue to be below the state and national average, many people have begun taking an active interest in education and in sending their children to school. The reason given by fishers was that literacy opens doors for diversifying out of fisheries and at the same time inviting miseries. Most of the youth who are educated but are unemployed often take the jobs that have negative impact on the society, such as working as agents in fraudulent companies or working as intermediary in the fish value chain. Though there is enhanced access to government schools, but still some resource poor fishers believe that if there children do not go to school and take up some odd work, that would fetch more income to the family.

- **Marginalized and diminished role of women:** The contemporary marketing systems increasingly take over the fishing economy, large numbers of poorer people who depend upon traditional fish marketing find themselves marginalized and vulnerable to factors they can hardly understand. The local fresh fish market and the traditional processed fish market are under increasing pressure because of the high cost

of credit, greater competition amongst a growing number of participants as well as increased competition from the distant urban and overseas markets for limited volumes of fish; the rising fish prices and limited income of their customers seriously constrain net margins. Women are a major casualty in the contemporary marketing chains because their role declined from critical links in the supply chains to being ancillary workers.

- **Attitude of fishermen towards other occupation:** Though the fisher folk community has exhibited tremendous adaptation capability towards diversification towards other economic activities away from home. But, in their native place they consider other occupation, apart from fishing as disgraceful and looked down upon in the community. But, it is observed that there is a break in these types of barriers as far as the youths of the community are concerned.
- **Lack of Voice and problem of mute participation:** On interaction with community leaders, it was found that there is a lack of collective approach among fisher class in voicing their demands and trying to solve the issues plaguing their own communities. The rise of nuclear families and living in isolation is probably the main causes for mute participation. There is a general unwillingness to step

into a common platform and sort out the issues of the society as a whole. The approach has been more individualistic, self- centered and narrow.

## Technological Factors

- **Efficient/cheaper fishing technologies:** The cost of operations being the single most important determinant of the profit or loss of fishing operations, there is a valid demand from the fishers for more efficient or cheaper technologies to be developed and/or promoted. However, the focus on development attention remains on the conventional motorization programs (supplemented very recently – and inadequately – by a small subsidy for fuel). The fishers themselves have been increasingly trying to move away from the motorized boats and developed simpler, low-cost, alternatives like *katla teppa* in the south zone, which marks the return to the old days of sailing with oars and sails, but such innovations are not standardized to more technically robust standards.
- **Motorization of traditional boats:** Motorization certainly reduced drudgery and enabled the fishers to travel farther out and stay at sea for longer duration. The engines are prone to frequent complaints as their ability to withstand the rough and saline sea conditions is remains suspect and are a major drain on the incomes of the fishers. The fact that the fishers have no more than rudimentary knowledge about the engines and their operation. The location of trained mechanics at a few centralized places along the coast of purirequires the fishers to forego fishing and carry their problem engines over long distances to get them repaired and this adds to costs significantly. The fishers' poor knowledge of the engines also allows the mechanics to take them for a ride.

- **Technological Infrastructure:** A comprehensive survey (CRISIL 2006) found that more than half of the state's landing centers had no ice plants and that cold storage, chill rooms and processing plants were available at few places only, often at some distance from the seaside. At the same time, some FLCs have underutilized assets because only a few boats with low landings operate there, while some FLCs lost

their usefulness due to siltation and other factors. The existing facilities for water supply (for drinking as well as for processing and washing) and sanitation leave a lot to be desired in most fish landing centers (FLCs).

## Legal Factors

**Lack of monitoring and Enforcement***:* The Orissa Marine Fishing Regulation Act came into force in 1984 (DOF, 1997). The act defines the natural coastal resource as the state property with all the management and usages right defined by the state. It negates the common ownership of the resource by the community and the management rights thereof. The act was formulated mainly to protect the interests of the traditional fishermen, by restricting the fishing operations of the mechanized trawlers to within 5 km from the shore and also prohibits fishing activities of the trawlers from neighboring states entering into the marine zone of the state. The act makes mandatory the registration of all the craft operating in the state against the prescribed registration and license fee for different types of vessels. The act gives discretionary power to the government to regulate the fishing operation along the coastline of the state. The state holds the power to regulate the number and type of vessel, area for fishing, period of fishing, species of fishes and the types of fishing gear permissible for fishing.

The OMFRA reportedly controls the entry of new mechanized boats into the sector, based upon the carrying capacity of each fishing harbor in the state, the fact that the numbers of mechanized boats have been constantly growing from year to year would indicate that the implementation of the provisions of OMFRA remains weak, or the penalties for flouting the provisions is not sufficient enough to deter fresh entry into the fleets.

## Environmental Factors

- **Climatic change and dwindling fish stocks:** The destruction of fish habitats like mangroves and coral reefs, ocean acidification, sea-level rise, erosions, recurrent and severe cyclones and floods, unpredictable weather changes resulting from global

warming are decimating fisheries and endangering the life and livelihood of the fisher people. A study conducted by TERI (Tata Energy Research Institute) and Ministry of Environment and Forest projected that a one metre sea-level rise could put as many as 7.1 million people including all the coastal communities whose livelihood is directly linked to the sea- at the risk of displacement. In other words, the coastal fishing communities stand the risk of being worst affected.

- **Sustainability of fish stocks:** The very high proportion of juvenile fish currently being taken jeopardizes the future sustainability of the sector. Mesh sizes of all major gears will need to be increased (actual mesh sizes not the regulations). This will need a national public awareness plan to highlight the damage the lack of effective regulations concerning mesh size is causing. Again through a co-management approach, optimal mesh sizes for different gears will have to be agreed and harmonized across states and new regulations notified.

## 3.2 Stakeholder Analysis

The important stakeholders who are associated with the value chain can be divided into three Categories –

### Table 5: Stakeholder Analysis

| Environmental Stakeholder | Community stakeholder | Economic/Industry Stakeholder |
|---|---|---|
| Implementation of Conservation measures by the government, NGOs | Traditional/Artisanal Fishermen | Middlemen and Wholesalers |
| Small Scale Fishermen (Olive Ridley-Nature's own way of helping fishers) | Labourers | Exporters and Processing Units |
| SHGs Federations | Ancillary Service providers | Trawler owners |
| Others | Others | Other Service Providers |

### Conservation Stakeholders

This group promotes conservation ideology and is against destructive practices that are not in harmony with and create ecological imbalance. In the Ganjam district, the major concern of the group is focused on turtle conservation, i.e., Olive Ridley turtle conservation measures.

### Subsistence Stakeholders

This group comprises of poor fisherman whose entire livelihood comes from the sea. The fisherman community is in conflict with the trawler owners because of their frequent encroachment into the fishing ground of small scale fishermen.

## Economic / Industry Stakeholders

In the fishery sub-sector the industry / processors are on the top. The scale of operation cost of capital employed and competition at the global level is very high. The other segments in this category are the feeders – to the industrial market i.e. the agents, middleman and the wholesalers. This segment caters both to the domestic retail market as well as to the requirement of the processing houses and the exporters.

The detailed analysis of the key players is given below:

## Fishermen without Boats

This category constitutes the largest number of actors in the sub sector. It comprises of people who are capable of fishing but cannot take up the operation as they are poor and vulnerable and do not have the resources to undertake fishing on their own. The main role of the labourers is to support and assist the boat owners in the fish capture. The cost of operation for this segment is negligible as no capital investment is required on their part to enter the trade. The payment to them is made on the basis of percentage/part of the catch per voyage. The total cash generated through fishing is distributed equally among the members participating in the operation after deducting the variable cost of operation. The remaining cash is distributed equally among the members including the boat, net and machine as one part respectively. The average monthly earning for this segment is Rs 2000-Rs 2,250/- per month during the peak season and the tentatively average annual income accruing to this segment is Rs. 24,500/-.

## Fishermen –Share Boat and Net Owners

Here, the fisher need to share asset with group of fishermen and their source of income is share of fish catch. Normally the actor in this segment has boat but the asset is owned not only by one owner but multiple owners, as the boat is purchased in partnership and most of the times the owner who is also the partner and he also operates as crew member. Thegroup of fisherman is generally tied up with traders because of the credit linkages and other accessory facilities provided by them. It is also observed that many fishermen in groups had availed the schemes for creation of assets like boats and fishing gear from banks and other financial institution, with support from government. The cost of operation for this segment is high. The capital investment in this segment is mainly inthe fishing gears. Another major expenditure is the variable expense in terms of operating cost of the trade. The average monthly earning for this segment is Rs 3,300 – Rs.3,600/- per month during the peak season and the tentatively average annual income accruing to this segment is Rs. 40,000- Rs 43,000./-.

## Auction agents

The actors of this segment do not trade in fish themselves, but only arrange for the sale through an auction or bargaining system and determine the value of the fish. The auction agents have arrangement with traders and processors. The source of income for auction agents is fixed sum or a percentage of sale. The auctioneers generally belong to the fishing community and often come from the same village and are attached to traders. The auctioneers sometimes take the role of an agent for the boat owners also and have the responsibility of ensuring the realization of money from the buyers. They don't have any cost of operation in terms of fixed or variable cost. Tentatively average annual income accruing to this segment is Rs. 90,000/-.

## Commission/Collection agents

They act as agents of either the large export houses or external traders for defined fish species. Their role is confined to participating in the auctions, procuring fish and handing it over to the traders. They don't have any cost of operation in terms of fixed or variable cost. The

operations costs and accessories like cell phones etc are borne by the principal.Tentatively average annual income accruing to this segment is Rs. 1,08,000/-.

## Godown owner

They are the dominant players in the fishery sub-sector. They provide backward and forward linkages, undertake sorting, packing and transportation and financial support to boat owners and creating linkages for hiring of crew. They have the ability to take risk and have better market access and information. They generally govern the prices at the landing centers through their agents and the auctioneers. The capital investment in the business normally ranging from Rs. 1, 00,000 to Rs. 2, 50,000 in terms of infrastructure and other fixed investment. But the capital required to meet the operational cost like purchases of the fish, transportation and storage, credit supply to the fisherman (capital employed in the business) is high with an average daily requirement of Rs.50,000 to Rs. 2, 00,000 depending on the size of operation and the quantum of business undertaken by them.

## Wholesaler

They take up the responsibility of arranging for the products i.e. create backward linkages to the landing center through the middleman to meet the requirement of the buyers of the market -the forward linkages. The wholesaler also frequently acts like an agent to the middleman in this trade.

## Exporters

The actors of this segment are the big business houses, which are at the top of chain. The segment allows very few players, as the volume of trade is very high for the high quality products. The segment has an access and control over the production resources both legally as well as by taking gratuitous advantage of their position in the value chain. This control over the resource is linked with the credit supply, which is pumped in the value chain by them. The major roles and responsibility of the players is to make the huge capital investment in terms of the fixed capital like machinery, building, transportation, ice plant, refrigeration, etc and the

variable cost in terms of purchases of the raw product, salary, transportation overhead, etc is high.

## Transporters

The actors in this segment are the private operators who transport the shipment to the larger country markets. The operators are normally linked to the traders for their business who hire them in large volumes. The capital cost employed in the business is high on the vehicle and other assets.

## Ice Providers

The ice providers are the 'lifeline' to the supply chain of the fishery. The service is normally taken up by the factory owners / private entrepreneurs who are linked to them. The ice providers are directly linked to the middleman in the sense that the middlemen are the most important customers and hence their business relies on them heavily.

## Head loaders and Ancillary service providers

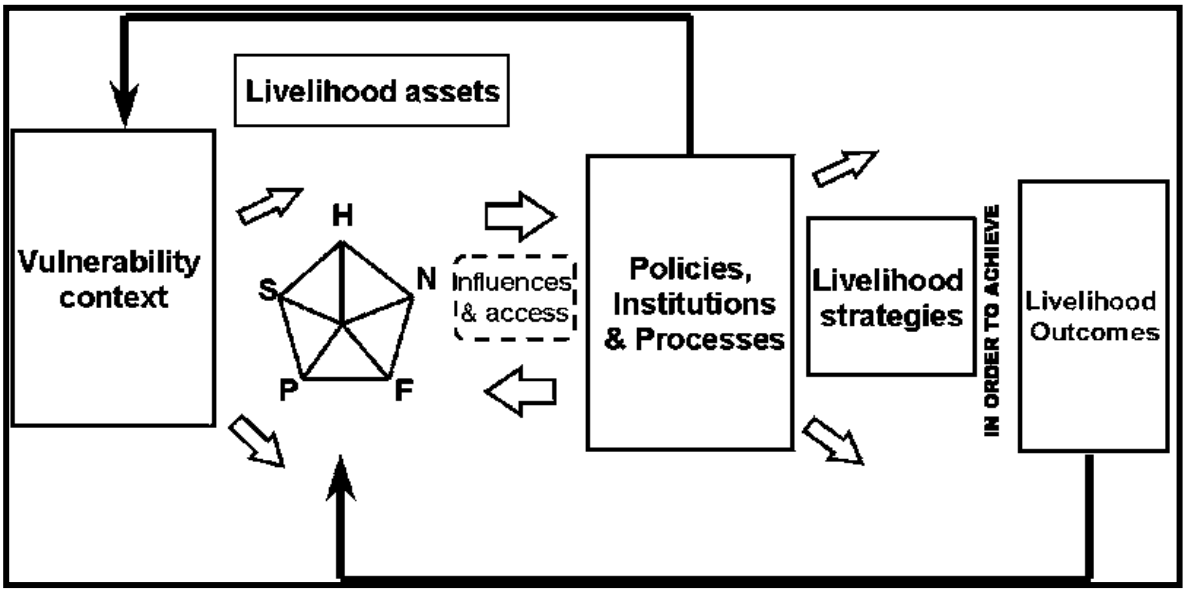
In Ganjam, women head loaders constitute the largest number of petty traders seen at the beach, although overall they are accounted for the purchase of only a small percentage of the catches landed. They are a major source of supply of fish for the communities within and close to the coastal areas. Also another important activity of salting and drying of fish is taken by the women folk. They are the most vulnerable group among all the stakeholders and their average annual income is less than Rs.25,000/-

# CHAPTER IV

# LIVELIHOOD ANALYSIS

## 4.1 Understanding the Livelihood Context: Application of Sustainable Livelihood Approach

### Figure 4: Livelihood Framework




### Sustainable livelihoods framework

"In its simplest form, the framework views people as operating in a context of vulnerability. Within this context, they have access to certain assets or poverty reducing factors. These gain their meaning and value through the prevailing social, institutional and organizational environment. This environment also influences the livelihood strategies – ways of combining

and using assets – that are open to people in pursuit of beneficial livelihood outcomes to meet their own livelihood objectives.[8]

*A livelihood comprises the capabilities, assets (stores, resources, claims and access) and activities required for a means of living: a livelihood is sustainable which can cope with and recover from stress and shocks, maintain or enhance its capabilities and assets, and provide sustainable livelihood opportunities for the next generation; and which contributes net benefits to other livelihoods at the local and global levels and in the short and long term.*

The most complex component of livelihood is the portfolio of assets out of which people construct their living, which includes both tangible assets and resources, and intangible assets such as claims and access. The SL Framework is built around five principal categories of livelihood assets, graphically depicted as a pentagon to underline their interconnections and the fact that livelihoods depend on a combination of assets of various kinds and not just from one category. An important part of the analysis is thus to find out people's access to different types of assets (physical, human, financial, natural, and social) and their ability to put these to productive use. The framework offers a way of assessing how organisations, policies, institutions, cultural norms shape livelihoods, both by determining who gains access to which type of asset, and defining what range of livelihood strategies are open and attractive to people. (Carney 1998).

The value of using a framework like this, according to DFID, is that it'…encourages users to take a broad and systematic view of the factors that cause poverty — whether these are shocks and adverse trends, poorly functioning institutions and policies, or a basic lack of assets — and to investigate the relations between them.[9]

[8]DFID Sustainable Livelihoods Guidance Sheets (1.1)

[9]The Sustainable Livelihood Approach to Poverty Reduction-An Introduction by Lasse Krantz, February 2001

## The SL Approach: Current Context & Analysis

There are three insights into poverty which underpin this new approach. The first is the realization that while economic growth may be essential for poverty reduction, there is not an automatic relationship between the two since it all depends on the capabilities of the poor to take advantage of expanding economic opportunities. Secondly, there is the realization that poverty as conceived by the poor themselves, is not just a question of low income, but also includes other dimensions such as bad health, illiteracy, lack of social services, etc., as well as a state of vulnerability and feelings of powerlessness in general. Finally, it is now recognized that the poor themselves often know their situation and needs best and must therefore be involved in the design of policies and project intended to better their lot.

The SL Approach produces a more holistic view on what resources, or combination of resources, are important to the poor, including not only physical and natural resources, but also their social and human capital. The approach also facilitates an understanding of the underlying causes of poverty by focusing on the variety of factors, at different levels, that directly or indirectly determine or constrain poor people's access to resources/assets of different kinds, and thus their livelihoods. Finally, it provides a more realistic framework for assessing the direct and indirect effects on people's living conditions than, for example, one dimensional productivity or income criteria.[10]

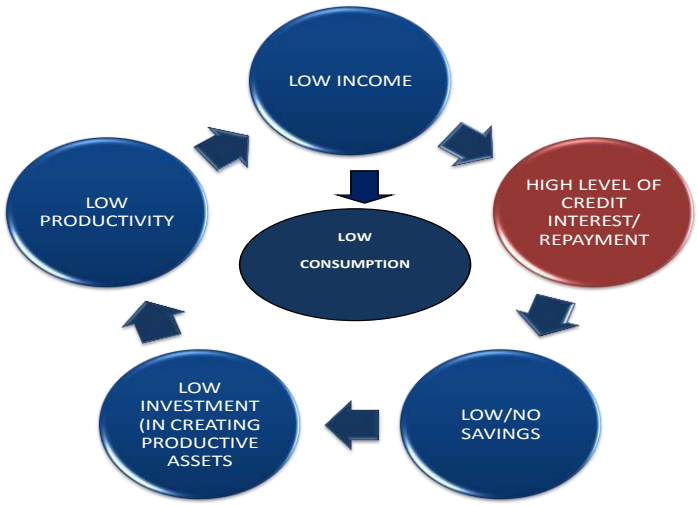
## 4.2 Livelihood Analysis

Poverty, Food Insecurity and Vulnerability are direct results of insufficient earnings from fishers' livelihoods. The Boat owners receives bigger share of the catch; this provides them with some buffer during lean periods. The fishing crew have a share of the catch when they to

[10]The Sustainable Livelihood Approach to Poverty Reduction-An Introduction by Lasse Krantz, February 2001

go fishing and land a catch, both of which are events beyond their control and full of uncertainties. Fish traders can be fairly easily classified into rich and poor by virtue of the investments involved. The hierarchy begins with traders, who deal in export varieties of fish, and proceeds downwards to the petty fish traders, who buy and sell fish in cash or kind entirely within the local area. For many stakeholders, current levels of wages or earnings from fishing and trade leave very little surplus beyond their subsistence needs. Even households that generate some surplus use it up quickly during lean periods or spend it on repairs to boats and houses or for weddings and funerals.

## Figure 5: Ragner Nurke Frameworks




**Adapted from Ragner Nurke – to explain Vicious Cycle of Poverty in the context of Credit repayments**

## Table 6: A case of Rangeilunda Block

**Purpose of credit in Fishery village- A case of Rangeilunda Block**

| No. | PURPOSE | Respondents | |
|---|---|---|---|
| | | Rangeilunda | Percentage (%) |
| **1** | Food and Cloth | 129 | 23.3 |
| **3** | Health | 85 | 15.34 |
| **4** | Assets Purchase | 108 | 19.49 |
| **5** | Marriage/Social Customs | 109 | 19.67 |
| **6** | Alcohol | 123 | 22.2 |
| | **TOTAL** | **554** | **100** |

## Table 7: Source for Credit

| No. | SOURCES | BLOCKS | | | |
|---|---|---|---|---|---|
| | | Rangeilunda | Percentage (%) | Chatrapur & Chikiti | Percentage (%) |
| **1** | Banks | 3 | 0.54 | 3 | 6 |
| **2** | Microfinance Institutions | 37 | 6.7 | 4 | 8 |
| **3** | Relatives | 478 | 86.5 | 32 | 64 |
| **4** | SHG | 20 | 3.6 | 2 | 4 |
| **5** | No Credit | 6 | 1.1 | 4 | 8 |
| **6** | Money Lenders | 8 | 1.36 | 5 | 10 |
| **7** | Villagers | 1 | 0.2 | 0 | 0 |

From the above table, it is found that fisher folk consider credit, as a source of income and they are heavily dependent on credit to fulfill their monthly household expenditure

requirements. It is also found that alcohol is the major component in the expenditure list of items. It is observed that the sources of credit for the fisher folk community are mainly through relatives and money-lenders.

During the lean and no fishing season, due to conservation measures adopted by government to take of the nesting season of olive ridley turtles, the livelihood aspects of the fishers has taken a beating and there is no choice left to them, but resort to credit at high rates of interest which is offered mostly by the relatives and moneylenders. The cost of credit is as high as 36 percent per annum. The fishers' folk get trapped into the vicious cycle of credit and poverty. Under such circumstances the fisher folk are forced to diversify, or migrate to a distant place to earn a living.

## 4.3 Livelihood assets of the coastal fishers in Orissa

### Natural Assets

The most important natural asset on which fishers depend is fish. Data available from the department of fisheries , for the years 2007-08 and 2008-09 shows a significant decline in fish catch by 15 percent and 27.8 percent respectively which has resulted in unstable household income and increased risk of communities falling in the trap of indebtedness to unscrupulous local money lenders. The most pertinent factor responsible for the increasing levels of poverty and food insecurity in the fishing communities of Ganjam is the steep decline in fish catches experienced over the last decade. The trend of decline in fish catches is validated by fishers across all the samples in all the fishing villages where field studies were carried out. The fall in catch has affected everyone in the sector. The duration of fishing expeditions and distances travelled in search of fish have increased at least two-fold. Fishing expenses for a given quantity of fish have increased three to four times. Interactions with fishers provide good indications of the decline of some species that were once widely prevalent.

| Name of Fish | Category | Estimated decrease in catch |
|---|---|---|
| Pompret | Commercial/Export | 40%-50% |
| Tiger Prawn | Commercial/Export | 50%-60% |
| White prawn | Commercial/Export | 45%-50% |
| Brown Prawn | Commercial/Export | 40%-50% |
| Tuna | Commercial/Export | 30%-40% |
| Shirmp | Commercial/Export | 35%-40% |

*Source: FGD and Key Informant Interview*

While some of these changes are specific to particular locations, there are a number of species that appear to have declined uniformly across the state. That the declining species are often from commercially important categories indicates that overfishing might be at least partly responsible.

A third aspect of the decline in fish is the increasing uncertainty it has engendered. Seasonality strongly determines the way fishers conduct their operations and order their lives around peak and lean fishing periods. After the tsunami in 2005,there has been a significant decrease in the volume of fish catch. This has affected their livelihood systems and forced them into further debts.

## Open-access/Common property resources

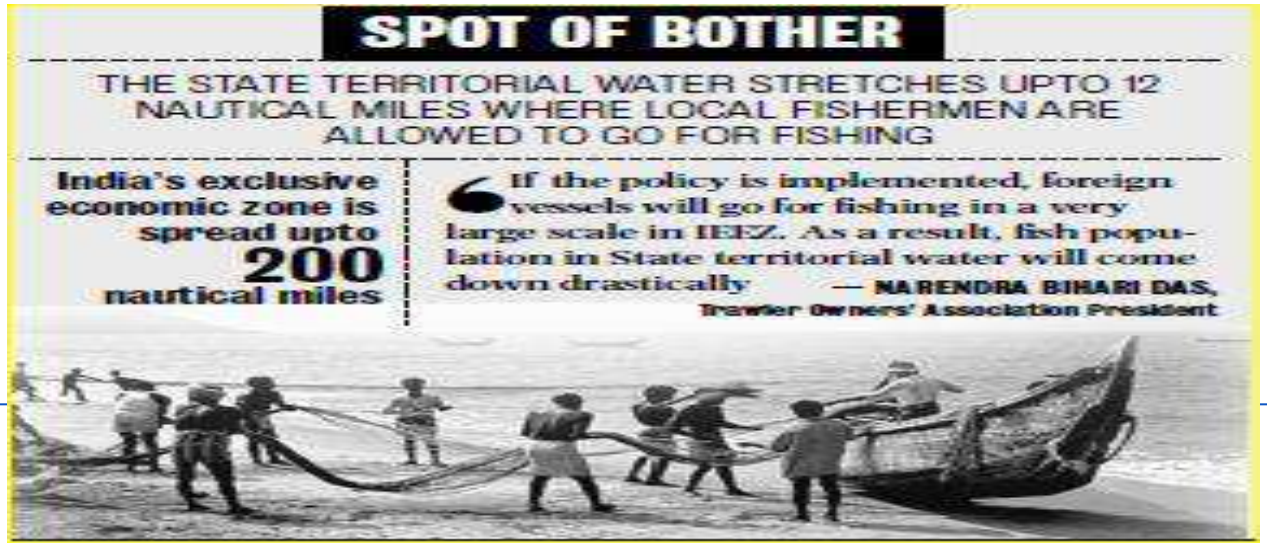
The fishers are totally dependent on common property and open-access resources. Many activities in artisanal fishing like, their access to the sea (for fishing), the beach (for a host of activities including fish processing), depends on these resources. The significant aspect of their dependence is that they can make a living out using these resources, but cannot claim security of tenure or tenure rights, except in a customary sense. The Tenurial arrangements constantly shift among private and dominant players in the market. But the legal status remains unrecognized until commercial or conservation measures bring in private interests or the state make a stand to assert their ownership, effectively marginalizing the traditional users. On the other hand, open access also enables more powerful interest groups to venture into fishing and other coastal activities. The traditional forms of ownership and use rights, coupled

with lack of official recognition of these arrangements in an increasingly hyper competitive landscape facilitate the entry of capital intensive private enterprises.

## Caselet

### Entry of Foreign Vessels

*The Central Government's recently announced policy to allow fishing by foreign vessels in Indian waters has come as a major blow to the traditional fishermen in Odisha who are already affected by the fishing ban for turtle nesting for over three months in a year. On the basis of recommendation of an expert committee constituted for "Comprehensive Review of Deep Sea Fishing Policy and Guidelines", the Centre issued an executive order on November 12 last year which allowed foreign vessels to fish in the India Exclusive Economic Zone (IEEZ) .According to sources, the State territorial water stretches up to 12 nautical miles where local fishermen are allowed to go for fishing, while India's exclusive economic zone is spread up to 200 nautical miles. The Balasore Trawler Owners' Association president Narendra Bihari Das said if the Central policy is implemented, the foreign vessels will go for fishing in a very large scale in IEEZ with the help of their highly sophisticated nets and fishing equipment. As a result, fish population in State territorial water will come down drastically which will put the livelihood of traditional fishermen and trawler owners at stake. Meanwhile, Federation of Indian Fisheries Industry (FIFI), a national body for protection of the interest of fishermen community, has protested the Centre's decision. The Joint secretary of FIFI, Mr.Kameshwar Narayan Praharaj said the order is meant to encourage the foreign vessel owners at the cost of the traditional Indian fishermen.*



In order to facilitate industrialization, the state failed to acknowledge the existence of customary codes of practice governing the use of coastal resources and encouraged open access to all and sundry. Thus in this context, as private investments demanded security of tenure, the land tenure systems changed from open-access/common property to private ownership. Similarly, monetization of transactions in the fishing sector put an economic value on the natural resources, bringing further changes in tenurial arrangements governing access and use rights. The new entrants, with their superior capacity for investment, access to technology and exposure to international market, were better equipped to exploit the resources, often to the disadvantage of traditional and/or poorer users. In many coastal villages, fishing trawlers, aquaculture and industrial development have been cited as serious problems facing fishing-based livelihoods.

***Trawler Menace and Small scale Fishermen in Ganjam***

*The most pertinent problem facing the Nolia fishers of Ganjam district is the encroachment on their fishing grounds by trawlers from Andhra Pradesh. The trawlers began to fish in the waters of Ganjam, encroaching upon the exclusive customary rights of the traditional Nolia fishers. In spite of repeated protests by local fishers, they continued to fish in these waters, confident that the artisanal fishers would not be able to dislodge them. The trans-state nature of the problem and the Telugu origins of the Nolias kept the administration from intervening in the situation. Besides a serious decline in fish catches owing to overfishing by trawlers, fishers in Nolianuagaon and in Gopalpur continued to face reduced access to fishing grounds. In due course, this led to violent confrontations between the artisanal fishers and the mechanized boat crews, forcing the two state governments to intervene. However, there has been no improvement in the situation.*

The competition among different powerful and influencing players in the coastal environment; each with their own agenda, activities, role and responsibilities, and it is often very difficult to determine their boundaries. Many fishers expressed apprehensions that they might eventually be squeezed out of the sector. The coastal conservation and management programmes under state and central government are often not well defined with overlapping

roles and responsibilities. In many cases, they have confliting agendas. For instance, one promotes growth and development, while another deals with conservation and management, and a lack of coordination between them result in loss of livelihoods.

## Physical assets

The access to and availability of productive assets determines the quality of life and subsequently it is reflected in their standard of living. Poverty in fishing communities is being reflected in their quality of life indicators such as– housing and sanitation, and access to clean drinking water & services. In this context let us understand and analyse the indicators.

Ownership of homestead land and housing**:** The villages in the Ganjam district, where ownership of homestead land is rarely legalized, though generally secure because of the closed structure of the communities and the absence of immediate plans for development. Due migratory nature of their activities, fishers did not appreciate the importance of having secure ownership of the land on which they lived. The quality of housing is one sure way to determine the poverty level of a family. The Government has been actively encouraging the construction of permanent houses. The scheme entitled Indira Awaas Yojana is being operational in almost all the parts of the Ganjam district. The objective of the scheme is to provide better housing to the weaker sections of the society, with an accompanying thrust on employment generation.

However, a substantial proportion of the people still lack a secure roof over their heads. In many villages in which the Government has taken up house building under different programs, it was seen that schemes were rarely fully implemented, with the result that nearly half the population living in thatched huts. The size of the house is another important indicator of poverty. Some of the fishers managed to obtain government support (linked to a contribution by beneficiaries for part of the costs) live in unfinished houses, because they are unable to pay their part of the construction costs. Most houses of the poor have only one room. Many houses do not have a separate arrangement for cooking and sleeping.

In most cases, cooking is carried out in the open and it becomes very difficult in the monsoon period. The fishers generally use firewood for cooking purposes and are an important indicator of poverty.

The condition of rural sanitation in coastal Orissa remains abysmal -NIRD (1999) .The narrow understanding of the term 'sanitation' by the providers restricts the subject to the problem of removing excreta from the immediate environment and mere construction of latrines." The Centrally Sponsored Rural Sanitation Program (CRSP) was launched with the specific target of constructing toilets, but the total sanitation coverage remains very poor. Consequently, the unhygienic and unsanitary conditions that prevail in most fishing villages remain a cause for concern. Fish wastes are thrown on the beaches, rotten dry fish and spoilt brine are thrown everywhere in the fish processing areas. Fishers often use the fish landing centers and other village commons as public latrines. All this allows much scope for ill health to proliferate and it does.

## Drinking water

Drinking water is a common problem in most coastal villages, and the terms of its access are often very tough for the poor. Water is usually obtained from open wells situated close to the village dump, the fish processing areas or the open areas that community members use as public latrines.

## Technology

The level of sophistication of technology and diffusion of new technologies into fishing communities benefited a few people, while the large majority joined the growing class of daily wage earners. The growing number of ancillary fish workers and daily wage laborers' is due to the fact that they could not match with the pace of change in technology in the fishery sub sector and thus in due course of time they became redundant. Better roads and improved transport and communication systems connected fishing villages to the rest of the world. They also brought insulated vehicles and trader-financiers, who raised the value of fish and reduced the access of many small-scale processors and even producers themselves. There has been a

reduction in traditional processing activities, with enormous impact on the large numbers of people dependent on them.

With increased investment needs, fishing operations have become more erratic. Competition from other players in the coastal areas has made boat owners more averse to risk. The decrease in fishing boats coupled with the increased population in fishing villages has led to a drastic depression in wages and increased unemployment. An important outcome of technologisation into fishing has been the overcapitalization of fishing efforts. Whereas an artisanal fisher could consider whatever he caught from the sea as rightfully his, mechanized and motorized fishers did not own catches, because they first had to deduct the cost of fishing operations. The fishing entrepreneurs borrowed heavily from traders and invested in new boats, technologies and services. But, due to reduced catches and increasing cost of operations, enterprises became overcapitalized to the point of being unviable.

It is observed during field interaction with fishers that, the boat owners were in a far more critical position than crew members, as they could not easily or profitably sell their boat, diversify or repay their outstanding loans to traders. Credit has become linked to the production of export species, resulting in the decline of credit availability to traditional fish processing operations. Many large-scale operators have moved down to small-scale operations, while small-scale processors have simply moved out altogether.

Beach seines and traditional trawl nets are outstanding examples of such traditional gear. When synthetic fishing gear was introduced, it revolutionized fishing methods. These nets were light and practically invisible once inside the water and could be made very selective. Soon a wide range of synthetic fishing nets of different materials, twine, mesh size, length and width began to be used for a wide range of applications in both demersal and pelagic fishing operations.

Synthetic gillnets and trammel nets (called ‘disco nets’ locally) soon came to replace most of the traditional nets and in the remaining cases, traditional nets (such as beach seines) were

rigged with synthetic material. The first casualty of the shift to synthetic, factory-made fishing gear was the traditional village net makers. Women and old, 'retired' fishers generally fulfilled this function, but with the arrival of synthetic nets, the art of net making itself became redundant in many villages. While a few could find work mending nets (which in turn would soon be taken over by fishers themselves, who were beginning to spend more time on shore than at sea), the large majority of traditional net makers had to find other means of subsistence.

**Fishing Gear**

| Sl. No. | Name of the Net | Specific Species |
|---|---|---|
| 1 | Jago jaal | Panikiya,khonda |
| 2 | Koni Jaal | Koni,Magar,kauntia,Bhekti |
| 3 | Kockle jaal | Kockle |
| 4 | Pomfret Jaal | Pomfret |
| 5 | White Pomfret Jaal | White Pomfret |
| 6 | Disco Jaal | Chingri |

## Human assets

The population of fishing communities in Orissa has kept pace with the rapid growth rate of the national population. The research study towards understanding their livelihood security and their asset base reveals the significance of the traditional skills, knowledge systems and the dynamics of the ecosystem, developed over the years. The paradigm shift from subsistence based livelihoods to commercial based entities, coupled with the over exploitation of natural resources through technological innovations in fishing and post-harvest methods have rendered fishers' traditional skills, knowledge systems and ability to invest in manual labor more or less redundant. In the southern zone, especially in Gopalpur and in Nolia Nuagoan, it is observed that many external players, who predominantly does not belong to the community enters this sub-sector mainly at the asset owing level and the role played by small

scale fishermen is that of crew members. The role played by women has considerably decreased, though the understanding of market, marketing channels and consumer preferences were very accurate. However the factors that contributed towards the diminishing role is the shift from processed fish trade to fresh fish.

## Table 8: Marine Fishermen Population 2010

**MARINE FISHERMEN POPULATION 2010**

**POPULATION DISTRIBUTION STRUCTURE**

| District | Male | | | Female | | | Total | Av. Family size | Sex ratio (Females per 1000 males) |
|---|---|---|---|---|---|---|---|---|---|
| | Adult | Children | | Adult | Children | | | | |
| | | Upto 5yrs | Above 5yrs | | Upto 5yrs | Above 5yrs | | | |
| BALASORE | 83646 | 24132 | 36509 | 72656 | 20379 | 33353 | 270675 | 5.74 | 876 |
| BHADRAKH | 18554 | 5026 | 10067 | 16636 | 5191 | 9100 | 64574 | 5.06 | 919 |
| PURI | 23895 | 5548 | 10714 | 21783 | 5023 | 9398 | 76361 | 5.65 | 902 |
| KENDRAPADA | 29239 | 7758 | 12566 | 26399 | 7394 | 11456 | 94812 | 5.42 | 913 |
| JAGTSINGHPUR | 20619 | 4056 | 9152 | 19426 | 3374 | 7202 | 63829 | 4.35 | 887 |
| GANJAM | 11593 | 2061 | 4816 | 10951 | 2017 | 3825 | 35263 | 4.10 | 909 |
| Total | 187546 | 48581 | 83824 | 167851 | 43378 | 74334 | 605514 | 5.30 | 893 |

***Source: Directorate of Fisheries, Govt. of Odisha (Marine Fisheries Census 2010, Govt. of India)***

**Migration**: Migration constitutes an important livelihood asset for fishers. There is a distinction between long- and short-term migrants, and their adaptations to the migratory existence vary considerably. This in turn shapes their lives differently (Salagrama, 2002:

28).Migration is implicit in the marine fishing sector, and the fishing communities have adapted their life to it quite remarkably.

***ECONOMICS OF MIGRATION***

*In context of survival migration, economic benefits are minimal; there is little improvement in the economic status of both men and women, which was very much evident from the field interection with-Mr. B.Jairaju in Sana Arjipalli and Markandi. Besides, there is a reinforcement of traditional gender roles, and an increasing subordination of women. Lack of livelihood, non accessibility to governmental programmes etc lead to survival migration. The process of migration thus has a constraining effect not only in structural terms or in cultural terms, but also in the sense in which it may include abuse and exploitation, emotional and psychological distress. Poverty and search for employment have been the predominant propellants of survival migration of people. Migration is an outcome due to the repeated disasters that strike Odisha at regular intervals. Cyclones, floods, hit the state and Ganjam district in particular at different times. The coastal regions are more prone to cyclones, floods and have created a vacuum in ensuring the livelihood security. The manifestations of disasters are seen in the prevalence of multidimensional nature of poverty. Displacement is another major cause of migration in Odisha in the current context it can be in two forms; one is displacement due to climatic change and other due to the non availability of work in their own village either governmental or otherwise, prompts migration. Thus, a closer insight into reasons for migrating from their home are access to PDS is not sufficient, the food for work is inadequate to ensure food security., frequent cyclones, floods and decline in fish catch are low and availability of work throughout the year is low. From field interaction it was evident that the cost of migration is more than the gains from migration. The fishers daily expenditure per head is Rs500/- whereas the income per day is only Rs 700/- and due to such high cost of living in migrated areas such as (kanyakumari, Mangalore, Goa, Kerala, etc), sometimes they at least one meal in a day, so as to save some money to meet contingency expenses. In some cases it is reported that the fishers after returning to their village suffer from health disorders and generalized weakness due to the 24x7 nature of work in the profession where they migrate.*

**Gender and Migration**

Looking at migration through the lens of gender can show how it entrenches restrictive gender stereotypes of women's dependency and lack of decision making powers. The division of labour in destination results in women's skills being underutilized. Health, education and employment protection services are hard to obtain in the destination areas particularly if the migration is informal. Despite the rising number of female migrants, women are not given equal importance as compared to men in migration, since they are still not received as equal actors worthy of being accounted for. Thus while viewing women migrants as dependants, we may often ignore their individual economic contributions, and an analysis based solely on official figures would give an inadequate account of the actual migration flow pertaining to women.

The decisions of women to migrate are reinforced by the twin forces of opportunities and constraints and are taken primarily by the family. The migration influences gender relations, either entrenching inequalities and traditional roles or challenging and changing them. The process of migration has a differential impact on women- whether they are left behind in the village in case their husbands migrate or in case they too migrate along with the males. In case of the former, the female-headed households are faced with the multiple tasks of not only running the household but also looking after the family, children and the aged. Exploitation of the women by the money lenders and other powerful and dominant persons lead to a situation where the women are most vulnerable. In case of the situation where the women to migrate along with their husbands, the new area of habitation is an alien one with no established social nets. The women are faced with the problem of child care, hostile host community, difficult working environment, lack of benefits etc. In many cases women migrate several times to several destinations, which leave them with no social security and network. Survival migration which is seasonal in nature and occurs under distress conditions are the unique characteristics of migration in odisha. However the labour contractor and the employer at the site of migration are the key persons who are often seen to exploit women in some specific

ways such as trafficking. Unmarried women migrating in search of work is a new face of migration from the region. Overall the female migrant workers are mostly illiterates from poor landless families who have no work in their own village and have to migrate out for survival. The migration pattern of these women is irregular who are not registered.

**Migration Female Headed Households**

Migration of male members from the families in search of work and wages to destinations away from native villages has led to situations where women are in charge of households taking care of the young as well as the aged. Illiteracy, poverty, landlessness and high incidence of disasters make these women very vulnerable to exploitation even in their native village. The female headed households are usually the poorest in the village.

**Other Vulnerable Groups**

In the instances when the whole family migrates, the old are left behind. These old and aged both men and women grapple for basic survival. Another vulnerable group is the children. Whether they migrate with the parents or stay back in the village, children are exposed to all hardships and deprivation from educational and health facilities. They end up as child labourers in many cases.

**Thus, migration leads to following outcomes:**

- Low wages and very hard work: The work is heavy and the hours of work are long for instance 18 to 20 hours and in some cases when the fishermen are in sea it may extend almost 24 hour a day, and it may last at a stretch 7 days, till a good amount of fish is collected
- Sexual Exploitation to women members of the households and disparity in wages
- Unfavorable working condition and hostile host community
- AIDS continues to be a sensitive and hence largely unspoken issue, with the result that information is difficult to obtain on the magnitude of the problem. There are reports from NGOs and governmental health agencies that indicate a widespread prevalence

of AIDS in the coastal fishing communities. In Interaction with fishers community it was observed very specifically that many teenage boys who migrate at a very young age, unaware of health consequences often get affected.

**Food and nutritional security**

The analysis of food and nutritional security has led to strong insights about hunger and deprivation in the fishing sector. The food and nutritional security is a subject that has been inadequately documented, particularly at the household level, where differential access to food keeps the more vulnerable people (women, particularly pregnant and lactating mothers, young girls and old people) at risk.

Food insecurity does not always mean going without food the whole day. More often, it means going without sufficient food in a day. As one of the women pointed out during the interaction that, food insecurity may mean taking three meals a day but of substandard quality or inadequate quantity. Under this definition of food insecurity, the problem attains serious proportions, with a large percentage of villagers reporting to be food insecure at one time or another during the year. There is a clear correlation between a family's number of working person-days (and, more importantly, daily earnings) and its food security.

Fishers' access to government programs to enhance food security: A number of fisher families depend on the PDS not only for buying their foodstuffs, but also for other essential ingredients such as kerosene. A major limitation of the PDS is that it meets only 25 percent of the cereal requirement of a family and does not include most of the other basic grains that people are used to be consuming. During the visit to podempeta village in Ganjam, while interaction with one youth member of the family, it was found out that there rice requirement for the entire family is about a quintal per month for a family comprising of 12 members.

**Decreasing access to fish for domestic consumption**: Fish is invariably one of the most important food items consumed by fishers. However, a key finding that emerged during the study is that fishers cannot afford to eat the fish they catch. It is true that the general decline in fish catches has reduced the availability of fish for fishers' own consumption, but the

phenomenal increase in prices of all varieties of fish. For fishers, selling their catch and consuming other sources of protein in their diet has been an economically sound option. The fish species that were traditionally consumed have become so expensive that fishers consume cheaper varieties. Many villagers reported consuming fish less frequently than in the past. For a large number of households – particularly those headed by fishing crew members, or single women, old and physically challenged people, who collected a few fish from fishers for consumption purposes – this has meant a serious loss.

**Seasonality and food insecurity**: Food insecurity in fishing communities is mostly linked to seasonality, although of late it has become increasingly prevalent over the entire year. The monsoon months are considered to be the worst period, when food insecurity and vulnerability are at their highest. Most fishers call these three months, which vary between June and November at different locations, the hunger months. The field level observation indicates that indicate that fishers take out most of their loans during lean periods and spend them entirely on consumption. For many stakeholders who are not producers themselves, but whose dependence on fish is equally important, such as fish processors, carriers, transporters, sellers, boat mechanics and a host of other workers, lean seasons are like real nightmares. Some of these categories are represented by women, some of whom may be single. Given their poor investment capacity and skills for diversification, lean periods bring them unimaginable hardship.

**Shocks and food insecurity**: Food insecurity becomes a manifestation of lack of availability of food at times of natural disasters such as cyclones, which are among the worst periods for deprivation and hunger. Many villagers still have vivid memories of the category 5 cyclone (phalin) which hit the southern coast of Ganjam affecting the entire coast. It took days before assistance reached some of these villages, and all survivors starved during the period. As with seasonality, the impacts of shocks such as cyclones generally strike everyone in a village irrespective of their social and economic position, although their coping mechanisms might differ.

**Table 9: Impact of shocks (Impact of phailin cyclone in Ganjam district 2013)**

| Sector | Boat damaged | | | Engine Damaged | Net Damaged | Approx.Amount of Loss (Rs.in Lakhs) | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Fully | Partially | Total | | | Boat | Engine | Net | Total |
| Marine | 2460 | 944 | 3404 | 2460 | 3404 | 4162 | 1426.8 | 595.7 | 6184.5 |

## Health

**Men, ill health and Alcoholism:** Almost all seagoing males in the Ganjam district tend to drink, which they insist is essential to ward off the effects of hard and often stinking work at sea, as well as the loneliness this kind of work induces. Young men have opportunities to drink from an early age. Many women identify liquor as the cause of the early deaths of fishers, explaining at least partly the prevalence of widows in fishing communities. Although no statistics are available, it is easy to see that the number of widows in these fishing villages is disproportionately large. Alcoholism among men has serious consequences for the food security of the family

The fishing communities in residing in the villages of Ganjam district suffered from poor health. The consumption of alcohol by the fishermen is a part of their daily diet plan. From the field level group discussion and one to one interaction with the fisher folk community validates that on an average they spent around Rs 1200-1500 per month on alcoholic drinks. Sometimes to quench their thrust they borrow from others (moneylenders & relatives) at a monthly interest rate to consume alcohol.

**Literacy:** Fishing communities have historically suffered from very low levels of literacy. However, it appears that the situation is changing for the better. Off late, many people have begun taking an active interest in education and in sending their children to school. One

reason given by fishers was that literacy opens doors for diversifying out of fisheries. Enhanced & access to government schools, which provide incentives such as rice, midday meals, clothing or books.

## Social assets

The class formation and conflicts in fishing communities have deteriorated the relationships in the community and due to that they have failed a project a unified picture in front of the bigger and mightier stakeholders. The fishing communities have a propensity for large families. Another factor contributing to the nuclearization of families is the influence of changing dynamics in the society, particularly due to entertainment and media. The Cultural Revolution in fishing villages has brought about the change in thinking and mindset. Media exposure has altered the priorities, needs and aspirations of the younger generation. This, coupled with the increased awareness and improved literacy, has encouraged a break from the joint family tradition and a reduction in family size. Within small families, there is a marked preference towards shifting children from fishing into other occupations – preferably service-oriented. This arises from recognition of the unsustainability of fishing as a livelihood, as well as from a desire for the upward mobility that white-collar employment is supposed to bestow.

## Availability of and access to financial assets

### Financial Frauds: A threat to Livelihood Security

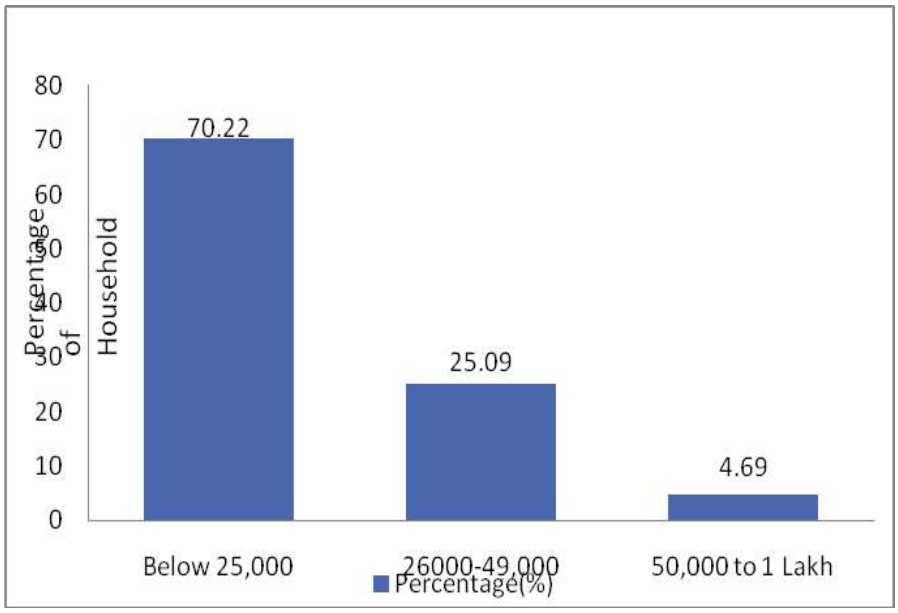
A major fraud in providing post Phalin assistance to fishermen of Ganjam district has came to the fore. The owner of Om Siva Traders, Gopalpur; M sabitri and her husband M damburu did not supply the materials to 77 beneficiaries in the aftermath of 12th october, 2013, phailin, and pocketed the amount. The fraud came into light when the bank sent notices to the beneficiaries to repay the loan after deducting subsidy. The fisheries and animal resources development department identified beneficiaries and forwarded their applications to the bank to sanction the loan. The bank sanctioned loan of Rs 1, 43,835 to each beneficiary. Of the amount, Rs 1 lakh was the subsidy and the beneficiaries were asked to repay the rest to the bank in a year. The department then selected Om Siva traders to give boats and nets to beneficiaries. The couple took Rs 1.11 crore from the bank from January 21 to November 27, 2014. The complaint was lodged against the couple, after some beneficiaries complained that they did not know about sanction of loan was sanctioned to them.

From the field study it was tentatively estimated that 60-65% of the household in almost all fishing villages invested on an average 5000/- in fraudulent companies (chit fund companies, others). To illustrate the above fact from the field experience, I would like to share a real story of Mr. Kashi, who resides in Sana Arjipalli, a village in Ganjam District. He invested 3 lakhs in STOCK GURU, a chit fund company, thinking that he would earn just the double within a year. To finance his investments, he sold a part of his house, borrowed credit at the interest rate 36 % per annum.In his view, almost everybody in the village got allured by the investment policy offered by the company. The company created his base by recruiting the local educated but unemployed village youth as an agent, and paid to him incentives per policy basis. Initially, one of the agents himself invested one lakh and in return he received two lakhs within a year, as per the investment policy of the company. The company even rewarded car to one of the best performing agents. The residents of Sana Arjipalli and Bada Arjipalli made investments with objective to secure a long term dream. But the aspirations of all the villagers are shattered with respect to investments. When the policy holders contacted the agents for claim of money under the policy, the agents had no answers about it and neither the agents knew the whereabouts of the company. The higher officials of the company were found to be absconding. It is validated from the field study that many companies with similar investment policies across all fishing villages were involved in duping the investors. The negative impact of the financial fraud is that the entire fisher folk community especially the small scale fishermen move into the vicious cycle of credit.

## Table 10 : Income and Saving Patterns

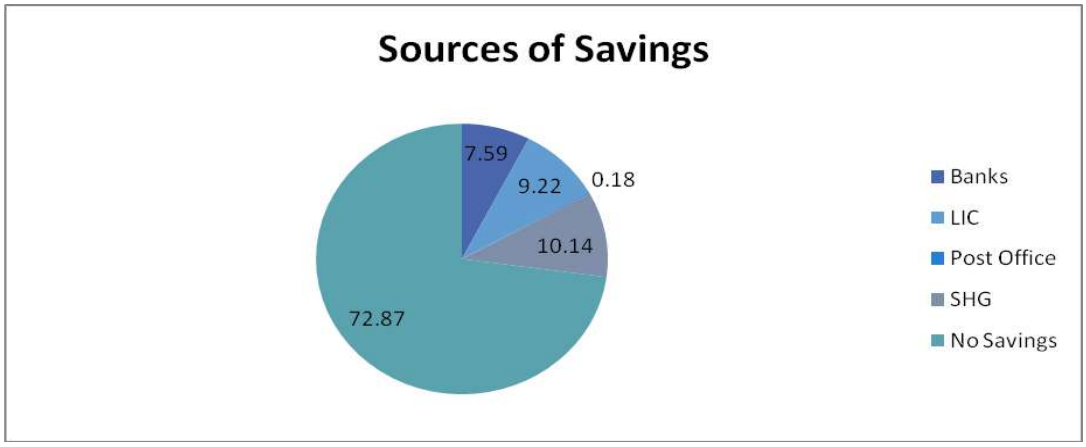
| Average Income of Family in a year | No of families |
|---|---|
| Below 25,000 | 389 |
| 26000-49,000 | 139 |
| 50,000 to 1 Lakh | 26 |
| TOTAL | 554 |

## Figure 6: Income and Saving Patterns




| Average Savings Per Annum | No. of Families |
|---|---|
| **Below 20,000** | 136 |
| **20,000-30,000** | 15 |
| **No Savings** | 403 |

**Figure 7: Source of Savings**




majority of activities in fishing are in the informal sector and with no record of investments, catches and returns over time, so it is difficult to arrive at any consistent quantitative estimates of earnings in the sector but from the focus group discussion and one to one interaction with fishermen and fisherwomen as well as with the other stakeholders at village level, a tentative estimation was drawn on the basis of data collection that fisher (without boat), women carriers and head loaders, cycle vendor, petty sellers and ancillary participants (who provide labour services) are the most vulnerable income groups and the average income of these livelihood groups of people is estimated to be less than Rs.25,000 per year. In the context of saving pattern, it is found that almost 73% of the fisher folk population does not have any saving habit.

# CHAPTER V

# POLICES, PROGRAMS & INSTITUTIONS ANALYSIS

## 5.0 Polices, Programs & Institutions

**Policies**

The Central government policy on fisheries in India is informed by two key policy documents; the Five Year Plans developed by the Planning Commission and the CMFP 2004 developed by the Ministry of Agriculture. The Five Year Plan sets out strategies and objectives and defines various schemes on which these funds are to be spent. In addition to this, the CMFP 2004 was developed as a guiding document to inform the Union and state governments more generally on policy development for the "conservation, management and sustainable utilisation" of India's fisheries resources. The Fisheries policy at the state / union territory level ranges from an absence of any guiding policy, in the case of Gujarat, to the development of a relatively comprehensive policy in the state of Orissa which was developed in partnership with the Union Government and the support of international aid agencies.

| Tenth Five Year Plan | Eleventh Five year plan | CMFP 2004 | Policy elements |
|---|---|---|---|
| To enhance fish production from aquaculture and marine fisheries and in particular to utilize the full potential of the deep sea fisheries to enhance fish consumption<br>Management of coastal fisheries | Enhancing the production of fish from Indian waters, both marine and inland on an environmentally sustainable and socially equitable basis;<br><br>Address the hitherto Unexplored potentials of the Indian fisheries such as island fisheries and non-food fisheries | To augment India's marine fish production up to the sustainable level in a responsible manner so as to boost export of seafood from the country and also increase per capita fish protein intake of the masses | Fish production outcomes: Increased production<br><br>Increased consumption<br><br>Increased exports |

| | | | |
|---|---|---|---|
| Increase fish seed production<br><br>Equity of participation | | | |
| Train fisherwomen<br>Optimal exploitation of the fishery wealth<br><br>Increased investment for infrastructure | Promoting fish as health food and meeting the changing requirements of both domestic and export markets to make the sector globally competitive;<br><br>Increasing profitability of fishers and aqua-farmers through an integrated approach from production to consumption;<br>Strengthening of infrastructure in harvest, post harvest, value addition and marketing and upliftment of fisher and aqua-farmer communities with gainful employment opportunities and capacity strengthening | To ensure socio-economic security of the artisanal fishermen whose livelihood<br>solely depends on this vocation<br><br>To ensure sustainable development of marine fisheries with due concern for ecological integration and<br>biodiversity<br><br>To ensure sustainable development of marine fisheries with due concern for ecological integration&biodiversity | Socio-economic outcomes<br>Social equity<br><br>Socio-economic security<br><br>Increased profitability/ optimal use of fishery resources<br>Infrastructure development |

## 5.1 Comprehensive Marine Fisheries Policy 2004

**The policy document establishes three key objectives:**

Augment marine fish production of India up to the sustainable level in a responsible manner so as to boost export of seafood from the country and also increase per capita fish protein intake of the masses; Ensure socio-economic security of the artisanal fishermen whose livelihood solely depends on this vocation; Ensure sustainable development of marine fisheries with due concern for ecological integrity and biodiversity. The 2004 CMFP consists of ten components which include establishing a "stringent fisheries management system" encompassing an improved regulatory and Monitoring, Control, Surveillance (MCS) systems. The CMFP also proposes a new legal framework to enable various components of the new policy to be implemented. What makes the CMFP significant is that it also identifies a need to reform the legal framework.

## 5.2 Marine fisheries Specific policy developments in the context of Odisha:

- Collection of reliable statistics on marine fisheries and related aspects using standardized methodologies will be given due importance with a view to make a reliable assessment of marine fishery resources and the fishery potential. Due attention will be given for the use of information technology, strengthening of database in marine fisheries, Human Resource Development, etc.

- The guidelines and provisions of the Comprehensive Marine Fisheries Policy (2004) of the Central Government and which advocates protection and conservation of the resources, encouragement of subsistence level fishermen and technology transfer to small-scale sector and infrastructure support to industrial sector, will be adopted

- For reducing fishing pressure in the traditional fishing areas, resource specific fishing in the offshore areas will be promoted, by refurbishing the existing trawlers and by designing and introducing new fuel efficient fishing crafts.

- For protecting the turtle breeding grounds and the fishermen dependent on the fishery resources in the protected areas for their subsistence, the fishers will be encouraged to take up alternate employment and income generating activities through skill up gradation and market tie-ups and the nesting grounds will be demarcated leaving the rest of the coastline in the sanctuary/protected areas to the fishermen for innocent passage and activities.

- It is advocated that the provisions of OMFRA will be strictly enforced and a stringent fishery management system put in place. The restriction of fishing effort in the territorial waters of Odisha will be in the form of restriction in the number of vessels, number of days or hours at sea, engine power, size of the fishing gear and mesh size, prolonged seasonal closure to allow recovery of over-fished species, prevention of

fishing juveniles and spawners during breeding/spawning season and reduction in fishing pressure on over-exploited fishery resources, for which appropriate enforcement measures/mechanisms will be introduced.

- A sound Monitoring, Control and Surveillance system (MCS) including the Vessel Monitoring System (VMS) on the lines of international instruments, will be implemented to check violation of the provisions of OMFRA and intrusion of fishing vessels of the neighboring states/countries into coastal and territorial waters of Odisha. The fishing crafts registered with Odisha Government will be given special identification marks such as colour codes for different fishing crafts, or other signs.

## 5.3 Co-management and Community involvement in fisheries management

a. Co-management is considered the most suitable approach to manage fisheries given that the fishing community has its own management traditions and institutions. It should be seen as a process, whereby through actual practice, a multi-tiered system has to be evolved given the length of the coastline and the different administrative jurisdictions involved. Existing traditional and self organized structures at grass roots level need to be used as "building blocks" for this approach.

b. Recognizing the role of the Government in establishing conditions for co-management in fisheries, legitimacy and accountability for the local organizations and institutional arrangements will be created. The Government will strive to create the necessary enabling environment to promote the establishment of fisheries management institutions at local government and community levels to ensure the effective participation of stakeholders in the fisheries sector; permit communities to engage in fisheries management and development activities; ensure the provision of appropriate support services to fisheries management institutions at village community levels; and train government officials in the principles, practices and benefits of co-management. Capacity building and orientation will be required

at different levels and for different sets of stakeholders. A start could be made by initiating a state level platform along with some pilot projects that will provide learning on structure and functions of co- management.

c. The current 'open access' arrangements which predominate in the fisheries shall be changed to a 'limited access' framework. One of the implications will be that new boats cannot be added to the fleet at will, by anyone, without proper scrutiny. In the end, any limited entry scheme will have to transit over time into a formalized system of fishing rights to Odisha fishers in order to be effective and sustainable.

**Reducing and Controlling Fishing Capacity**

a. The first set of capacity controls need to start with the trawl fleet as it is the most over capitalized part of the sector and having a seriously negative impact on fishing habitat, fish resources, and other fishermen. Trawl fleet reduction could be achieved by formally closing new entry into the trawl fishery and stopping any fleet expansion and/ or moves to increase unit capacity (size, horse-power). With the help of experts, administrators and fishermen representatives, the number of trawlers that can operate in different parts of the coast will be fixed and a package of measures to retire the excess trawl fleet defined. This could include re-deployment of vessels or retirement of vessels or a 'buy-back' scheme. This type of arrangement
will only be successful in the long-run if a formalized system of fishing rights is introduced at the same time.

## Deep Sea Fishing:

- It should be recognized that deep sea resources are not entirely state resources, but also national as well as international resources. Deep sea fishing opportunities certainly exist, but not to the extent that they can be used to address the overcapacity in coastal waters. Deep sea fishing will be promoted in stages after establishing

appropriate technology and scale of operation, ensuring that it is profitable for the operators and the resource available.

**Mari culture as an alternative to Fishing**:

- Alternative or supplementary employment opportunities including Mari culture need to be evaluated carefully and should have a sound management framework before being promoted as a solution to the fisheries management problem in Odisha.

- Introduction of Mari culture shall be backed by an implementable policy and legal framework, reliable R&D efforts from National Fisheries Research Institutes in the areas of controlled production of seed, feed and economy of culture operation and marketability of the products.

**Post-harvest Infrastructure support & marketing:**

Fish Quality and related infrastructure:

- Development of appropriate fish handling, processing, preservation, transportation, distribution and marketing systems will been encouraged both in the inland and marine capture fisheries and aquaculture. Use of low cost energy sources in fish processing, particularly nonconventional energy sources will be considered and promoted. Plant quality control and hygienic conditions in fish processing establishments will be improved and maintained by enforcing the Code for Good Manufacturing Practices. Development of improved fisheries sector infrastructure and equipment, including fishing boats, fish landing sites, fish stores, fish markets, and systems for the transport of fish that contribute to maintaining the quality of harvested fish will be promoted.

- Large capacity ice plants, chilled rooms and stand alone cold storages will be established at strategic locations with irradiation facility as a common facility, with uninterrupted power supply. Ice storage boxes at reservoir sites and Fish Landing

Centers/Jetties along the coast will be promoted where there are no Ice plants. With a view to reducing the number of intermediaries in supply of ice for fish preservation, to maintain its shelf life and marketing of fish cultured in selected viable pisciculture clusters, flake/tubular ice plants of adequate capacity will be promoted for producing quality ice.'

## 5.4 Coastal Regulation Zone Notification and Aquaculture Authority of India Bill

The Coastal Regulation Zone Notification (CRZ Notification) of 1991 seeks to protect the coastal zone – which is demarcated into different sub-zones – from degradation by activities in different sectors. The Aquaculture Authority of India is designated to regulate the proliferation of aquaculture activities in the coastal areas. The bill promotes the production-oriented approaches to support the small-scale post harvest sector. It defines the need for support to the aquaculture and allied industries, which will focus on the development of poor and vulnerable stakeholder groups within the post-harvest fishery sector.

## 5.5 Orissa Marine Fishery Regulation Act

The Orissa Marine Fishing Regulation Act came into force in 1984 (DOF, 1997). The act defines the natural coastal resource as the state property with all the management and usages right defined by the state. It negates the common ownership of the resource by the community and the management rights thereof. The act was formulated mainly to protect the interests of the traditional fishermen, by restricting the fishing operations of the mechanised trawlers to within 5 km from the shore and also prohibits fishing activities of the trawlers from neighbouring states entering into the marine zone of thestate.The act makes mandatory the registration of all the craft operating in the state against the prescribed registration and license fee for different types of vessels. The act gives discretionary power to the government to regulate the fishing operation along the coastline of the state. The state holds the power to

regulate the number and type of vessel, area for fishing, period of fishing, species of fishes and the types of fishing gear permissible for fishing.

The act clearly defines the role and responsibility of the government officials and also empowers them to take action against the violators of the act. The penalties levied upon the offender have been defined but at the same time the act has space for appeal against the charges levied by the officials in the office of the appropriate appealing authority. The act has a special mention of offences by the companies and other corporate bodies to check the exploitation of the resources by them. The act is void of a concrete enforcement plan. For instance, it does not define the human resources required to effectively monitor and control the fishing activity, the sources of fund that would be required to meet the operations, the co-ordination between various government bodies and other agencies

## 5.6 Causes of Poor Policy Performance

**Problems of Open Access:** A basic tenet of the FAO International Code of Conduct is that, States should prevent overfishing and excess fishing capacity and should implement management measures to ensure that fishing effort is commensurate with the productive capacity of the fishery resources and their sustainable utilization. The major policy hurdles in this context are overexploitation, targeted fishing, and common property rights with free and open access, Odisha and India's territorial deep sea waters remain untapped and lack of enforceable property rights regime.

### Policy Implementation Failure

Where fisheries management rules are applied, their implementation is often fragmented and the capacity to implement is weak. In the context of Odisha, the proper implementation of OMFRA is a big question mark. So, the act is void of a concrete enforcement plan. For instance, it does not define the human resources and patrolling boats required to effectively monitor and control the fishing activity, the sources of fund that would be required to meet the operations, the co-ordination between various government bodies and other agencies.

### Policy Coherence

The most recent fisheries policy reflects, growth of fisheries in one end, conservation measures at the other end and also at the same time protecting the rights of small scale fishermen. The policy to allow fishing by foreign vessels in Indian waters has come as a major blow to the traditional fishermen in Odisha who are already affected by the fishing ban for turtle nesting for over three months in a year. Thus, in this context policy coherence seems to be missing the target.

### Fisheries Management Systems

Given the complex policy framework, coherency problems and current low capacity for implementation, there is a strong case for developing a more focused policy framework for fisheries management and use in India. The development of a more effective fisheries management system at the Union- and state-levels offers one means of focusing current policy. The key question to be asked in developing such a system is what should be the objectives of fisheries management and what type of system is best suited to meet these objectives. The reforms proposed in this report offer some possible solutions.

## 5.7 Programs/Schemes for Marine Fishing Communities

### Welfare Schemes for Fishermen

### Accident Insurance:

The life of fishermen is insured for which they do not pay any premium. The government of Odisha and Government of India contribute Rs.14.50 each per annum. In the case of accidental death, the nominee of the deceased gets Rs.1,00,000/-. In case of partially permanent disability the fishermen get Rs.50,000/-.

## Saving-cum-Relief

To inculcate the habit of saving among the fishers during earning period and provide sustenance during lean/ban period the beneficiary, State Government and Central Government contribute equally for the purposes @ Rs.600/- per annum, which is distributed during 3 lean months to the fisher.

## Development of model fisherman village

To provide basic civic amenities like house, drinking water and community hall to eligible fishermen in inland and marine sector, Rs.50,000/- is provided for each house.

One Tube Well @ Rs.30,000/- per 20 houses and one Community Hall @ Rs.1,75,000/- for 75 houses are also provided.

## Fishermen Development Rebate on H.S.D. Oil

The aim is to provide rebate to mechanized fishing boats below 20 meters length on consumption of HSD oil for fishing. Rebate will be equivalent to 50% of Sales Tax relief granted by the States with Central subsidy limited to Rs.3.00 per liter of HSD oil with ceiling of 500 liters per month per boat. This is mainly to reduce the fishing operational cost for marine mechanized / motorized vessel operators. The diesel is to be purchased from Government approved private / Cooperative / Corporation diesel outlets.

## Marine Fishing Regulation Act

The Odisha Marine Fisheries Regulation Act is being implemented in the State to safeguard the territorial waters of the State. Registration, renewal and licensing of fishing crafts along with conservation of turtle species are being taken up.

## Development of Marine Fisheries Infrastructure and Post Harvest Operation

### (a) Introduction of Intermediary Craft and Improved design

The Intermediate craft in improved design fising vessels in the length range of about 18 mtrs. is proposed to be implemented through NCDC and members of targeted cooperatives will be eligible for the assistance.

### (b) Safety of Fishermen at Sea

Installation of one Global Positioning System (GPS) and wireless set on the registered small mechanized fishing vessels of below 20 mtrs. Length overall, is being implemented through National Cooperative Development Corporation (NCDC) - a Government of India Enterprise.

### (c) Development of Post Harvest Infrastructure

Developing fish preservation, storage and marketing infrastructure such as retail vending Kiosks is necessary in the state for improved marketing through cooperatives. The apex body namely FISHFED will be an implementing agency and has taken initiatives to acquire land in the State capital for operating retail vending Kiosks.

### (d) Establishment of Fishing Harbour and Fish Landing Centre:

The scheme aims for providing infrastructure facilities for safe landing, berthing and unloading of fish, catches of fishing vessels, repair and renovation of this existing fishing harbour and fish landing centre.

### Installation of Potential Fishing Zone Board (PFZ) / ICT

KIOSKS : 10 PFZ Boards which were installed under UNDP assistance are being replaced by Advance version of PFZ Boards at free of cost by INCOIS. Marine Fishermen are informed about location and availability of fish in the sea through satellite data.

## Emplacement of Artificial Reef

Artificial Reef has been installed at Puri and Chandrabhaga coast under RKVY assistance through National Institute of Ocean Technology (NIOT), Chennai. The artificial reef helps in congregation of fishes at a particular area, thereby facilitating the sea-going fishers to catch more fish by hook and line.

**For coastal security, Bio-Metric Identity Cards are provided to the Fishers.**

Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS): Multipurpose farm pond of 0.20 ha. WSA is excavated at the land of BPL/ Small / Marginal / SC & ST families for economic upliftment with 100% Grant. Matshya Credit Card has been introduced for MGNREGS beneficiaries to assist the farmers in getting input loan with 50% subsidy from RKVY.

**National Mission for Protein Supplement (NMPS):**

Excavation of new tank with input is encouraged under NMPS for excavation of one ha. tank minimum with project cost of Rs.4.00/ha. 40% subsidy of project cost is given to all category. Fish yield should be minimum 5.00 ton/ha.

Cage culture in reservoirs is encouraged for maximum productivity with 10% subsidy to the organized primary fishermen co-operatives.

**Matsyajibi Unnayana Yojana (MUY)**

Odisha is one of the important aquaculture and maritime States of India having excellent scope for development of Inland, Marine and Brackish water fisheries. It's coastline stretches around 480 kms having vast scope for development of marine fisheries in Indian peninsula. Odisha is endowed with a wide range of water resources with adequate rainfall and suitable climate for agriculture. Nearly 70 % people of Odisha depend on agriculture and allied products for their livelihood. So development of pisciculture holds the key role, as part of the

total development in the state especially small farmers and farmers below poverty line. Fishermen living along the coast also depend on the sea for their livelihood.

A number of programmes and welfare schemes are in operation in the State for social upliftment of the fishers. A special welfare package for the fishers of Odisha named Matsyajibi Unnayana Yojana (MUY) consisting of 14 components has been declared by Shri Naveen Patnaik, Hon'ble Chief Minister of Odisha on 9.12.2011. Five components are funded by RKVY and other Departments are collaborated in some schemes. The components are given here:

- **Special PDS for Fishermen affected by Olive Ridley Conservation :**

  For the turtle conservation fishing ban is imposed for 7 months a year in 20 Kms Sea ward radius (from November to May) at 120 kms state coast. As evident, the most congenial season if sea fishing was barred to fishermen adversely affecting the livelihood of the concerned fishers. The objective is to provide financial relief through supply of food grain to the affected non BPL fishermen under PDS system @ Rs.2/- per kg. A separate ration card will be issued to the affected fishers for the purpose.

- **Replacement of Wooden Country Craft with FRP Boat** :

  In Odisha coast around 7000nos of wooden country craft are now engaged in sea fishing. The longevity of these country crafts is low and is vulnerable to wave action of the sea and comparatively heavier than FRP ones. The maintenance of wooden country craft is also high. Back ended subsidy of 50% limited to Rs.50,000,00 will be provided. The scheme is operated under RKVY. Beneficiaries interested to procure new FRP boat at their own cost will be also eligible for subsidy after recommendation of Subsidy Committee.

- **Motorization of Country Craft:** To increase the fishing efficiency and to get better price of the days catch the traditional crafts can be motorized by installation of Outboard moter (OBM). The boats registered under OMFR Act can be

motorized under the scheme. Back ended Subsidy of 50% limited to Rs.30, 000, 00 will be provided after successful installation.

- **Assistance for Fish marketing Infrastructure for Fishermen**: The scheme aims at business up-gradation of the fishermen engaged in fish marketing covering all the marine, inland and Chilika fishermen. The scheme is funded by RKVY.Each individual fisherman will be assisted to purchase a cycle with ice box or Motorcycle with Ice box as per their requirement through bank finance while the Auto rickshaw with ice box will only be provided to the Fisherman/woman SHGs engaged in fish marketing/ Pisciculture etc. or Fishermen Co– operatives. The subsidy assistance is as follows:
  - Cycle with ice box – 50% of the cost limited to Rs.2000.00
  - Motor Cycle with ice box – 25 % of the cost limited to Rs.7500.00
  - Auto rickshaw with ice box – 25 % of the cost limited to Rs.35000.00
- **Group Accident Insurance Scheme for Fishermen (GAIS) :**

  Fishing being a highly risky occupation, this is a very useful scheme under which fishermen are insured annually. The insurance premium being sponsored by the central and state government in case of accidental death or permanent total disability the nominee gets Rs.100,000/- and in case of partial permanent disability the claimant gets Rs.50,000/-. This is being implemented under CSP scheme.

  House Sites for Fishermen under "VASUNDHARA"This scheme is meant to provide homestead land measuring 0.04 dec homestead to the landless fishermen. The scheme is in operation by the Revenue & Disaster Management Department.
- **"Mo Kudia" Scheme for Fishermen :**

  Poor fishermen not coming under BPL category but are otherwise genuine poor and having no pucca houses, are to be selected in consultation with the local PRI members field functionary of the concerned block dealing "Mo Kudia" scheme.
- **Netrajyoti Scheme for Fishermen :**

  The fishermen are always exposed to adverse environmental conditions while catching fish from the sea, river, reservoirs and wild source which leads frequent ophthalmic disorder. To overcome the situation, it is proposed to provide financial

assistance to BPL fishermen for ophthalmic complaints, cataract operation and supplying spectacles free of cost to deserving persons.The fishermen should have BPL card issued by competent authority. Financial assistance of Rs.5000/- will be provided to the selected fishermen.

- **Financial Assistance to Fishermen for Fatal Disease :**

  Due to poor financial condition, imbalanced diet and lack of literacy the fishermen do not avail health check up at the early stage, which at times leads to fatal diseases like heart problem, malfunctioning of kidney, brain tumour, cancer, paralysis and mental disorder. Matsyajibi Unnayana Yojana provides financial assistance to the deserving BPL fishermen for above mentioned fatal diseases. The Health and FW Department is implementing the Odisha State Treatment Fund (OSTF) for providing financial assistance to BPL card holders suffering from major life threatening diseases, which includes the beneficiaries of "Financial assistance for Fatal Diseases" under MUY. Financial assistance up to Rs.3.00 lakh will be given to the affected fishermen through OSTF.

- **Award of Scholarship to Meritorious Children of the Fishermen Community :**

  To generate interest among the children of the fishermen community cash award incentive to the pass outs of HSC examination will be provided for higher education after admission into the course.

- **Financial Assistance to Fisher Women SHGs:** Now the Fisher Women SHGs availing Rs.5000.00 as revolving fund from the Women and Child Development Department is not sufficient to carry out their business. So it is proposed to provide additional fund Rs.5000.00 to them to carry out the activity smoothly. The field functionaries will assess the actual requirement of quantum of revolving fund which would be limited to Rs.10000.00.The revolving fund will be granted once to the particular SHG. Women and Child Development Department will provide Rs.5000.00 and then the department will contribute Rs.5000.00 for the purpose.
- **Sea Weed Culture:** The marine fishers are adversely affected due to fishing ban applicable to the state coast. The sea weed culture if taken up will provide an

alternate source of livelihood. The project will be implemented on the pilot basis with 100% financial assistance of Rs.10 lakh under RKVY.

**To sum it up in the context of the policies and programs of government of Odisha:**

The draft fisheries policy aimed at bridging the gap between the demand and supply of fish for domestic consumption, encouraging public private partnership (PPP) investment in fisheries sector and tapping the untapped potential of aquaculture to ensure food and nutritional security. The policy objectives also include up gradation of infrastructure facilities in the fisheries sector, up gradation of overall quality of fish, enhancing productivity and production of fish and expanding export markets for high value products.

The policy has envisioned a balanced approach to fisheries management based on sound ecological, economic and precautionary principles to ensure that the fish population remains viable, productive and accessible to future generations. It has also stressed on efficient value chain and an organized an secure marketing for fish and fishery products so as to protect the producers' and consumers' interest and augment marine products exports and foreign exchange earnings of Odisha. The key areas of comprehensive marine fisheries policy include harvest and post harvest infrastructure and market support, socio-economic aspects of the fisheries and related issues

The policy has identified key opportunities in the fisheries sector such as up gradation of fish harbours, utilization of technologies for minimizing adverse environmental impact and creation og alternative livelihood for the fishermen community. The policy aims to offer fiscal incentives. The policy seeks to declare aquaculture as an agricultural activity for enabling easy flow of credit/institutional finance to make fish processing in Odisha more lucrative and competitive in the export and domestic markets, the duties, taxes and other levies such as cess on export of fish and fisheries products, on packaging material and machinery will be rationalized.

## 5.8 Institutional Framework and Analysis

Article 246 of the Constitution of India makes fisheries a subject for the State List. This means that all laws and regulations related to fishing, fish marketing, fishers' welfare, etc, have to be framed by the state legislatures. As FAO (2000) notes, the involvement of the Union Government on issues related to fisheries management. Also, fish production from the EEZ, major fishing harbors, fishing vessel industry, seafood export trade, and marine and inland research and training are on the Union List in the Seventh Schedule of the Constitution (Mathew, 2003).

*Under existing law, the maritime states of India control the seas up to 22 kilometers (12 nautical miles) from the shore, while the GOI has control over the EEZ from 22 km to the 370 km (200 nautical mile) limit. Within states, a range of zones and boundaries may exist but mainly on paper. The GOI sees the entire area beyond 22 km as an under-exploited zone. For administration purposes, it is generally assumed by authorities that all boats registered (or unregistered) in the states (especially smaller vessels) do not fish beyond 22 km. Yet, there is considerable fishing beyond 22 km by smaller motorised vessels supposedly operating within state jurisdiction. At the same time, larger mechanised trawlers that should be fishing outside the 22 km zone often cross into the zone closer to the shore to fish in competition with smaller boats*.

### Agencies Dealing with the Marine Fisheries Sector

Mathew (2003) provides a description of the main government departments and Ministries dealing with various aspects of fisheries At the central government level, marine fishing falls under the purview of the Department of Animal Husbandry, Dairying and Fisheries (DAHDF) which is part of the Ministry of Agriculture, Government of India. The fisheries division within the DAHDF implements and monitors the central sector schemes and centrally sponsored schemes delivered through the state governments. The division is the focal point for fisheries policy, strategy, management and development (Yadava 2008). On paper, the DAHDF is responsible for fisheries management in the Indian EEZ outside of the 22 km

territorial boundary. In the past, this has focused mainly on foreign fishing vessels and is covered by a number of Acts and regulations. National Fisheries Development Board (NFDB)is an autonomous body under the administrative control of the DAHDF and inaugurated in September 2006. The board's objectives include the following three particularly challenging ones of a) coordinating activities pertaining to fisheries undertaken by different Ministries/Departments in central and state/union governments; improving production, processing, storage, transport and marketing; and c) achieving sustainable management and conservation of natural aquatic resources including the fish stocks.

## Table 11: Public institutional matrix – Indian marine fisheries

| Ministry/Department | Responsibilities |
|---|---|
| **At the national-(Union) level** | |
| Ministry of Agriculture (Department of Animal Husbandry, Dairying and Fisheries), along with national fisheries research institution | • Fisheries in the EEZ, infrastructure, survey and assessment of fishery resources,<br>• research, training and extension; distribute subsidies:<br>• Motorization of traditional craft and purchasing fishing gear<br>• Reimbursement of Excise Duty on High Speed Diesel (HSD) oil<br>• Fishing harbor facilities at major and minor ports |
| Ministry of Agriculture (Department of Animal Husbandry, Dairying and Fisheries), along with national fisheries research institution | • Renovation/construction of fish farms<br>• Establishment of shrimp seed hatchery of 2-5 million capacity<br>• Development of Fishing Villages (DFV) program provides basic civic |

| | |
|---|---|
| | amenities<br>• such as housing, drinking water and community halls<br>• Relief programs to fishers during the lean period<br>• Accident insurance for fishers |
| Ministry of Shipping | Fishing vessel industry and fishing harbors (Union List); minor fishing ports (Concurrent List) |
| Coast Guard (under the Ministry of Defense) | Regulation of fishing by foreign vessels, prevention of marine pollution from ships and protection of endangered marine species |
| Ministry of Food Processing Industries<br><br>Marine Products Export Development Authority, MPEDA (Ministry of Commerce and Industry) | Fish processing<br><br>Increasing exports, specifying standards, processing, marketing, extension and training in various aspects of the industry MPEDA (2001 |
| Ministry of Environment and Forests | Protection of wild animals and forests and marine biodiversity (Concurrent List); Coastal habitat protection issues |
| Ministry of Earth sciences | Monitoring ocean pollution, identifying potential fishing zones |
| Department of Ocean Development, Ministry of Earth Sciences | Implementation of 1982 UN Convention on the Law of the Sea |

| | |
|---|---|
| Ministry of Water Resources | Monitoring ocean pollution, identifying potential fishing zones |
| Ministry of Tourism | Erosion-related issues |
| **At the state level** | |
| Department of Fisheries | All fisheries and mariculture activities in the state |
| Department of Forests | Protection of wild animals and forests and marine biodiversity (Concurrent List |
| Department of Ports | Minor fishing harbors (Concurrent List) |

*Source:Mathew (2003), Yadava (2008).*

## Key State Government Organizations: Roles & Responsibilities

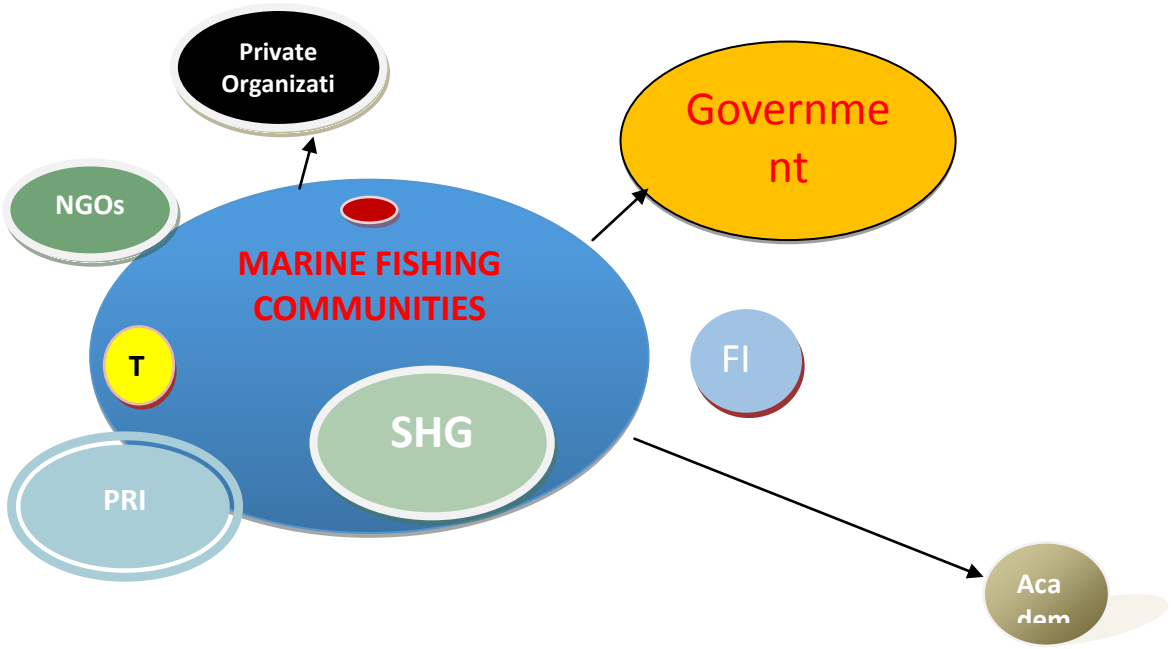
The State Departments of Fisheries (DOF) are the nodal agencies responsible for formulation of policy, development and management programs and their implementation. The DOF is tasked with providing direct support for increasing supply from both capture and culture fisheries. It has a mandate to monitor and promote improved management of the resources, and subject to resource constraints, actively promotes the involvement of small-scale and poorer participants in the sector. They face many constraints to effectively cope with the emerging management trends and issues such as open access, overcapacity and stagnant or declining catches, increasing conflict, coastal pollution, etc. Typically, department staff implement social welfare schemes for the fishing community (insurance, diesel subsidies, etc); maintain records of fishing operations; implement various fishing regulations (governing where vessels of certain categories can fish, enforcing periodic fishing bans, monitoring gear use, etc); oversee construction of fishing harbors and set up marketing and processing infrastructure (encouraging even higher production); provide technical support, training and extension where possible; support fishing cooperatives; and compile fisheries statistics (Department of Fisheries-Andhra Pradesh, 1998). *Most states do not have working patrol boats, vehicles, or other equipment required to support effective fisheries regulation, including monitoring, enforcement and control.*

Fisheries research is undertaken by both the central government and the individual state governments. The central government research institutions generally fall under the control of the Indian Council of Agricultural Research (ICAR), which is affiliated with the Department of Agricultural Research and Education (DARE).Fisheries research in the states is done by agricultural universities and their colleges of fisheries. ICAR coordinates the activities of six major research centers, covering inland fishing, aquaculture, education and technology. The Central Marine Fisheries Research Institute (CMFRI) in Kochi, Kerala is directly supporting marine fishing in India. Another fisheries research organization, the Central Institute of Fisheries Education (CIFE) in Mumbai, undertakes education and research in fisheries. The Central Institute of Fisheries Technology (CIFT), also in Kochi, carries out research in fishing technology, craft and gear, processing and preservation; it also helps in quality control certification for export of seafood. The Fishery Survey of India (FSI), headquartered in Mumbai has a mandate for national fish-stock assessments. A significant level of research is carried out and practical information is provided both to the state and central policy makers, and private stakeholders ranging from small scale fishers to large trawler operators. Notification to fishermen on Potential Fishing Zones (PFZ) in collaboration with the Indian National Centre for Ocean Information Services (INCOIS), Hyderabad, under the National Remote Sensing Agency, is based on remote sensing data from satellite imagery. Training is provided by the Central Institute of Fisheries, Nautical Engineering and Training (CIFNET).

**Trade Associations**

The Seafood Exporters Association of India (SEAI) is the representative body of seafood exporters. It takes an active part, in conjunction with the MPEDA, in conducting the International Seafood Fairs in India, besides participating in various international fairs and exhibitions. The main bodies involved in training and capacity building at the field level are the state Departments of Fisheries, which frequently offer courses in new technologies or ancillary activities for supporting fishing effort (such as gear and engine repairing), and post-harvest issues such as processing, quality control and fish handling.

## 5.9 Institutional Analysis through Institutional Diagram:




In the context of production and productivity constraints that relate to the pre-harvest and post harvest fisheries Infrastructure and management constraints, the total fishing effort should not exceed the maximum sustainable yield. The alternative livelihood options must be developed and sufficient revenue must be derived from marine capture fisheries through market linkage. So, in the above context to remove the constraint the fisheries department as an institution has to strengthen monitoring and surveillance mechanisms. The role of NGOs would be to educate the fisher folk about livelihood entitlements' and improve interaction with DOF (Department of Fisheries). The government and its department have to manage the infrastructure and design subsidies to build capacity.

In the context of Ganjam district, for sustainable development of fisheries institutional linkages need to be strengthened. The institutional focus should be on optimization of fishing fleet, including exploitation of deep sea resources; development of pre-harvest and post harvest infrastructure and markets; enhancement of skills and capacities of stakeholders; institutional and policy support for sustainable fisheries and livelihood. Among the three focus areas the enhancement of skills and capacities of the stakeholders and co-management

are the two most important priority areas. On field interactions with the fishing community and their organizations reveals that skills training is a priority area. The areas of skills training are value addition of marine based products; sea safety measures; deep sea fishing and use of gear; and alternative livelihood options. The study emphasized the need for co-management, with responsibility of resource management being shared between the government and various user groups. This type of arrangement would limit government cost to surveillance and community effort can be tapped as well. In a nut shell, the findings from the institutional analysis are as follows the failure of government-managed cooperative societies and weak community based organisations. In the context of the community institutions, the traditional governance systems (caste/kinship-based, with geographical origin also being important in case of migrant/settler communities). Some of traditional management systems are still in place to provide fisheries governance at the local level, although these are being eroded by changes in society culture and the macro-economic policies of governments.In most of the villages it is observed that the people organisations are in a dormant stage and there is no member centrality, cohesiveness and allegiance. Though in paper, it is working but operationally it hardly fulfils any function. The convergence factor between government line department, NGOs and people's organisation and the synergy effect which is expected to be generated by interaction of these institutions is lacking up to a large extent, which is further aggravated by the lack of consultative, people cantered, livelihood based approach by the state government. Though the contribution of international development agencies in development of Odisha has been immense but fisheries sector has been given low priority by the agencies. In the context of the above analysis the proposed institutional linkage would solve the problem up to a great extent for the people and producer based organisations

## Table 12: Proposed Institutional Linkages

| AGENCY | KIND OF INTERVENTION |
|---|---|
| International Funding organizations, State Government | Grant for establishing producer organizations(including infrastructure and professional support) |
| Odisha Marine Resource Council, Central marine and Fisheries Research Institute (CMFRI) | Technical support on Sustainable Fishing with Marine bio-diversity conservation |
| National Fish Workers Forum | Guidance on Coastal Management and Enhancement of fish workers right |
| Central institute of fisheries Education and Odisha University of Agriculture and Technology | Training on preparing value added products. |

**SAMUDRAM EXPERIENCE**

*The Ganjam district is dominated by the Telugu speaking community. While they speak Telugu, they are as rooted in Odisha as any other Odiya community. They also suffered from widespread illiteracy, unhealthy living conditions, child marriages, hard labour, poor earnings, exploitation by traders, and women bearing the brunt of hardship. One of these women, Chitiamma came to Kotturu village in Ganjam as the young wife of a fisherman in 1981. As a class three dropout, Chitiamma hoped that her children would have a better future. But she was devastated at the uninhabitable living conditions of the village and took it upon herself to lead from the front. As far back as 1965, groups of young volunteers in Ganjam district had raised funds through cultural programs and had come together under a collective called the United Artists' Association (UAA). The funds generated were used for emergency relief during calamities and forestablishing educational institutions. By the 1980s, UAA had led several programmes to empowering the disadvantaged sections of Odisha.A chance encounter led UAA to Kotturu village when Chitiamma was leading local women against illegal liquor brewing units in the village. UAA suggested that Chitiamma organize the women and the Kali Amma Nari Shakti Sangh was formed. Chitiamma led the Sangh to its first success when the local government intervened to stop illegal liquor brewing in Kotturu. The Sangh now focused its attention on other issues. They realized that they were constantly*

*borrowing money for fishing, health, festivals and even food. They could not rely on their men folk since they squandered their earnings on alcohol*

*Therefore Chitiamma led the Sangh to increase the habit of thrift to lessen their dependence on money lenders. In 1992, UAA had helped form the Orissa Traditional Fish Workers Union (OTFWU) to safeguard the artisanal fishing livelihoods. Overtime, UAA came to recognize the symbiotic relationship between men and women in building resilience into fishing households in Odisha. Hence, UAA united with Chitiamma to create a State Level Federation of Women Fish Workers' Organizations in 1993. Christened Samudram, the federation was registered under the Societies Registration Act in 1995. Samudram thus embarked on a journey to empower traditional marine women.Nature of Samudram's Intervention: An assessment of the Odiya marine fishing community revealed that their traditional practices and marketing operations required upgrading. Samudram, assisted by UAA, decided to reform this through: women owned community enterprise, value added products, increased bargaining power, improving local fish stocks and links to regional and international markets through fair trade practices. The central idea continued to be women's empowerment so as to catalyse the development of the fishing communities in Odisha.*

***A Business Enterprise Collectively owned by Fisherwomen***

*It is important to understand Samudram's organizational structure before exploring its intervention in the fish value chain. The basic units of Samudram are the SHGs at the village level, which are federated as 'Nari Shakti Sangha' (NSS). An NSS typically consists of the presidents and secretaries of all SHGs functional in a particular fishing village. Membership in each NSS varies from 10 to 20. These NSSs are federated at the regional level to form District Level Federations (DLFs) in each of the four districts of operation. Generally, each SHG member deposits Rs 20-50 per month in SHG account during the monthly meeting. A sum of Rs 50 from each SHG is deposited into*

*the account of NSS annually. Similarly, each NSS deposits Rs 50 per year to the District Level Federation. Besides this, all SHG members depositindividual shares of Rs 100 in the DLF account. The amount saved in the DLF account is used to meet the overhead expenditures of business operations. The leaders at each tier of the federation are elected democratically.*

***Introduction of Fair Trade Practices during Procurement***

*The first challenge for Samudram was to eliminate the influence of exploitative middlemen during procurement at the landing centres Hence, the federation recruited trade supervisors termed as Purchase Agents (PAs) to purchase fish directly from the fisher. The purchase is done at the landing point through the conventional auction. However, the PA weighed the fish as opposed to mere visual estimation by local middlemen-traders. The PA then announced a competitive bid price based on the daily market data. The introduction of Samudram's purchase agent in the marine fishing value chain gave bargaining power to the fisher. Weighing and bidding at market rates were soon established as the norm.*

***Access to Market Information***

*Earlier, fishers sold to the middlemen-traders at whatever price was quoted since they did not have access to the daily market rates. Samudram tackled this information asymmetry by a systematic method for quoting competitive prices. The federation recruited a marketing manager who was provided timely information about current prices for various fish varieties in local markets. The trade supervisor then added overhead costs to determine the fair price for the product. Thus, fishers got the fair value for their products through information provided by Samudram's marketing manager.The quoted prices for different fish varieties were listed at the procurement centre, forcing traders to quote similar or greater prices for the produce. This brought in a dramatic improvement in the terms of trade for the fisher-folk.*

### *Access to Storage and Packaging Facilities*

*Prior to Samudram's intervention, fishers resorted to distress sales regularly for fear of fish turning putrid. But Samudram has set up procurement centres (owned and managed by women) equipped with freezers and facilities for cleaning and packaging the fish before being sold to the traders. The procured fish is transported in bamboo baskets with sal leaves or thermocol boxes depending on the time/distance for which fish have to be insulated Samudram has enabled the community to avoid immediate sales at low prices*

### *Processing and Marketing of Value-added Fish Products*

*Based on UAA's inputs, Samudram categorized fish products into four value slabs— export, high value, average value and low value products. Almost 70 per cent of the total marine catch in Odisha consists of low value fish which fetch a low market price. Hence, Samudram assisted its members in making value-added products from these fish. With technical inputs for fish processing from various agencies, members have started production of fish pickles, fried fish snacks and fish papad.*

# CHAPTER VI

# KEY ISSUES AND RECOMMENDATIONS

## 6.1 Key Issues of out poverty and vulnerability arising from livelihood analysis

- High dependence on open-access or common property resources (CPRs). The household depends mainly upon open-access or CPRs. The open access nature of resources resulted in too many fishermen chasing too few fish, and consequently wide fluctuations in supply. Thus lack of steadiness in supply and a high degree of perishability makes development of standards and perfect market very difficult. The health of the ecosystem needs to be taken care off, for the sustainability of the sector.

- **Poor asset base**. The ownership of assets gives fishers the right to determine how to make use of them and guard against vulnerabilities. Lack of a boat and other necessary fishing gear could effectively mean lack of access to fishing grounds, despite the open-access nature of the area. Lack of investment in modernizing traditional systems or competition from more advanced technologies could lead to the loss of assurance of tenure. Wage- or share-earning fish workers in production, fish processing and trade-related activities and owners of non-motorized fishing craft suffer the effects of a poor asset base.
- **Ownership of homestead land:** Unclear terms of ownership, or a complete lack of ownership of homestead land characterizes the poor. The poor live on the beaches or other less preferred areas and do not own the land. When the houses are washed away in a cyclone or a flood, the house owners are not eligible to receive compensation. Lack of ownership also means that the poor can be evicted from their place of residence whenever the Government decides to change land use.
- **Volatility in income:** Crew shares and profits from fish trade suffer from low and fluctuating incomes that are barely sufficient to meet subsistence needs year round.

This is reflected in poor savings among artisanal fishers, whose erratic incomes also create a mindset that is not conducive to saving.

- **Vicious cycle of credit:** A boat owner indebted to a trader is vulnerable, because he is often forced to sell his catch at the rate demanded by the trader. An important indicator of poverty is the source of credit. Fishers whose only source of loans is friends, neighbours and relatives are not sufficiently creditworthy in terms of assets or income to obtain loans from professional moneylenders and fish traders. Having an individual bank account is a sure sign of affluence, although not having an account is not necessarily a sign of poverty.
- **Low Investment and inadequate savings:** Those who lack the capacity to invest continue with simple labour-oriented methods despite the existence of more efficient means of production and processing. This is also reflected in the fisher's inability to undertake repairs/maintenance to productive assets, leaving boats or equipment lying idle on the beaches or in the village for extended periods. Using inappropriate or improper means of fish handling and processing methods in spite of the existence of alternatives is also a direct outcome of a low capacity to invest.

- **Unemployment& Unsustainability:** Fishing activities are affected by seasonal lows. The seasonal mortgaging of productive or fixed assets such as houses to meet subsistence needs is an indicator of the intensity of the impact of seasonal unemployment. Seasonal deprivation is an important indicator. This is reflected in poor intake of food, poor health care, increased alcoholism, gambling and fights among men, dependence on credit at exorbitant rates of interest and reduced attention to vulnerable sectors such as children and the elderly. The number of boats lying idle on the beach is also an indicator of seasonal unemployment.
- **Uncertain livelihoods:** Fishing is characterized by long and difficult physical labour, uncertainty of catch, high risk (vulnerability to disasters) and lack of insurance. All active seafaring fishers (owners of non-motorized artisanal craft and all wage/share earning crew members) are subject to these characteristics. Other occupational groups affected by uncertain livelihoods include fish processors and petty traders, who have

to compete with larger traders for the landed fish, spend extended periods in unhygienic and unhealthy processing areas, brave unpredictable weather and market conditions, and face frequent risks associated with losses.

- **Social & Class conflicts**: The traditional customs and traditions in a way come in conflict with the modern technology and thus impede the development of the fisherman. The class conflicts between the various communities (Oriya – Bengali – Telgu) prevent them from uniting and presenting a united front before their exploiters
- **Migration:** Migration or diversification of occupations on a seasonal or regular basis to meet basic subsistence needs is another coping mechanism. In entering traditional manual occupations, fishers often have to contend with competition from the existing work force. Seasonal migration of men (and sometimes women) often leaves the children and old people left behind more vulnerable. Living conditions at the new sites are often pathetic and indicate that migration was undertaken out of necessity rather than opportunity. People suffer frequently from injuries or health problems as a result of their involvement in activities in which they are not skilled. Migrant workers also have to contend with partial payment (or sometimes non-payment) of wages.

- **Burden on women:** In households headed by single women, women's earnings through manual wage labour meet the family's needs regularly or seasonally. Single-woman-headed families are among the most burdened families in fishing villages. Their access to fish declines because of competition and low investment capacity. This is particularly so during lean periods. In many cases, even when a man is the titular head of the household, women are the de facto managers of the household economy, because they contribute more to the family pot, or at least more consistently throughout the year.

- **Inadequate safety nets:** Children, old people and widows often lack adequate safety nets. Old people and widows that live on their own, with or without dependents, but with no assured sources of income, are poor. Also categorized as poor are families of

fishers killed at sea, or those who lost members during a cyclone but failed to obtain any rehabilitation support.

- **Cooking in the open:** Lack of space inside the house forces many people to cook inthe open or under the awning of the hut during the rainy season.
- **Firewood for cooking:** The quality of fuel used for cooking indicates the economic level of a family. In the villages surveyed, most of the household use firewood as means for cooking
- **Lack of amenities:** Poor access private or public latrines, transport systems, community halls and cyclone shelters applies to all households in several villages in Odisha, irrespective of the social and economic status of a family. In some of the villages the cyclone shelters are in a dilapidated condition and these shelters have become more of a threat than cyclone itself.
- **Poor availability of water:** Access to water in terms of source, quality and distance indicates poverty. Poor people get water from open sources (rivers, ponds, open wells) or community bore wells or through conditional access to private bore wells. Travelling long distances for water is characteristic of many fishing households.
- **Large family size:** Large families, including households with at least two couples, which have a low proportion of earning members to dependents, fall in the poor category.
- **Low literacy:** Poor families are usually unable to send their children to schools, either because they cannot afford it, or because of their dependence on children's earnings.
- **Food insecurity:** The prevalence of diseases is an indicator of food insecurity. This is caused by the poor quality of food consumed, a low diversity of foodstuffs, seasonal deprivation and hunger, dependence on subsidized food supplies, disproportionately high expenditures on food needs (as a fraction of income), and procurement of food on a daily basis.

- **Poor health and health care:** A family's economic health can be damaged by the chronic ill health of the main wage earner, disproportionately high expenditures on

health care for the family, and poor access to affordable and effective health care. The presence of habitual drunkards or gamblers in the family represents a drain on the family's resources.

- **Inaccessibility of institutional support:** Families unable to access development support because of high transaction costs, and those that have not received any benefits from government or other development institutions constitute this category.

- **Marginalization:** Marginalization occurs among people whose traditional livelihoods are threatened by competition from more efficient systems of production and trade. Traditional boat owners and processing systems, basket traders, salt makers, net weavers and menders, and fish cutters are the vulnerable population in this category.

- **Asymmetry of Information:** Information gap on price and market has reduced the bargaining power of the fisherman. The fisher folk have to completely depend on the middleman to fix the price of the catch and hence have to compromise on the income aspect.
- **Inadequate infrastructure:** In Ganjam district, the lack of adequate infrastructure like cold storage, weighing facility, etc. at the village landing center has forced the phenomenon of "distress selling'. This has been one of the crucial factors limiting the profitability of the fisherman.
- **Low pricing:** The low pricing of the catch is prevalent in both the districts. The consortiums of middlemen through their respective auctioneers deliberately play with the existing prices thus reducing the price of the catch.

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- **Government policy, rules and regulation:** Inefficient execution and implementation of government policies and programs, in a way has delayed the development of the fishermen. The wasteful use of the resources on the part of the government has been a limiting factor in the development of the fishermen.

## 6.2 Recommendations

The key recommendations in this section include

### Production/Sustainable Use

For maintaining the sustainability and health of the Ecosystem:

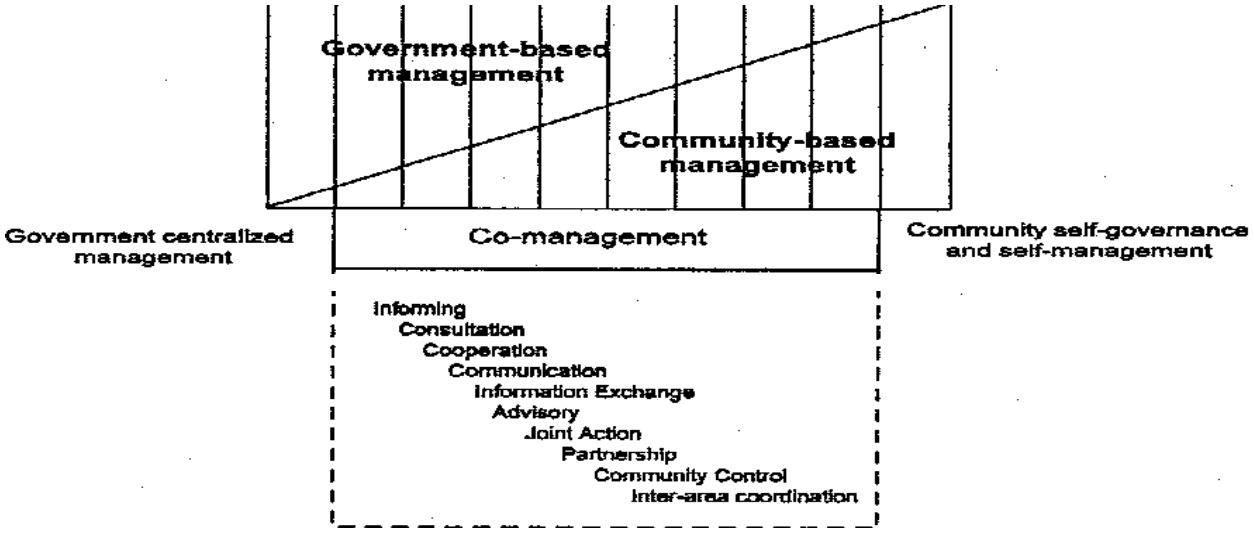
- **Clearly defined property rights over all basic resources:** The property rights over basic resources have to be clearly defined. In this context, the successful models in dairy and poultry has to be replicated in fisheries. In case of the above mentioned sub-sector the production, process and marketing have clearly defined property rights which are hardly true for fisheries resources. Thus, a clearly defined property right is the need of the day.The success stories of both dairy where the resources in production, process and marketing have clearly defined property rights, which is hardly true for fishery resources. In dairy sector, there are private property rights over cattle, the farmers get paid as per the easily observable parameters of milk. The milk farmers don't lose their property rights on milk at the moment they hand over milk to higher- tier bodies. As a result, they continue to remain effective partners in value- adding activities by higher- tier bodies. The process of allocating stronger fishing rights must be decided early on through extensive stakeholder consultation.

### Policy and Institutions

There is a need to implement the provisions of the OMFRA more efficiently to control the increase in fishing fleet size. This will need to be followed up by developing a systematic programme for reducing the existing fleets (through a range of mechanisms) in a time-bound manner. This can only be possible when the state moves away from being the sole decision-maker and implementer of new management solutions, and acts more as a facilitator to bring together the different stakeholders in the sector into a co-management framework to take collective decisions and to implement them collectively

❖ **Community-based and co-management institutions for sustainable coastal fisheries management: Experiences from South Asian Economies: (Japan, Philippines)**

It is widely recognized fact that causes for resource over-exploitation and coastal environmental degradation are due to social, economic, institutional and political factors. The primary concerns of fisheries management, therefore, should address the relationship of fisheries resources to human welfare and the conservation of the resources for use by future generations. Thus, the resource conflicts can be resolved and resources can be better managed when fishers and other resource stakeholders are more involved in management and access rights are distributed more effectively and equitably. In this context, India in general and Odisha in particular have to learn from governments in Southeast Asia, the policies and programs of decentralization and community-based management and co management. The planning and implementation of these management systems will require the development of new legal, administrative and institutional arrangements at both national and community levels to complement contemporary political, economic, social and cultural structures. Fisher participation in management can provide a wealth of local or indigenous knowledge to supplement scientific information, to help monitor the resource, and to improve overall management. Fisheries experts in Southeast Asia recognize that a fishery cannot be managed effectively without the cooperation of fishers to make laws and regulations work.




*A hierarchy of co-management arrangements (based in part on Berkes[17]).*

- An efficient and effective MCS programme (Monitoring, control and surveillance systems) is the key to sustainable fisheries. MCS tools such as participatory management plans, data collection systems, communication systems need to be developed.
- Subsidised interest on NCDC Loan: The NCDC Loans are given to the farmers at 4% interest whereas it is 12% for fishers. So, in this context fishers should be given same status as the farmers.
- The linkages among the institutions of innovation triangle comprising community based organisations R & D organisations and academic establishments and markets should be strengthened
- Primary producers' organizations need to be promoted and strengthened to protect small scale fishers to participate successfully in modern competitive markets. Producers' organizations help fishers to lower transaction costs for sellers and buyers, besides providing technical help in production and creating social capital.
- Existing SHGs need training on financial management, record keeping.

- Efforts should be made to replicate SAMUDRAM success, as a self managed and self generated organisation.
- The dependence syndrome should be eliminated from the members
- A network of small scale fishermen, international funding agencies, government research and training institutions, national fish workers forum and processors and exporters can be developed
- The network can lobby with the government for providing supporting infrastructure, policies and incentives for the growth of the fisheries sub –sector.
- The network can help in development of local databases regarding different species availability and landings, indigenous knowledge systems, standardised processes and selling. So, information dissemination at the local level is the call of the day.
- The network can develop community based institutions, strengthen their capacity and support in meeting the market demand in a competitive and sustainable manner
- The policy advocacy should be in terms of the strict enforcement of regulatory mechanisms by the regulatory bodies.
- Lobbying for enacting of act for creation of fishery produce marketing committees.
- Setting up of FPMC yards at select locales within easy reach of smaller landing centers looking at financial viability and volumes.
- Establishment of a transparent and streamlined auction mechanism under supervision of a committee consisting of fishermen representative, trade representative and government officials.
- Advocacy for establishment of community property rights over near shore fishing activities

Enacting legislation for disbursement of credit using formal channels, i.e., regional rural banks, micro credit organizations.

## Institutions

- ***Redefining the roles and functioning of DOF:*** The DOF role and functioning has to be redefined in order to face the challenges related to maintaining the health of the ecosystem, natural resource management, capitalization issues and marginalization of

poor stakeholders due to changing global and domestic trade context in marine fisheries. It needs to strengthen linkages with different stakeholder groups within and beyond the fisheries sector, develop fisheries management plans in a participatory consultative mechanism at the local, district and state-levels,and strengthen the supply chain linkages. This will require capacity building, training and acquisition of new skills on the part of DOF as a whole.

- ***Creation of Independent Fishery Ministry:*** There is a need for creation of independent fishery ministry to solve the host of problems plaguing the fisher folk community in a more structured manner.

- ***Strengthening the Innovation Triangle:*** The DOF should take the initiative to strengthen its linkages with other line departments, with the central government organizations (including research bodies), and the NGOs and academic institutions.

- ***Strengthening People Institutions and community governance systems:*** The people institutions in the villages of Ganjam district need to be strengthened, in order to establish the missing link i.e., uniting the fisher folk community as there are lots of conflicts among different castes. The traditional community governance systems have an important role in tackling several new threats faced by the sector and their role needs to be understood in more detail and, wherever possible and appropriate, legitimized.

- ***Create Producers organizations****:* The government managed cooperative has failed to deliver. So, considering the current market dynamics there is an urgent need to start producers' organization to uplift already marginalized stakeholders to strengthen collective bargaining power.

## Processes

***Strict Enforcement of the OMFRA act:*** Proper implementation of the OMFRA, which has provisions to keep the mechanized and the small-scale sectors apart in the sea, can improve the conditions for the small-scale fishers while also reducing the harm being done to the near

shore resources through indiscriminate trawling. This will require the DOF to equip itself with adequate powers to be able to implement the OMFRA provisions at sea.

***Reducing costs:*** There is a need to improve the efficiency of fishing technology to reduce cost of operations and to make them adaptable to a range of fishing operations.

***Alternative fuels option and reducing costs:*** Promoting alternative fuels such as solar energy and wind energy might be a viable option provided the engines taking advantage of wind power and solar power wherever appropriate – will go a long way in reducing costs

***Better access to mechanics and spare parts:*** Having ready access to mechanics and spare parts in the village reduces the cost of maintenance tremendously. Training the fisher youth in engine repairs and helping them to set up small retail outlets for spare parts can address this problem while also helping to take some people out of fishing into more sustainable – yet fisheries-related – activities. Alongside, the actual fishers themselves must be trained in engine maintenance and small repairs in order that they will be able to cope with the smaller problems right at the beginning and not allow them to grow into bigger ones later on.

***Infrastructure***

- The primary infrastructure is the key challenge facing the marine fishery sector in Odisha. The government need to facilitate more pre-processing units with state of art technical know-how, proper communication system for utilizing the available modern facilities and international standard laboratories need to be established to ensure quality.
- Infrastructure for secondary marine fishery activities requires improvement of the marketing systems and the cold storage chains supporting the landing centres in the state including a frozen logistic system through roads and sea routes.
- **Facilities for post-harvest care:** The facilities for icing and storage of high value fish, prawns at the fish landing centers can be much improved both to enhance their value and to reduce losses in the process. Better access to clean water, hygienic drying places, and good storage for the traditionally processed fish can help improve returns

to the fishers. Reducing losses due to monsoons and insect infestation also can raise the profit margins in this activity

**Marketing & Enterprise Development**

- Developing a robust long term business plan for small scale fisheries. In this regard, the fishing cart business (the cart would cater the demand for hygienic and delicious marine value added and ready to eat products, prepared by the poorest of the poor women) should be promoted as a part of micro-enterprise development. There is a tremendous market opportunity in Gopalpur beach and the adjoining areas for value added marine fish products.
- Given highly perishable nature of the commodity in consideration, an effective and efficient cold chain management of fisheries product with a proper inter linkage with value chain management to facilitate seamless movement of fisheries product; is essential and instrumental for the growth of the sector.
- Expanding the market through investment in logistical development
- Establishing marketing as well as financial linkages in a program mode for active fishermen
- Reduce transaction costs for small scale fisheries through ready and affordable access to credit.
- Reduce the influence of intermediaries through improved infrastructure for transport and icing, as well as provision of credit;
- Enhance flow of trade information to the producer communities; the recent efforts at setting up potential fishing zone (PFZ) boards at different points along the coast can be a good opportunity to set up market information systems.
- The growth of new supply chains and makes provision for (i) their continued survival in the markets (e.g., through cooperative marketing or provision of affordable credit) and (ii) their diversification into other activities has to be the call of the day.
- Nurturing an ecosystem which promotes entrepreneurship, provides training, capacity building and help establish linkages. In this context the PURA model as envisaged by

Dr. APJ Abdul Kalam has a vision to create such rural ecosystem on the basis of the four connectivity. The connectivity is physical, electronic, knowledge and economic connectivity

- ***Market–orientation & leadership from below***: Not only in successful dairy enterprises, but also in successful poultry enterprises (e.g., NECC, Venky's, Suguna, Arambagh Hatcheries), entrepreneurs evolved from within the relevant sectors. Stories and life histories of Tribhubandas Patel (AMUL), Galbabhai (BANAS), Tatyasaheb Kore (WARANA), B K Roy (Arambagh Hatcheries), Dr. B V Rao (NECC, Venky's) and Sundararajan brothers (SUGUNA)bear testimony to this point. So, the issue is how to produce for fisheries sector a large number of such pragmatic internal stakeholders with strong leadership qualities and at the same time, designing a collective action process to promote a community- based organization together with backward & forward linkages as per market logic
- ***Establishing Marketing and Financial Linkages in a program mode for active fishermen:***

The Vision 2020 document, for instance, has a number of recommendations for capacity building and poverty alleviation and for upgrading infrastructure and training in the fishing sector. The fishers involved in local fresh fish trade and traditional processing have not received the attention and support of government agencies, like the export sector has, but they too are important suppliers of fish, particularly to the poorer part of the population, and warrant more attention. In this respect, the recommendations are as follows:

- Reduce transaction costs for small-scale traders through ready and affordable access to credit;
- Access to affordable credit. Enhanced access to affordable credit will enhance the capacity of petty fish traders to compete in the market place, thereby increase their stake in the markets and contribute to better supply of fish to the poorer consumers. Various government and NGO initiatives have helped many communities with

financial management assistance and loan schemes but a more flexible credit system designed around the seasonal and short term vagaries in the income and expenditure of the fishers should be developed by appropriate finance suppliers with fisher communities to deliver working capital at affordable rates, to reduce the reliance on tied loans from market intermediaries. The past experience of cooperatives – where the government attempted to act as a benevolent moneylender with disastrous results – should highlight the need for caution before jumping into this. On the other hand, the existence of vibrant credit supply channels (for e.g., banks) shows the way for setting up more sustainable and affordable credit delivery services. In this, the government DOF can act as an intermediary for access to formal banking for the fishers. Orissa, in fact, has been the venue for a very instructive experiment in this regard.

- Reduce the influence of intermediaries through improved infrastructure for transport and icing, as well as provision of credit;
- Enhance flow of trade information to the producer communities; the recent efforts at setting up potential fishing zone (PFZ) boards at different points along the coast can be a good opportunity to set up market information systems.
- Assess the potential for marginalization of the poor stakeholders with the growth of new supply chains and make provision for (i) their continued survival in the markets (e.g., through cooperative marketing or provision of affordable credit) and (ii) their diversification into other activities.
- Fishers and fisherwomen wanting to get a larger share of the final fish price by removing one or more market intermediaries from the supply chain, need access to affordable funding as well as capacity building -- training and mentoring or other support -- to be able to aggregate fish volumes to levels that produce economies of scale in handling, icing, transport etc and allow them to make enduring linkages with buyers at the consumer end of the supply chain. Odisha has a commendable model in the SAMUDRAM enterprise to guide such would be entrepreneurs. However it should be noted that not all fishers have the inclination or the necessary entrepreneurial characteristics to do so.

- All successful leaders have built up bridges with professional technical and management personnel to have continuous dialogue with them and have even gone to the extent of internalizing them. 'Like King, like Queen' relationship between Tribhubandas Patel and Dr. Veghese Kurien in case of AMUL and that between Tatyasaheb Kore and Nandkumar Naik in case of Warana Sugar Complex near Kolhapur are best examples of such effective interface. All these organizations are eventually run by professionals as the largest group of stakeholders, as in case of the corporate sector in general and especially in Japanese Keiretsu, but they are accountable to leaders, on the one hand, and members, on the other. As a result, there is a constant relay race going on among leaders and professionals in successful enterprises to ensure their sustenance over the long run. While this relay race seems to be happening in successful cooperative dairy and poultry sectors, this is far from the case in fisheries.

- **Nurturing an ecosystem which promotes entrepreneurship, provides training, capacity building and help establish linkages:** The **PURA** model as envisaged by Dr. APJ Abdul Kalam has a vision to create such rural ecosystem on the basis of the four connectivity. These are shown below along with the respective implications for the fishery sector:

| | |
|---|---|
| Physical Connectivity | Roads and railways to provide linkages to the external. Similarly, physical infrastructure like cold storage and processing facilities to be established to increase the value and shelf life of the final product moving out from the fishermen. Government may assist in setting up the necessary infrastructure. |
| Electronic Connectivity | Fishermen villages to be linked electronically via V- SAT, WiMax or Radio etc. to district headquarters, markets and also to technological centres. Also important is attain Upon establishment of electronic connectivity, remote learning and information dissemination would be possible. Then the fishermen community needs to be supplied with all modern technological facilities, environment- friendly activities and |

| | |
|---|---|
| | market intelligence. Knowledge connectivity would also imply setting up training programs to breed new entrepreneurs. Connectivity via mobiles, GPS trackers etc. |
| Knowledge Connectivity | Upon establishment of electronic connectivity, remote learning and information dissemination would be possible. Then the fishermen community needs to be supplied with all modern technological facilities, environment- friendly activities and market intelligence. Knowledge connectivity would also imply setting up training programs to breed new entrepreneurs. |
| Economic Connectivity | The three above- stated connectivities would finally be leading to economic connectivity of the rural enterprises. This would imply establishment of technology driven and environment conscious enterprises which are vertically integrated to maximize the value of the final product and are well linked with markets. It would also imply creation of a public- private- community partnership (PPCP) based stakeholder to shareholder model to incentivize an inclusive growth process |

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***Annexure1***

## Table 13: Indicator To Monitor Changes In The Household Level

| Sl. No. | Indicators | Percentage of household for which indicator is valid |
|---|---|---|
| | **Natural Resource/Asset base** | |
| 1. | Open access to Common property rights/Security of ownership, tenure or use rights | 100 % |
| 2 | Decline in fish catches/Health of the coastal Ecosystem | 90% |
| 3 | Decline in Economically Valuable Species | 73.3% |
| | **Physical Asset Base** | |
| 4 | Appreciation of technology, but questions the affordability | 84.4% |
| | Technology leading to overcapitalization of fishing efforts | 92.1% |
| 5 | Household lacks ownership of sufficientproductive assets tomake living. | 94.4% |
| 6 | When owned, productive assets are likelyto be traditional, simple, low-cost and indigenous, catering tolocal/traditionalmarketsand vulnerable to competition from | 100% |

| | | |
|---|---|---|
| | new technology and market forces. | |
| 7 | Lacks ownership of Homestead land and Housing | 80% |
| 8 | Family resides in thatched hut/kutcha house | 94.4% |
| 9 | Family does not have separate kitchen in house | 100% |
| 10 | Family resides in house located in vulnerable, unhygienic or inconvenient location | 94.4% |
| | **Social Asset Base** | |
| 11 | Lack of Relationship of trust and reciprocity within and between communities | 72.2% |
| 12 | Lack of active Community Based Organizations/producer organizations | 81.1% |
| 13 | Detoriating Gender Relations | 87.7% |
| | **Financial asset Base** | |
| 14 | Head of household is unemployed for lackof opportunities to work during some partsof year (income) | 83.3% |
| 13 | Lacks inadequate/no savings | 88.8% |
| 15 | Family regularly depends on credit or mortgages assets (boat, processing equipment and house) for consumption Purposes during some parts of year | 94.4% |
| 16 | Lack of access to Institutionalized Credit sources | 85.5% |
| | | |

| | **Vulnerability Indicators** | |
|---|---|---|
| 17 | Each cycle of operations – fishing, fish tradeor fish processing – is dependent on returnsfrom previous cycle | 73.3% |
| 18 | Members of family cannot afford to obtainfood during some parts of year or randomlythroughout year | 72.2% |
| 19 | Members of family undertake seasonal geographical or occupational migration to meet subsistence needs. | 80% |
| 20 | Cooking is done using firewood collectedby members of family from mangroves orcasuarina groves. | 90% |
| 21 | Head of household, whose daily earningsare necessary for family to survive, suffersfrom frequent or long-lasting illnesses, or isdrunkard | 94.4% |
| 22 | Inability to send children to schools becauseof unaffordable costs, or because ofDependence on children's earnings.. | 84.4% |
| 23 | Consumption of fish is confined to cheaper<br>varieties or dried fish and to two or three times per week | 76.6% |
| 24 | Family food basket comprises narrow rangeof cheap foodstuffs (rice, dhal, dried fish)most of year | 78.8% |
| 25 | Family suffers from inadequate availabilityof food at least few times in year (eatfewer times, not eat at all, some | 68.8% |

| | | |
|---|---|---|
| | householdmembers go hungry or eat less thanneeded). | |
| 26 | Household uses open areas as latrines. | 100% |
| 27 | Family depends on water from open or common sources (bore wells), or on conditional access to private sources inneighbourhood. | 100% |
| 28 | Family regularly depends on PDS to meetfood and fuel needs. | 94.4% |
| 29 | Family spends large proportion of earningson food. | 88.8% |
| 30 | Family spends significant proportion ofincome on health care regularly | 70% |

# QUESTIONNAIRE

## Study on Livelihood Security of Marine Fishing Communities in Coastal Villages: Issues, Challenges and Opportunities

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**Personal Identification**
**Name:**
**Age:**
**Education:**
**Village:**
**Caste:**
**Language:**

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Primary Occupation (Fishing): Boat Owner/Crew Member/Fish Collector/ others
Secondary Occupation :
Fishing Activity :Full time/Occasional
Type of House : Pucca/Semi-Pucca/Kacha
Type of land Ownership : Patta/Government land/Private Land
Electricity Connection/Quality :
Toilets Facilities :
Family Members :
Working Members :
Number of Children :
Children Education Status :

**Income categories**

| Income Level | Actors | Source of Income | No. of Families |
|---|---|---|---|
| less than Rs 12,000 p.a | | | |
| 12000 to 36,000 p.a | | | |

| | | | |
|---|---|---|---|
| 36,000 to 72000 p.a | | | |
| 72,000 to 1,10,000 p.a | | | |
| More than 1,10000 p.a | | | |

**Asset Base (Physical assets)**

| SL.No. | Assets | Quantity | Remarks |
|---|---|---|---|
| 1 | Boats | | |
| 2 | Nets | | |
| 3 | Landing infrastructure | | |
| 4 | Haats | | |
| 6 | Market Yards | | |
| 7 | Warehouses | | |
| 8 | Electricity | | |
| 9 | Transport facilities | | |

**Human Resources**

| SL.No. | Particular | Quantity | Remarks |
|---|---|---|---|
| 1 | Population of the Village | | |
| 2 | No of Households | | |
| 3 | Family Size | | |
| 4 | No. of Earning member per family | | |
| 5 | Labour availability | | |
| 6 | Skills Level | | |
| 7 | Entrepreneurial ability (Fresh fish,Dry fish and fish value added products) | | |

**Social Resources**

| SL.No. | Particular | Remarks |
|---|---|---|
| 1 | Relationships of trust and reciprocity within and between community | |
| 2 | Gender Relations | |
| 3 | Caste Relations | |
| 5 | Others | |

**Financial Resources (Available sources of credit)**

| Sl.No. | Particulars | Interest | Other fees | Collateteral Requirements | Remarks |
|---|---|---|---|---|---|
| 1 | Banks | | | | |
| 2 | MFIs | | | | |
| 3 | Cooperative | | | | |
| 4 | SHGs | | | | |
| 5 | Chit Funds | | | | |
| 6 | Companies | | | | |
| 7 | Money Lenders | | | | |
| 8 | Traders | | | | |
| 9 | Owners | | | | |
| 10 | Others | | | | |

**Credit Requirements**

| Type | Percentage | Purpose |
|---|---|---|
| Production | | |
| Consumption | | |

**Savings Mechanism**

| Sl. No. | Particulars | Interest | Other Fees |
|---|---|---|---|
| **1** | | | |
| **2** | | | |
| **3** | | | |
| **4** | | | |

| | | | |
|---|---|---|---|
| **5** | | | |

Any other Avenues of Savings
(1)----------
(2)----------

## Source and Use of Credit

**Formal Source of Credit**

| | 1 | 2 | 3 |
|---|---|---|---|
| Name of the source | | | |
| Interest | | | |
| Security | | | |
| Remarks | | | |
| | | | |
| | 1 | 2 | 3 |
| Name of the source | | | |
| Interest | | | |
| Security | | | |
| Remarks | | | |
| | | | |
| | | | |

## Migration/Remittances

| | No. of people involved | | | Remarks |
|---|---|---|---|---|
| People involved in wage labour | | | Average Wage rate in village (Rs./day) | |
| People engaged in service in the village | | | Total income from services | |
| People engaged in service outside the village | | | Total Remittances to the village | |
| People who migrate seasonally out of the village | | | How many months in a year | |
| People who have | | | Permanently settled outside | |

| | | | | |
|---|---|---|---|---|
| migrated from the village permanently | | | | |
| Reason for Migration | | | | Please tick mark wherever applicable |
| | Demand of local skilled labour outside village | | | |
| | Lack of livelihood Opportunities locally for all round the year | | | |
| | High wage rate outside/Low local Wage rate | | | |
| | Only if there is any natural calamity | | | |

Any other reason for migration (please specify)----------

Tentative Migration destinations----------

Impact of Migration----------

**Facilities and Infrastructure**

| Facility | Name of the Nearest centre | Distance from Village |
|---|---|---|
| Transportation | | |
| Railway Station | | |
| Metal Road | | |
| Bus Stop | | |
| School | | |
| Primary school | | |
| High school | | |
| Bank | | |
| Market place | | |
| Hospital/PHC | | |
| Any other | | |

**Community based Organizations** (working in the village)

| | |
|---|---|
| Name of the organization | |

| | |
|---|---|
| Youth organization | |
| Women SHGs/Mahila Mandalis | |
| Voluntary organization | |
| Cooperatives | |
| Any other | |

| EXPENDITURE & INCOME STATEMENT | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Expenditure/Consumption** | **Jan** | **Feb** | **Mar** | **April** | **May** | **June** | **July** | **Aug** | **Sept.** | **Oct** | **Nov** | **Dec** | Total |
| **Items** | | | | | | | | | | | | | |
| 1.Food | | | | | | | | | | | | | |
| 2.House Repairing or construction | | | | | | | | | | | | | |
| 3.Clothing | | | | | | | | | | | | | |
| 4.Health/Illness | | | | | | | | | | | | | |
| 5.Buying assets/savings | | | | | | | | | | | | | |
| 6.Festivals/Family Rituals | | | | | | | | | | | | | |
| 7. Alcohol | | | | | | | | | | | | | |
| **Total Expenditure** | | | | | | | | | | | | | |

| EXPENDITURE & INCOME STATEMENT | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Expenditure/Consumption** | **Jan** | **Feb** | **Mar** | **April** | **May** | **June** | **July** | **Aug** | **Sept.** | **Oct** | **Nov** | **Dec** | Total |
| **Income Sources** | | | | | | | | | | | | | |
| 1.Fishing | | | | | | | | | | | | | |
| 2. Wage Earning | | | | | | | | | | | | | |
| 2.1. Local | | | | | | | | | | | | | |
| 2.2. Migration | | | | | | | | | | | | | |
| 5.Livestock | | | | | | | | | | | | | |
| 6. Fish value added products (selling)/Dry Fish processing | | | | | | | | | | | | | |
| 7. Others | | | | | | | | | | | | | |
| **Total Income** | | | | | | | | | | | | | |
| **Diff. Bet. Income & Expenditure** | | | | | | | | | | | | | |

## QUESTIONNAIRE FOR FOCUSSESD GROUP DISCUSSION

**Assessing the vulnerability context**

When analyzing the vulnerability context two basic considerations draw attention: (i) the extent to which different groups is exposed to particular trends/shocks seasonality and the sensitivity and adaptation (coping strategies) of their livelihoods to these factors. These issues are best approached by phase, beginning with an overview of those risk factors to which different groups in the community are most prone
(e.g. food insecurity, drought, eviction, illness and death etc) This can be followed by more detailed analysis of key problems, the nature and magnitude of expected changes, coping strategies and potential solutions

Key questions:
•What months of the year is the community most vulnerable?

•What months of the year is food readily available?

•Is vulnerability due to seasonal change alone?

•What are the principle reasons for high vulnerability?

2.1 **Human asset**

•Have individual members of the community been educated?

•Have individual members of the community received skills training?

•Have members of the community received literacy training where necessary?

•Are girls sent to school?

•Are girls sent to school and for how long?

2.2 **Social assets**
•Does the community have a political structure and how is it organized?

•Does the community have social organizations and how are they organized?

•What are the gender relationships in the community?

•What are family sizes?

•What arrangements are made for women-headed households?

•Are the disabled looked after in the community?

•What is the nutritional status of the community?

•What are the infant mortality rates in the community?

•What are the most prevalent diseases?

•How are baptisms, marriages and funerals arranged?

**2.3 Physical assets**
•Do members of the community have their own houses?

•Does the community have a school?

•Does the community have a health centre?

•Does the community have a religious centre?

•Does the community have clean drinking water?

•Does the community have a meeting place?

•Do members of the community have land?

•Do members own livestock?

**2.4 Financial assets**
•Do members of the community have savings?

•How are these kept?

•Do members of the community have access to credit?

•If credit is available who provides it?

•If credit is available what interest is charged on it?

•Has money been converted into assets like tools, jewellery etc.?

**2.5 Natural assets**
•Does the community have access to a common Property Rights ?

•Does the community have good access to fisheries resources?

•Is there commonly owned land the community can use?

•What seasonal benefits are to be had from the climate?

**3. Assessing the policies, institutions and processes (PIPs)**

3.1 Assessing the performance of institutions

•Do government extension services assist the community?

•If there are government extension services what do they cover?

•What part does local government play in assisting communities?

•Are there aid organizations working in the community?

•What roles do aid organizations play in assisting communities?

•What are the mechanisms through which people's views are captured and included in the development planning process?

•How do government/quasi-government organizations link with civil society organizations and groups; how do they hold themselves accountable to their clients?

•Do key agencies have local offices or service points; how accessible are these?

•Are policies and development plans of given organizations adequately resourced in human and other relevant terms?

•What is the role of decentralized local political and administrative structures?

3.2 Assessing policy and policy processes
•Are there government policies that assist poor communities?

•If the latter is positive what are they?

•How are policies framed, based on what sources of information?

•How are different interests and groups represented in the policy formulation process? Who is included and/or excluded?
•Who has the greatest influence on policy and policy changes?
•Is policy coherent and independent of special interests?

**4. Assessing the livelihood strategies**

•What does the community do when food is extremely scarce?

•What does the community do when food is not so scarce?

•What does the community do when food is generally available?

•Are there differences in livelihood strategies by gender?

•Are there differences in livelihood strategies by age groupings?

•Are there differences in livelihood strategies by socio-economic class?

**5. Assessing the livelihood outcomes/aspirations**

•Do livelihood strategies improve/sustain capital assets and how?

•Do livelihood strategies assist in community stability?

•Do livelihood strategies improve community health?

•Do livelihood strategies improve community nutritional status?

•Do livelihood strategies improve community educational attainment?

•Do livelihood strategies improve social life in the community?

•Do livelihood strategies affect gender relationships and in what way?

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