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Executive Summary

Chapter-1: Socio- Economic status of marine fisher people in Coastal Orissa

- ⊗ The merchants and middlemen manipulate and deprive the fisher people to get benefit of loans and subsidies provided by the government to the traditional fisher people.
- ⊗ Conflicts among the trawlers and traditional fishermen rose high because trawlers, who are supposed to fish in deep sea or at least beyond 5 nautical miles, intrudes into inshore waters meant for traditional fisher people as they catch good quantity of prawns easily.
- ⊗ The artisan fishermen work hard, their population increased, investments for fish gears increased, and they produce more but get less income and become poorer

Chapter-2: India's Growth & Fishing Sector

- ⊗ The focus has been on the commodity produced – fish – and less on the traditional fisher people who produce fish and fisheries is their only means of livelihood. Seldom Govt. gives due attention to sort out issues concerning the social and economic aspects of the fisher people.
- ⊗ Technology and market penetration have neglected the important role that women played in fish processing and trade. Their status undermined and their livelihoods taken away.
- ⊗ With increasing numbers of high tech fishing gears practically razing the fishing grounds to dust, the fisher people have increasingly depended on catching juveniles.
- ⊗ With declining fish catches, the mesh sizes of the cod-ends of the trawl nets decreased too, going to as low as 10 mm or less (as against the 'mandatory' minimum of 25 mm), and this has led to the mechanised boats moving closer and closer to the shore looting the catch of the traditional fishermen.
- ⊗ Besides destroying the traditional net and boat, the trawlers also destroy the spawning grounds of different varieties of fish – often near the river mouths and estuarine areas – and this has obviously had an adverse impact on the overall growth of the fish and shrimp population.
- ⊗ The growth in marine food production decreased to 2.5 % during 1990-99 from 3.73 % during 1980-90 because of the promotion of Govt. in high tech fishing resulted in over exploitation of marine resources; thereby affecting the very livelihood of poor fisher people.

Chapter-3 : An Overview of Orissa Coast & its Marine Resources

- ⊗ The north Orissa coast is shallow, muddy and calm and is characterised by tidal flats and extensive river deltas, the south coast has the surf-beaten sandy beaches.
- ⊗ The coastal area starting from the mouth of Chilika lake to Dhamra, are rich with demersal and pelagic fish although the coast line comparatively shallow.

⊗ The offshore region from Dhamra to the mouth of the Subarnarekha is much shallower but is alluring for commercial pelagic fishes.

⊗ The water-spread of the Chilika lagoon varies between 1165 Sq. Kms to 906 Sq. Kms during monsoon and summer respectively. This is putting barriers in appropriate growth of fish, prawn and crab growth in the lagoon causing the dependant fishers with out getting sustenance income all the year.

⊗ Between 1985-86 and 1996-97, the marine fish production rose from 53,600 MT to 133,500 MT (250% increase), that of inland waters from 55,000 MT to 143,500 MT (an increase of 260%) (DOF, 1998:8) The marine production declined to 121,000 MT by 2000-01, while the freshwater production too dipped to 125,000 MT during the same period.

⊗ The total freshwater production from different sources (tanks/ponds, reservoirs, lakes/swamps/bheels, rivers and canals) was estimated to be 125,000 MT in 2000-01, which was four times higher than that for 1985-86 (31,000 MT), but which, like marine fisheries, has shown signs of stagnation through the late-1990s.

⊗ Most aqua culturists preferred to bring workers from elsewhere – for instance, tribals from inland areas – to work in the farms rather than to employ the local fishers for fear of pilferage.

⊗ The Handbook on Fisheries Statistics (2000-01) shows that, Orissa has a total of 589 marine and 3289 inland fishing villages. These figures are rather perplexing, because in the two previous year books of the Department of Fisheries, for 1992-93 and 1996-97, the number of marine fishing villages was given as 329, and the inland fishing villages as 6895 and 6899 respectively. **But the peoples investigation confirms that there are only 220 coastal villages/ habitations where the people solely depend on marine fishing.**

⊗ Over the last 25 years there has been a considerable influx of non-fishermen communities into the fishing sector. Entry of more people tends to encourage over exploitation prohibiting normal growth of fish population.

⊗ Weak enforcement of rules and regulations and a fragmented approach towards the implementation of government policies is a serious concern for sustainable growth of marine resources and the dependant marine fishers on it.

⊗ The Notification on Coastal Regulation Zone (CRZ), 1991, ensures protection to the coastal zone. However, a number of problems occur in its enforcement, which affects coastal environment and its ecology. This directly/ indirectly affects livelihoods of poor traditional fisher people.

Chapter-4 : Artisan Marine Fisher People in Orissa

⊗ The permanent settlers from telugu fisher communities began appearing in Puri and Chandrabhaga area as early as 1940s and 50s, and the process continued right up to the 1980s.

⊗ The northern zone is mostly inhabited by the Bengali fishermen, who were settlers from the erstwhile East Bengal and also from W. Bengal beginning from the middle of the 20th Century

⊗ At the time of 1971 war of independence in Bangladesh, the last batch of migrants entered the northern parts of Orissa, and began fishing operations in the estuarine, riverine and marine waters upto the central zone of Orissa.

⊗ In 1996-97, there were a total of 1636 mechanised boats in the state, of which 661 were wooden trawlers, 288 'Sona' trawlers (14 metre boats), and 687 gill-netters. The motorised crafts numbered 3643, including 85 FRP Beach Landing Crafts and 2316 boats fitted with inboard engines and 1242 boats with outboard engines (DOF, 2002:vii). The number of trawlers increased from 376 in 1985-86 to 949 in 1996-97, that of gill-netters from 293 1985-86 to 687 during 1996-97. In 1980, there were 10,550 traditional, non-motorised boats in the state, and no motorised boats (CMFRI, 1980: 10), but by 2000-01, the traditional boats have decreased in number to 7,000, while motorised boats showed a corresponding increase to 3643. ***But as per the peoples surveyed information there are 11636 fishing crafts both motorized and manual are in operation on Orissa coast.***

⊗ *In coastal Orissa, the traditional fisher people are now restrained to enter into the sea and use beach for testing their net and boat due to some unwanted restriction for promotion of tourism, industrial activity and more strictures to protect some endangered marine living organisms due to global pressure. The customary rights of traditional fisher people over the natural Common Property Resources is being squeezed with out considering its effect on their livelihoods. Moreover inaction of government machinery to implement pro-people policies for the development programs and sustainable marine resources development has been jeopardized.*

⊗ The traditional fishers and indigenous fish processors are burdened with heavy indebtedness to the moneylenders, as they **seldom have access to formal credit institutions** to meet their production and consumption needs. This has resulted in increasing vulnerability of fisher people as they are *forced to go to the clutches of middlemen for getting advance to upgrade their productive assts and sell their catches as per the decision of traders and more specifically their agents.*

Chapter-5: Socio-economic and demographic profile of coastal communities of Orissa

⊗ The poverty line in Orissa is drawn at Rs. 323.92 per month per capita in 1999-2000. People below the poverty line, about 14.3 million people or 48 percent of the population in the rural areas, 2.5 million or 42.83 percent in urban areas and as whole there are 17 million people which accounts 47.15 percent people in the state live below poverty line. *The Status assessment report says that there are 25188 families enumerated by the Govt. which accounts for 29% of below poverty line people but actually there are 46618 families who should have been enrolled in the BPL list which accounts 54% of BPL family and this is more then the state average of 47% of BPL families in the state.* So this reflects the indifferent attitude of Govt. functionaries in assessing the real BPL families in the fishing sector.

⊗ *The families from the dominant caste also take interest in fishing due to the open access to sea and make it as their primary livelihood. Another alluring thing is that the policy of Govt., which says the non-fisher people who have accepted fishing as occupation, will get benefit from development schemes meant for traditional fisher people. This has deprived the traditional fishers from their rights over the natural resources and they are agitating against the faulty policy of government.*

⊗ The **average family size of the fisher people is 6.4** and nearly same in all districts but a *slight more in case of district Balasore as compared to others, which shows there are more than 7 members in a family*, which is quite high as in the **state average family size is 4.8** and *this contribute to under development of fishing community in the state.* This also reflects the reach of Govt. programs in the remote coastal village.

⊗ In all the assessed villages of north & central zones of Orissa, it was found that the fisher people depend both on fishing and agriculture for their livelihood but in *south zone the only source of livelihood is fishing. And the depleted marine resources forced the marine fisher women to go for daily wage to maintain their family, as they do not have other options of living and maintaining their families.* The report also reveals that *there is an increasing trend in sexual harassment at work place rendering health hazardous like STD/ AIDS.* There is an increasing threat that the male folk migrating to **other states in search of employment may bring hazardous infectious diseases to the state.**

⊗ There are about 39,756 active marine fishers – meaning boat owners and their keen crewmembers. The total number of boats is about 11,631 (of which the non-motorized/ traditional boats number over seven thousand). The **total number of fishing crew families is nearly 65 per cent to the total active fishers.** *Their livelihood is dependant on the mercy of the boat owners and most of them work as contract labour.*

⊗ The study reflects that there are nearly 81 thousand male main workers and 8 thousand female main workers living in the coastal districts of Orissa (especially in the south zone) of the coastal Orissa. But their contributions to the sector as well as in enhancing family income has not been considered and are continuing as 2nd category of the citizen.

⊗ 77% of fisher families in the coastal fisher villages are living in thatched mud houses though they are the prime vulnerable communities for all types of natural disasters.

⊗ **There are 36 remote marine fisher villages out of the total 220 who were denied the legal title over their home stead land.**

⊗ Villages like Ramalenka, Siandi, Balianla, Khirisahi in Puri districts have suffered due to the aquaculture fields.

⊗ Due to marine sanctuary to protect Olive Reedley turtle and no fish zone area livelihood of at least 50000 families are affected and out of them more then 4500 families switched over to other trades like daily wage or migrating to other parts of the country to work as contractual crew members and some are even forced to opt for work as construction labour and the fisher women are working in hazardous jobs like transport helpers, house maids and brick kilns.

⊗ In 23 coastal villages out of 83 coastal villages where prawn fields have been established violating the CRZ Act and current status shows that in the coastal areas nearly 18,000 Ac. prawn fields are functioning and 4000 Ac fields have been rendered barren due to aquaculture.

⊗ Trawlers are often violating the OMFRA Act and in **111 coastal villages the fishers directly lost their nets and boats due to trawlers.** For each accident made by the trawlers, the fishers loose at least 3 months i.e 90 days of work for fishing as the time required to rebuilt the assets and average Rs. 30,000/- is required for reviving their livelihood. The trawlers are causing more problems in the northern fisher villages

⊗ The **administration seldom takes right steps to implement the people's friendly provisions of the CRZ Act and protect the costal environment and its ecology**. *In 23 coastal villages out of 83 coastal villages where prawn fields are in operation violating the CRZ Act and current status shows that in the coastal areas nearly 18,000 Ac. of cultivable land or shallow land are used for prawn fields illegally violating CRZ norm and more then 4000 Acres of agricultural land converted to prawn fields was remain as fallow land.*

⊗ Though the Orissa coast has the 2nd largest mangrove forest cover in the country the present situation of this natural resource is very alarmingly endangered due to disproportionate tree felling and converting the mangrove forest area into aquaculture farms violating all the legal provisions. The coastal forest cover which is a natural protective/ productive measure for sustainable development of marine resources as it protects soil erosion, promotes sand dunes and provide protective barriers for natural disasters like cyclone and flood is threatened.

⊗ The coastal belt plantation, which was taken up during 60s, has become barren due to nexuses between the officials and merchants. The communities living around this also take advantage of non/meager protective measures and fell trees for meeting their consumption need and also get some easy income.

⊗ So it is high time to revive the forest cover with due consultation and participation of the local inhabitants and entrusting joint ownership to people along with the line department. The mangrove forest should be regenerated with plantation and guarding with appropriate participation of local communities, who will have the right to use the forest only to meet their consumption need. This will help to revive the protective forest cover for sustainable development of marine resources and protect the human life and property from the fury of natural disaster.

⊗ One more vital area of concern is land-based pollution from agriculture practices, inland effluents and untreated industrial pollutants. Out of the major threat for Orissa coast is discharge of heavy metals like mercury effluents into the sea. The people of coastal communities are foreseeing a disaster like minmata bay in Japan. As different study indicates that the heavy metal through Rushikulya estuary enters into Bay of Bengal. As the water is used for production of common salt in Rushikulya estuary area and enters into Chilika lake through Saheb canal contaminate the living resources of Chilka and pollutes the common salt.

⊗ Other land based pollutions like residual DDT and other hazardous chemicals used as fertilizer and insecticides in agriculture field for increasing production & productivity and pest control devices used in shrimp culture enters into the sea. So preventive measures have to be taken to reduce the effect of all these pollutants in order to protect marine living resources and the dependant community.

Chapter-1

Socio-Economic Study in Coastal Orissa

1. Introduction

Artisan fishing community is one of the most vulnerable sections in Orissa. They are poor, deprived, marginalized and exploited by the so called dominant class who act as financier for formers livelihoods and earn huge money in return. They are highly unorganized to raise voice against the exploitation and demand their genuine rights from the Government. In the early stages the existence of super profits encouraged rapid expansion of the industry and persons who would otherwise have shunned any association with fish or fishermen, found good business in marketing prawns abroad. The merchant capitalists, engaged in processing and exporting, became millionaires. The merchants and middlemen snatched away by hook and crook all benefits of loans and subsidies provided by the government to the traditional fishermen. Still due to introduction of nylon nets, which needs low maintenance cost has increased economic status and managerial capacity of traditional fishers. Conflicts between the trawlers and traditional fishermen rose high over the years because trawlers, who are supposed to fish in deep sea are concentrated in inshore waters (which is kept reserved exclusively for traditional fishers under OMFRA) because there they got good quantity of prawns easily. They thus deprive the traditional fish workers of their livelihood violating the OMFR Act. So what actually happened over the period of planned fisheries development was that the artisan fishermen worked hard, their numbers increased, their investments and crafts increased, and they produced more but got less income and became poorer due to exploitative system in marketing. Depletion of fish resources also contributed to push the poor fishers under the poverty level.

With the initiative of some well-wishers/ social workers the community was organized and strengthened them selves to form people's organizations, women's organizations and self-help groups in each marine village in the southern part of Orissa. In the last decade of 20th century they tried to highlight their livelihood issues in a broader scale with the support of all coastal districts representatives. The output of this programme was formation of two state level union i.e. 'Orissa Traditional Fish Workers Union (OTFWU) & 'SAMUDRAM' (a State level Federation of Women Marine Fish Workers Organisations). There after they jointly raised voice to get their rights within the Orissa and also at national level in association with the National Fishworkers Forum (NFF) and World Fisher People's Forum (WFF). In fact OTFWU has been virtually working as a state branch of NFF in Orissa.

1.1 Back ground:

OTFWU & Samudram have conducted a socio economic study on issues related to "Traditional Marine Fishers in Orissa". United Artists' Association, a co-traveler of these two people's organizations since 1992 with the support of Actionaid, BBSR, provided intellectual support to carryout the study on the status of marine fisher people in Orissa coast. The study covers six coastal districts of Orissa, namely Balasore, Bhadrak, Kendrapada, Jagatsingpur, Puri & Ganjam.

1.2 Scope of study:

To assess the status of Orissa traditional marine fishing community status and issues related to their livelihood.

Sub-objectives;

- To assess basic amenities status of the traditional fisher villages;
- Identify the marine villages who are loosing their rights over the common property resources;
- Identify the villages severely affected due to the growth of tourism, wild life conservation, port & harbor, etc.
- To assess the implementation of OMFRA & CRZ Act in marine villages;
- To assess the overall issues related to their livelihood.
- Law & Policies implementation status in marine villages.

2. Methodology:

Looking at the extensive nature of the scope of study, the diversity of the traditional fisheries sector in Orissa and the limited time and resources available for the study, it was decided that it would be useful to focus on a few specific areas related to the livelihoods of the traditional fishers. During the first round of fieldwork for this research, it was established that there are large number of micro issues in each village and almost 95% of the villages are unaware about the legal provisions, policies, and institutions working for development of the fisher sector. Hence, the study largely focuses on issues related to home stead land rights, user rights over coastal forests, availability of social security schemes, aquaculture fields & trawlers.

Creation of Data base:

- An exhaustive format was developed after a series of consultation with people from various fields from varied background and experience.
- The 1st draft format was then field tested through an educated community youth in one project village and one non-project village to study the efficacy of the format and feelings of the villagers.
- After getting insights form both the villages the format again was redesigned to suit the community as well as the project need and competency of the community youth for collecting data.
- Community educated youth identified by the district union leaders from all 6 coastal districts were called to Ganjam for training on focus group meeting and application of PRA method for collection of data. Some of the district union leaders also participated in the training program.

- Research coordinator along with community leaders visited the villages for sample testing and to give onsite guidance to the community youth for data collection.
- The data collected from each district was presented in the State level Executive Body Meeting for validation of the data collected.

The following secondary sources were also referred:

1. Government of India / Orissa: Policy documents, Annual Statistics etc
2. Information provided by central agencies like Marine Products Exports Development Authority.
3. BoBP and PHFP publications, project reports.
4. FNPP-SIFAR, Orissa Study by ICM, Kakinada.
5. Proceedings of workshops, seminars, symposia etc.
6. Fisheries magazines and periodicals etc.
7. Information from the Internet through the World Wide Web.

Field research consisted of

A. Focus Group Discussions with primary stakeholders: FGDs with primary stakeholders identified in the preliminary workshop were conducted in sample locations. These stakeholders included fishermen, boat owners and crewmembers, women in the fishing communities, aquaculture farmers, fish traders, processors and other key players.

B. Meetings with secondary stakeholders: Apart from the primary stakeholders, interaction with key secondary stakeholders such as Government fisheries officials, officials of Panchayat Raj institutions, officials of health departments and teachers associated with the marine villages, etc. were consulted during the field research. These were mainly through open-ended interviews guided by a checklist.

3. The Study Outputs: The outputs of this study are as follows:

1. Actual number of traditional marine fisher villages along the coast
2. A database for primary and secondary data on fisheries, livelihoods and livelihood groups for the state.
3. A livelihood analysis of the coastal fishing communities in Orissa
4. An overview of socio, political, economic issues related to the coastal communities of Orissa.
5. Traditional Peoples perception towards their rights and issues

4. The study period: The study was conducted in the district Ganjam in the first phase during the month of April 2003. In other parts of Orissa the survey work was started during the mid period of May 2003. The study concluded on 15 October 2003.

5. The study team:

Field Investigators (all community representatives identified by the respective district unions):

1. Nanda Kumar Dash, Balasore
1. Ananta Prasad Mallick, Balasore
2. Kailash Mallick, Bhadrak
3. Nakula Mallick, Bhadrak
4. Naba Shyam Mistri, Kendrapada
5. Kumar Sekhar Swain, Jagatsingpur
6. Chandra Sekhar Routray, Puri
7. Panchanan Behera, Puri
8. A. Yogudu, Ganjam

Volunteers Involved:

Presidents and Secretaries of all District level Unions and Secretary of OTFWU. The Social workers of United Artists' Association have rendered critical inputs like developing survey schedule, training to field investigators and helping the organizations in finalizing the report.

6. Villages covered under the study:

District	Block	G.Ps /NAC Name	Village	
Balasore	Soro	Tentoi	Tentoi	
			Purusottampur	
	Bahanaga	Anantapur	Mulakaeda	
		Baripada	Madanapur	
			Kheranga	
			Osanga	
			Balarampur	
			Baripada	
			Maharudrapur	
			Atasapuru	
			Jaganathapur	
			Arada	
			Kochia Koili	Villa
			Kalyani	Dwarika
				Nuapur
			Aruhabada	Aruhabada
Avana	Avana			
	Barajadeuli			
	Debendrapur Majhi Sahi			
	Bishnupur			
	Kharasahapur			
Remuna	Sreejanga	Sreejanga		
		Inchudi		
	Talapada	Talapada		

Balasore Sadar	JayDev Kasapa Tapasi	JayDev Kasapa Tapasi Ranasahi Aladia
	Rasalpur	Khadusahi Bhimapur Kalamatiasahi Khapara Khandia Muhana
	Saragaon	Parikhi Kusumuli Mainisali
Basta	Chhanuan	Chhanuan Sarathha Kundali Sulapatta
Baliapal	Balibila Bhingagadia	Balibila Bhingagadia Dangapita
	Panchupali	Panchupali Kalasimuli
	Jambhirai	Jambhirai Badakhundia
	Bolanga	Bolanga Chhalia Saudi
	Basta Nuagaon Chaumukha	Singila Nuagaon Chaumukha Kankadpala Dagara
	Naranpur Sahabajipur Rasalpur	Kaliakhia Sahabajipur Rasalpur Nuasahi ThakuraBhaunri Adangapantei Kumbhiragadi
Bhograi	Huguli	Binjhapadmapur Udayapur Krushnanagar
	Tukurihazra	Tukurihazra Aunsa
	Baganabadia Dagara KanchiBhaunri Saradhapur Ranakotha	Baganabadia Gutadiha Ranasingpur Khadibila Ranakotha Kirtania Pantei Gambharia Batisahi NaranaMahanti Padia Jayrampur

			Chandrabali
Bhadrak	Basudevpur	Adhuan	Adhuan
		Andola	Gopalpur
			Kuali
		Balimeda	Chhatarapada
			Charibatia
		Balinagar NAC	Balinagar
		Chudamani	Chudamani
		Guagadia	Guagadia
		Iram	Iram
		Kharida Binayakpur	Belasaunlia
			Binayakpur
		KismatKrushnapur	Bada Krushnapur
		Kumarpur	Kumarpur
		Padhuan	Padhuan
		Probadhapur NAC	Probadhapur
		Radhanathpur NAC	Radhanathpur
		SanaKrushnapur	SanaKrushnapur
		Bideipur	Bideipur
		Jaganath Prasad	Jaganath Prasad
		Mamadila	
		Chatarpur	
	Paikasahi(Dhamara)		
	Karanjamala		
	Narendrapur		
	Dhanakuta		
Kendrapada	Mahakalapada	Batighar	Kajalpatia
			Badatubi
			Barakalikhola
		Baulakani	Jambu Luck
		Gogua	Sasan
			Tantiapal
			Ratpump
		Jambu	Jambu South
			Jambu North
			Kandarapatia
			Purbabelari Jambu
			Khairinasi
			Hariabank
			Ramnagar
		Bahakud	
	Pitapath		
	Keredagad		
	Gobardhanpur		
	Praharajpur		
	Sundaripal		
	Rajnagar		
	Rajanagar(Diapaly)		
	Balituthapada		
	Kunjakothe		
J.S. Pur	Ersama	Kunjakothe	

			Khuranta Balitutha
		Balitutha	Badabuda
		Ambiki	Ambikipatna
		Dhinkia	Gobindapur
			Trilochanpur
		Nuagaon	Nuagaon
		Bhitarandhari	Baulapada
			Bhitarandhari
			Guamunda
		Padamapur	Ramtara
			Padamapur
			Balipatna
		Gadaharishpur	Gadaharishpur
		Gadakujanga	Gadakujanga
			Noliasahi
			Polanga
			Bhuyanpal
	Kujanga	Gopiakuda	Gothadia
		Biswali	Biswali
			Koladia
		NAC	Sandhakud
		Zillanasi	Zillanasi
			Jaysankhapur
			Tentuliakhamari
		Balikani	Madhapur
		Paradeep Gada	Paradeep Gada
		Bhutamundai	Bhutamundai
		Gondokipur	Gondokipur
		Nuagada	Chakradharpur
		Magarajpur	Magarajpur
	Paradeep	Municipality	Nuabazar
	Balikuda	Anatapur	Bhuasuni
		Tarasahi	Tarasahi
		Rahana	Rahana
		Nahrana	Phulapatna
		Baramundali	Ichhapur
			Phulbelari
			Balipatna
		Marichapur	Marichapur
			Bandar
			Dhanuharbelari
Puri		Puri Sadar	Pentakata
		Puri Sadar	Bali Nolia Sahi
	Kakatpur	Abadan	Telikuda
	Bramhagiri	Remena Nuagaon	Motto
	K. Prasad	Arkhakuda	Sanpatna
	K. Prasad	Arkhakuda	Arkhakuda
		Berhampur	Khirisahi
		Titipa	Balianla
		Siandi	Siandi
		Ramalenka	Ramalenka
		Konark	Chandrabhaga

	Astaranga	Akasahi Alisahi Korana Chhuriana Nuagada Nagar	Patsundarpur Alisahi Patna Karala Natara Sahana Sudhikesara Gundakuda Balabhadrapur Agakana Sana Jhadalinga Bilua Mundduli Madhupur Beherasahi Balidia Kaliakana Balipantala Dakhina Pantala
Ganjam	Ganjam	Ramagada Palibandha	Prayagi Kalarbadi Podompeta Gokharkuda
	Chatrapur	Agasti Naugaon Aryapalli Kalipalli	Bada Nolia Nuagaon Sana Nolia Nuagaon Sana Aryapalli Katuru Bada Aryapalli Bandar Rev Katuru
	Rangeilunda	NAC Baxipalli Kamalapur Keluapalli Indrakhi	Gopalpur Venkatraipur New Bauxipalli Old Bauxipalli Digipur Golabandha New Golabandha Garampentha Markandi
	Chikiti	Eksingi Katuru Sonapur	Eksingi Daya nidhi Pentha Rameya Patna Anant Raipur Pata Sonapur

7. Limitations

- Reliability of secondary data on the marine traditional villages and detailed statistics about the marine fishing sector from the officials attached to them.
- The time and weather constraint to reach the inaccessible villages
- Sensitive issues consumed much time for interaction
- Complexity and diversity of the fishing sector in Orissa, making it difficult to cover all areas with available human and financial resources.

Chapter-2

India's Growth & Fishing Sector

2.1 Introduction:

Fishing has traditionally been considered as a 'technical' subject and policymaking has largely been concerned with making the sector more 'technologically' oriented. The focus has been on the commodity produced – fish – and less on the people who depended on fish and fisheries, and issues concerning the social and economic aspects of the fisher people's lives have always taken the backseat in the pursuit of increasing production (specifically earning foreign exchange) through whatever means available. Increasing technologisation has meant increasing capitalisation of the sector and consequent marginalisation of the people who traditionally depended on fisheries. Increased capitalisation has changed the contour of fishing from subsistence-based, local initiatives to export and profit-oriented, international activities, and from group-based egalitarian systems to individually owned and operated marketing ventures. On the face of it, there does not seem to be anything wrong with that, with Indian seafood showing up on some of the most elegant dining tables in the world, earning huge amounts of the much-needed foreign exchange to the country. Except that the new entities, instead of absorbing the old ones (as was hoped by the planners), or being absorbed by the latter (as is the case with many new, people-friendly technologies), became, rather like oil on water, a new sector in themselves, one which is in competition with the old ones, and obviously winning.

The oil-on-water analogy is apt for many reasons. Being capital- and technology-intensive, and supported enthusiastically by successive governments since the beginning of the 1960s with generous subsidies and loans and other incentives, the new boat sector acts as a screen between the traditional communities and the external environment, while at the same time asphyxiating the life underneath, easily supplanting the 'traditional' sector and abrogating to themselves the right to represent their woes as those concerning the sector as a whole. The overall numbers of the new boats has been very thin compared to the traditional sector, but their ability to despoil the seas and to obtain support from the government is unmatched. Although a large chunk of fisheries development funds are being used ostensibly for increasing exports of seafood, a large percentage of which supposedly comes from the mechanised (trawl) sector, the total exports from any state as a percentage of the total production is miniscule (less than 10% in case of Andhra Pradesh), a fact that is often not allowed to gain too much credence for obvious reasons.

The second aspect of the increased emphasis on the new systems has been the effect it has had on the traditional fishing communities. Technology and market penetration have meant that the important role that women played in fish processing and trade became reduced, their status undermined and their livelihoods taken away. The value of the fish has no doubt gone up significantly, but the only change it

may have brought about on the community landscape is the increased number of liquor shops that appeared in every fishing village.

While equity has been the first casualty of technologisation, sustainability has been the second, and perhaps more serious, one. With increasing numbers of highly efficient fishing gears practically razing the fishing grounds to dust, the fish catches have increasingly come to be dominated by juveniles. While the loud hue-and-cry being made about the collection of shrimp seed by a ragtag bunch of desperately hungry poor people causing destruction to the fish and shrimp resources may be partly true, but the fact remains that a much larger number of juveniles were being caught– and discarded in the sea itself – by the mechanised trawlers even before the shrimp seed collectors came on the scene. With declining fish catches, the mesh sizes of the cod-ends of the trawl nets decreased too, going to as low as 10 mm or less (as against the ‘mandatory’ minimum of 25 mm), and this has led to the mechanised boats moving closer and closer to the shore at the expense of the traditional fishermen. Besides destroying the craft and tackle of the artisan fishing units, the trawlers also destroy the spawning grounds of different varieties of fish – often near the river mouths and estuarine areas – and this has obviously had an impact on the overall availability of the fish and shrimp. The poor shrimp seed collectors were no more than scapegoats, who were easy prey when people began looking at the causes for the declines, without necessarily wanting to take any measures that might upset the Great and the Good people of the world.

2.2 Coastal India & its Marine Environment:

India – a triangular pendant-like peninsula extending between 8°4' N and 37°6' N latitudes and 68°7' E and 97°25' longitudes, covers a total area of 3,287,263 square kilometers land area. India has a long coastline of more than 7500 km. Its marine resources are spread over in the Bay of Bengal in the east, Arabian Sea in the west and the Indian Ocean on the south. The Exclusive Economic Zone (EEZ) of the country has an area of 2.02 million sq km comprising 0.86 million sq km on the west coast, 0.56 million sq km on the east coast and 0.6 million sq km around the Andaman and Nicobar islands. The east coast supports activities such as agriculture and aquaculture while a number of industries are supported on the west coast. Tourism has emerged as a major economic activity in coastal states such as Goa, Kerala and Orissa. Mangrove cover in India has been estimated at approximately 3,15,000 ha confined mainly along the east (Orissa and West Bengal) coast and Andaman and Nicobar Islands.

India is a major exporter of seafood. The export of marine products from India has gone up by 28% quantitatively and 19% in terms of value during the financial year 2002-03. According to the marine Products Export Development Authority (MPEDA), India exported 440,473 tones of seafood valued at \$1.4 million dollars in 2000-01 as against 343 031 tones valued at \$1.2 million

during 1999-2000. Frozen shrimp (70%), fish, cuttlefish and squid are the major export earners and account for 92.64% of the total exports. The annual export of fisheries is 0.4 million tones (mt) worth Rs 47,000 million (Pandian, 1999). Marine fishery exports in 2000 were 421,075 metric tones valued at Rs 63,965 million. The growth in marine food production decreased to 2.5 % during 1990-99 from 3.73 % during 1980-90 (Krishnan Birthal, Pounusamy et al-2000).

From time immemorial, fisher people in India have been the defenders and protectors of coastal territories from foreign invasions and other external threats. Nature has made them hardy and they lead a very risky life. They are great fish hunters and capable of capturing huge sharks from deep sea.

In India, there are about 1 million fisher people in 3651 villages situated along the coast are employed in marine capture fisheries and allied activities, representing about 1 percent of our total population. Among them two third fisher folk live along the coastline and others on the banks of rivers, lakes and backwaters. Among the sea-going fishermen more than 80 percent are in the artisan sector that operate small-scale traditional crafts and gear. Indian fishery also supports several ancillary activities such as boat building, processing plants etc. All these features make this an important sector from the economic and social viewpoint.

Chapter-3

An Overview of Orissa Coast & its Marine Resources:

Coastal zone is an interface between the land and sea that includes the coastal low lands, inter-tidal areas, salt marshes, wet lands and beaches and offshore features such as coral reefs and island habitats. The coastal zone is essential to marine life and supports a large part of the world's living marine resources. The mangrove forests, lagoons/estuaries, sea grass or kelp beds, coral reefs and shallow bays are nursery or feeding grounds for most of the coastal and oceanic species. Orissa coast is one of the best nurturing place for the variety of marine species.

3.1 Location:

Orissa is situated on the eastern part of India on the coast along the Bay of Bengal located between 17⁰-48' and 22⁰-34' North latitude and 81⁰-24' and 87⁰-29' East longitude. The State is bounded by the bay in the east, West Bengal in the northeast, Jharkhand in the north, Chhattishgarh in the west and Andhra Pradesh in the south. The state is spread across with 155,707 sq. km with a population of about 36 million (about 3.5 % of India's population)¹. Bhubaneswar is the capital of the state.

The territory of Orissa may be divided into four distinct geographical regions:

- 1.) The Eastern Plateau
- 2.) The Central River Basin
- 3.) The Eastern Hill Region and
- 4.) The Coastal Belt.

3.2 Coastal Orissa:

There are six maritime districts: Balasore (80 km), Bhadrak (50 km), and Kendrapara (68 km), Jagatsinghpur (67 km), Puri (155 km) and Ganjam (60 km), with Puri district covering more than a third of the coastline (DOF, 1998:61). These six districts cover 14.5% of the total land area in the state, but nearly 30 percent of the population (28.35%) in the state resides in the coastal districts, with an average population density more than twice that of the state as a whole (430 per sq. km as against 203 per sq. km in the state). Nearly 89 percent of the coastal population resides in rural areas.

¹ Orissa the Land and its People GoO

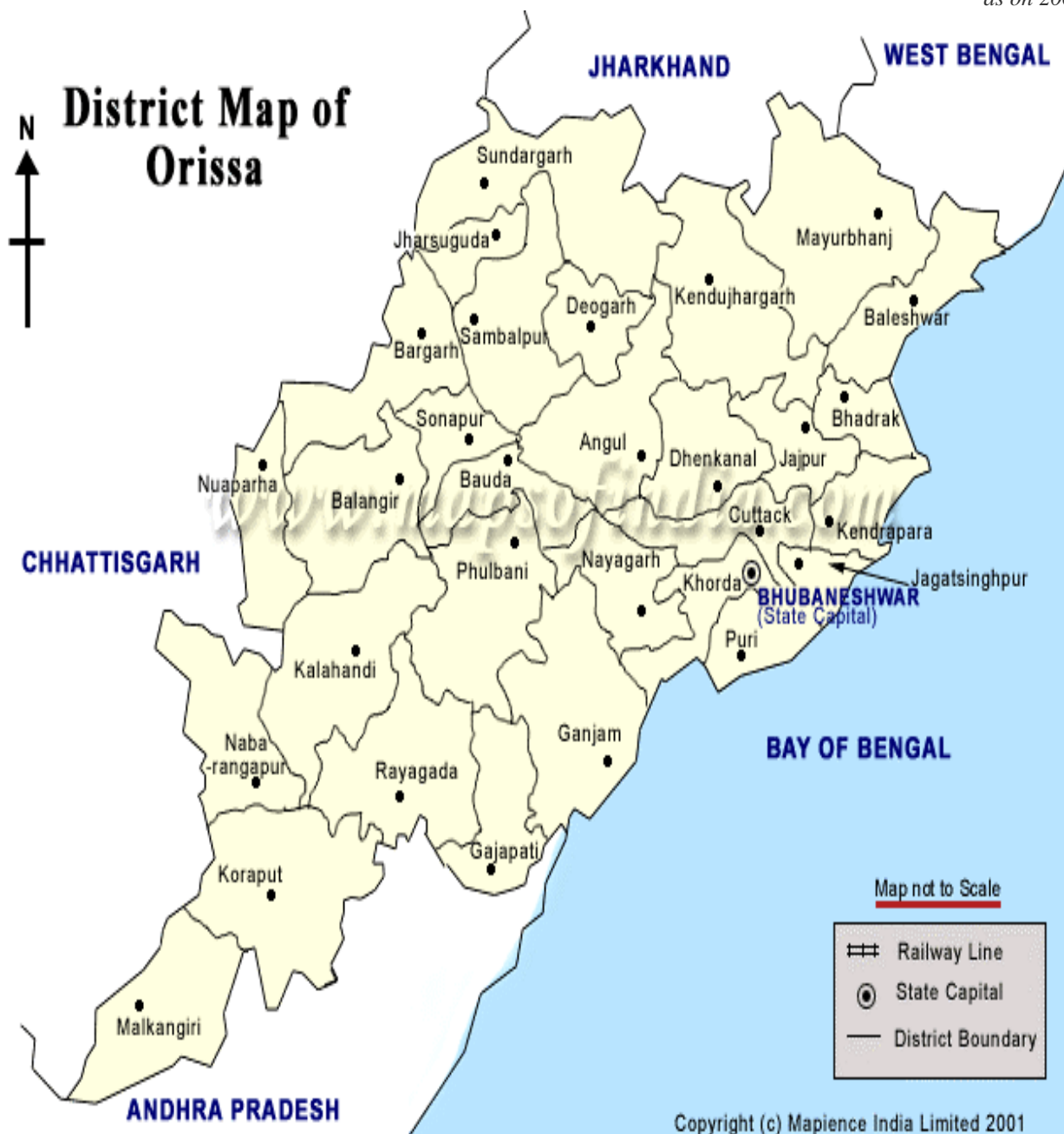


Table-3.1-Statistics about Coastal Districts

Sl. No.	District Name → Item ↓	Balasore	Bhadrak	Kendrapada	Jagatsinghpur	Puri	Ganjam	Total
1	Total No. of Blocks	12	7	9	8	11	22	69
2	Coastal Blocks	7	2	2	3	4	4	22
3	Total No. of GPs	257	166	205	165	204	444	1441
4	Coastal GPs	34	19	8	26	16	13	116
5	No. of Villages	2971	1307	1532	1391	1714	3171	12086
6	No. of Marine Fisher Villages (Govt. Record)	213	109	85	79	75	28	589

7	<i>Actual No. of Marine Fisher Villages</i>	78	24	22	43	28	25	220
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Source: District Statistical Handbooks, Directorate of Economics and Statistics, Orissa & District offices of the Department of Fisheries, Government of Orissa

3.3 Physical features of coastal Orissa:

The continental shelf area of 24,000 Km², of which about 65% is in the 0-50 m depth range (DOF, 1998:61), is widest off the northern district of Balasore (nearly 120 km in width), narrowing toward the south (extending up to 40 km) (BOBP, 1994:1), and this has implications on the fishing systems in the state. The coastline can be broadly classified into two distinct areas (BOBP, 1984:9; 1986:1; Ayyappan & Jena, 2000:241).

1. The shallower northern coast extending northwards from Rajnagar in Jagatsinghpur district to Kistania in Balasore district which has a broad shelf, gradual slope and greater tidal effect; and,
2. The southern coast extending southwards from Paradeep in Jagatsinghpur district to Pattisonapur in Ganjam district and which is narrower with broad sandy beaches and open surf-beaten shores.

While the north Orissa coast is shallow, muddy and calm and is characterised by tidal flats and extensive river deltas, the south coast has the surf-beaten sandy beaches (Ayyappan & Jana, 2000:241).

In the southern zone, the waters from Bahutia estuary to the mouth of Chilika Lake are considered to be the deepest region with a rocky bottom. The coastal waters from the mouth of this lake to Dhamra, although comparatively shallow, are rich with demersal and pelagic fish. The offshore region from Dhamra to the mouth of the Subarnarekha is much shallower and has commercial pelagic fisheries.

The difference in coast from south zone to north zone determines the fishing systems and post-harvest disposal of catches (XIM, 1991: 40). Naturally, a majority of small-scale fishing activities in the northern zone are conducted in the inter-tidal zone (which could extend up to 5-6 km from the shore) or in the shallow waters, and consist mostly of demersal species, whereas the southern zone specialises in open-sea based, often pelagic-dominated, fisheries.

3.4 Chilika Lake:

Nesting in the heart of coastal Orissa, Chilika is the largest brackish water lake in Asia and India's biggest inland lake. Spread over 1,100 square kilometers, stretching across the length of the three districts of Puri, Khurda and Ganjam. It is separated from Bay of Bengal by a sand bar whose width varies from 100 MTS to 1.5 Kms. A 32 Km long narrow outer channel connects the main lagoon to the Bay of Bengal near village Arakhakuda.

The water-spread of the lagoon varies between 1165 Sq.Kms to 906 Sq.Kms during monsoon and summer respectively. The lagoon is pear shaped, with a linear maximum length of 64.3 Kms and the average mean width of 20.1 Kms, the mean width during summer and monsoon is 14.08 Kms and 18.10 Kms respectively. The vegetation free area of the Lagoon is 726 Sq.Kms where as the area covered with macro-phyte and micro-phyte is 179 Sq.Kms (varies seasonally). The Lagoon is an estuarine one and it supports a unique assemblage of marine, brackish water



In winter the Chilika is a nesting place for various migrated & resident birds

migratory Waterfowl, Shore birds and resident birds visit the lake during the winter season. The Lagoon supports many endangered and endemic species of flora and fauna, thus it is a hot spot of Biodiversity and a wetland of International Importance.

There are 132 No. of fisherman villages with 12,363 active fisherman families. Traditionally the caste factor was considered to decide the occupation, i.e., those who belonged to the "Fisherman" community, used to do fishing in the Lagoon by use of traditional techniques. The traditional caste linked occupation structure is changing, for example some dominant caste farmers around Northern side of the Lake, who are affected by flood in perpetuity have entered into fishing and prawn culture. Thus the over dependency has led to depletion of fishery resources because it has gone beyond carrying capacity.

The total fish landing on an average was 6,000 Mts but it is gradually declining (Table A), the fish landing of 1997-98 is 1641.5 MTS. (Source - Fishery and Animal Resource Development Dept.) This decline can be attributed to composite factors like over fishing beyond carrying capacity, obstruction of migratory route of economic species (due to chocking of mouth and outer channel as well at Magarmukh). The Orissa Marine Fisheries Regulation Act prevents operation of off-shore vessels within 5 Kms of coast as the fish recruitment into Chilika Lake is mainly by spawners, which concentrate within 5 Kms of restricted fishing zone. (Courtesy: CDA web site and others)

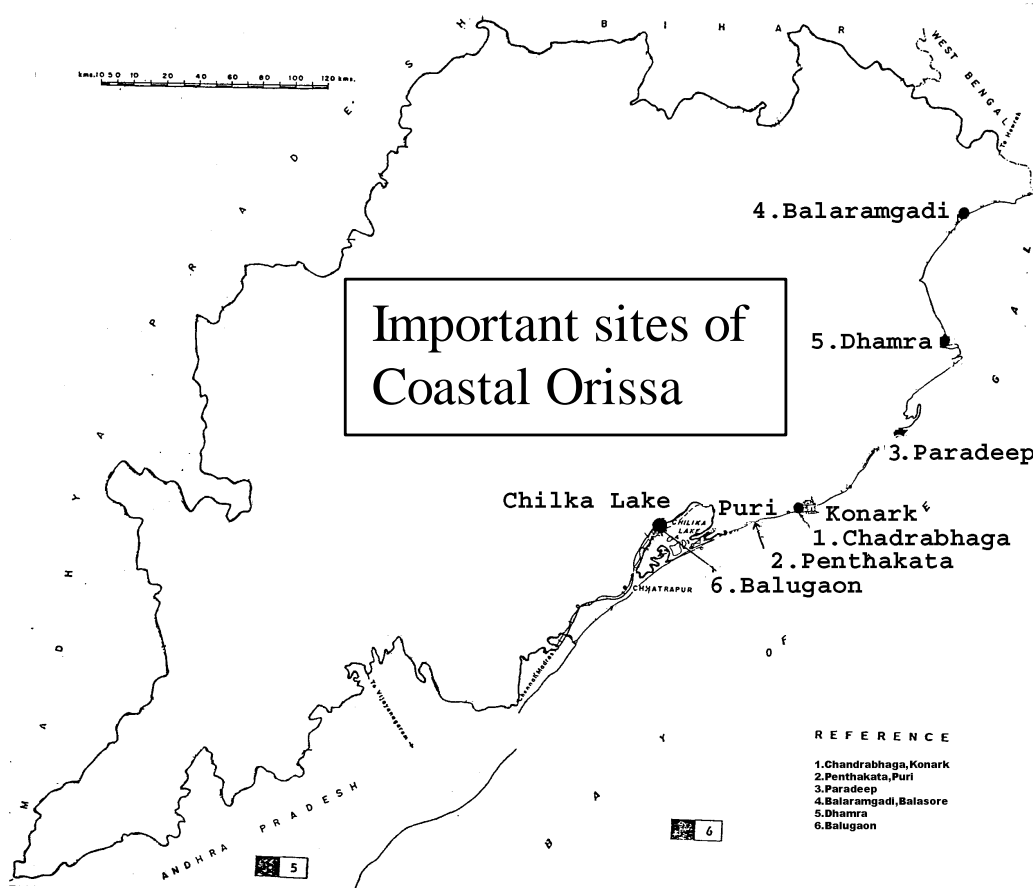
3.5 Mangroves:

The Gahirmatha beach of Bhitara Kanika where mass nesting of the endangered Olive Ridley turtle takes place was accorded marine sanctuary status in 1997. It is the second biggest mangrove forest in the country, next only to the Sunderbans of West Bengal (Ayyappan & Jena, 2000:244). Located in the Kendrapara District of Orissa, the Bhitara Kanika sanctuary spreads over 650 km² with a forest cover of 380 km², out of which mangroves spread over 115 km². It is also well known for the 'Ghadiyal' crocodile an endangered species in the world. The mangrove habitat acts as a nursery ground for many fish and shellfish species of commercial importance.

3.6 Tourism: The monument of Konark, temple town of Puri, Chilika Lake located on coast of Orissa have a high potential for tourism development. Number of hotels on the beach came up over the years, even in the area violating the CRZ Act. The effluents from hotels

were allowed to enter the sea without treatment, thereby polluting the sea and affecting the movement of fish within 5 km from the shore.

3.7 Port: Paradeep is the industrial town and port area located in the Jagatsinghpur District of Orissa. The restriction imposed by the port authority has affected the livelihood of the traditional fisher people.

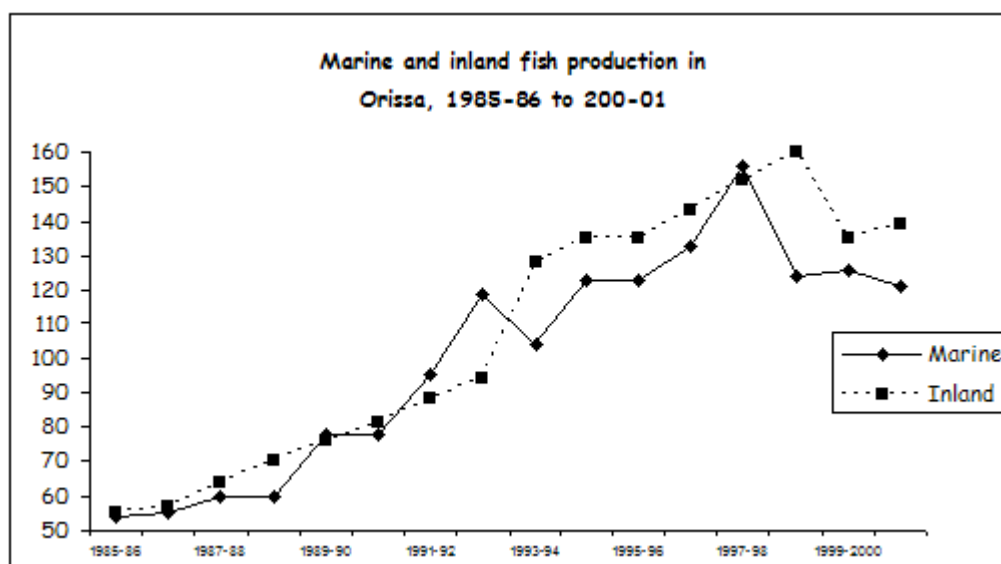


3.8 Missile Test Centre:

‘Chandipur’ located in the Balasore District of Orissa is well known for its ITR set up. The Balasore coast is also having breeding grounds for two rare species of horseshoe crabs, which are abundant along this coast.

3.9 Fisheries in Orissa

In Orissa, the total fish production has shown an increasing trend continuously since 1985-86, although production from brackishwater sources (i.e., Chilika Lake) showed a downward trend. Between 1985-86 and 2000-1, the total production increased from 108,700 MT to 260,000 MT (DOF, 1998:8; 2002:3), an increase of nearly 250%, as against a 58% increase for the country as a whole (GOI, 1996: 24-25). The production reached over 300,000 MT by 1997-98, but dropped to 260,000 in 2000-01. One reason for the drop has been reported to be the ‘super cyclone’ of 1999, which devastated the coastal areas, destroyed most of the fishing boats and reduced the fishing capacity of the people as a whole.



Source: Department of Fisheries (1997 & 2002)

Between 1985-86 and 1996-97, the marine fish production rose from 53,600 MT to 133,500 MT (250% increase), that of inland waters from 55,000 MT to 143,500 MT (an increase of 260%) (DOF, 1998:8) The marine production declined to 121,000 MT by 2000-01, while the freshwater production too dipped to 125,000 MT during the same period.

Total brackish water production in the state declined from 24,000 MT to 16,000 MT – a decline of 33% between 1985-86 and 1996-97, although production from brackish water culture sources rose from 205 MT in 1985-86 to 6430 MT in 2000-01 accounting for nearly 45% of the total brackish water production. The contribution from inland and marine sectors was more or less constant over the period, each contributing approximately half of the total landings (DOF, 1998:10). In terms of value, inland fish contributed 60 percent (Rs. 6291 million) in 2000-1. The contribution of freshwater fish in terms of value may be declining in comparison with the marine fish over the last five years (Department of Fisheries, 2002: 6). The total fish supply in 2000-01 was 260,000 MT.

Freshwater fish being one of the main ingredients of food of the people in the state, inland fisheries and freshwater aquaculture have a great importance (Ayyappan & Jena, 2000:240). The state has 115,000 ha of tanks/pond resources; 256,000 ha of reservoirs; lakes, swamps and heels with an area of 180,000 ha; and rivers and canals of 155,000 ha, with a total productivity of over 300,000 MT suitable for fisheries development (DOF, 1998: 17). The present level of exploitation is however limited to just over 55% of the estimated potential (Ayyappan & Jena, 2000: 240).

There are numerous rivers in the state, which are as follows (DOF, 1998: 57):

District	Major rivers
Balasore	Subarnarekha; Panchupara (Dubdubi); Budhabalang
Bhadrak	Dhamara
Kendrapara	Gobari, Hansua
Jagatsinghpur	Mahanadi
Puri	Devi, Kusabhadra
Ganjam	Rushikulya, Bahuda

DOF (1998: 35) lists a total of 35 important rivers in Orissa. The total freshwater production from different sources (tanks/ponds, reservoirs, lakes/swamps/heels, rivers and canals) was estimated to be 125,000 MT in 2000-01, which was four times higher than that for 1985-86 (31,000 MT) (DOF, 1998: 17), but which, like marine fisheries, has shown signs of stagnation through the late-1990s. Capture fisheries accounted for about a quarter of the freshwater production.

According to the GOI (1996:139), there were some 31,600 ha of brackish water lands suitable for aquaculture in Orissa. Puri (4,500 ha), Jagatsinghpur (2,570 ha.), Kendrapara (1800 ha) and Ganjam (1500 ha.) had the largest concentration of aquaculture lands.

Brackish water aquaculture in the state grew very rapidly. Ayyappan and Jena (2000: 240) mention that in 1983-84 brackish water aquaculture was confined to only 23.5 hectares, BOBP (1984: 70) reports that in 1984, about 240 ha were under aquaculture. By 1993, it went up to 9600 ha (DOF, 1993: 57), and in 1997, DOF (1998:41) reports that some 12,500 ha were developed for aquaculture. Of this, 11,500 ha (92.3%) were under extensive, 320 ha (2.5%) under modified extensive and 637 ha (5.13%) under semi-intensive cultivation (Ayyappan & Jena, 2000:240).

The total number of farmers increased from 6,618 in 1993 (DOF, 1993:57) to nearly 9,000 in 1997 (DOF, 1998:41), and it can be assumed that the need for workforce in the aquaculture industry could have increased work opportunities for coastal poor living adjacent to the areas where aquaculture is practiced. However, field research in villages such as Balarampur indicated that most aquaculturists preferred to bring workers from elsewhere – for instance, tribals from inland areas – to work in the farms rather than to employ the local fishers for fear of pilferage. The fishers too seemed disinclined to work in aquaculture, which they claimed was not a traditional activity for them and also working in the ponds gave rise to skin and other health related problems.

3.10 Foreign exchange earnings from seafood

In Orissa, there has been an increase in the export of fish and fishery products both to the outside state markets and abroad. In 2000-1, the total fish production of the state was valued at Rs. 10458 million and the earnings from exports to other countries amounted to Rs. 3,800 million or a little over 30 per cent (DOF, 2002:6 & 74). In comparison, the value of exports in 1992-93 was about Rs. 900 million or 24 per cent of the total production from the state (DOF, 1993:13 & 76), indicating that exports were becoming increasingly important to the state's economy.

However there are indications that the quantities of fish/shell fish exported from Orissa (to both export and ex-state markets) are stagnating or even declining (Department of Fisheries, 2002:6), as the following table indicates:

Table-3.2- Year wise Income from Fishing Sector in Orissa

<i>Year</i>	<i>Marine fish</i>	<i>Freshwater fish</i>	<i>Brackish water fish</i>	<i>Total export</i>
1995-96	71455	12194	6322	89971
1996-97	73404	10183	7777	91364
1997-98	83659	11421	5345	100425
1998-99	68381	10875	6704	85960
1999-2000	69914	9984	4436	84334
2000-01	61755	6256	7070	75081

3.11 Issues related to Marine Environment in Orissa:

1. The Department of Soil Conservation (DOSCC), Government of Orissa, in its area development report for coastal Orissa identifies the following issues as of major importance:

- Floods and cyclones
- Drainage congestion and water logging
- Resource use conflicts as a result of growing population and unplanned resource use
- Degradation of coastal wetlands due to siltation, unplanned growth and management etc.
- Suspended sediments
- Shoreline changes due to land degradation and erosion
- Loss of mangroves and other coastal vegetation
- Coastal salinity
- Shifting sand dunes

2. According to the Handbook on Fisheries Statistics (2000-1), Orissa has a total of 589 marine and 3289 inland fishing villages. These figures are rather perplexing, because in the two previous year books of the Department of Fisheries, for 1992-93 and 1996-97, the number of marine fishing villages was given as

329, and the inland fishing villages as 6895 and 6899 respectively. Comparing with a techno-demographic study by the BOBP (BOBP/WP/29) published in 1984 which gives a number of 236 marine fishing villages for Orissa, and is further substantiated by CMFRI's extensive appraisal of marine fisheries of Orissa (1987:6), it is difficult to believe that the numbers have grown so rapidly as to more than double within 15 years. It is possible that, in the post-1999 cyclone period, many inland (or estuarine) fishing villages were included in the marine category in order to make them eligible for receiving support under different relief and rehabilitation packages. This also explains (though only partly) the decline in the number of inland fishing villages during the period.

3. Overexploitation of coastal resources and the impact of land-based activities and ship traffic on the marine fishers. Over the last 25 years there has been a considerable influx of non-fishermen communities into the fishing sector. Entry of more people tends to encourage over exploitation

4. Weak enforcement of rules and laws and a fragmented approach towards the implementation of government policies is a serious concern.

5. The Notification on Coastal Regulation Zone (CRZ), 1991, ensures protection to the coastal zone. However, a number of problems occur in its enforcement

6. The Marine Fishing Regulation Act (MFRA), 1978. In consistency with the guidelines contained in the MFRA, 1978, which is a model act, providing guidelines to the maritime states, legislations have been enacted and enforced for regulating fishing and conservative measures in territorial waters. Such state enactments provide for regulation of mesh size to prevent catching juvenile fish, regulation of gear to prevent over-exploitation of certain species, reservation of zones for various fishing sectors to provide exclusive rights to traditional fishermen to fish unhindered in near-shore areas and also for declaration of closed seasons during the fish-breeding period to avoid catching of young juvenile fish.

Chapter-4

Artisan Marine Fisher People in Orissa :

There are six coastal districts present in two zones of Orissa. Besides the oceanographic features, marine resources and fishing technology, the north and south zones are also distinct in terms of the geographical and linguistic origin of the fishing communities inhabiting in each zone.

4.1 The Telugu fishers of the southern zone:

The south zone is dominated by the Telugu Fishers, who can be further differentiated into permanent residents and migrant-settlers. The permanent residents known as 'Nolias' are primarily located in Ganjam and southern parts of Puri. They are no doubt migrants from Andhra Pradesh and settled here, however there is no record to indicate the time of their arrival from Andhra Pradesh.

4.2 The Telugu fishers of the central zone:

The migrant Telugu/Andhra communities are to be found almost entirely in the central zone. There are two categories within the migrant communities: the permanent settlers and the temporary migrants, The permanent settlers began appearing in Puri area from Andhra Pradesh as early as 1940s and 50s, and the process continued right up to the 1980s. These fishers are considered the most enterprising sea-fishers in the entire upper east coast of India.

Besides the permanent settlers, Orissa also a fishing ground to a large number of temporary fishing migrants from Andhra Pradesh, who camp along the beaches of the state for four to five months every year, and return to their native places at the end of fishing season.

4.3 The Bengali & Bangladeshi settlers of the northern/central zone:

The northern zone is mostly inhabited by the Bengali fishermen, who were settlers from the erstwhile East Bengal and also from W. Bengal beginning from around the middle of the 20th Century. Kalavathy, in Tietz (1986:59), states that while the tradition of sea fishing in the southern districts is as old as that in Andhra Pradesh and Tamil Nadu, it started much later in the northern zone, stimulated by an increasing demand for marine fish from other Indian states and cities and by the export prospects for shrimp.

At the time of 1971 war of independence in Bangladesh, the last batch of migrants entered the northern parts of Orissa, and began fishing operations in the estuarine, riverine and marine waters upto the central zone of Orissa.

4.4 Caste & Culture :

Fishing is almost entirely confined to traditional Hindu castes in Orissa. There is an increasing trend among the fishing communities in the southern zone, particularly in the Puri- Paradeep area-

to convert to Christianity and also in some remote villages in the southern zone. Some of the Bangladeshi fishers are Muslim by caste.

The Telugu fisherfolk in the southern zone are called the Nolias, and they belong to two different castes- Jalaris and Vadabalajis. In the northern zone, numerous castes have taken to sea fishing. Those who were originally practicing estuarine and inland fishing were the first to move into marine fishing and later join by others. Traditional Oriya/Bengali riverine and estuarine fishing castes of North Orissa are Kaibarta, Gukha and Rajbansi who came to marine sector later on. Khandayats are the non-traditional Oriya fishing caste in the state, who entered sea-fishing mainly by investing in fishing boats and nets the surplus money they have accumulated in agriculture.

4.5 Livelihood groups in the fishing sector:

The marine fisheries sector on the east coast of India can be broadly classified into artisan (or traditional) and modern (or mechanized), although the distinct between the two is fast vanishing as a result of the appearance of many intermediate types, degrees of adoptions of technology by the artisan sector and levels of investment.

There are at present broadly five functions in the division of traditional fishing economy, and these are:

- Production. i.e. catching fish;
- Processing of fish;
- Marketing of fish;
- Finance & credit;
- Manufacturing of the assets.

4.6 Livelihood assets of the Marine fishers in Orissa:

The fishers are associated with a range of assets to catch fish. Those are 1) physical assets (boats, nets, iceboxes, etc); 2) social assets (person power for fishing, processing and trade); 3) human assets (knowledge and skill related to fishing and life cycle of fish); 4) natural assets (sea, sea beach, estuarine, riverine, coastal forest, etc.); & 5) financial assets (credit and saving).

4.7 Physical/Livelihood Assets:

Crafts and nets are the livelihood assets for the fisher people. The fishing craft vary in the north and south zone of Orissa. The rivers along the northern coastline provide sufficient shelter and water deep enough to allow the operation of plank-built displacement boats. The most common craft in the northern zone are the Danga and the Dhingy. The other types include the Salti, Chhoat, Patia and Sabado. In the southern zone, log rafts or catamarans (called Teppas) operate

from the beach. Other boats in the south are the bar boat and the Nava. FRP boats were considered as mechanised boats and

The types of fishing gear operated reflect the environmental conditions. Gill nets and lines are used all along the coast, but have different specifications in the north and south of Orissa. In case of gillnets, those of small and medium mesh sizes, which are primarily aimed at sardines, anchovies, mackerels and prawns are operated in the south. Other typical gears of the south are the boat seines, longlines and lift nets. Medium and large mesh sized gillnets, meant mainly for Hilsa and pomfrets, are used in the north. Apart from gillnets, the typical gears of the north, with its tidal areas, are set bag nets, tidal wall nets and encircling gillnets. In the extended shallow shelf areas off Balasore coast, encircling nets and inshore seines are operated. The river mouths and estuaries of Jagatsinghpur, Kendrapara and Balasore districts are used for the operation of set bag-nets.

Fishing craft	Zones where represented	Main fishing gears used
Catamarans	South	Bottom & surface gillnets, trammel nets, hook & lines
Barboats	South	Shore-seines
Nava	South	Gillnets, trammel nets, hook & lines
Salti	North	Encircling nets, driftnets, shore-seines
Dingi/Danga	North	Encircling nets, driftnets
Patia	North	Encircling nets, driftnets
Sabado	North	Encircling nets, shore-seines, gillnets
Choat	North	Encircling nets, driftnets, shoreseines

Sources: BOBP, 1984:3; 1986; Tietze, 1986: 40

Motorisation of fishing crafts in Orissa began in 1956 (BOBP/INF/7:1). In 1996-97, there were a total of 1636 mechanised boats in the state, of which 661 were wooden trawlers, 288 'Sona' trawlers (14 metre boats), and 687 gill-netters. The motorised crafts numbered 3643, including 85 FRP Beach Landing Crafts and 2316 boats fitted with inboard engines and 1242 boats with outboard engines (DOF, 2002:vii). The number of trawlers increased from 376 in 1985-86 to 949, that of gill-netters from 293 to 687. In 1980, there were 10,550 traditional, non-motorised boats in the state, and no motorised boats (CMFRI, 1980: 10), but by 2000-01, the traditional boats have decreased in number to 7,000, while motorised boats showed a corresponding increase to 3643.

4.8 Social & Human Assets:

The introduction of mechanized boats in the early 1970s has set in motion a process of change, which accelerated through the 1980s and culminated in 1990s. The new boats split the craft-owning class into two: those who made the change to trawling, and those who remained behind as traditional craft owners. The success of these boats attracted many outsiders into fishing, and for the first time, people from non-fishing background entered the sector, their contribution being confirmed to investment in the craft, but their influence extending beyond mere shore-based management. The new owner-crew relationships redefined the traditional systems of sharing.

Within the artisan sector, as motorization gathered momentum as a result of i) support provided by the government, ii) increased competition in the near-shore waters, iii) need to move further out, iv) scarcity of wood and availability of alternative boat building materials like FRP, there was another split among the craft-owning classes: those who managed to shift to motorized boats, and those who remained with the 'traditional' systems of fishing. Moreover, traditional fishing was a manual operation requiring much hard work and fishers widely welcomed the motorisation programmes. Consequently, non-motorised fishing became more or less a dying art.

4.9 Natural Assets:

Fishing and fish landing, processing and trade are all carried out in areas, which are generally open access (the sea) or common property (rivers, creeks, sea beaches). The use rights and tenurial arrangements to these resources and the terms of access depend upon and in turn determined by, a host of social, political, cultural and economic criteria. In order to facilitate growth of the industry, sanctuary and tourism, the state ignored or refused to acknowledge the existence of customary codes of practice and management governing the use of coastal commons and either encouraged open access to all and sundry, or claimed ownership and restricted or closed access to them for traditional users. In coastal Orissa, now closed access to the Common Property Resources (CPRs) is a great tension for the traditional fisher people.

4.10 Financial Assets:

The change in the fishing systems from subsistence-based activities to commercial operations from simple, low-cost operations to comparatively hi-tech, high-investment operations, from catering to local markets in simple forms to exporting to sophisticated international markets, has brought about an increasing dependence upon credit amongst the boat owners, and in due course, the fishing crew as well. In time, with dwindling fish catches, and increasing lean fishing days, dependence on credit itself has become a livelihood activity for parts of the year. The fishers and

fish processors are indebted to the moneylenders for their production and consumption loans, and as a result, lose the freedom to sell their product.

4.11 Orissa Traditional Marine People & Associated Organisations:

United Artists' Association (UAA) a NGO based in District Ganjam is associated with the traditional marine fisher people since 1980 & with the support of **Action Aid India** a long term 'Fisher Folk Development Project' was in operation in 15 marine villages of District Ganjam & Puri. In the year 1993 the project was started focusing on the livelihood issues and withdrawn in 2002 with handing over the project to two traditional marine fisher peoples organizations named as '**Samudram**' & '**OTFWU**'.

During the year 2003 'Samudram' & 'OTFWU' jointly identified their issues and took up lobbying activity for asserting their rights. A status assessment study of the marine fisher villages in the six marine districts of Orissa was planned to organize by these two organizations to assess the strength, weaknesses of the traditional fishers and issues related to them.

Chapter-5

Socio-economic and demographic profile of coastal communities of Orissa

5.1 General Context of Coastal Orissa:

According to the 2001 census, the state has a population of 37 million (GOI, 2003:786), which grew at an annual growth rate of 1.5% (GoO, 1997:1/3). About 85% of the population, or 31.21 million people, live in the rural areas, while the urban population number 5.5 million (NIRD, 2003:4) [1] . The number of females to every 1000 males stands at 963, with the total numbers being 18.61 million males to 18.09 females. In the rural areas, there are nearly 974 women for every 1000 men, the actual numbers being 15.71 and 15.50 millions respectively for men and women.

The poverty line in Orissa is drawn at Rs. 323.92 per month per capita in 1999-2000. People below the poverty line number 14.3 million people or 48 percent of the population in the rural areas, 2.5 million or 42.83 percent in urban areas, taking the total number of poor below the poverty line in the state to 17 million, or 47.15 percent of the population (NIRD, 2003: 94).

The percentage of rural population below the poverty line (BPL) in Orissa declined from 67.3% in 1973/74 to 48% in 1999-2000, while in the urban areas, it declined from 55 to 41.6 percent in 1993-94, rising up to 43 percent in 1999-2000 (NIRD, 2000:85; 2003: 91, 93-94). In spite of this, the actual numbers of BPL families could possibly have remained constant, or even increased during this period. For instance, while the percentage of overall BPL population in the state declined from 48.56 per cent in 1993-94 to 47.15 percent in 1999-2000, the actual number rose from 160 lakhs to 169 lakhs.

The following table gives the numbers of rural families below the poverty line in the six coastal districts

Table-5.1- BPL Families in Coastal Districts of Orissa

<i>District Name</i>	<i>Rural Families</i>	<i>Rural Families Below Poverty Line</i>	<i>Percentage of BPL families to rural families</i>
<i>Balasore</i>	<i>167974</i>	<i>121550</i>	<i>72</i>
<i>Bhadrak</i>	<i>215185</i>	<i>136849</i>	<i>64</i>

<i>Kendrapara</i>	<i>219436</i>	<i>131424</i>	<i>60</i>
<i>Jagatsinghpur</i>	<i>172300</i>	<i>92920</i>	<i>54</i>
<i>Puri</i>	<i>236721</i>	<i>163639</i>	<i>69</i>
<i>Ganjam</i>	<i>478899</i>	<i>293493</i>	<i>61</i>
<i>Grand Total</i>	<i>1490515</i>	<i>939875</i>	<i>63</i>

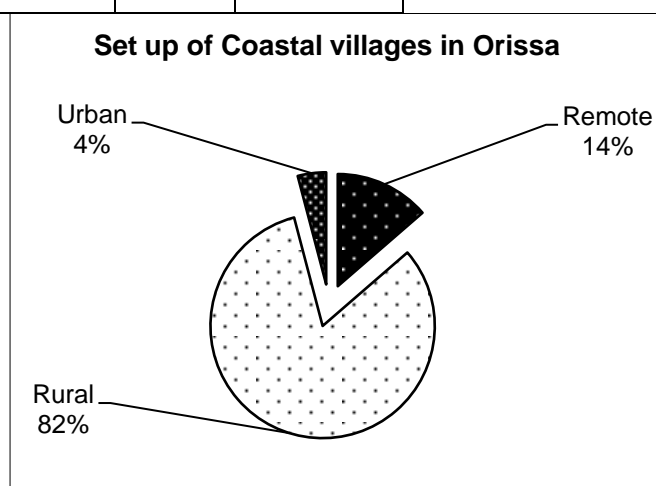
Source: BPL SURVEY' 1997, Undertaken by DRDAs, Panchyatiraj Department, Govt of Orissa

5.2 Location of Fisher Villages:

There are present 220 marine villages in the Orissa coasts. Among these 220 marine villages 30 villages are in remote areas, 181 in rural areas and only 9 villages are in urban patches. The following table gives the detail information about the location of marine villages in different coastal districts.

Table-5.2- Locations of Coastal Villages in Orissa

District	Remote	Rural	Urban	Total
Balasore	12	66	0	78
Bhadrak	2	19	3	24
Kendrapada	5	17	0	22
Jagatsingpur	9	32	2	43
Puri	1	24	3	28
Ganjam	1	23	1	25
Total	30	181	9	220



5.3 Demographic Features in Fishing Communities:

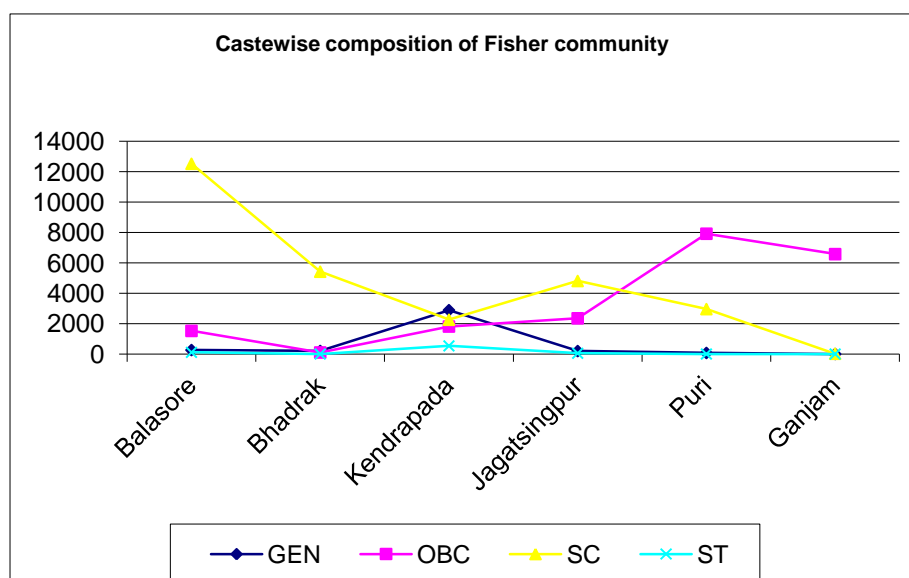
Normally fishing and allied activities are an occupational pattern for the low

status people. But as the return from this sector goes up the upper caste people invest more in the fishing vessels and exploit the lower caste fisher people. Some of the poor families from the upper caste also make interest in fishing due to the open access to sea and make it as their primary livelihood. The caste wise composition of fisher families in the district varies from each other.

The table below gives the detailed information regarding the caste wise composition of fisher communities in the state.

Table-5.3 (i) Caste Compositions among Fisher Communities

District Name	Fisher Families					
	General	OBC	SC	ST	Total	%
Balasore	261	1522	12529	110	14422	27
Bhadrak	200	100	5420	0	5720	11
Kendrapada	2887	1810	2257	534	7488	14
Jagatsingpur	193	2352	4809	48	7402	14
Puri	70	7922	2957	0	10949	21
Ganjam	0	6579	16	0	6595	13
Total	3611	20285	27988	692	52576	100
Percentage	6.9	38.8	53	1.3	100	



The above graph mentions that there is great variation in between them as per the caste point of view. It is mainly due to the reason that the fishers in the Balasore, Bhadrak & Jagatsingpur districts the oriya origin fisher people diverted to marine fishing and in other districts they are migrated from other states but not recently. They have settled in Orissa at least for three generations and became a vote bank for the politicians but not getting the genuine rights.

The Government norms and conditions always change for fixing the BPL families. Though in general the poverty declines but poverty increase in the traditional fishing sector due to various related components. The number of BPL families who receives benefits from the social welfare schemes is much more less than the as the data shows in the table below.

Table-5.3 (ii)- BPL Status among Coastal Districts in Orissa

<i>District Name</i>	<i>Fisher Families</i>	<i>BPL Families</i>	<i>Percentage to Total</i>	<i>BPL Beneficiary</i>	<i>Percentage to Total</i>
<i>Balasore</i>	14422	12791	89	8647	60
<i>Bhadrak</i>	5720	3088	54	1900	34
<i>Kendrapada</i>	7488	3181	42	2137	29
<i>Jagatsingpur</i>	7402	3887	52	1436	19
<i>Puri</i>	10949	3933	36	1495	14
<i>Ganjam</i>	6595	3743	57	1401	21
<i>Total</i>	52576	30623	58	17016	32

The data shows that in general the number of BPL families is 58 percent and actually get some benefits from the Government is 32 percent. It also reflects that the number of BPL beneficiary is more in northern zone as compared to the southern zones.

5.4 Population:

The findings of the studies carried out suggest that, contrary to the general trend, the number of coastal fishers has increased in large parts of six districts of Orissa but the trend for female population declines drastically as compared to the state where female per thousand male is 976 in rural areas. It will be seen that this diversity is not primarily explained by demographic factors, at least not those of natural growth (fertility and mortality).

5.4-a Fertility and its factors:

When compared with other rural residents, fisherfolk have been found to have slightly higher fertility. This is in line with a set of conscient attitudes towards family formation, which point to earlier age at marriage and higher number of children desired. As has been noted elsewhere, the circumstances of fishing populations are of the kind typically conducive to high fertility: families with an abundant labour force are at advantage in the exploitation of fishery resources — because of open access — and a large offspring facilitates a strategy of diversification of sources of income, which is important because of the alienator nature and low productivity of fishing.

5.4 b Mortality and natural population growth: Mortality also is higher in fisherfolk populations than in neighboring farming populations. One is tempted to attribute this to the hard and dangerous way of living implied by fishing at sea. The number of widow, destitute and divorcee is higher as compared to other occupational populations.

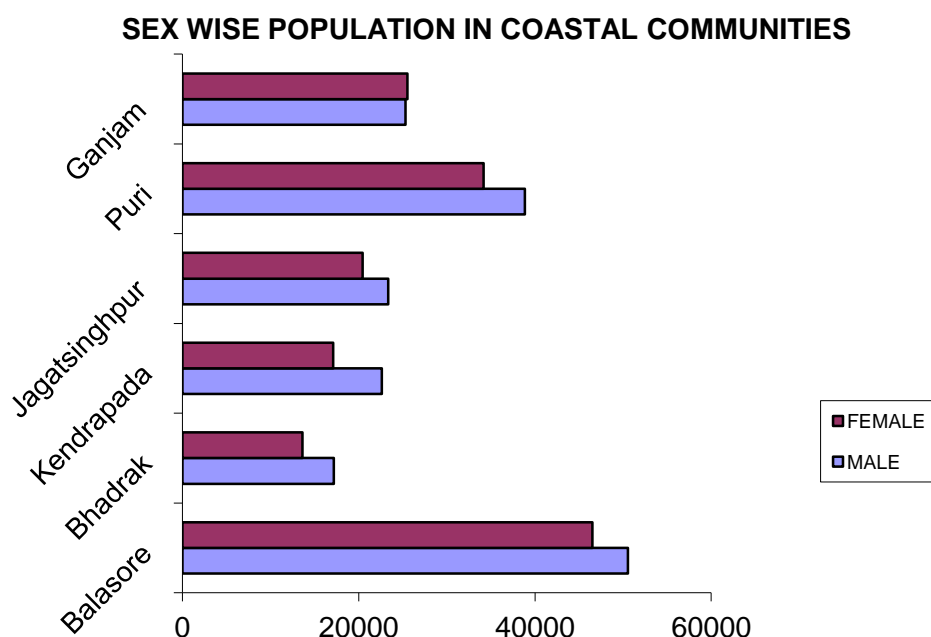
The following table gives information on the total number of fishing households and population in six coastal districts of Orissa.

Table-5.4-Information on Status of Coastal Fisher Populations

District	No of households	Population of fishers			
		Male	Female	Total	Sex Ratio
Balasore	14422	50566	46527	97123	920
Bhadrak	5720	17188	13599	30787	791
Kendrapada	7488	22613	17106	39979	756
Jagatsinghpur	7402	23336	20426	43762	875
Puri	10949	38838	34160	72998	880
Ganjam	6595	25306	25543	50829	1009
Total	52576	177847	157361	335208	884

Source: Compiled from Survey Data

The average family size of the fisher people is 6.4 and nearly same in all districts but a slight more in case of district Balasore as compared to others, which shows more than 7. There are present 884 females at per with 1000 males in the state, but district Ganjam shows a reverse trend where the female per 1000 male is 1009. The lowest composition shows in Kendrapada district, which shows that there are present 756 females at per 1000 males in fisher community.



5.5 Occupation:

The micro-level studies carried out define that fisheries no longer seem to be a “last resort employment” for people in coastal areas of Orissa. They have diverted to other sector due to various reasons and one of the main causes is declining trend of fish catch.

The fisher people engaged in other occupations vary according to their local surrounding. Mainly there are present two types of fishers in the marine sector i.e. full time & part time. The fisher people who have other livelihood assets such as river, cultivable land, estuarine, etc, they have part time diverted to that occupation to live a healthy life. Still a large number of fishers preferred to join as a daily labour in construction sides, brick kilns, and some educated young fishers migrated to other cities in search of other job in industries and uneducated youths to the mechanized fishing sectors in their native place or in neighboring states.

A plausible explanation for these changes might be that the declining fish catches, income per fisher on the one hand, economic growth and rising levels of education on the other hand, alternative and economically more rewarding employment opportunities have developed outside the fisheries sector, facilitating vocational mobility. Government policies aiming at a reduction and limitation of fishing effort, conservation, and the rehabilitation of fisheries resources could also have played a role in forcing fisherfolk out of their traditional occupation.

In all the villages studied in north & central zones of Orissa, fishing and farming dominate, but in south it is only fishing. In south zone the women fishers dominated the labour force to run their family requirements.

The male fishers engaged with fishing and allied activities such as fish business, dry fish business, dalali, boat repairing and machine repair. Only in south zone the fisher women are engaged with the fishing related activities and a few needy destitute women in north and central zones also do the same. Mainly they are treated as small scale fish vendors/ head loaders, dry fish processor and seller who were engaged with fishing related activities but a large number of fisher women counted as a daily labour and also engaged with prawn juvenile collection.

5.5 a Active fishers:

According to the study there are about 39,756 active marine fishers – meaning boat owners and crew. The total number of boats is about 11,631 (of which the non-motorised/traditional boats number over seven thousand). The total number of fishing crew families is nearly 65 per cent to

the total active fishers. The existence of a sizeable workforce of unemployed fishers in most fishing villages could account for the gap in this estimate and the actual numbers of fishers. Some boat owners – particularly in mechanised category – do not work onboard anyway.

The following table gives a narrated report on the net and boat families & number of active fishers.

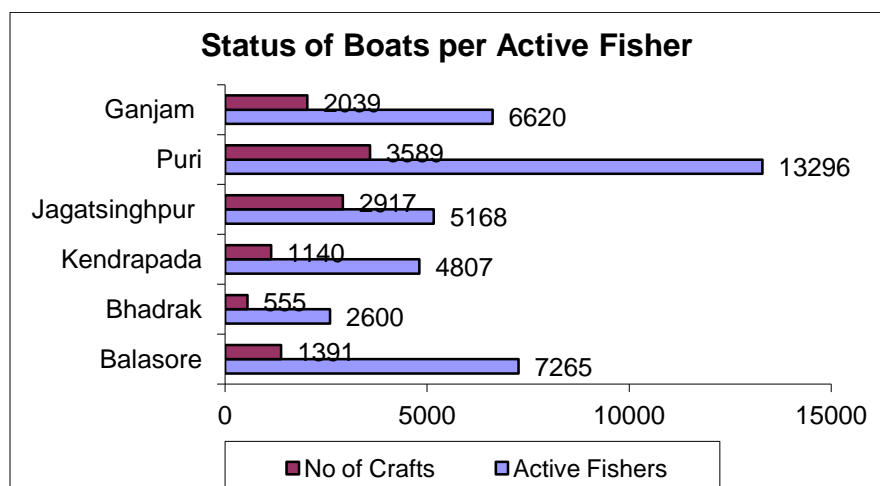
Table-5.5.1- Net & Boat Families

<i>District</i>	<i>No of households</i>	<i>Net & Boat Families</i>			
		<i>Personal</i>	<i>Group</i>	<i>Raita</i>	<i>Total</i>
<i>Balasore</i>	14422	1266	626	5373	7265
<i>Bhadrak</i>	5720	498	334	1768	2600
<i>Kendrapada</i>	7488	1077	85	3645	4807
<i>Jagatsinghpur</i>	7402	2704	1067	1397	5168
<i>Puri</i>	10949	3256	286	9754	13296
<i>Ganjam</i>	6595	1932	260	4428	6620
<i>Total</i>	52576	10733	2658	26365	39756

The statistics shows that there are 22 per cent families have fisher livelihood assets means boats to directly explore the seafood i.e. fishes and rest 78 per cent fisher families directly or indirectly depends on them. The total number of boats licensed to the total boats have is 40 percent which shows that other 60 per cent fishers are still not benefited in any accident to their vessels.

Table-5.5.2 District wise status of Boats

<i>District Name</i>	<i>Total No. of Fisher Families</i>	<i>Total No. of Crafts</i>	<i>% to total families</i>	<i>Number of Licensed Boats</i>	<i>% to total Boats</i>
<i>Balasore</i>	14422	1391	9.645	374	26.8871316
<i>Bhadrak</i>	5720	555	9.7028	59	10.6306306
<i>Kendrapada</i>	7488	1140	15.224	607	53.245614
<i>J.S.Pur</i>	7402	2917	39.408	673	23.071649
<i>Puri</i>	10949	3589	32.779	2142	59.6823628
<i>Ganjam</i>	6595	2039	30.917	809	39.6763119
<i>Grand Total</i>	52576	11631	22.122	4664	40.0997335



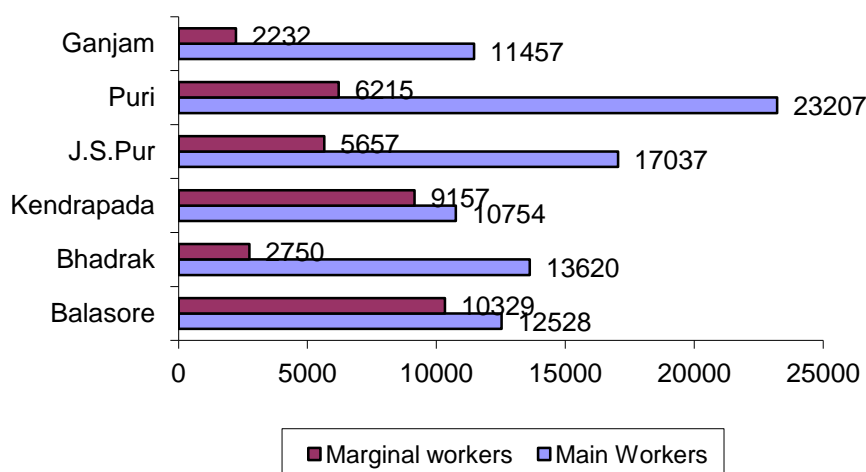
The graph gives the ratio of active fishers to total fishing craft in Orissa, which indicates that the ratio of active fishermen to crafts has approximately 4 in total but it varies from districts to district because of the size of the boat and also motorized.

The study reflects that there are nearly 81 thousand male main workers and 8 thousand female main workers living in the coastal districts of Orissa. In the main work force the active fishers, ancillary fishers, daily laborers, services, etc. is taken to whom the family needs primary earning. The secondary sources of earning occupations are included in the marginal category. The female work force in the marginal category is 3 times more as compared to the main female workers.

Table-5.5.3- Status of Work Force

District Name	Main Worker			Marginal Worker		
	Male	Female	Total	Male	Female	Total
Balasore	11506	1022	12528	8937	1392	10329
Bhadrak	12408	1212	13620	1505	1245	2750
Kendrapada	10392	362	10754	8260	897	9157
J.S.Pur	15300	1737	17037	4330	1327	5657
Puri	20830	2377	23207	4160	2055	6215
Ganjam	10195	1262	11457	556	1676	2232
Grand Total	80631	7972	88603	27748	8592	36340
Percentage	91	9	100	76	24	100

Main & Marginal workers



5.5 b Ancillary fishworkers:

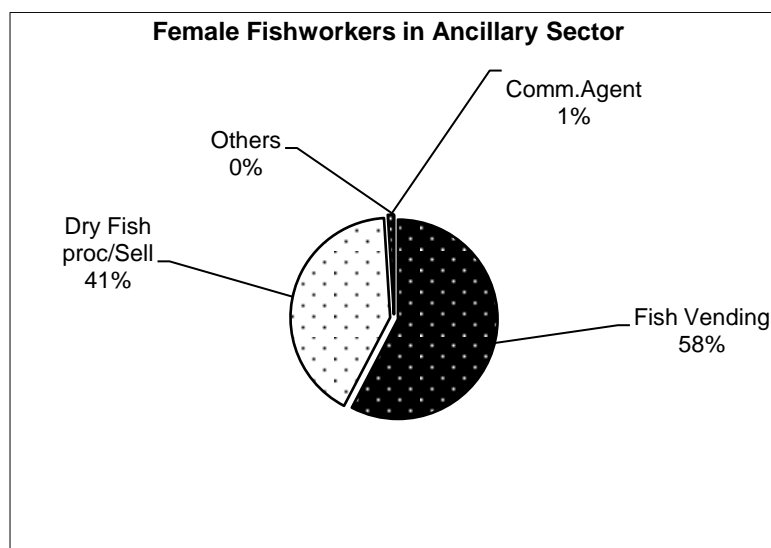
In general the ancillary fishworkers include the handlers and processors, commission agents, middlemen, carriers and transporters, truck and bullock cart operators, peelers and shrimp head-removers and processors, packers and handlers, exporters and processing plant operators, ice makers, sellers and crushers, besides technicians, crate and basket makers, insulated systems manufacturers and sellers etc. But in case of the traditional marine fishers the activities they have involved in fish business, dry fish processing & selling, commission agents, boat and machine repairer. It reports that there are over 43,000 people in ancillary occupations. This shows that there are more number of ancillary fishers as compared to active fishers. In district Bhadrak the ancillary workers is much more compared to other districts the reason may be the Dhamara Landing Center and less number boats functional due to trawlers.

Table-5.5.4-Ancillary Traditional Fishers

District Name	Fish Business		Dry Fish		Commission Agent		Boat & Machine Repair	
	Male	Female	Male	Female	Male	Female	Male	Female
Balasore	1213	942	819	765	269	27	203	0
Bhadrak	4170	3014	2012	1167	908	18	272	0
Kendrapada	311	306	146	141	22	2	177	0
J.S.Pur	1340	1292	1268	1235	150	42	129	0
Puri	1306	1107	1415	1254	30	30	93	0
Ganjam	256	1346	198	1181	58	18	18	0
Grand Total	8596	8007	5858	5743	1437	137	892	0

5.5 c Women in fisheries-related activities:

Within the ancillary category, some 13,877 people are women. Women play an important role in processing and trade within the local markets. Several women are also known to travel much longer distances to ex-state markets for selling their dried fish. Using the figures presented in the above table, it is calculated that there were about 5,743 small-scale fish processors in Orissa, using the thumb rule that for every 15 active fishers in Orissa, there was one small-scale processor. It is also revealed from the data that in ancillary sector there are present one women for every 3 ancillary worker. Women have diversified from fish processing operations because of lack of fish and increased competition from other traders.



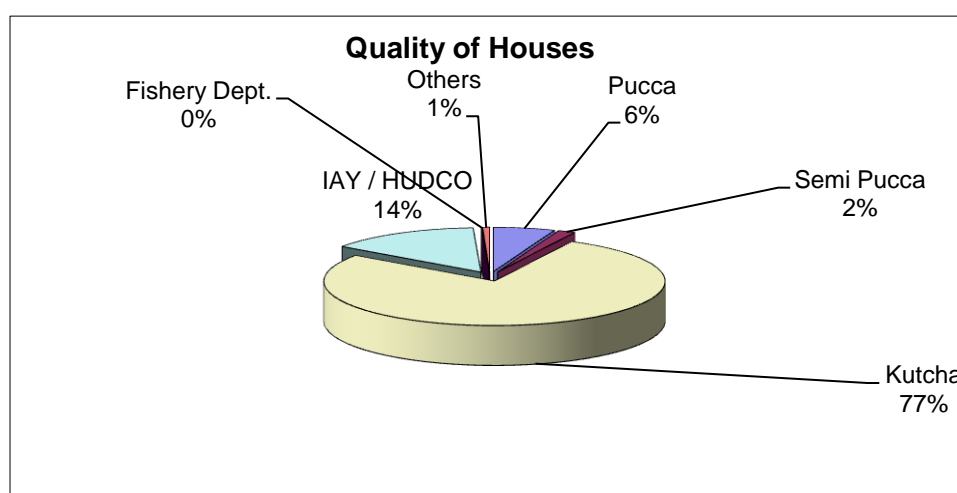
5.6 Basic Amenities in Coastal Fisher Villages:

5.6 a Housing

Housing, one of the major problem for the coastal fishers is one of the most important physical assets for each human being. In terms of type of construction of housing, 8 percent of the fishers had permanent (pucca & semi pucca) houses; another 16 percent had semi-permanent house(IAY & HUDCO), while the large majority of over 80 percent people lived in non-permanent (kutcha) houses. After the super cyclone of 1999 the number of IAY & HUDCO houses increased but still 50 percent among them are unable to complete their house due to poverty and living in huts. They are most vulnerable from the point of view of cyclones. The data reflects that there are present 6 % pucca houses, 2% semi pucca (Azbestos, taili), 14 % IAY/HUDCO houses (50 percent uncompleted), others 1% which is supported to the cyclone affected families by the NGOs. The kutcha houses dominated all that is 77% of the total. It shows that still three fourth of fishers are vulnerable to disasters.

Table-5.6.1- Housing Status in case of Traditional Fishers

District Name	Total No. of Houses	Pucca	Semi Pucca	Kutchra	IAY / HUDCO	Fishery Dept.	Others
	Balasore	12456	42	554	11152	700	2
Bhadrak	5453	86	141	4531	678	0	17
Kendrapada	7488	309	43	4978	1304	0	80
J.S.Pur	7307	619	84	7194	2552	46	65
Puri	10949	1603	509	9986	1939	0	0
Ganjam	7121	541	0	4568	1822	0	190
Grand Total	50774	3200	890	42409	7904	48	358



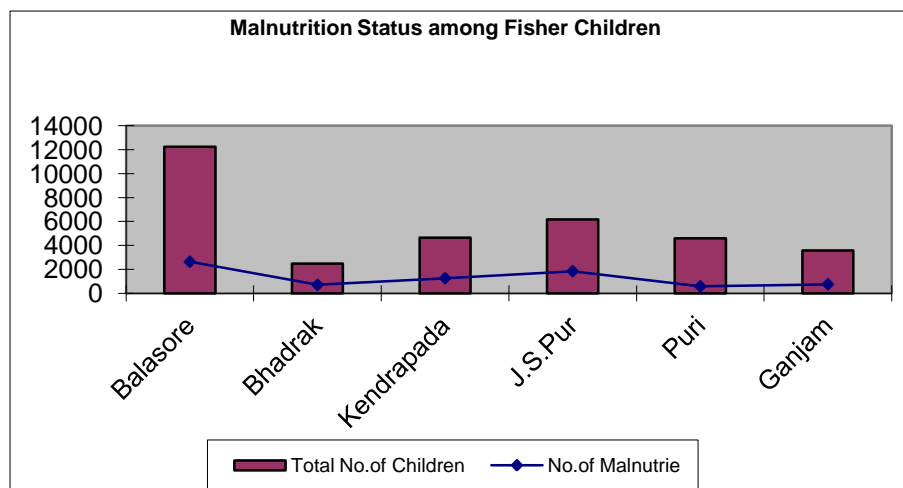
5.6 b Health

Health services for the coastal people are less as compared to the other communities in general. The fertility and mortality rate is more in this community and diseases like diarrhea, filarial, skin diseases, T.B., malnutrition is common in each coastal villages. The current status shows that 90 per cent mothers aware about the immunization programme and take the service but still the malnutrition cases is much more, which shows that 23 percent children in the age group of under 5 are malnourished.

Table-5.6.2- Malnutrition Status among Fisher Children

District Name	Under 5 yrs. Children				Total Children	No. of Malnutrients
	Male	Malnutrition	Female	Malnutrition		
Balasore	6368	1420	5876	1214	12244	2634
Bhadrak	1410	439	1063	266	2473	705
Kendrapada	2751	628	1899	629	4650	1257
J.S.Pur	3247	1033	2920	810	6167	1843

<i>Puri</i>	<i>2365</i>	<i>309</i>	<i>2226</i>	<i>271</i>	<i>4591</i>	<i>580</i>
<i>Ganjam</i>	<i>1751</i>	<i>361</i>	<i>1823</i>	<i>393</i>	<i>3574</i>	<i>754</i>
<i>Grand Total</i>	<i>17892</i>	<i>4190</i>	<i>15807</i>	<i>3583</i>	<i>33699</i>	<i>7773</i>



Drinking water and sanitation is a major problem for the coastal areas. Due to unavailability of these facilities they have affected and a large number of people died in diarrhea in each year. Only 4 per cent of the fisher families have toilets. The coastal fishers mainly use drinking water from the open wells, tube wells, ponds, chuas, rivers and some from pipes in the NAC areas. The detail information is given below in the tabular form.

Table-5.6.3- Sources of Drinking Water in Coastal Villages

<i>District Name</i>	<i>No. of wells</i>		<i>No. of Tube wells</i>		<i>No. of villages using pipe supply</i>	<i>No. of ponds</i>
	<i>Total</i>	<i>Personal</i>	<i>Total</i>	<i>Personal</i>		
<i>Balasore</i>	<i>445</i>	<i>425</i>	<i>1349</i>	<i>1092</i>	<i>267</i>	<i>131</i>
<i>Bhadrak</i>	<i>36</i>	<i>1</i>	<i>889</i>	<i>691</i>	<i>562</i>	<i>145</i>
<i>Kendrapada</i>	<i>12</i>	<i>30</i>	<i>235</i>	<i>90</i>	<i>0</i>	<i>1</i>
<i>J.S.Pur</i>	<i>1114</i>	<i>1013</i>	<i>1978</i>	<i>1603</i>	<i>107</i>	<i>2</i>
<i>Puri</i>	<i>55</i>	<i>15</i>	<i>836</i>	<i>591</i>	<i>33</i>	<i>0</i>
<i>Ganjam</i>	<i>35</i>	<i>0</i>	<i>154</i>	<i>87</i>	<i>0</i>	<i>11</i>
<i>Grand Total</i>	<i>1697</i>	<i>1484</i>	<i>5441</i>	<i>4154</i>	<i>969</i>	<i>290</i>

Majority of the active fishers are taking country liquors, narcotics which makes them old in a tin age and make them idle and they suffered with TB, filarial, defect in eye sights. A huge mass from the fisher families is suffered due to the unpracticed doctors.

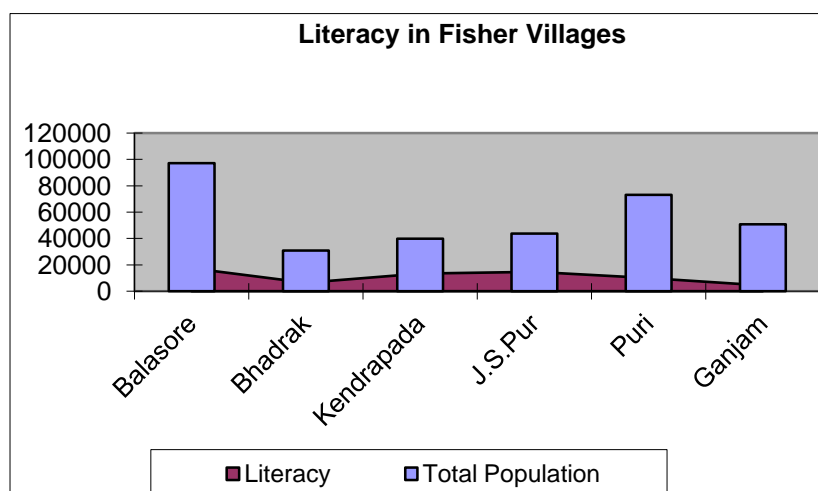
5.6 c. Education: As per 2001 estimates, Orissa has a literacy rate of 63.61 percent – 76 percent among men and 51 percent among women (NIRD, 2003: 67). In rural areas, the rates fall to 60

percent for men and 33 percent for women, bringing the overall rural literacy rate down to 46 percent.

In terms of literacy, the coastal districts – with the exception to Balasore – rank highest in the state with 60 percent literacy and more (GOO, 1996: 24), which however may not hold good for the fishing communities. The current data reflects that among the coastal fishers the Jagatsingpur district shows a higher literacy rate, which is slightly higher than Kendrapada district. The literacy rate is less in Ganjam & Puri districts. The main reason for the low literacy rate is the linguistic variation.

Table-5.6.4- Percentage of Literates in Fisher Villages

District	Literate Population			Total Population	% of literate to total
	Male	Female	Total		
Balasore	10494	6918	17412	97123	18
Bhadrak	4026	2385	6411	30787	21
Kendrapada	8429	4933	13362	39979	33
J.S.Pur	8500	6172	14672	43762	34
Puri	5816	4163	9979	72998	14
Ganjam	3241	1123	4364	50829	9
Grand Total	40506	25694	66200	335208	20



The data shows that the literacy rates in the coastal districts of Orissa are below the respective districts, and also below the national average. The low levels of education in fishing communities were attributed to the open access nature of the resources, which encourages involvement of children in productive activities in the short term. The relative isolation of several fishing villages also played a key role in lack of access to education for the fishing communities. This field study has revealed that literacy continues to remain very low in most fishing villages, although there are signs that more children are being sent to schools than previously.

5.6 d- Infrastructure

The following table indicates the reach of educational institutions in the coastal districts of Orissa. The data narrates it self the reach of infrastructure to the fisher people.

The educational institutions available in the coastal villages are narrated in the below table that shows that in 80 percent of the Remote villages have primary schools only but teachers are irregular for which there is more drop out in the initial stage. In remote villages higher education is a dream for the children and especially for girl children. In 60 percent of fisher villages are able to get the service from the Anganwadi Centres. There are 9 fisher villages in the urban areas but the service is poor for the fisher people.

Table-5.6.5-Area wise Education Institutions in Fisher Districts

District Name	No. of Coastal Villages			No. of Pr & UP Schools			No. of Anganwadi Centres			All Type School		
	Remote	Rural	Urban	Remote	Rural	Urban	Remote	Rural	Urban	Remote	Rural	Urban
Balasore	12	66	0	14	39	0	9	51	0	0	7	0
Bhadrak	2	19	3	0	3	0	2	11	1	0	8	3
Kendrapada	5	17	0	3	8	0	0	9	0	0	4	0
J.S.Pur	9	32	2	7	29	2	25	4	8	0	11	1
Puri	1	24	3	0	18	2	0	2	0	0	0	0
Ganjam	1	23	1	0	7	1	0	17	1	0	3	1
Grand Total	30	181	9	24	104	5	36	94	10	0	33	5

The majority of the fisher people are getting the service from the quacks and in severe cases went to health centers for check up. It may be either due to distance of the Govt. health institutions or due to the weak transport system to reach the destination in time. There are present 67 PHCs within the range of 3 kms.

Table-5.6.6- Health Services in Fisher Villages

District Name	No. of Health Workers			Trained TBAs			Untrained TBAs			Quacks			No. of PHCs within 3 kms area		
	Remote	Rural	Urban	Remote	Rural	Urban	Remote	Rural	Urban	Remote	Rural	Urban	Remote	Rural	Urban
Balasore	21	145	0	21	206	0	12	179	0	46	279	0	3	18	0
Bhadrak	4	35	9	2	68	6	2	49	3	0	53	0	1	14	3
Kendrapada	4	28	0	2	10	0	11	103	0	13	76	0	0	7	0
J.S.Pur	14	54	4	0	19	0	24	110	4	4	35	23	1	9	2
Puri	0	17	10	0	6	8	0	1	69	0	15	60	0	2	1
Ganjam	0	15	2	0	21	2	2	12	2	0	18	3	0	5	1
Grand Total	43	294	25	25	330	16	51	454	78	63	476	86	5	55	7

There are present 88 cyclone shelters out of 220 fisher villages. Fisher people are mostly unorganized from the social point of view though their profession is a joint effort. Community strength is the efficient people's organization within the community. The data reflects that there are present VDCs in 90 percent of the villages but only 60 percent among them are efficient to make a voice in the local meetings to get the benefit of welfare schemes. Women organization is only efficient in southern part of the Orissa, it may be due to the ground work of the 'Samudram'

in the areas of Ganjam and Puri districts. After the super cyclone of 1999 most of the NGOs concentrated on the Jagatsingpur area and as a result there are present 13 women organizations out of 43 fisher villages and in 7 villages they make them efficient to solve their local gender issues.

Table-5.6.7- Physical & Social Community Set up

District Name	No. of coastal Villages	No. of Cyclone shelter	No. of VDCs		No. of Youth club		Mahila Sangha	
			total	efficient	total	efficient	total	efficient
Balasore	78	27	75	48	28	8	10	0
Bhadrak	24	11	23	9	17	9	5	1
Kendrapada	22	6	13	4	10	1	2	0
J.S.Pur	43	24	31	30	16	5	13	7
Puri	28	9	20	3	6	4	6	6
Ganjam	25	11	25	16	16	5	18	16
Grand Total	220	88	187	110	93	32	54	30

5.7. Constraints faced by the Coastal Fishers in Orissa

♣ Reduction of Fish Catches

Reduction of catches was cited as the primary concern during the PFG discussions with fishermen. Exploitation of inshore fishing has gone beyond sustainable levels. There are no deep-sea vessels in the state, meaning all the boats (traditional as well as mechanised) fish within 22 Kms of the shoreline. This coupled with the fact that the number of boats operating on the coast has increased considerably has resulted in reduced per capita catches for the fishermen. Some items such as sea-white prawn and seer fish that were available in large quantities just a decade ago are rarely caught now a day. As per the secondary information though the total catches from Orissa coast has not reduced (rather stagnated or increased marginally), it has not kept in pace with the growth in terms of number of fishing vessels operating on the coast. Hence the per unit catches have definitely reduced.

♣ Home Stead Land Rights

Fisher people mainly settled nearer to the sea beach that is earlier open access for them to build house and make their habitation. To build up industries, ports, harbors, tourism sites, etc. the Govt. have forcefully outskirt them from their native places without giving any compensation to them to settle in other sites. Those who have no homestead land rights they are vulnerable to get any financial help provided by the government through the fisher department. Though some of the fishers in these villages are able to make permanent houses but still live in kutcha houses that are vulnerable to disasters. There are present 36 villages out of the total 220 marine fisher villages in the coastal area that are out of reach to these rights. Pentokata & Puri Balinolia Sahi is the large site for marine fishers who are unable to get the benefit.

♣ River Mouth

Coastal fishers face the problem of filling up of the riverine belts through which they reach the sea for fishing. Due to this some fisher villages are in danger i.e. in near future those villages will be vanished within the sea. Most of the villages in Puri district face this problem.

♣ Chilika

The lagoon is at present facing the problems like - siltation, shrinkage of area, chocking of the inlet as well as the outer channel connecting the sea, decrease in salinity, weed infestation, decrease in fish productivity, increase in aquaculture, and an overall loss of Biodiversity.

Shrimp pond aquaculture is gradually increasing along the periphery and outer channel of Chilika, though no intensive shrimp farming operations are prevalent. Villages like Ramalenka, Siandi, Balianla, Khirisahi are suffered due to the aquaculture fields. Sanapatna, Arakhakuda Khirisahi fishers are demanding for digging another mouth in Chilika.

♣ **Coast Canal**

The coast canal facility is available to the fishers of Balasore and Bhadrak in earlier years. For siltation the coast canal is no more use for the fisher villages to reach the sea in safe mode and they park their boats near the jetties and take their nets each day to their villages which is more than 5 kms from the sea shore.

♣ **Coastal Forest**

The coastal forest which is declining day by day due to so many reasons one of the major factor is the last cyclone which is also a due to the loss of huge coastal forest during the last two decades. Prawn fields, wood smuggling is the major factor for the loss of coastal forests. The fisher people also lost at least 10 per cent coastal forests out of the total forest for household consumption. The forest department makes the fisher people to use the coastal forest that is major source of firewood for them. They are so poor to explore other alternative option to meet their household consumption.

The table below gives an elaborative report on the user rights of coastal forest by the coastal villages. The figure shows that in 67 percent villages there is no forest at all and 36 per cent villages out of the coastal forest villages are not allowed to take firewood.

Table-5.7- Status of Coastal Forests

<i>District Name</i>	<i>Total No. of Villages</i>	<i>No. of villages having forest</i>	<i>Percentage to total villages</i>	<i>No. of villages no user rights over forest</i>	<i>Percentage of villages having no user rights</i>
<i>Balasore</i>	<i>78</i>	<i>52</i>	<i>66.7</i>	<i>8</i>	<i>15.4</i>
<i>Bhadrak</i>	<i>24</i>	<i>5</i>	<i>20.8</i>	<i>2</i>	<i>40</i>
<i>Kendrapada</i>	<i>22</i>	<i>2</i>	<i>9.09</i>	<i>2</i>	<i>100</i>
<i>J.S.Pur</i>	<i>43</i>	<i>22</i>	<i>51.2</i>	<i>9</i>	<i>40.9</i>
<i>Puri</i>	<i>28</i>	<i>21</i>	<i>75</i>	<i>1</i>	<i>4.76</i>
<i>Ganjam</i>	<i>25</i>	<i>18</i>	<i>72</i>	<i>12</i>	<i>66.7</i>
<i>Grand Total</i>	<i>96</i>	<i>61</i>	<i>66.7</i>	<i>22</i>	<i>36.1</i>

♣ **Sanctuary Area/ no fishing zone**

The Government of Orissa has prohibited fishing with in a sea-ward radius of 20 Kms from the high tide line of Orissa from Jatadhar river mouth to Devi river mouth and from Chilka mouth to

the Rushikulya mouth, a length of 40 Kms, from January to May each year. This area is the site of congregation of the rare olive Ridley turtle, an endangered species. But, this restriction hits the traditional fishermen very badly, as the same area has highest concentration of high value items (such as black tiger prawn and sea white prawns) and the period of ban coincides with the peak season of fish catch. Further the government has established the Gahirmatha (marine) wild life sanctuary, with total area of 1,435 sq Km, including reserve forests (mangrove), mud flats and accreted sand bars. It restricts the fishing activities in the area also. This has resulted in affecting the livelihood of more than 50, 000 active fisher people.

Table-5.7.2- Fish Ban

<i>District Name</i>	<i>Families struggling for livelihood</i>	<i>Families diverted to other work</i>	<i>No. of months fish ban</i>	
			<i>Govt.</i>	<i>Natural</i>
<i>Balasore</i>	<i>1886</i>	<i>745</i>	<i>2</i>	<i>3</i>
<i>Bhadrak</i>	<i>7358</i>	<i>896</i>	<i>4</i>	<i>3</i>
<i>Kendrapada</i>	<i>1815</i>	<i>658</i>	<i>4</i>	<i>3</i>
<i>J.S.Pur</i>	<i>6681</i>	<i>841</i>	<i>2</i>	<i>3</i>
<i>Puri</i>	<i>8654</i>	<i>752</i>	<i>2</i>	<i>3</i>
<i>Ganjam</i>	<i>1431</i>	<i>637</i>	<i>3</i>	<i>3</i>
<i>Grand Total</i>	<i>27825</i>	<i>4529</i>	<i>17</i>	<i>18</i>

The above table narrates that due to the sanctuary and no fish zone area at least 2000 families diverted to other work mainly as a daily labourer in the brick kilns. The fisher villages in Kendrapada, Puri & Ganjam districts badly affected due to this and are not getting any financial benefit from the government in stead tortured by the officials in charge.

♣ Port

The traditional fishers in the Paradeep and Gopalpur area are facing some problem in parking boats. Recent year the traditional fishers in Paradeep port area facing to pay tax for landing their boats. But due to the intervention of OTFWU and NFF leaders it is solved in time. In Gopalpur port area the fishers are in fear of shifting to other places in the extension of the port.

♣ **Military Establishments:** Military bases in the coastal areas are another factor for declining fish catches. But the fishers lost at least 2 months in a year for the missile testing and are losing their daily earning. They are not getting the compensations for the loss of fishing days due to this testing. The nearer villages within the 5 km area gets the benefit but it affects in the range of 15 km area. The Balasore, Bhadrak, Ganjam, Kendrapada fishers are suffering due to this.

♣ **Aquaculture:** The rich people from the urban areas invest more in this business to get 3 times return within 3 months. The area for aquaculture in the coastal areas increases rapidly by openly violating the CRZ Act. The administration seldom take right steps to implement the peoples friendly provisions of the Act and protect the costal environment and its ecology. In 23 coastal villages out of 83 coastal villages where prawn fields are in operation violating the CRZ Act and current status shows that in the coastal areas nearly 18,000 Ac. prawn fields are illegally functioning and 4000 Acres of cultivable which was converted to prawn fields are remain as fallow land which is not in a status of either use for prawn culture or agriculture. They have directly engaged and encouraged the poor fisher households to catch juveniles and money given in advance for the same work. Nearly 40 thousand-fisher population including children are engaged with this activity in the state. The other caste poor people are also involved in this activity for their survival.

♣ **Trawler menace:** Trawlers are violating the OMFR Act and in 111 coastal villages the fishers directly lost their nets and boats for the trawlers. For each accident made by the trawlers 3 month i.e 90 days the fishers lost to rebuilt the assets and in an average Rs. 30,000/- cost of nets lost in each accident. Te trawlers are causing more problems to lives and properties of poor fisher people in the fisher villages of northern coast of Orissa.

Table-5.7.3- Violation of OMFRA & CRZ in Fisher villages

District Name	Total No. of Fisher Villages	No. of villages suffered due to			
		Prawn fields	River mouth	prawn seed	trawler
Balasore	78	55	14	65	68
Bhadrak	24	11	15	7	22
Kendrapada	22	10	0	0	12
J.S.Pur	43	5	39	30	0
Puri	28	5	7	7	9
Ganjam	25	3	1	5	0
Grand Total	220	89	76	114	111

♣ **Fishery Co-op. Societies:** In 80 per cent villages the fisher people are members of the Fisher Co-op. Societies but only a few are being benefited benefit from the schemes. The saving cum relief scheme, which was in operation since a decade is not functioning now.

♣ **PRIs:** The panchayat members are more effective for exploring the resource from the government to reach the real poor. The data show that there are at present 434 panchayat members from the fisher community. Among them 152 are women. Though they are getting the benefit due to the reservation but not functioning well to present their local problems in right way. Most of them not aware of the rules and regulations of PRIs and are used as rubber stamp. Making them vocal training on PRI must be provided by the line departments and NGOs.
