

Research Papers



Socio-economic conditions of fisher folk vis-à-vis satellite technology in coastal district of ganjam, odisha

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Abstract

The present article focuses on the background and socio-economic conditions of fisher folk in coastal district of Ganjam. The study was a component of Potential Fishing Zone (PFZ) utilization and validation programme funded by Indian National Center for Ocean Information Services (INCOIS). The feedback was collected during 2003-2005 by means of one-to-one interaction and awareness campaigns conducted in different villages and landing centers. The study confirms poor catch during bad weather conditions, turtle mass nesting, invasion of coastal area by Andhra trawlers, missile training and medical problems. These were the key factors responsible for economic condition of the fishermen. The liberalized policy of Government, especially in the banking sector, had favored fishermen to some extent. However, the socio-economic status of fisher folks can be improved if proper infrastructure such as fishing jetties, cold storage, modernized craft along with modern fishing gears are provided. Apart from these, organized marketing, finance and proper follow up of INCOIS disseminated PFZ advisories will further enhanced the Catch Per Unit Efforts (CPUE).

Keywords: Fisher folk, Socio-economy, PFZ, Welfare Schemes, Ban period

Introduction

Fishery industry is an important source of food; employment and economy (FAO, 2002). Fish comprises 20 per cent of animal protein sources to over 43 per cent of the world's population living in low-income food-deficit countries and is one of the major sources of food in developing countries (FAO, 2000; Laureti, 1999). More than seven million fishermen in the country gain their livelihoods from fishery resources (Srinivasa et al, 2008). The present fish production in the country is mainly from the coastal waters. The marine fishery sector is of late considered as an integral part of the national economy.

There are about 11,000 motorized and non-motorized fishing vessels in the artisanal and small-scale sector that use gillnets. In addition, there are about 700 mechanized gill-netters. These vessels form a source of livelihood for about 50,

000 fish workers in Odisha. In 2001 motorized gillnet vessels contributed 34 percent of the total marine fish production of Odisha, and it has been showing an increasing trend since 1991(Mathew, 2004).

Current socioeconomic status of Odisha reveals that poverty, food insecurity, vulnerability to natural disasters, seasonal unemployment, diseases, poor health care facilities, are the main affecting factors (Venkatesh, S.,2006). As per Tietze, U. (1985) there was 16,886 households of artisanal marine fisherfolk in Odisha and 30,050 active seagoing fishermen. Need for facilities like motorized boats, modern fishing gears, insulated trucks, cold storage facilities, freezing plants, ice plants etc were existed in among the fishermen community. Traditional fishermen's economy were mostly influenced by fish catch, fish processing, fish marketing, finance, credit etc. Fishermen involved in group fishing were

regulated by sharing system. The processes of economic differentiation and accumulation of capital led to an economic stratification which was also reflected by the distribution of assets (craft and gear).

To boost the economy of the fishing community in the country, Government of India, initiated a major programme to provide advisory on marine fishing grounds. The programme is called Potential Fishing Zone (PFZ) advisory services. The PFZ programme was also categorized under "Common Minimum Programme" of Government of India. Indian National Centre for Ocean Information services (INCOIS), Hyderabad is the nodal agency for generation and dissemination of PFZ advisories. The advisories are disseminated through various modes including new generation electronic display board. INCOIS had installed an electronic display board at Gopalpur-on-Sea to provide timely and reliable PFZ advisories to increase the catch and minimize the search time. This electronic display board provides information on the PFZ off Ganjam coastal sector displaying distance, angle and location from three major points. Our present study aims to help the policy makers for implementing better management strategies.

Methodology and Study area

During the course of the fieldwork, several individuals, NGOs and State Fisheries Department (marine sector), Government of Orissa were consulted and feedback was collected during 2003-2005. The aim of the survey was to understand the background and socioeconomic condition of the fisher folk. The study area covers the entire Ganjam coast

($19^{\circ} 5' - 19^{\circ} 25' N$ and $84^{\circ} 30' - 85^{\circ} 5' E$) of southern Odisha having coastline of about 60 km (see Fig.1). The continental shelf off the region is narrow. The coastal sands of this region are famous for its rich rare earth minerals. Two major rivers, Rushikulya and Bahuda flowing in this coastal area form two larger estuaries along the coast. The northern part of the coast shows a favourable environment for breeding and mass nesting of Olive Ridley (*Lepidochelys olivacea*) sea turtles.

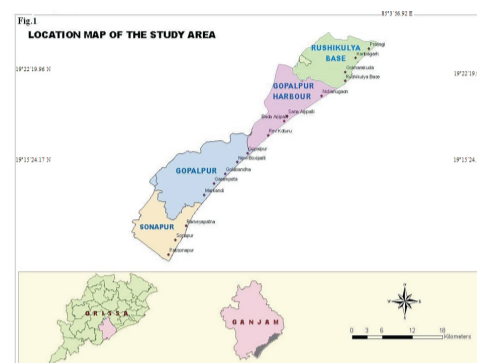


Fig.1 showing different fish landing centers of study area.

Results and Discussion:

Socioeconomic status

i) Population

Ganjam, the coastal districts in the State of Orissa, has 3171 villages. The population of the district was 31,36,937 out of which fishermen population was 1,31,192 as per census-2001. Table 1(a) depicts fishermen population along Ganjam coast in four blocks of which 25% of male were engaged in fishing. Table 1(b) shows 28 fishermen villages in the coastal area of this district. The fishermen population of these villages was about 37,700. The male and female ratio was 1.075. They were totally dependent on harvesting of the fishery resources. While men go for fishing, women were actively engaged in post-harvest fisheries and allied activities.

Table 1(a): Fishermen population along Ganjam coast (Source: Census Report, 2001; Assistant Director of Fisheries, Marine, Ganjam)

Sl.No	Block	No. of house holds	Fishermen population	Fishermen engaged in fishing
1	Ganjam	818	3945	1100
2	Chatrapur	2311	11813	2891
3	Rangeilunda	2472	14088	2550
4	Chikiti	1484	7861	1648

Table 1(b): Fishermen population along Ganjam coast (Source: Assistant Director of Fisheries, Marine, Ganjam)

No of Villages	No of Households	Fishermen population			
		Male	Female	Children	Total
28	7,325	9,709	9,032	18,765	37,506

ii) Fishing Activities

The district has around 9500 hectares of fishing area along 60 km of coastline. The fishery activity was comprised of inland and marine sectors. The present study was restricted only to the marine sector. The livelihood activities of marine fishing community ranged from fish catch, processing, marketing and ancillary functions.

iii) Assets of the Fishermen

About 60% of fishermen did not have any productive assets. Some families do share their boats and nets. About 37% of the households were with single boat and 12% of households were having two boats or more. However, only 5% of households were having mechanized or motorized

boat such BLCs and IBM or OBM engine.

iv) Fishing fleet

There were no trawlers of fisherfolk floating in the coastal water of Ganjam. The only boats they operate were made up of wooden and fiber. A variety of composite system of crafts and gears exists in the Ganjam coast. The fishing methodology of the Ganjam coast can be conveniently divided into two categories: mechanized and non-mechanized. These include motorised (IBM, OBM, BLC) and non-motorised wooden and fiber boats. The detailed landing center wise number of crafts and gears they use are given below in Table 2.

Table 2. Boats and Gears used

Sl.No	Block	Landing Center	Boats		Gears
			Motorised	Non-Motorised	
1	Ganjam	Prayagi	-	73	165
	Ganjam	Kantagada	20	108	550
	Ganjam	Gokharkuda	30	55	365
	Ganjam	Rushikulya Base	-	150	150
	Ganjam	Nollanugaon	20	215	940
2	Chatrapur	Sana Aryapalli	62	150	1050
	Chatrapur	Bada Aryapalli	23	63	350
	Chatrapur	Rev Katuru	12	85	293
3	Rangeilunda	Gopalpur	54	139	528
	Rangeilunda	New Boxipalli	11	165	365
	Rangeilunda	Golabandha	10	140	430
	Rangeilunda	Garampeta	1	72	219
4	Rangeilunda	Markandi	4	106	720
	Chikiti	Patisonapur	13	93	620
	Chikiti	Sonapur	-	47	925
	Chikiti	Rameyapatana	7	88	740

v) Fishing craft

The fishing crafts used in the coastal district of Ganjam was under two groups: non-mechanised and mechanised. A major portion of marine fish production in Orissa has been contributed by the non-mechanised sector. Their fishing crafts and gears were mainly of indigenous nature. The non mechanized crafts used in the fishing purpose were viz. Catamaran / teppa, Bar Boat (padhua), Nava. The mechanized crafts used in this area were FRP Catamarans which were principally funded by the schemes of State Government of Orissa.

vi) Fishing gear and method

In Ganjam district, lift-nets and boat seines were in operation. Gill nets and line-nets were used along the coast according to the differences in economic conditions of fishermen, climatic condition and abundance of fish species. Various types of nets were used by the fisherman community viz. Gill-net Bottom drift nets (jagawala), Surface drift net (kilumala), Encircling nets (Boat seines and Beach seines), Boat and beach seine, Boat seine (irragali), Beach seine (bada jalo), Lift-nets Headlines and longline, Kata, Burdu, Suti Khepa jalo.

vii) Fish Marketing and Preservation

The fish marketing in the area under study was highly un-organized and complex. There were

two types of fish marketing in Ganjam. Direct marketing and (ii) indirect marketing. In direct marketing fishes were sold to the buyer without the help of any intermediary. The intermediaries in Orissa form a long chain of market channels. Whereas in the direct marketing fishes were sold through the middle-men. Generally, in coastal Ganjam, fishes were sold in landing centers and also in nearby various market places viz. Gopalpur, Karapalli, Berhampur etc. In provincial marketing, fishes were transported to Paradeep, Bhubaneswar, Visakhapatnam and Kolkota. Some species of prawn and crabs were also exported to other countries.

viii) Problems encountered in Fish marketing

In spite of good price prevailing in the market, the fish workers were getting a poor share of the consumer price. The fishermen's net share was even less than 50 per cent of the price paid by the consumers in the market goes to middlemen. It is mainly due to lack of Government control over the trade for which the middlemen exploit both the fishermen and consumers. Another problem for the fish marketing was the lack of infrastructural facilities. In the Ganjam coastal area there were 14 registered primary fishermen co-operative societies, but most of them are defunct. They did not have any sustained activity in term of common marketing of fish.

ix) Socio-economics

As per 1981 census, out of the four coastal districts of Orissa, the lowest literacy (17.9%) was in Ganjam district. However, it had been increased to 60.77% as per census of 2001. The ratio of literate females to literate males in Ganjam district was 37%. Literacy programmes form the integral part of the development. There were 8 Non-Formal Primary Education (NFPE) centers for fisher folk children, 3 Fishery Extension Centers and 2 Teacher Training Institutes. The living standards of fisherfolk were reflected in their poor conditions of health, hygiene and housing, in their general appearance, in their clothing. The fisherwomen were traditionally engaged in post harvesting activities like drying, packaging, transporting and marketing of fishes. There was always hue and cry among the fishermen of the coastal district in various platforms that the neighbouring Andhra Pradesh trawlers caused menace for their livelihoods. In the sense that, they were put to loss of income together with the costs of replacing crafts or nets damaged by the trawlers. Because of the financial denial,

their families sometimes prey to poor nutrition, poor health, food insecurity and mental tension.

Observations on socioeconomic conditions of the fishermen were made while disseminating the satellite retrieved information on Potential Fishing Ground among the fishermen. There were various factors for the deterioration of socioeconomic conditions of the fisher folk in the region. The major factors upon which the improvement of economic condition of the fishermen depends were the availability fishing jetties, cold storage, modernized craft and modern gears along with organized marketing and finance. The district was lacking in these areas which need to be improved. Of late sea fishing was not a regular business for fishermen in the district. They go on fishing for 169 days in a year. They were of the view that to fetch good catch they have to sail to deep sea for which they need modern equipments like motorised boats, trawlers, crafts, Global Positioning Systems (GPS) etc. Due to missile testing conducted by army training school on a regular basis prevents them from entering into the sea. Sometimes they were not able to go for fishing as they are affected by waterborne diseases. Lack of good catch was also due to bad weather conditions and ban period during turtle mass nesting. Other causes like invasion of coastal area by Andhra trawlers also played an adverse role for the economic condition of the fishermen. Most of the fishermen complain that due to non-availability of sufficient finance they were not in a position to purchase the essential articles for fishing. The per-capita expenditure of a non defaulter fisherman showed that he spends 28% on food, 18% on health, 17% on education and 8% towards consumption of liquor. However, he makes provision of 6% towards payment of loan. Similarly the per capita expenditure of a defaulter fisherman showed that they were spending 33% on food, 15% on health, 5% on education and 23% on consumption of liquor.

x) Welfare schemes

The welfare schemes such as Indira Awas Yojana (IAY) implemented for the well being of the fishermen are viz. Saving-cum-Relief Scheme, Accident Insurance Scheme Assistance for Mechanization Programme, National Welfare fund for Construction of Low Cost Houses for fishermen.

xi) Role of different banks in financing fishermen

Regional banks like Rushikulya Gramya Bank and State Bank of India, Chatrapur provides

loan to the fishermen. Apart from the regional financing institutions, Rushikulya Gramya Bank, CARD Bank, B.C.C. Banks, implemented different schemes for the well being of the community. These schemes include IRDP scheme, Bay of Bengal Programme (BOBP), K.C.C. and STEP etc.

xii) Fisheries Co-operatives

The National Co-operative Development Corporation (N.C.D.C) and commercial banks provided loans to the beneficiaries through the Fisheries Cooperative Societies (Table-3). About 8% of the total Government loans were provided to the marine sector. The NCDC and NABARD finance term loans and working capital to PMFCS (Primary Marine Fisheries Co-operative Society) and apex societies which in turn finances to primary societies. Under societies Act 1960, three societies were registered in 1996 which included Sonepur, Patisonapur, and Gopalpur.

Table 3. N.C.D.C. Loan position as on 31.3.2006

District	No of BLC availed	Name of the PFCS	Amount of loan availed	Balance outstanding		Total (in lakhs)
				Principal	Interest	
Ganjam	6	Gopalpur PMFCS	2,46,792	60,683	1,15,941	1,77,624
Ganjam	3	New Boxipalli	2,14,750	1,22,917	1,54,933	2,77,850
Ganjam	5	Bada-aryapalli	2,36,250	1,45,057	1,83,562	3,28,619
Ganjam	3	Patisonapur	1,41,750	95,097	1,64,464	2,59,561
Ganjam	5	Sana-aryapalli	2,36,250	2,36,250	3,51,179	5,87,129
Ganjam	5	Sana Nolia NuaGaon	2,36,250	2,36,250	3,51,179	5,87,429
Ganjam	5	Bada Nolia NuaGaon	2,36,250	2,36,250	3,51,179	5,87,429
Total	32	-----	13,48,292	9,54,808	14,26,221	23,81,029

Source: Assistant Director of Fisheries (marine), Ganjam

xiii) Geomorphology

Temporal change in shoreline creates beach erosion, unusual tide elevations and influx of seawater towards coastal villages which resulted destruction of assets of fishermen. Continuous northward shifting of Rushikulya river mouth results improper emptying of flood water which caused abnormal flood situation in nearby villages. Non-dredging of Gopalpur Harbour was a type of artificial drawback which causes non-facilitation of fishing boat movements.

xiv) Satellite Technology for predicting prospective fishing ground

India has played a promising role towards utilization of satellite data for societal applications. India started executing a National Programme on dissemination of PFZ advisories since 2002 INCOIS; Hyderabad provides advisories to around 200 nodes covering the entire coastline of India. The dissemination has been done by fax, telephone, e-mail, electronic display board, newspaper and radio. This led to enhance the fish production and productivity of fishermen community and thus helped improving their socioeconomic standards (Srinivasa et al, 2008).

The growing concern over the livelihood of the fisher folk was very well illustrated. The need of the hour is the proper implementation of the PFZ advisories. The utilization of PFZ advisories is constantly becoming the growing concern in the study region.

Satellite remote sensing has proven to be a powerful tool employed in the wise-use of fishery resources, including its utilization to locate and exploit the fish stocks. The satellites have advantage of large synoptic spatial coverage and high repeativity. The first application of satellite remote sensing in fishery advisory was in the United States of America in 1971 (Laur, 1993). This operation had a tremendous impact on the efficiency of American tuna fleets, often reducing search times by 25% to 40% (Simpson, 1992). Fishery advisory products were expanded during the early 1980's to include information on ocean colour measured by Coastal Zone Color Scanner (CZCS). The ocean colour charts were extremely important in determining potentially productive fishing grounds (Laur, 1993). Potential fishing zone (PFZ) advisory services was operational in India since 1992 (Solanki et al. 1998, 2001, Dwivedi et al. 2002, Srinivasa et al, 2008). Based on the composite information of ocean colour and sea surface temperature (PFZ) advisories are generated and provided for implementation to the Indian fishing community all over the country. State of Orissa is one of the recipients of such PFZ advisories since inception. The fishermen communities are still not aware of the modern technology rather fully dependent on the conventional ways and means. Therefore, for the improvement of their socio-economic standards, it is necessary to educate the fishermen regarding importance of PFZ advisory services.

Conclusion:

In order to improve the socioeconomic conditions of the poor fisherfolk in the coastal villages of Ganjam district some recommendations has been cited below.

1. There should be a strong fishermen association to put forth their problems, hardships and offer solutions to their problems.
2. Role of middlemen should be curtailed to enable the fishermen to sell their catch at appropriate price to get a good amount of profit.
3. Awareness program should be conducted periodically to educate the fishers about the use of satellite technology for increasing catch and reducing search time. The fishermen should be encouraged to make use of Potential Fishing

Ground advisories and modern technology. They should be provided with global positioning systems at low cost or free of cost to enable them to reach the prospective grounds of fish school. In this regard, the Department of Fisheries should conduct training and awareness camps at different localities to demonstrate the capability and use of PFZ advisories.

4. Government should evolve suitable earning approach for this community particularly during ban period. Adequate compensation package should be paid to them during the period of banning. This will certainly improve their living condition.
5. Proper education facilities should be provided by opening schools, providing educational kits, pursuing the fishermen to incline towards schooling of their children and monitoring regularly the ongoing classes.
6. In every occasion during the period of survey, the fishermen in the coastal belt of Ganjam complain about unauthorized fishing by Andhra trawlers. This problem should be tackled by the joint effort of Department of Forest, Government of Orissa and Coast Guard to prevent their entry.
7. The basic amenities like jetty, cemented bases at landing centers, roofed big house for keeping and weighing of fishes, proper weighing machine, cold storage, transport facility etc. should be provided by the government.
8. Sanction of loan should be provided with less interest and lineate view.
9. The fishermen should well aware of the different welfare scheme of government implemented from time to time. The government and NGOs should play a key role in this regard.
10. Implementation of more fishermen welfare oriented schemes including construction of low cost house, coverage of more fishermen under the schemes like accident insurance and saving-cum-relief for overall socio-economic development of fishermen.
11. Motorization of more existing crafts to ensure safety and higher income of the fishermen.

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