

Executive Summary

Fisheries play a pivotal role in the socio-economic development of the country. It has been recognized as a powerful income and employment generator as it stimulates growth of a number of subsidiary industries and is a source of economical and nutritious food besides being a foreign exchange earner. Total fish production¹ in India (including marine and inland) was 63.99 lakhs tonnes in 2003-04 and the country is now the fourth largest producer of fish in the world² and marine production during the year 2003-04 was 34.58 lakhs tonnes. Mackerel, Penaeid Prawn, Clupeoids, Sciaenids and Perches are the major species.

Orissa is one of the main fish producing and consuming States in India. During 2000-01 marine catch was 121.08 thousand tonnes in Orissa and 40 per cent of it was consumed within the state. Fishermen depend upon the intermediaries for sale of their catch, and are subjected to exploitation by middlemen. Co-operatives like 'Samudram' directly participate in trading and attempt to prevent fisherfolk from getting exploited.

This study examines the existing marketing structure, demand and supply of various species in the context of Samudram in Behrampore district and also recommends the ways in which Samudram could enhance its impact on livelihoods.

The specific objectives of this study

1. To study the demand and supply related issues per species available in Behrampore
2. To study the market dynamics
3. To study the derivatives / substitute products.(value addition)
4. To assess the economics of the trade in terms of investments.
5. To identify the producers currently operating and possible increase in scale.
6. To assess the techno commercial availability /adaptability.
7. To identify commercially viable species and operational mechanism.
8. To study possibilities related to exports vis a vis major domestic markets

¹ Refer Annexure 2

² http://www.worldoffoodindianews.com/Food_News.asp/id/107 (access on 15/2/06)

Methodology

The entire study was segmented into 3 phases.

Phase I.

- Review of secondary data and interaction with key informants.
- Field-testing of survey tools
- Development and printing of schedules
- Networking for and identification and selection of sample for survey

Phase II.

- Conducting survey and collection of data from selected samples.
- Interaction with key resource persons from the sector, research institutions and other support organizations for getting their insights into key issues pertaining to the sector.

Phase III.

- Compiling and analyzing the data collected from the survey
- Developing and presentation of the final report

Sampling Method

A review of the existing literature and data availability helped us in identifying five key markets outside Orissa for Samudram produce and a research was carried out in those areas. These include: Kolkata, Mumbai, Chennai, Vishakhapatnam and Kakinada market. Besides, researchers studied trends in Bhubaneswar, Balasore and Cuttack markets to assess the local trends.

Sample Size

Sr. No.	Markets	Mumbai	Kolkata	Vishakhapatnam and Kakinada	Chennai	Orissa
1	Exporters	10	10	12	10	10
2	Distributors/ Wholesalers/ Commission agents	30	35	40	45	73
3	Retailers	10	10	10	15	10
4	Hoteliers	15	10	15	10	15
5	Individuals	10	5	10	15	10

Primary data was collected from the respondents by using interview schedule comprising of both open and close-ended questions. In addition, supplementary data was collected through observation and informal discussions with respondents. Before the data collection was initiated, all relevant secondary information was collected from various sources.

Fishermen Supply Chain in Orissa

Procurement Process: Open auction is the most common method and any trader can participate and bid for the fish. In the northern zone auctioning does not take place at the landing site because of narrow and muddy beaches whereas in the southern zone, most landing centres have broad and sandy sea beach and auction takes place immediately after landing. In the present system, the auctioneers and wholesalers play a crucial role in determining prices. They have full control over the fishermen as they extend credit for purchase of their net and fishing boats. The auctioneers take the responsibility of fixing the price through auction for which they charge a commission to the extent of 2 to 4 per cent of the gross value received by the fishermen. Normally, the auction sale is made by heaps or in baskets.

Market Channels: Two types of channels exist; one caters to the low volume/value markets and the other caters to the distant major, e.g. Kolkata

Packaging and Transportation: Fish is transported in bamboo baskets with Sal leaves to act as insulators or thermocol boxes. Though fibers /plastic/thermocol crates are increasingly used for fish transport, bamboo baskets are still preferred. Local transportation around landing centres generally takes place on bicycles, bus and on foot (head loaders). Local agents /traders also dispatch consignments to other Markets/States through buses or Lorries or trains depending on quantity. Final price of the fish varies when different ways for packaging [Bamboo basket, Crates (Fibres), thermocol/ Plastic boxes] are used for transportation since the use of ice varies. Bamboo basket requires more ice as compared to thermocol /plastic or fiber crates. The condition of the fish stays better in thermocol or fibre crates and hence the price of fish also goes up. Many processing factories are located in or near towns like Bhubaneswar and Cuttack, to facilitate faster transport once the product is processed.

Demand of marine fish within the State: There is a growing demand for fresh marine fish, within Orissa and a four fold increase is recorded in the last decade. As a result of non-availability and/or high cost of freshwater fish, more people are consuming marine fish. Urban markets constitute a major segment of demand. Prawns and Pomfret are much used in restaurants and star hotels, as they are preferred. Most of the customers with higher income prefer Prawns, Elees and Mullet whereas lower income groups prefer Clupied, Jew and Commerson.

Seasonality: The price of marine fish is comparatively less in the season as compared to the off-season. Lowest seasonal prices of big and small marine fish in Orissa markets were observed in the month of **March and April** respectively. August is the dearest for both the categories of big and small marine fish in Orissa markets.

Regional Markets – Situational Analysis

1. **Howrah Fish Market (Kolkata):** It is the biggest market, and around 156 commission agents trade daily throughout the year. Fishes like Pomfret (all sizes/types), Horse Mackerel, Catfish, Seer fish, Ribbon fish from Ganjam have huge demand in Howrah Market.
2. **Shivaji Wholesale Fish Market (Mumbai Market):** It is a big wholesale market, and currently around 50 -60 recognized commission agents trade daily throughout the year. Halwa and Surmai is the most preferred species in Mumbai market. The Pomfret variety is the next highly preferred, followed by Rawas and Bangda.
3. **Vishakhapatnam and Kakinada Market:** It is a wholesale market, and currently around 86 auctioneers trade daily throughout the year. Most of the traders preferred trading in Prawns, Pomfret, Seer Fish and Mackerel as it fetches good price.
4. **Chennai Market:** It is wholesale market with around 300 persons involved as agents, wholesalers and retailers. Based on availability and taste, the species are preferred for buying. Major preferred varieties are Mackerels, Ribbonfish, Seer fish, Indian Dog Sharks, Sardines and Silver bellies.

Profile of the Regional Markets

Market	Mumbai	Kolkata	Vishakapatnam and Kakinada market	Chennai
Packaging and Storage	Baskets, fibre crates and thermocol boxes	Baskets, fibre crates and thermocol boxes	Rented ice storages and in baskets	Thermocol boxes
Transportation	Lorries and Railways	Lorries and Railways	Lorries and Railways	Lorries and Railways
Distance From Railway Station	10- 20 minutes	3 – 5 minutes	20 to 30 minutes	15 -20 minutes
Commission charges /Profit margins	4 – 7 per cent	4 – 7 per cent	4- 7 per cent	4 -10 per cent
Minimum Quantum	60-100 kgs	80 kgs	80 -100 kgs	80 kg
Species in Demand	Pomfret (Black ,White, Chinese), King Fish, Rawas	Hilsa, Pomfret, Long Finned Gangetic	Prawns, Seer Fish, Indian Mackerel, Pomfret	Mackerel, Ribbonfish, Seer Fish, Indian Dog Shark
Seasonal variation and demand	High – October to March Low -July to September	High- October to February Low - March – June	High -September to April	High -January to March

The payment system adopted at these regional markets is two fold - cash intermingled with credit. Credit is dependent on the relationship that the buyers have with the sellers. The payments to the suppliers at the landing centers are through bank transfers or pay orders mostly on the same day.

Benefit Cost Analysis

1. **Howrah Market** -Pomfret, Seer fish, Ribbon fish and Horse Mackerel has high demand with low returns.(while analyzing the benefit- cost, the result was less than 1 for all the species except Pomfret)
2. **Kakinada and Vishakhapatnam Market**- Pomfret, Seer fish, Cat Fish, Commerson's and Indian Mackerel are in great demand, but with low returns.(while working benefit- cost analysis the result was less than 1 for all the species except Pomfret and Tiger Prawns)
3. **Mumbai Market:** Pomfret, Halwa, Indian Salmon, Shark and King Fish have demand with high returns.
4. **Chennai Market:** Seer fish, Black Pomfret, Indian Dog Shark, Red Snapper and Indian Conger Eel are in great demand but while working benefit-cost analysis the result was less than 1 for Indian Conger Eel and Red Snapper.

Value-added fish products

Consuming fresh fish is the cheapest proposition. Any processing and value addition is going to add cost. Value added products could be prepared from those varieties, which are being wasted and from underutilized varieties, which are downgraded due to lack of infrastructure facility. The market value of these varieties of fish/shrimp is very low. There are several processing technology available for production of value added products that are simple and where investment required is low. However, issues of marketing of these products must be sorted out. Species like Ribbon Fish, Clupeid, Mackerel, Sardine, and Croaker can be salted and dried and marketed in these. Better quality products, such as packed dry fish and pickles, have demand, if consistency in quality and availability is maintained even in local markets. Economically valuable varieties such as Pomfret and Seer also go for processing only when they cannot be sold in the fresh or iced condition.

Infrastructure and Investment Required

In order to increase the capacity, it is very important to determine the additional infrastructure required from both the financial and economic standpoint. Estimated sum of Rs 1,650,000/-would be required as capital investment. Samudram needs to explore possibilities of tie-up with funding agencies, banks, government departments etc. to take care of increased capital needs.

Recommendations

Support from Financial Institutions

- i. The Institutions should formulate the strategies and schemes in such a manner that adequate support in letter and spirit flows to the fishermen for widening their economic activities. Institutions should have a shift in their policies and procedures to effectively facilitate and support them to engage themselves in gainful economic opportunities. The institutions should evolve a system by which credit is made available to the fishermen groups taking up entrepreneurship and economic activities as a group.

Support from the Central Government and the Planning Commission

- i. Development of marine fisheries sector requires attention in the planning process for rural development.
- ii. The government should ensure the partnership between all the stakeholders like academic, financial institutions, NGOs for promotion of fishermen community. It should be explicitly included in the next five-year plans.
- iii. The government should look at creating a system for monitoring of marine fish prices.
- iv. 'Common Service Centre' can be designed to promote marketing opportunities and facilitate trade related practices.
- v. Government, academic institutions and experts be brought together to form a knowledge forum wherein they can help/support the fishermen on various aspects like processing, value addition, HACCP etc.

Support from the State Government:

Infrastructure Arrangements:

- i. The quality of fish processed from Orissa is poor on account of unhygienic conditions. It is recommended to the state government that cement yards can be developed near all landing sites which ultimately will improve the quality and increase the price of the fish.
- ii. Sanitation system in Orissa is very poor; drains are open and effluent is discharged without treatment. Solid wastes such as small fins and insoluble effluents are discharged into open drains. Bigger solid waste such as spoilt

fish and broken organs are dumped in open garbage cans in the vicinity, creating a foul smell in the surroundings. Local authorities need to take some concrete steps in order to overcome such situation.

- iii. The ice on which fish is stocked is made from unclean water and handled in unsanitary conditions. Salt used in ice is unprocessed, rendering it inappropriate for consumption. State government must develop infrastructure like ice plant which will help fishermen to overcome the some of the issues related to HACCP.
- iv. The Andhra Pradesh State Government is providing to fishermen and their cooperatives advance remote sensing information regarding the flow of fish in the area, hence the fishermen can hunt in the area where the fish is in plenty, thus saving time for fishermen. Government of Orissa might like to replicate the same.
- v. Government needs to develop common services like storage facilities, transportation services wherein fish catch from Ganjam can be delivered directly to other regional markets like Mumbai bypassing Puri or Bhubaneswar, and this will reduce the length of Supply Chain and costs.

Recommendation Specific to Samudram

Market for better returns: Mumbai and Chennai fish markets are the most lucrative for Samudram since they promise better returns as compared to Vishakhapatnam and Kolkata market.

Marketing: Samudram needs to regularly interact with wholesalers since marine fish prices are dictated by middlemen.

Manpower: ‘Samudram’ does not have ready scope to attract adequate technical and managerial talent. In order to be successful in trading operations which requires extensive amount of traveling to various regional markets and to get well versed with the trade dynamics. Samudram needs to initially recruit a professional with a marketing background to focus on market linkages especially with traders from Mumbai and Kolkata who.

Management Information Systems: Samudram needs to develop an effective system wherein they themselves can monitor costs and prices. This information will help them to analyze their business activities, seasonality and future trends.

Value Addition: Samudram needs to explore value addition opportunities that include processing, packaging and grading. The small varieties of shrimp like *Parapeneopsis stylifera*, *Solenocera* spp. and *N. tenuispes* are very cheap and can be used for value added products like pickle, papad. The fish Sciaenid (*Otolithas* sp.) is also very cheap

and different types of value added products like fish sandwich paste, fish kurkure can be prepared. The sciaenid spp. and Ribbon Fish can be salted and dried and marketed in small retail packs. Small varieties of shrimps can also be dried and sold in retail packs. Products like dry fish/Prawn with proper packaging, fish sandwich paste in retortable pouch, fish/prawn soup powder; prawn flavour extract etc. can be used and considered for value addition.

Packaging: Samudram personnel need to be trained in due course on this as if Samudram targets export markets as also goes for brand building in the long run.

Increase Scales: To earn a reasonable share of profit, in any regional market, minimum quantum of 80 -100 kgs of fish has to be traded at one time.

Samudram also needs to invest and train the fisherfolks on **quality assurance practices** mainly on hygiene and sanitation issue, which have a strong linkage to the quality of the product.

Export: It is highly recommended that initially they need to explore the regional markets in India since there is high demand in the domestic market itself. Samudram need to increase their production capacity to meet the domestic demand and 3 - 5 years later they can explore the export market. Before entering the export market they need to study the trends, which they can begin as soon as possible. This will help them to build their internal capacities as also work on issues such as HACCP.

Financial viability: Samudrum needs to increase its turnover and impact, for this it should:

- i. Scale up to achieve economies of scale by increasing production sourcing and meet with market expectations
- ii. Explore possibilities of tie-ups /funding with other organisations, banks and government departments to take care of increased capital needs
- iii. Bring in operational efficiencies and professional approach by introducing new systems and building organisational structures to take care of such systems.