haul. Realising the potential of these grounds, fishermen modified these nets into circulating wall nets (Chakkar vaada jaal). The width of the nets was increased to 24 m. The weight of the stone sinkers were also increased to ensure proper stretching of the nets to the ground (7-8 kg per piece). The depth of operation varies at different landing centres: 20-22 m at Navibandar, 24-25 m at Madhavpur and 25-26 m at Mangrolbara. While 40-50 pieces of Jaada jaal nets were used earlier per boat, only 2-3 pieces are used now. The whole net is used to encircle the school area before being towed in. The crew strength (4-5 men) is more in these operations. The fishing general takes place between 9.00 a.m. and 1.30 p.m.

The nets are fabricated @ Rs. 200/- per kg and each set weighs about 60-80 kg, costing about Rs.12000/- to Rs.16000/-. At Madhavpur, the fishermen use one set of these nets (50 pieces per set) at a time. At other centres like Mangrolbara and Navibandar, 2-3 sets are used at a time. The average catch of this resource by motorized OBM boats during this short period of aggregation was approximately 200-500 kg at Madhavpur, 500-1000 kg at Mangolbara, 300-1500 kg at Navibandar in the year 2001. In December 2001, at Madhavpur alone approximately 170 t of Artus spp., was landed in 5 days. This was sold at Rs.12/- per kg. This price has now gone upto Rs.15/- per kg.

The fishermen believe that these fishes aggregate for breeding/spawning, selecting a cold and hard habitat, and tend to remain there for about 5-7 days, as during this period they are generally weak and less active. This makes them highly vulnerable for capture. The weight ranged from 2-7 kg/fish. The size groups at Navibandar were comparatively smaller. This fishing gear is taking the shape of smaller version of the purse seine. From the biological point of view this will have a devastating effect on the resource as the movement of the fishes for breeding/feeding along this coast seems to be suicidal. The fishermen too need to realize the need for checking the exploitation of the breeding stock so as to conserve the resource.

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**Book review**

Title : COMMERCIAL EXPLOITATION OF FISHERIES : production, marketing and finance strategies.

Author : Hrishikes Bhattacharya

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The fisheries sector is of paramount importance in the economy of countries as it provides employment besides generation of income in terms of national and foreign currencies through domestic marketing and foreign trade respectively. This sector is broadly divided into capture and culture sub-sectors, where the former harvest natural finite resources from the wild while the latter produce through farming of selected candidates under a scientific regime with inputs of capital and labour, which supplement and compliment the capture sub-sector. Indian fisheries, being predominantly subsistence oriented, has slowly grown into commercial activity since mechanisation in sixties and gradually entered into trade and export market. Although India is rich in fishery resources and their contributions to the countries Gross National Product (GNP) and exports are
quite impressive, no comprehensive study had so far been made linking Indian fishery to the world situation. Considerable efforts were made over the years to monitor, investigate and assess the living resources of our seas with clear cut programmes to evolve suitable management strategies and fishing policy in the coastal waters and deep sea. However, the marketing and finance strategies for marine products export in the context of changing international scenarios, GATT obligations need in-depth study, analysis and policy formulations.

The book entitled 'Commercial Exploitation of Fisheries', giving thrust to production, marketing and finance strategies has two parts such as World Fishery and Indian Fishery; the former with 6 chapters and latter with 4 chapters. The subject matter presents through the 10 chapters is the outcome of a comprehensive multi-disciplinary study of World Fishery products with a focus on India. The author, a renowned professor of IIM, Calcutta, has mostly relied on data published in International Trade Statistics and Handbook of Fisheries, FAO, Financial aggregates and rates; Statistics of marine products, MPEDA Review etc. together with the support of a host of fisheries literature, for the preparation of this book.

The first part of the book overviews the World fishery under six chapters such as expansion and decline; fish products price realization; global production and marketing; over fishing; world fish production and import trade; export of fish products. The author's attempt for a critical analysis of production data and exports ocean-wise, percentage share of developed and developing countries during 1975-92 indicated a lopsided development in the global fisheries scenario. The data clearly indicate the supremacy of the developing nations bordering Pacific and Indian ocean in terms of fish production as well as exports.

Fish products price realization depend on catch fluctuations, world supply, demand, market and the standard of hygiene and above all the physical and financial capacity to stock the products. In this chapter the author has analysed the average price of fishery products of major developing and developed countries during 1993-1996: the result indicated a higher price realization of crustaceans and fishes in advanced developing nations compared to developed nations by virtue of the formers modernisation processes adopted, of late, in storage and hygiene processes leading to a longer shelf life. The author has briefly touched the price realization and export scenarios of some of the emerging Asian countries.

The third chapter of the book deals with the market opportunities and competition in global fish production. The analyses of fish production data of developed countries indicated negative growth rates, except the U.S., whereas the developing countries indicated positive growth rates with the emergence of China in the first place. This chapter also analyses the inland water capture fisheries scenario, which showed a progressive increasing trend during 1975-96 period. The author has emphasized the need for developing aquaculture through proper check and balances in order to fill the demand supply gap in fisheries production of developed and developing nations.

The fourth chapter of the book unfolds some of the over fishing, resources depletion and potential yields of major fish types in the global context with the support of data and evidence. This analysis reveal that many temperate resources of developed nations suffer depletion.

The disposition of fish production and import trade is elaborated in the fifth chapter of this book. The data given in the table reveal that the demand for fresh fish continue to increase from about 19% in eighties to more than 30% in late nineties. This chapter also provides continent-wise and country wise information and data on import of fish in preserved, processed, value added forms. These data are of much value to develop appropriate marketing strategies and to develop mar-
The overall analyses of data on product disposition and world trade scenarios clearly point to the fact that the fishery products in fresh, frozen (about 77% of world import of total products) is preferred in global market over the capital intensive value added products.

The sixth chapter critically analyses the export performance of different fish products in various markets of the world and attempted to develop a suitable methodology for determining the export marketing strategies of fish products in various markets of the world and attempted to develop a suitable methodology for determining the export marketing strategies of fish exporting countries. The continent-country-wise export data tabulated in the chapter revealed some major changes in respect of import-export status and this would provide avenues for countries to prepare comparative strategies for future growth.

The second part of the book deals with the Indian Fishery through four chapters. The production and trade in Indian fishery industry, explained in chapter seven, reveals that the Indian Fishery industry is largely controlled by individuals (middle men) and they act as an invisible wall between the producers and the trade, the latter reach the fish to the consumers. The author feels that India's fish export trade could be sustained only by aquaculture production with sufficient allocation for this sub-sector in the plan and after adoption of resource/ environment friendly sustainable aquaculture developments in tune with the carrying capacity of the systems.

The marine and inland fisheries of India are briefly narrated in the eighth chapter of this book. Coast-wise catch characteristics; problems of over fishing along with the status of major marine pelagic and demersal resource groups and their production efficiency in India are given here. This chapter also deals with the future projections, demand-supply gap, environmental issues and deep-sea fishing. The author opined that for growth of the export trade, the shrimp oriented industry should be broad-based and diversified to include not only cephalopods but also a spectrum of fishes.

The ninth chapter provides data and information on the disposition of fish landings and export performance of different products, while the last chapter presents the crisis in the fish marketing and trade sector. The crisis starts through a chain of events such as USFDA restrictions and embargos, poor quality cooked shrimps, rejection and subsequent destroyal of salmonella contaminated shrimps, prohibition under the cover of conservation coupled with occurrence of wide spread disease in cultured shrimps and domestic restrictions in CRZ and coastal shrimp aquaculture. The waggeries in world market and the changing food safety and environmental regulations imposed by importing countries coupled with a lower price realization in fish exports make the Indian seafood industry risky. This Indian industry, dominated by small scale units, has a very low level of net worth with consequential result of diminishing profit and hence made the units sick. Considerable efforts on the part of industries, government interventions in policy formulations are imperative to make our fishery products internationally competitive and to rise the level of net worth.

Although the author has borrowed data and information from a wide assemblage of literatures, only few has been cited in the book under the section bibliography. However, the author has fully utilized the data and information base to develop appropriate production and market models to evolve a national export policy. This comprehensive multi disciplinary study of world fish production, marketing and finance strategies with a focus on Indian scenario is an invaluable treasure for exporters, banks financial institutions, policy planners, post-graduate and research students of fisheries and marketing management. This book is recommended for research institute/university libraries of concerned disciplines.

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