FISHERIES AND ECONOMIC DEVELOPMENT

Key words: GDP, EEZ, Exports, Quality control

Fig – 15.1

INTRODUCTION

The fisheries sector is rarely a strategic sector for national economic development. Although it plays a prominent role in only a few countries such as Iceland, Namibia, Maldives and other small island developing states rich in fishery resources relative to their populations, it is nonetheless an important economic activity, and very often a strategic one, in many coastal regions of the world. Indeed, in many countries, fish export is a major contributor to foreign exchange earnings, often ranking far higher than other agricultural commodities. The major trade flow -- from south to north -- underlines the significance of this sector for the trade balance of many developing countries. Licensing fees of foreign fishing fleets are another source of foreign exchange revenue from marine fishery resources, especially in West African and South Pacific countries.

The more considerable and substantial contribution of fisheries worldwide is the supply of highly nutritious animal protein for human consumption and the employment and income generation in often-remote coastal areas. While globally some seventeen percent of the animal protein supply is derived from fisheries, in many developing countries -- especially in the Asian region that is home to nearly two-thirds of the world's population -- this share is above fifty percent. Finally, the growing importance of recreational fishing is also notable, especially as its contribution to economic benefits is often difficult to assess and still insufficiently recognized.

Historically, fishing has been a major source of livelihood for coastal and inland fishing communities as well as a source of healthy food for humanity at large. In India, fisheries and aquaculture are vibrant economic activities, and has been one of the fastest growing food production systems during the last three decades. Their significance and contribution towards
agricultural (4.6 per cent GDP) and national economies (1.3 per cent GDP), livelihood and nutritional security, employment generation (11 million people) and foreign exchange earnings (over Rs.8000 crores) have been enormous though understated so far.

Fisheries sector occupies a very important place 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 cheap and nutritious food besides being a foreign exchange earner. Most importantly, it is the source of livelihood for a large section of economically backward population of the country. The main challenges facing fisheries development in the country have been in assessment of fishery resources and their potential in terms of fish production, development of sustainable technologies for fin and shell fish culture, yield optimization, harvest and post-harvest operations and landing and berthing facilities for fishing vessels, augmenting export of marine products, generating employment and improving welfare of fishermen and their socio-economic status.

The fisheries sector usually makes a valuable contribution to economic development of coastal areas. The relative dispersion of coastal small-scale fisheries adds to maintaining economically viable rural communities and balancing the trend towards growing coastal urbanization. In history, fisheries have often been the basis for human settlements and coastal development in both the rural and urban environments. For example, Iceland was established as a fishing settlement and the United States owes a lot to the cod fisheries. In Africa, artisanal fisheries often generate the capital needed by fisher-farmers to invest in agriculture. In well-managed fisheries, high resource rents can be generated and used to finance investments within or outside the sector. The sight of fishing activities (e.g. ports, fishing boats, landing sites and fish markets) is attractive to many people and often has considerable aesthetic value to both those living permanently in the area and tourists. In addition to its direct contribution, the fisheries sector is often responsible for significant indirect multiplier effects on economic development. First, through intra-sectoral interactions, e.g. between capture fisheries and ancillary activities such as net-making, or between capture fisheries and aquaculture through the supply of fishmeal. Second, through intersectoral interactions, e.g. between forestry and fisheries through the supply of timber for boat-building, or between agriculture and aquaculture through the supply of feed. Fishing or fish farming is often undertaken next to other economic household activities including farming and small trade.

These multiple economic occupations not only bridge the often-great seasonality in the abundance of fishery resources, but also insure against risks of failing production in any one of these activities. Moreover, these complementary pursuits may in some cases determine part of the fisheries sector dynamics; for example, the supply of capital and labour of the fishing activity may evolve in close relation to agricultural activities undertaken by the household. The infrastructure developed for fisheries (feeder roads, landing sites and coastal havens, water-retaining ponds) tend to trigger further economic developments in other sectors such as tourism or agriculture. An important contribution of the sector is the employment opportunities it generates, especially in remote and marginal areas. And not only in fishing but also in boat-building and maintenance, mechanical workshops for engines and gear, net-making and repair, handling, processing, packing and transport. In developing countries, it is estimated that some 39 million fishers (including those engaged in production, harvesting and landing site-based
activities) are dependent for all or part of their livelihoods on fisheries. Together with their dependents, as many as 200 million people may rely on fisheries for their livelihood. The rapid development of aquaculture, for the local and export markets, and its rapid transformation in many areas into a commercial or semi-industrial activity is also contributing substantially to the development of rural areas. The fisheries sector is an inexpensive 'observer' and, potentially, 'guardian' of the aquatic resources and environment of a country or a region, capable of alerting the relevant authorities in case of some major hazard such as pollution. Fishers and fish farmers often first witness major changes in ecosystems. Under this angle, and provided fisheries adopt a responsible attitude 'across the board', as provided in the FAO Code of Conduct for Responsible Fisheries, fisheries could significantly increase their future contribution to sustainable development.

**Fisheries in India:**

India with a long coast line of 8129 Kms, two million sq. kms of Exclusive Economic Zone and 1.2 million hectares of brackish water bodies, offers vast potential for development of fisheries. Against an estimated fishery potential of 3.9 million tons from marine sector, only 2.6 million tons are tapped. Fishing efforts are largely confined to the inshore water through artisanal, traditional, mechanized sectors. About 90% of the present production from the marine sector is from within a depth range of up to 50 to 70 meters and remaining 10% from depths extending up to 200 meters. While 93% of the production is contributed by artisanal, mechanized and motorized sector, the remaining 7% is contributed by deep sea fishing fleets confining their operation mainly to the shrimp grounds in the upper East Coast.

A working Group constituted by Ministry of Agriculture in August 1990 had revalidated the fishery resource potential of Indian EEZ at 3.9 million tonnes of which 2021 million tonnes are within a region of depth upto 50 meters is estimated at 1.69 million tonnes. Some of the commercially important resources under exploited beyond 50 mtrs. Depth regions are tuna (2.09 lakhs tonnes), Tunnies (2.42 lakh tonnes), Ribbon fish (2.16 lakh tonnes), Parches (1.25 lakh tonnes), Cat fish (0.63 lakh tonnes) etc.

**The Exports Dimension**

The attention turned to seafood exports as a result of the implementation of the New Economic Policy of Government in India in mid 1991. Seafood or marine products exports was recognized as a source of great potential for earning foreign exchange to help ease the adverse balance payments position that India was facing in those years.

**Market Structure**

Before 1960, the markets for Indian marine products were largely confined to neighbouring countries like Sri Lanka, Myanmar, Singapore etc. This position continued as long as exports from India were dominated by dried items. When the frozen and canned items increasingly figured in our exports, the sophisticated affluent markets like USA, France, Australia, Canada, Japan etc. became important buyers. Processing units with modern machinery for freezing and canning came up at important centres to process and pack for exports.
Over the years, the frozen seafood markets for Indian marine products have witnessed changes. The USA was the principal buyer for our frozen shrimp for a long time but after 1977, Japan emerged as the principal buyer for frozen shrimp followed by the Western European countries. While Japan continued to be the single largest buyer of our marine products accounting for 15.29% in volume and 23.86% of the value during the same period. Share of the USA is increasing steadily.

China is one of the leading markets for fish items like Ribbon fish, Crocker etc. China accounted for 31.75% in volume and 10.03% in value of the total export of marine products from India.

**Export Trend**

The export of marine products had grown to greater proportion as one of the important item of India’s exports, accounting for approximately 4% of the total export from India. Dried fish was the prominent item exported during the fifties and sixties but in the seventies it gave way to frozen and canned products. During eighties, the canned items slowly disappeared and frozen became the prominent one in India’s seafood trade. Amongst the frozen items also, there was changes in the demand from various countries. While Japan showed their preference to headless shell on shrimp, the USA demanded peeled shrimp meat while the European countries preferred the IQF shrimp in frozen and cooked form. The European market also absorbed the major share of cephalopods while Japan had taken a small share of it. Due to introduction of new deep sea fishing vessels and modification of the existing trawlers to suit deep sea fishing, a large quantity of fish become available for export. These frozen fish items had greater demand in the South East Asian countries as well as the Middle East.

In the seventies, the export was depending mainly on shrimp but due to the export promotional measures, it became possible to diversify the products in eighties adding Cephalopods (Cuttlefish, squid and octopus) and frozen fish (such as Pomfret, Ribbon fish, Seer fish, Macherel, Reef cod, Croakers, Snapper etc). While all these items hold good prospects, live fish, chilled fresh water fist etc. are promising items for the future.

Due to the introduction of scientific shrimp farming, the export of frozen value added shrimp is continuing as the major foreign exchange earner among marine products. Export of items like breaded and battered shrimp, double skinned cuttlefish, fish burgers, sea food mix, squid fillets etc. have made its presence felt and is expected to increase in leaps and bounds by the turn of the century.

The export mainly consists of low valued fin fish varieties (35.83%) followed by frozen Shrimp (33.83%), frozen Cephalopods (22.88%) and dried seafood items (2.07%). The major change noticed in the export trend, is the emergence of South East Asia who continued to be the top most importer of marine products in terms of volume. The other individual markets which increased their shares are Canada, Mauritius, Australia, Switzerland, Maldives, New Zealand, Reunion, Panama, Venezuela, Taiwan, Bangladesh, Philippines, Turkey and Malta.

**Marine Products Exports: Recent Trends**
Export of marine products has increased considerably to an all time high both in volume and value during 2002-03 with actual export of 467297 MT valued at Rs.6881 crore or US $ 1425 million.

Prospects of Fisheries growth:

With the fisheries sector comprising of marine fisheries, freshwater and brackishwater aquaculture and inland fisheries consisting of tanks and reservoirs, the potentiality of the sector as a whole remains to be fully tapped. It remains a sector of much promise.

Fisheries sector in particular is more complex enterprise that functions under integrated network of natural resources, other enterprises with forward and backward linkages with fisheries and other socio-political variables. Major functions of fisheries enterprises viz. production, transportation and processing involves value addition from labour, capital and management which significantly influences the rapid economic development of the country. Unlike agriculture, contribution of fisheries sector to GDP continues to grow at a rapid pace because of expansion of culture fisheries enterprises.

Role of NABARD and institutional Finance:

India’s rural credit system is unique in its reach and diversity. The thrust of National Bank’s (NABARD) rural development programmes has been to make a frontal attack on poverty through their credit and development functions. NABARD’s refinance to credit institutions rose from 703 crore in 1982-83 to Rs. 6683 crore in 2001-02. Table1 gives the disbursement of refinance to the fisheries sector including aquaculture.
Refinance to the fisheries sector needs to play a greater role in financing the fisheries sector. But a portion on the non-farm sector refinance is also a part of the overall assistance to the fisheries sector. The figures in Table 1 do not reflect this information.

**Aquaculture**

To augment production through aquaculture and to sustain and increase the exports, the government of India promotes:

- Micro and macro level survey to identify suitable sites for farming.
- Preparation of site specific project reports.
- Technical advice on various aspects of farming.
- Training farmers/entrepreneurs in farming.
- Arrange visit of farmers form one state to other state for learning different aspects of farming.
- Conduct workshop/symposium/farmer meets for the benefit of farmers/entrepreneurs.
- Promote ecofriendly aquaculture.

**Quality Control and Food Safety**

Quality and Food Safety is the foundation of any food processing industry. In the sea food industry, quality control is a very vital element as quality of the products processed is highly heterogenous and perishable in nature, particularly under tropical conditions. Realizing this, the industry has adopted modern methods of handling, processing besides adequate quality control measures to improve the quality of sea food. To cope up with the increasing demand for safe food and to satisfy the needs of health/quality conscious consumers of the global seafood market, the government has identified the following thrust areas for development/ improvement and implement programmes as under:

1. **Product development for export:**
   - Research and development of new products.
   - Training in new technology and inviting overseas technical experts to India.
2. **Quality improvement**

- Imparting training to technologists of Indian seafood industry in quality control in overseas labs.
- Entrusting special research projects on quality problems with National Research Institutes
- Monitoring of seafood quality in landing and pre-processing centers.
- Integrated development programme for upgrading seafood quality by providing infrastructural facilities like pre-processing centres and setting up of mini lab towards quality assurance.
- Evolving standards for compliance for export of fish and fishery products to various developed countries based on standards/norms/regulations prescribed by such countries.

**Salient features of some of the standards now being implemented in India are given below:**

Consequent to the promulgation of US Seafood Regulation on HACCP on 18th December 1995, it has become mandatory that every processor and importer has to comply with HACCP with effect from 18.12.1997. Government of India constituted HACCP Cell in early 1996 to assist the Indian seafood industry for the effective implementation of HACCP. The major activities of the HACCP Cell are:

- Organizing training programmes in HACCP basic principles, audit etc. for the benefit of technical personnel in the seafood industry and related departments. So far, 32 such programmes were organized for the benefit of over 900 technical personnel.
- Assisting the seafood establishments in the preparation of HACCP manual, certification of such manuals, certification of HACCP compliance etc. So far, 26 processing establishments in India are issued with HACCP compliance certificate by MPEDA.
- Inviting consultants form US FDA, NMFS, FAO/INFOFISH etc. from time to time which facilitates in updating knowledge on HACCP and strengthen the technical base of MPEDA and the industry.

Besides, ICAR fisheries institutes and the MPEDA lab at Cochin has facilities to test seafood samples for heavy metals, pesticides and antibiotic residues using advanced technology. These institutions also serve as a member in the Export Inspection Council of India, Bureau of Indian Standards and National Committee of Codex Alimentarius.

**Negative impacts of fisheries:**

Some negative impacts result from the fact that fishing and aquaculture activities may affect the development of other economic activities. The presence of set fishing gear or aquaculture installations can be an impediment to navigation and tourism (through 'hard' occupation of space and aesthetic damage to landscape) and the development of these activities competing for space
need to be carefully integrated. Other negative impacts may derive from irresponsible fish production practices. Damage to fish habitats caused by some destructive fishing practices (e.g. dynamite) are deterrents to tourism.

The destruction of coastal wetlands and mangrove areas by aquaculture pond construction and water pollution by intensive coastal aquaculture can have the same sort of effect. The presence of set fishing gear or aquaculture installations can be an impediment to navigation and tourism (through 'hard' occupation of space and aesthetic damage to landscape) and the development of these activities competing for space need to be carefully integrated. Negative impacts such as overcapitalization and overfishing may also result from heavy subsidisation in the absence of effective fisheries management.

![Fig - 15.3](image_url)

CONCLUSION:

The Union Budget 2004 speaks of water bodies restoration and enhancement of agricultural credit through specific programmes aimed at agricultural development. A concerted effort to understand fisheries and its nuances to make the best of the comparative advantage that we have in this sector would go a long way to assimilate the blue revolution in it entirely. Not only in respect of exports but the scope of the fisheries sector as a provider to employment and income is to be realized in full measure. Non governmental agencies like the Dr. M.S.Swaminathan Foundation, the Aquaculture Foundation of India, and the inter-governmental body, the Bay of Bengal Programme have been in the forefront to exploit the scope of fisheries as a provider on income and employment. Sufficient attention needs to be given to the sustainability of aquaculture operations by adoption of proper management practices. The scope of diversification of enterprises within the gamut of aquaculture operations is available in the literature generated by fisheries colleges located in the country. This literature needs to be studied and intensive efforts made to suggest economically viable and socially accepted technologies developed, reach the masses. The role of the fisheries sector need to be highlighted in order to build awareness among the population to enhance increased participation and create social cohesiveness for the development of the sector.

Agricultural economics research has not paid sufficient attention to the fisheries and aquaculture component that is an integral part of its whole. Dynamics of fisheries and aquaculture economics research demand that in order to get the best out of the policy efforts of the government, the output from this group needs to be enhanced quantitatively and qualitatively.