CHAPTER-IV
INDIAN FISH INDUSTRY:
AN OVERVIEW
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Introduction

Fishing industry in India makes a valuable contribution not only to the domestic food supply, but also to exports. India is endowed with a cost line of 7516 km with 0.42 million sq.km area within the continental shelf and 2.02 million sq.km areas within the exclusive economic zone. The marine potential is enormous, all the same, only a part of it is currently being exploited. The marine fish landings in India during the year 2004-05 have been estimated at 2.77 lakh tonnes.

Structure and Characteristics of the Fishing Industry

With a total fishermen population of about 14.5 million (Livestock census, 2003) and rich marine and inland water resources, fisheries and aquaculture sector have an important role to play with regard to employment, livelihood and food security. Fish products also form a significant commodity for overseas trade. During the past decades the Indian fisheries and aquaculture had improved the craft and farming methods in fisheries. Creation of required infrastructure facilities during pre and post-harvest has been receiving due attention of the central and state governments. All these have been inducing a steady growth in the fisheries sector in India.

Marine Fisheries

During 2004, the marine fish catch was 2.81 million tonnes, of which 63 per cent was taken from the west coast and the rest from the east coast. The fishing units consist of 20,8,000 traditional craft, 55,000 traditional motorized craft, 1,250 mechanized boats and about 100 are deep-sea fishing vessels.

There are 3,827 fishing villages and 1,914 traditional fish landing centers. 79 per cent of the full-time fishers and 72.3 per cent of the part-time fishers are from the coastal...
states and union territories in India. A wide range of fishing gears including trawls, seines, lines, bag nets, stake nets and lift nets are deployed.

During the ten-year period of 1995-04, marine capture production remained stable which accounted around 2.80 million tonnes per year with a minimum of 2.66 million tonnes in 1995 and a maximum of 2.96 million tonnes in 2002. The marine fish landings consist of about 65 commercially important species/groups. Pelagic and midwinter species contributed 51.6 per cent of fish landings in the total fish production. Indian oil sardine, Indian mackerel and anchovies constituted the main bulk of marine species caught followed by Bombay duck (Harpodon neherrius), Seer fish, Tunnies and cephalopods. Sciaenid, Carangids, Perches, Elasmobranches and Marine shrimp are forming a main bulk of demersal resources harvested in India. Although it contributes only 10 per cent in the total marine landings, shrimp is commercially important variety due to its export potential.

Development of marine fisheries sector is taken up with a focus on sustainability through empowering the traditional sector, enhancement of sea safety, rational exploitation of untapped deep-sea resources etc for achieving employment generation, social security of fishers, increased food security and augmenting sea food exports. Development of adequate infrastructure for harvest and post-harvest operations with due consideration of the principle of minimizing post-harvest losses and ensuring enhanced food safety has been embarked upon. Under this programme, a chain of 6 major and 45 minor fishery harbours and 158 modern Fish Landing Centres have been commissioned and as many as 18 harbours and 46 landing centres are at various stages of construction. In order to improve the domestic marketing of fish in the country, improved fish markets and chilled /refrigerated transport are being provided and low cost technologies for processing are being popularized. With these endeavors, the annual per capita consumption of fish has been growing steadily and the national average during 2004 stood at 5 kg, though the consumption pattern along coastal belt stood much high.
Inland Fisheries

The country’s fresh water resources consist of 1,95,210 kilometers of rivers and canals, 2.9 million hectares of minor and major reservoirs, 2.4 million hectares of ponds and lakes and about 0.8 million hectares of flood plain lakes and derelict water bodies. During the ten-year period of 1995-2004 inland fish production grew from 6,00,000 tonnes to 8,00,000 tonnes and at present contributes to 13 per cent of total fish production of the country.

Freshwater Aquaculture

Inland aquaculture (2,352,000 tonnes in 2004) has emerged as a major fish producing system in India with the governmental initiatives in the past three decades. Fish Farmers Development Agencies (FFDA) were set up in each district for delivering a package of technologies, practices, training and extension besides financial assistance to the beneficiaries. So far, 429 Fish Farmers Development Agencies (FFDA) functioning in the country has brought about 0.65 million hectares of water area under fish farming and reached out to 1.1 million beneficiaries and imparted training to about 0.8 million. Currently the average annual yield is around 2.2 tonne per hectare. Necessary capacity for feed production accounts for over 80 per cent of farmed fish. Major species cultured are Rohu, Catla, Grass Carp, Common Carp, Silver, Catfish, Singi, and Rainbow Trout. Giant fresh water has emerged as a new species for farming with promising results. The potential for farming in running cold waters and reservoirs is also being developed.

Utilization of Fish Catches

About 81 per cent of the fish catch is marketed as fresh or chilled and forms staple food along the coastal and inland landing centres. About 6 per cent of the catch goes for drying and curing. Frozen fish production accounts for 5.2 per cent while 4.7 per cent goes for reduction to fish meal and 0.53 per cent for other miscellaneous purposes. The utilization undertaken by fish canning industry is only 0.6 per cent of the total catches. Value added products of different descriptions are slowly becoming popular as convenience food in the wake of changing life styles. The range of value added products
includes extruded products, battered and breaded products, surimi and derivatives, pickles and curried products in restorable pouches.

**State of Fishing Industry**

The fish processing industry is well developed in the country. There are about 625 registered exporters (380 manufacturer-exporters and 240 merchant-exporters) in India. The post-harvest infrastructure includes 215 ice plants, 481 shrimp peeling plants, 371 freezing plants, 495 cold storage units, 7 canning plants, 16 fish meal plants, 11 surimi plants and one Agar-agar production unit. 95 per cent of the seafood processing units are concentrated in 20 major clusters in 9 states. All processing plants, which are export-oriented, are HACCP certified.

The current production is little over 3,78,000 tonnes per year. Commercial production is mostly directed towards export. Total exports of fish and fishery products were 1,63,000 tonnes in 2004 (product weight, about 5,00,000 tonnes in live weight equivalent). The country exports 12 major commodity groups to over 40 countries. Shrimp products accounts for 65-70 per cent of the export earnings.

**Economic Role of the Fishing Industry**

Fisheries play an important role in the national economy providing full-time or part-time employment to 14.66 million people. The contribution of fisheries to GDP at the current prices (2003-04) is 1.07 per cent. There are 11,800 registered primary fisheries societies in India with a membership of 19,17,300 beneficiaries. It contributes a major proportion exchange earnings. Fisheries sector earned US$ 1,365 million foreign exchange during 2004.

**Development Prospects**

Marine fish production from near shore waters has reached almost at marginal level. Major gap in total fish potential and present production exists in deep sea and off-
shore pelagic resources. Good potential exists for coastal aquaculture and mari culture. Resource enhancement measures in coastal waters also need to be taken up. In contrast, inland fish production has been showing rapid growth at about 6 per cent per annum and has great potential for further development of the country. Area expansion, diversification of farmed species and augmenting productivity from the existing farms in a sustainable manner are possible strategies in this sector. A substantial portion of the future additional demand for fish will have to be met from aquaculture.

Objectives for future fisheries development include enhancing fish production and productivity, generating employment, improving socio-economic conditions of fishers, increasing marine products for export and increasing availability of fish to about 11 kg per year. These objectives are sought to be achieved through intensification of aquaculture, qualitative and quantitative improvement in farming, introduction of more economic varieties, improving productivity of reservoirs and lakes, and horizontal expansion of farmed area. Combating diseases, popularizing organic farming and implementing sustainable farming practices would be taken up. Developing policy and legal framework with required safeguards for introduction of exotic varieties would receive attention. In the marine sector besides intensifying coastal aquaculture, sea farming, intensification of deep-sea fishing, better management of coastal fisheries with application of principles of sustainability and stock enhancement measures would be practiced for maximizing the returns. Considering the massive processing facilities created and the skilled manpower in hand, import of raw material for processing, value addition and export has good prospects.

Fisheries Management

Indian marine fisheries face frequent fluctuations as cyclical and climatologically affects. All the coastal federal states have enacted their Marine Fishing Regulation Act with jurisdiction over their territorial waters. Management measures such as closed seasons, delimitation of fishing zones for different categories of fishing craft etc are implemented for ensuring sustainability. Capture of non-targeted species and bi-catches are discouraged through awareness programmes.
The central government, which has controlled over the fisheries in the Exclusive Economic Zone (EEZ), has brought out a comprehensive marine fishing policy to achieve harmonious growth of different sectors with least inter-sectoral conflicts and on the principle of stakeholder participation. An inter-ministerial Empowered Committee looks after management and development of fisheries in the EEZ. Instituting an effective Monitoring Control and Surveillance System (MCS) is in progress. A Vessel Monitoring System (VMS) is being introduced in the deep sea sector. Uniform holidays for fishing are take place in the EEZ along east and west coasts in India. Limiting access for fishing through permits has ensured capacity management in the EEZ. The number of vessels that would be permitted in the EEZ during the next five years in each resource specific category has been worked and notified. The Coast Guard is vested with powers for policing the EEZ.

Conservation of aquatic resources and genetic bio-diversity is another thrust area for the next millennium. The country is party to the Convention on Biological Diversity and Bio safety protocol. Necessary safeguards are put in place for regulating cross-boarder movement of live aquatic organisms. Attention is paid to protect endangered marine species such as Olive Ridley turtles by declaring marine sanctuaries and no-fishing zones along their nesting sites. Turtle Excluder Devices have been made mandatory for trawlers in the vulnerable areas. Fishing for endangered species of fin fishes, crustaceans and molluscs listed under IUCN is banned and studies on the vulnerable species have been taken up. Apart from areas listed under Ramsar sites, other ecological hotspots are identified for abetting pollution and restoration of fishery etc. Fighting land-based pollution and implementation of Integrated Coastal Zone Management has high priority on the country's agenda. Apart from Environment Protection Act (1986) and Rules framed there under, Landmark Coastal Regulation Zone Notification and a National Coastal Zone Management Authority for regulating the activities in the CRZ are in place.
Fisheries Research in India

Fisheries research in India is coordinated by the Indian Council of Agricultural Research (ICAR), an autonomous organization under the Ministry of Agriculture. Researches for genetic improvements in the commonly farmed species, domestication and breeding of new species, developing improved farming techniques, early diagnosis of diseases in aquatic organisms and their management, developments in harvest and post harvest technologies, and human resource development are some of the main research areas. The mandates and addresses major research institutions are provided in the section on links to further information.

International Cooperation

Besides its active involvement in the fisheries developmental initiatives of FAO's, COFI and its subcommittees, India is associated with various other global and regional bodies dealing with fisheries such as Convention for Conservation of Antarctic Marine Living Resources (CCMLR), Commission for International Trade on Endangered Species (CITES), International Whaling Commission (IWC), Indo-Pacific Fisheries Commission (IPFC) and Indian Ocean Tuna Commission (IOTC). Among the regional fisheries management initiatives, India hosts the eight-member Bay of Bengal Large Marine Ecosystem (BOBLME) programme in Chennai, the first phase of which has been completed. Another four countries regional initiative, namely the Bay of Bengal Programme - Inter-governmental Organization (BOBP-IGO) is also hosted by India and is situated in Chennai. Fisheries issues are also actively debated in other regional foray such as SAARC, BIMSTEC-EC, and IOR-RC etc in which India is member. India is partner in a number of bilateral assistance programmes for development of fisheries. The Indian Technical Assistance Programme (ITEC) has included fisheries as one of the subject fields for extending bilateral assistance.

Fisheries Aids in India

India has received substantial aid from several international organizations including the World Bank, UNDP, DANIDA, NORAD, ODA UK, France and Japan for
fisheries. In 1998, the World Bank granted a loan of US$ 800 million for a National Agricultural Technology Project (NATP), and under this programme, several projects have been implemented under ICAR, Ministry of Agriculture and State Agricultural Universities. The areas covered include marine fisheries, aquaculture, pearl culture, and development of cold-water fisheries. Through yet another World Bank assistance programme, a Shrimp and Fish Culture Project was implemented during 1992-1999. The Project covered the states of Andhra Pradesh, Bihar, Orissa, Uttar Pradesh and West Bengal. Six brackish water farms with a total area of 797 ha have been developed for shrimp culture operations.

FAO, UNDP, and Bay of Bengal Programme (BOBP) are a regional initiative covering seven countries bordering the Bay of Bengal started in 1979 was concluded during 2003. Assistance was received under the programme in the development of small-scale fisheries including enhancing the socio-economic conditions of the fishing communities in the region. UK has provided technical aid for prevention of post-harvest losses in marine fisheries. Processing sector has largely benefited from the FAO programme for technical assistance in implementing HACCP in seafood processing industries, NORAD assistance for developing deep sea fisheries and cold water fisheries, DANIDA assistance in coastal fisheries development and man power training in marine fisheries, Japanese assistance in development of deep sea fishing, acquisition of modern dredging equipment, manpower training and capacity addition in net making and French assistance in fresh water prawn farming has also helped development of these sub sectors.

New Schemes for Fisheries Development in 2005-06 (Tamil Nadu)

The Department of Fisheries and the Tamil Nadu Fisheries Development Corporation are carrying out fish culture activities in 53 reservoirs in Tamil Nadu. But the total fish production from all these reservoirs is around 1 per cent of the total inland fish production in India. Hence, there is a great potential for enhancing fish production by adopting cage culture. The technology of Cage culture has been known for several decades and hence to popularize this technique to utilize in the water bodies effectively
and economically and there by to augment fish production, a pilot project on cage culture in reservoir is proposed at a total cost of Rs. 5 lakh during 2005-2006.

It is proposed to undertake repairs in 1750 Sq. m area of defunct nursery / rearing space viz. Karunthattankudi, Agarapettai, Poondi, Mettur Chembaram-bakkam and Pilavakkal, out of 13 hectare departmental rearing area available at a total cost of Rs. 10 lakh during 2005-2006.

A sum of Rs.30 lakh is proposed during 2005-2006 for dredging the bar mouths in Pazhayar and Thirumullaaivasal in Nagapattinam District.

The storage of water in the Poondi Reservoir is main source of drinking water in Chennai city and so the fish farm of Poondi would not always rely upon the reservoir water storage. Hence to find out a permanent remedy to have perennial water supply to the seed farm, a sum of Rs. 6 lakh is proposed to provide a well during 2005-2006.

The fisheries extension and training centre at Colachel in Kanniyakumari District was constructed during 1964. Every year, two training courses are offered to the fisher boys by this training centre. The building of this training centre is in damaged condition for the past one decade. Hence, it is proposed to repair the building at a total cost of Rs. 10 lakh during 2005-2006.

In most of the places, the fish landing centres are in interior, remote corners. Supply of electricity and maintenance are practically difficult due to the inaccessibility of the places. The best alternative is the provision of solar powered lights in those landing centres for the benefit of fisher folk. This scheme will be implemented in a phased manner. In the first phase, 20 fish landing centres will be selected and provided with two solar powered lights each at a total cost of Rs. 10 lakh during 2005-2006. 50 per cent of
subsidy from the Tamil Nadu Energy Development Corporation will be availed to carry out this scheme.

At present, 4 Fisheries Extension and Training Centres at Thoothukudi, Colachel, Nagapattinam and Mandapam are functioning in the Coastal districts of Tamil Nadu. They impart training in modern methods of fishing, Navigation and Seaman, Fish preservation, Marine Diesel Engines operation and their maintenance. About 300 fisher boys are trained in all these training centres every year. For the purpose of teaching the fisheries technologies, a sum of Rs. 4.20 lakh is proposed for purchase of teaching aids on the above four training centres during 2005-2006.

The Staff Training Institute functioning at Chennai is offering six training programmes to the departmental officials. Further, this institute is conducting training to fisherwomen self help groups in the preparation of value added products, fish handling, processing and marketing techniques etc. With the existing state of affairs and equipments, this institute can not meet the challenges and the training system effectively. Hence, it is proposed to purchase teaching equipments, aids and requisite infrastructure to enable the institute to cope up with future demands in the training areas at a total cost of Rs. 6.50 lakh during 2005-2006.

To generate self employment for economic development among fisher women especially from Scheduled Caste and Scheduled Tribe communities, it is proposed to impart training for them on ornamental fish culture, practice during 2005-2006 at an estimated cost of Rs.3.36 lakh.

**Future Needs for Fisheries Development**

India’s future fisheries development plans are aimed at making substantial contributions to doubling of food production, improving the welfare of fishers, promoting exports and providing food and livelihood security to the rural population. The per capita
availability and consumption of fish is to be increased to a level of 11 kg per annum for the fish eating population for which production and distribution has to be scaled up appropriately. All these require the scientific and technological for capacity building in key areas.

Aquaculture is recognized as an important source for meeting future demands for protein food in the country. A number of schemes have been instituted by state and central sectors to augment production from brackish-water and fresh water aquaculture sectors. The private sector has emerged as a major player in brackish-water aquaculture, particularly in shrimp farming. Responsible aquaculture and prevention and management of aquatic diseases, organic farming, cage farming induced breeding and fattening of select species are some of the challenges to be addressed in this sector for improving productivity.

Considering the growing global demand for seafood, developing the export production with due care for food safety and product competitiveness has been embarked upon. As a backward linkage for improving hygiene and sanitation in fish handling, centrally sponsored schemes have been launched to upgrade the existing infrastructure at fishing harbours and landing centres and shrimp pealing yards. Quality upgradation in post harvest and domestic marketing sectors requires concerted efforts.

A number of schemes have been initiated by Central Government for the welfare of the fishing community, so as to provide them livelihood security through housing, insurance and sea safety. Training, micro credit and increased participative management by the stakeholders need to be ensured. Another immediate requirement is to update the national preparedness for handling situations such as the recent tsunami, which has profound impact on the coastal communities and their livelihood. Improvements in database management and development of linkages in all sub sectors are another felt need.
Marine Fisheries Sector in India

India comprise three distinct sub-sectors namely, traditional sector involving inshore water fishing with non-mechanized crafts and gears which operates up to 16 kms from the coast. Modern sector consisting of small- mechanized boats and ultra modern sector consisting of large vessel designed to operate in huge sea beyond the areas of the first two sub-sectors. The traditional sector accounts contribute for 67 per cent of the marine production of 1.8 million tones, the other two sectors contribute 32 per cent and 1 per cent respectively.

But often there has been inter sectoral conflicts having socio economic dimension. Increasing competition between different fishing fleets as to who should have access to coastal fishery resources and thereby benefit directly from different the use of these resources is leading to conflict and confrontations. These disputes are of the two types namely, conflict between fisher folk engaged in artesian and mechanized fishing in sharing a common fishing ground and conflict between fisher folk of different localities. These disputes often result in violence between the two different groups.

Fish Production in India

India ranks 7th in total fish production among the countries of the world and 2nd in shrimp production alone. Indian fishing industry has been recorded the steady growth since the second half of the 80s, but the 90s witnessed stagnation in the case of marine landings. During the last 50 years, many changes took place in 3 sectors of fishing industry namely, (i) catching or production sector (ii) processing sector and (iii) tertiary sector.

In the production sector, there are 3 emerged sectors of fishing namely, traditional motorized sector, traditional non-motorized sector and mechanized sector. Positive changes that took place in the processing sector include the introduction of harbours facilities and quality control. The changes in the tertiary sector comprise of the
introduction of foreign markets, development in transportation facilities, new methods of
distribution etc. These factors have helped India to achieve an important position in the
scenario of the world fish industry.

India is not ranked within in the top ten exporters in the fishing industry; nonetheless the marine products of the nation have earned a sizeable portion of foreign exchange and paved the way for creating employment opportunities.

Table: 4.1, Marine fish Production in India (Million Tonnes)

<table>
<thead>
<tr>
<th>S.No</th>
<th>Year</th>
<th>Marine</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1950-51</td>
<td>0.5</td>
</tr>
<tr>
<td>2</td>
<td>1960-61</td>
<td>0.9</td>
</tr>
<tr>
<td>3</td>
<td>1970-71</td>
<td>1.1</td>
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<tr>
<td>4</td>
<td>1980-81</td>
<td>1.5</td>
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<tr>
<td>5</td>
<td>1990-91</td>
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<td>2000-01</td>
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<tr>
<td>7</td>
<td>2002-03</td>
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<tr>
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<td>2003-04</td>
<td>3.0</td>
</tr>
<tr>
<td>9</td>
<td>2004-05</td>
<td>3.52</td>
</tr>
<tr>
<td>10</td>
<td>2005-06</td>
<td>3.76</td>
</tr>
</tbody>
</table>

Source: Ministry of finance, India

Fish production in the country has increased from 0.72 MT in 1950-51 to 6.50 MT in 2005-06. Fishing in aquaculture and a host of allied activities are the source of livelihood to over 14 million people as well as a major foreign exchange earner, in 2005-06, which contributed about one per cent of the total GDP and 5.3 per cent of the GDP from agriculture sector. The geographic base of Indian marine fisheries has 8,118 km coastline, 2.02 million sq.km of Exclusive Economic Zone including 0.5 million sq.km of continental shelf and 3,937 fishing villages.
There are 189 traditional fish landing centers, 59 minor fishing harbours and 6 major fishing harbours, which serve as bases for about 2,80,000 fishing craft consisting of 1,81,000 non-motorized traditional craft, 45,000 motorized traditional craft and 54,000 mechanized boats. Out of 180 deep sea fishing vessels, only 60 are in operation at present.

Export of Marine Products in India

Fishing industry in India has emerged as an export earner and acts as a soft cushion in times of stagnation in overall exports against imports. Till the close of 1960, Indian marine products exports largely consisted of dried products only. Since then, exports of frozen products had also shown steadily progress. Nearly 55 categories of marine products are exported to countries in south-East Asia, Europe and the U.S.A.

From a modest beginning of 19,700 tonnes of marine products valued at Rs.2.46 crores in 1950-51, India’s marine export earning has reached a level of nearly Rs. 5095 crores by 1990-2000 with a strong trend towards crossing Rs. 6,000 crores by 2000-01. There has been a remarkable diversification of exports accounting for 50 per cent of total shrimp exports. The Indian frozen shrimp is the most preferable Indian variety in Japan, the USA and the European Union. The share of different modest in India total marine export are as follows; Japan accounts for 44 per cent in terms of value, U.S.A. 15 per cent, Europe countries 18 pr cent, south- East Asia 18 per cent, Middle-East 2 per cent and other countries account for 3 per cent in terms of value(Nero Shachin and Asha,2000).
### Table 4.2, Export of Marine Products in India

<table>
<thead>
<tr>
<th>Year</th>
<th>Quantity in metric tonne</th>
<th>Value Rs. In Crores</th>
</tr>
</thead>
<tbody>
<tr>
<td>2001-02</td>
<td>424470</td>
<td>5957.05</td>
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<tr>
<td>2002-03</td>
<td>467297</td>
<td>6881.31</td>
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<tr>
<td>2003-04</td>
<td>412017</td>
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</tr>
<tr>
<td>2004-05</td>
<td>461329</td>
<td>6646.69</td>
</tr>
<tr>
<td>2005-06</td>
<td>512164</td>
<td>7245.30</td>
</tr>
</tbody>
</table>

**Source:** Ministry of finance, India

Statistically the table 4.2 says that the value of export in the year 2001-02 was merely 5957.05 which is low when compared with the year 2005-06. Since the consumption of fish has been increased in foreign countries, the overall exports of marine products has reached an ever time record of 1.6 billion US dollars during the year 2005-06. The total exports aggregated to 512164 metric tonnes valued at Rs. 7245.30 crores against in the year 2001-02.

### Marine and Inland Fish Landings

It is observed that the marine sector performs comparatively better than that of the inland sector in fish landings in Tamil Nadu. Yet another point noted with concern is that the per cent scores portray that there had been wide fluctuations in both the inland and marine sectors. The fisher-folk apply intensive and extensive capture techniques, supplemented by a scientific management policy and proper conservative measure to bring the fish caught at the various locations in the sea, far and wide to the shore.

The landings of inland fisheries both of the major and the seasonal tanks and ponds followed by rivers and canals, and estuaries and backwaters are the major source of fish production. Irrigation tanks and seasonal tanks followed by rivers and canals serve as the major sources of inland water fish. In 2002-03, Kancheepuram, Vellore,
Cudalore, Viruthunagar, Sivagangai, Tiruvallur, Theni, Pudukkaottai, Tiruvarur, Tirunelveli and Ramanathapuram together contribute 75.52 per cent of the inland fish production in Tamil Nadu through the various sources and it improved considerable to the following periods.

Table: 4.3, Inland Fish Production (Million Tonnes)

<table>
<thead>
<tr>
<th>S.No</th>
<th>Years</th>
<th>Production</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1950-51</td>
<td>0.2</td>
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<tr>
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<td>1960-61</td>
<td>0.3</td>
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<tr>
<td>3</td>
<td>1970-71</td>
<td>0.7</td>
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<tr>
<td>4</td>
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<td>0.9</td>
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<tr>
<td>5</td>
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<td>2004-05</td>
<td>2.78</td>
</tr>
<tr>
<td>10</td>
<td>2005-06</td>
<td>2.81</td>
</tr>
</tbody>
</table>

Source: www.indianbudget.org

Fisheries statistics of Tamil Nadu reveal that catla, and rohu are the important varieties in Indian major crops that they account for 17.65 per cent of inland fish production similarly Thapia and Barous together contribute 25.335 per cent. Beside the brackish water fish, shellfish are also among which prawns figure with a share of more than eight per cent.

**Fishing Gears and Grafts**

In 2000, the mechanized crafts thought an increase of 218.58 per cent. Presently, around 8,009 crafts and 41,770 country boats are functioning in the fish folk of Tamil Nadu. Of these, 15,106 crafts are motorized with 50 per cent subsidy provided by the Tamil Nadu government. Mechanization of fishery operations is in an enhanced
production. With this trend, continuing fish production will make further strides. Such an increase in fish landings improves productivity and generates an income, promotes development of infrastructural facilities in several areas and above all supplies additional quantum of much protein-rich fish to the growing population.

Mechanization in Fishing

Mechanization in fishing gears and crafts is not free from its demerits. The fishermen especially those who are engaged in the traditional fishing industries experiencing the ordeals of poverty are not privileged to reap the fruit of mechanization. As the Mechanization is existing in many other sections of fisheries sectors, it is likely to affect the employment status and income of artisanal fishermen living in the villages areas.

With the view to increasing the export earnings, the well to do fisher-folk operate highly mechanized trawlers. There are reports of over-fishing of prawns by adopting the technique of mesh size reduction in trawl nets. When the juvenile population harvest, there occurs a consequent decrease in size of exploited species coupled with probable depletion of their stock.

There are again problems generated by the human interference. Many oft the time, the natural balance of the ecosystem is upset through indiscriminate denudation of mangroves and quarrying of coral leading to extensive coastal erosion. An uncontrolled discharge of domestic, agro and industrial wastes causing the pollution of the environment. Tamil Nadu initiates to protect the zone against such damages.

Fisheries Sector and Socio-Economic Development

Fisheries sector occupies a very important place in the socio-economic development of the country. It has been recognized as a power income and employment generation as it stimulates grow of a number of subsidy 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 which are faced by fisheries development in the country includes accurate data on 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, landing and berthing facilities for fishing vessels and welfare of fishermen.

The major thrust in fisheries development has been focused on optimizing production and productivity, augmenting export of fishery products, generating employment and improving welfare of fishermen and their socio-economic status.

**India’s Sea Food Exports Towards 2010**

Export of sea food from India is likely to be worth over $4 billion by 2010 from current exports estimates of $2 billion. Capacity of fish catching vessels are expanded by equipping the fishermen with more accurate remote sensing tools as also substantially enhancing fiscal assistance to sea food exporters through Marine Products Export Development Authority.

Associated chamber of Commerce and Industry of India had been projected that India’s seafood exports, which stagnated are $1.6 billion in 2005-06. In 2004-05, sea food exports reached a record level of 461,329 tonnes valued at $1.5 billion. This represents a rise of 11.97 per cent in terms of volumes 9.11 per cent in rupee terms and 11.10 per cent in dollar terms. The exports may reach a level of $4 billion by 2010.
Conclusion

In the classification of economic activities, fisheries sector is placed along with agriculture and it exists according to the benevolence of nature. The fisheries sector has expanded over the years in Tamil Nadu due to the improvement of technologies in the fishing operations,

Hence, an increase in the per capita fish consumption of the ever-widening population is witnessed. This obviously calls for a widening and deepening of the employment scenario in the fisheries sector. Further, the enlargement of the employment opportunities is due to the related activities such as catching, preserving, processing and marketing of fish and other sea products. The image of this fisheries sector is enhancing as it helps to improve the economy and to augment the much-needed foreign exchange through export of fisheries especially to the development countries.