

# DEVELOPMENT OF FISHERY RESOURCES IN INDIA

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Fish and Fish products have an important place in the economy of India not only because they are good foreign exchange earners but are also important to bridge the protein gap in the country. Located as the country is, India holds a vantage position in the Indian Ocean, the fishery resources of which have been estimated to be nearly 49 million tonnes. Out of these only about 5 per cent is exploited by the bordering countries—India alone accounting for about 36 per cent of it. With a coast line of nearly 5000 k. m., a shelf area more than 2,50,000 sq. kilometres into which numerous large and perennial rivers discharge their silt-laden waters, and a number of small gulfs and bays all along the coast, the conditions are extremely favourable for the development of extensive fishery resources. It was a common belief, even among a section of scientists, that waters of tropical regions are not as productive as those of the temperate zone. This, however, was based on short-term studies and recent investigations on the productivity of tropical waters have shown that taken on an annual basis, the tropical waters stand comparison with the waters of the temperate region.

What then has been the limiting factor or factors in the full and proper development of our marine resources? Until about 1945, sea fishing in India was being carried out by small non-powered crafts whose activity had to be necessarily confined to the shallow regions of the continental shelf. Our knowledge of the deep water fishing grounds or the methods of proper exploitation of the resources from such regions also was inadequate. Even the techniques of disposal or preservation of any surplus fish caught were of a rather primitive type and thus our technological standards in general were too low to be of any economic advantage to us. The fish preserved by indigenous methods was acceptable only to some of the eastern markets such as Ceylon, Burma and Malaysia. But during the short span of a little over a decade now, India has been able to make substantial progress in the export of marine products and today her foreign exchange earnings through this trade are to the tune of Rs. 330 million. From the traditional salted and dried fish, the country has now a variety of processed, hygienically canned or frozen products fit for consumption by the sophisticated section of all advanced countries.

## **Growth Range of Sea Food Items**

The growth in the range of India's exportable marine products, of late, has been considerable. The country has been able to put forward mainly shrimps, both frozen and canned, which form the largest item of her seafoods and this will continue to dominate on account of her seemingly vast potential, the comparatively easy mode of fishing and handling and the enormous demand it has in western markets. The timely realisation in its potential and the initiative taken by the private industrialists have been largely responsible for this sudden spurt of activities in this field.

The possibilities of stepping up India's marine exports by at least three times from the present level were considered as a modest target for the Fourth Plan period. Such an increase would naturally demand a greater mobilisation of all her resources not only in respect of actual fishing, but also a simultaneous improvement in the technology for effective utilisation by proper preservation and processing. Thus, we have come to a stage when we have to concentrate our attention on all aspects of technology starting from the fishing craft and gear, processing and packaging. A well organised and comprehensive system of production, processing and marketing alone would form the sheet-anchor for a sound building up of the industry.

Owing to various natural factors, Cochin on the south-west coast has become the centre of the marine product export activities. As indicated above, fillip given to the industry by private entrepreneurs has been the chief factor—thanks to the incentive given to the venture by the State and Central Governments. The scientific back-

ground given by the research organisations also have, no doubt, helped the proper utilisation of resources along the east and west coasts.

## **Production Potential**

The average yield per sq. kilometre of Indian Ocean is of the order of only 0.03 tonnes as against the 0.17 of the Atlantic or 0.14 of the Pacific. This apparently low figure for our waters has been rightly ascribed to the inadequate exploration and fishing beyond 25 metres. Various exploratory surveys in recent times have revealed that even on some of the most conservative estimate a potential of about 11 million tonnes exists in the Indian Ocean. The recent discovery of rich prawn and lobster fishing grounds within a short distance of our coast on the Arabian Sea in the South-western sector shows how much we have yet to know of the potential of our seas. Studies on the primary organic production of our waters also support the view that the Indian Ocean, situated in the tropical region, is not inferior to the temperate waters in its productive potential.

## **Prospects of Development and Diversification of Marine Export**

Increase and diversification in the marine products exports is the logical outcome of enhanced production. While the demand potential for these products had always been high, the fact remains that the full processing capacity of many of Indian plants is not being utilised largely due to shortage of raw material. The buoyancy in export market has brought about a large and somewhat localised growth of processors and exporters. Some have just the meagre working capital and a kind of unhealthy competition is likely to arise although fortunately the adverse aspects have

not become much evident in our present set up. As the industry grows, a balanced development is necessary so that it may flourish in a disciplined and controlled manner. This will be the function of some centralised agency. The Marine Products Export Promotion Council at present partly fulfils the purpose.

While the country is exporting a variety of seafood items there is still scope for improvement and diversification of her products. While adopting various measures, it is of prime importance to bear in mind the changing pattern of overseas market demands and unless efforts are geared to suit this, a sustained level of export may be hard to maintain. For example, shrimps exported are mainly in the form of either headless with shell on or peeled and deveined fresh or frozen condition, and sometimes cooked and frozen. Mostly block processing is being resorted to. However, in recent times individual quick frozen (IQF) have come to be more acceptable to foreign markets. This might also prove to be more economical as this would considerably reduce freight and packing charges, besides ensuring better quality. Apart from the routine fishery products now produced it is time that other new items are introduced such as fish and shrimp extracts, pastes made out of prawns, sardine, mackerel and tuna, fish flakes, fish soup mix, crab concentrates and such innovations are brought into field as are found necessary from time to time. Frog legs, which have now become proverbial, though not a truly marine product, are quite a popular item of export.

There are still many avenues of marine export which we have only meagrely explored or not tried at all.

Notable amongst these are the tunas which seem to be abundant in the seas around the Laccadives and the Andaman group of islands. The Japanese fishermen, in particular, have been reported to exploit to the order of 130 thousands tonnes from the Indian Ocean. Considering the achievements of such far based operations, it is only reasonable to expect that with adequate offshore equipments we should be able to obtain much more sustainable yields. Among the many varieties of tunnies in our waters, the albacore which posses white meat is likely to prove more popular for export than the skipjack, yellowfin and the bluefin. Frozen tuna finds a ready market, while those canned in oil and brine are also gradually becoming popular.

While there is cope for export of a variety of other products such as edible oysters, mussels, beche-de-mer, special mention should be made in this context of the importance of sea weed products. Agar agar, the colloid extracted from certain varieties of sea weeds, finds many industrial, bacterial, bacteriological and domestic uses. At present a large part of our own requirements of agar is met by imports from Japan and other European countries. Although the possibilities of extracting high quality agar from some of our sea weeds have been demonstrated by the Central Marine Fisheries Research Institute and other research institutions and agar manufacture on cottage industry level has come up in some places along the coast, large scale manufacture has been started only recently. One great advantage in this agar industry can be the non-dependence on much heavy or sophisticated machinery for any modest rate of production. Although at present we have no reliable estimates of the

extent of our sea weed resources we may not be over optimistic in assuming that a sustained agar industry should be possible to produce much more than our own country's needs leaving a substantial quantity for export. Alginates, which have also several industrial uses, will be another product arising from sea weed industry.

### **Quality Control and Preshipment Inspection**

Side by side with the growth of marine exports, there naturally arise several vital problems, chief among which may be said to be the maintenance of strict standards in quality. Fish or prawns, being highly perishable, especially when the deterioration can be hastened under tropical conditions, require enormous care from the moment they are caught until they reach the consumer. Thus, at all levels of storage, transport, processing and marketing, a close watch will have to be maintained to prevent fall in standards. Until recently cold storage facilities were very inadequate in most fish landing centres and processing technology has also been at a low level of perfection. Even after the introduction of freezing and processing in the earlier days of the industry, quality control of the products was not adequately stressed, but lately the processors have become fully seized with the problem and they have realised that strict adherence to quality standards alone can take the industry forward.

Standardisation provides a common ground of understanding among producers, dealers and consumers. This can bring about economy and efficiency in production of goods and a sound system of production standards ensures uniform characteristics in end products.

Inspection and quality control of easily perishable items like marine products deserve careful consideration. Unless the industry themselves realises this and actively cooperates in preshipment inspection and maintenance of standards there can hardly be any success in such a scheme. However, our marine export traders have of late become highly quality conscious and the result is seen in the steep fall in oversea rejections of our shipments. Compulsory preshipment inspection of frozen prawns has been introduced by the Government of India only since 1965, while for froglegs this has come to effect from 1966. The introduction of inplant inspection as envisaged in future will certainly ensure greater expansion of marine export trade. Mechanisation in methods of processing, especially in beheading, peeling, sorting, grading and IQF preparations will further eliminate dangers of deterioration through manual handling.

### **Packaging and Allied Problems**

A good deal of attention is being devoted for the development of technological competence relating to fish processing and bye-products. In order to step up the export industry a vital aspect which requires a critical study is packaging. Attractive, cheap and efficient containers and other packaging materials should be evolved after a close study of the market preferences. Conventional cans made out of tinned iron sheets are likely to be replaced by aluminium. This change is particularly significant in the country which depends on imports of tin. Sizes and shapes of cans and frozen packs will also have to be guided by the consumer preferences. While some research is being carried out in packaging as a

whole, fish packaging requires special attention and sufficient expertise has to be developed in our country.

### **Need and Prospects of Joint Ventures**

India like any other developing country with diverse industrial and trade promotion plans, may not be able to achieve its ambitious targets within a short duration unless she has abundant cooperation from other more advanced nations. For example, in the field of deep sea fishing which has to be intensified, she needs a number of larger and better equipped trawlers than what she has at present. Until she is in a position to rig up her own trawlers, it is essential to import for her ready use at least 60 trawlers of the 22-27 metre class in order to make a modest impact in her deep sea fishing.

Fishing and processing industry calls for heavy investment of capital for

rapid advancement. The possibility of organising tuna and skipjack fishing in large scale with purse seining and line fishing in collaboration with countries like Japan and the U. S. A., offers great scope. Foreign investors are to be encouraged to bring in equipment and some technical personnel to commence commercial fishing operations in the offshore areas. Joint ventures for fisheries, like shrimps, lobsters and tunas which have great potential but which lack necessary investment resources and other facilities for development would prove to be an economic success for all concerned. Mexico, Brazil, Panama, Iran, Thailand and such countries are some of the many countries which have capitalised on their resources by entering into collaboration with the U. S. A. and Japan. The export target of Rs. 1180 million by 1980 should then be well within the country's reach.

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