

## FISHERIES PLANNING AND DEVELOPMENT IN INDIA

by

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### Summary

Fisheries Development in India has been receiving increasing attention and allocation in the Five Year Plans. Improving the socio-economic condition of fishermen is one of the three main objectives of the Fisheries Fifth Five Year Plan, and removal of poverty is one of the two goals of the National Fifth Plan. While planning is with a view to modernization of fishing industry, particular care has been taken to see that it will not place the economic interests of the small fishermen in jeopardy. Economics of mechanised fishing largely depends on the availability of high priced resources and where the fish caught is low priced, the fishing becomes uneconomical unless measures are available to process them to a product capable of fetching remunerative prices. Deep sea fishing is highly capital intensive and the impact of fuel price increase with falling prices in consuming markets require careful handling.

Government are alive to their social obligations to the fishermen, who belong to the weaker sections of the community. Steps specially designed for socio-economic betterment, viz. approach roads, water supply, processing facilities, housing, education and medical facilities, are under implementation.

## 1. INTRODUCTION

India is one of the largest maritime countries in the Indian Ocean having a coastline of 5 680 km excluding those of the islands, and a continental shelf of 5.8 million km<sup>2</sup>. It has as many as 2 000 fishing villages and about 1 300 fish landing centres along the sea coast. Fish culture has been practised in India from very early times, particularly in the North Eastern Sector. Total inland fishery resources of India have been estimated at 9.5 million ha consisting of 2.95 million ha under tanks, reservoirs and lakes, 3.92 million ha under rivers and canals, 1.20 million ha under estuaries and 1.43 million ha under brackish water swamps.

Planned development in India was initiated in 1951, with the introduction of Five Year Plans; the Fifth Five Year Plan began in April 1974. During successive Plans fisheries development has received increasing attention, as is evident from the outlays approved and expenditure for fisheries development in India given in Table I below.

Table I  
Five Year Plan: Fisheries Expenditure

Plan	Outlays/expenditure (Rs. in millions) <sup>1/</sup>
First Plan	22.8 (actual expenditure)
Second Plan	90.6 "
Third Plan	233.7 "
Fourth Plan	541.1 "
Fifth Plan	1605.1 Outlay

The broad strategy for the Fifth Five Year Plan is derived from its basic objective viz., removal of poverty and attainment of socio-economic self-reliance. So far as the central plan for fisheries is concerned, the objectives are:

- (1) To step up significantly the annual level of fish production;
- (2) To improve the socio-economic conditions of fishermen and to increase the employment potential of this section; and
- (3) To improve the system of marketing of fish and fisheries products in the domestic market.

## 2. REVIEW OF PROGRESS

In the matter of fish production India has already attained a level of 1 958 million tons of fish production in 1973, comprised of 748 000 tons of inland fish and 1 210 million tons of marine fish. This production is short of the targets fixed for the Fourth Five Year Plan, which ended in March 1974, by 184 000 tons, the short-fall being mostly (135 000 tons) in the marine sector. The following table gives India's fish production during the plan periods:

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<sup>1/</sup> US\$ 1 = Rs. 4 762 in 1951
US\$ 1 = Rs. 4 762 in 1962
US\$ 1 = Rs. 7 628 in 1968
US\$ 1 = Rs. 8 110 in 1974

Table II

Growth of Fish Production during Five-Year Plans

Reference period	Production (million tons)		
	Marine	Inland	Total
Beginning of first Plan (1951)	0 534	0 218	1 958
Beginning of Second Plan (1956)	0 720	0 292	1 012
First year of Third Plan (1961)	0 684	0 278	0 962
First year of three annual plans (1966)	0 890	0 477	1 367
First year of Fourth Plan (1969)	0 913	0 695	1 608
Last year of Fourth Plan (1973)	1 210	0 748	1 958

Introduction of mechanised boats, deep sea fishing vessels and assistance to traditional methods of fishing have been the main production schemes in the marine sector. At present there are 9 300 mechanized boats and 83 medium and large deep sea fishing vessels and nearly 100 000 boats of traditional design, mostly catamarans and dug out canoes are in operation. Necessary infrastructural facilities in the form of landing and berthing facilities, training of operatives, charting of fishing grounds, research work on the basic biological and oceanographic features prevailing in the sea, etc. are being carried out. Production schemes are supported with financial assistance from the Government.

On the inland side the main emphasis has been in extending fish culture. Traditional fish culture is practised in the North Eastern sector of the country only. This is progressively being extended to other parts of the country. The Indian major carps, viz. Catla, Rohu and Mrigal which have good cultural qualities are being propagated all over the plains. Certain exotic varieties, viz., Common carp, Mirror carp, silver carp and grass carp have been propagated in recent times to fill in ecological niches. The main developmental effort in this regard has been in the supply of fish seed for which extension of fish seed farms as well as adoption of various techniques for increasing fish seed production have been attempted. At present the total fish seed production is estimated as 1 888 million at the spawn stage and 483 million at the fry/fingerling stage. The total nursery area available is computed as 923 hectares.

### 3. FIFTH FIVE YEAR PLAN FORMULATIONS

The production schemes included in the Fifth Plan relate to assistance to traditional methods of fishing, introduction of mechanised boats, introduction of deep sea fishing vessels, increasing the area under fish culture and an increase in the per hectare productivity.

Considering that the boats of traditional design account for 90% of the fishing craft in India and about 70% of the marine fish production, special attention is proposed to be given to this sector by way of introducing improved designs, provision of fish holds, sails, use of wood preservative and supply of synthetic fishing twine and nets. Facilities for storage, transport and marketing being provided will also benefit the traditional fishing sector.

As many as 4 750 mechanised boats are proposed to be introduced during the Fifth Five Year Plan, which is expected to raise the number of boats in operation to about 13 300. In early years of mechanisation engines were of low horse power merely enabling the vessels to travel to and from the grounds, but in view of the fact that gill netting was the main method of fishing powerful engines were not required. With the attractive market for shrimps, however, trawling with mechanised boats has become popular in recent years. However, since there are other resources to be exploited, the Government policy has been to encourage diversification in fishing and State Governments are considering giving enhanced assistance for multi-purpose boats. The boats are also becoming progressively larger to enable them to fish at greater distances from the shore. Initially, vessels were about 20 to 22 ft length. At the beginning of the Fourth Plan, 32 ft boats were most popular. Now the trend appears to be for boats in the range of 36 ft. to 43 ft. Excepting for exploratory and experimental fishing there are only a few deep sea fishing vessels operated by fishing enterprises. Although private industry has shown considerable interest in entering deep sea fishing, non-availability of proven designs, inadequate capacity for indigenous construction, lack of facilities for import, lack of trained operatives in manning deep sea fishing vessels, etc. have so far inhibited any significant development. All these problems are being overcome and it is expected that at least an additional 200 deep sea fishing vessels will be introduced during the Fifth Plan. In the matter of extending the area under fish culture steps are being taken to popularise fish culture through establishment of package programmes under a scheme of establishment of Fish Farmers Development Agencies. The extension work in popularising fish culture is also proposed to be significantly stepped up. Besides extending the area under culture, it is also proposed to increase unit production. Experiments conducted at the Central Inland Fisheries Research Institute have demonstrated the feasibility of attaining production as high as 6 000 kg per hectare through the technique of composite fish culture, i.e. culture of different varieties of fish in the same water medium with a view to utilising all available food in the cultivated area. In this context the new additions to our fauna viz common carp, grass carp and silver carp have proved to be welcome additions to the indigenous fauna.

#### 4. ECONOMIC ASPECTS

In contrast to inland fish, marine fish as a rule fetch lower prices in India. Prawns and lobsters are, however, exceptions in view of the export market. Quality fish like pomfret (*Stromateidae*), seer (*Scomberomorus* spp.), Indian Salmon (*Polynemus tetradactylus*) etc. fetch prices ranging between Rs. 1000 and Rs. 2000 per ton at the landing sites. However, the bulk of the marine landing is comprised of small and low priced varieties. These include the sardines, anchovies, silver bellies (*Leiognathus* spp.), "Dhoma" - croaker drums (Small sciaenids), "Kilimeen" - threadfin breams (*Nemipterus*), Lizard fish (*Synodontidae*), etc.

The landing sites are scattered and do not offer sufficient scope for running large sized fish meal plants except at selected centres. A special research programme was therefore launched for the utilisation of trash fish. It has been possible to produce fishery products out of these trash fish varieties using meat picking machines. The project is proposed to be developed as a semi-commercial venture during the Fifth Plan. If this operation is successful, it will provide additional economic returns to the fishermen.

As many as 9 300 mechanised boats are operating in India. The cost of a mechanised boat in India is currently of the order of Rs. 100 000 (US\$ 12 500) which is far beyond the purchasing power of the average fisherman. Government has therefore been issuing mechanised boats on a hire purchase basis after allowing a substantial portion of the cost as subsidy. The subsidy which used to be about 50% (except in very backward areas where it was as high as 100%) has been progressively reduced and at present subsidy is maintained mainly by State Governments more as a promotional measure for introduction of diversified methods of fishing. However, in order to assist the fishermen in obtaining finance, the Agricultural Refinance Corporation as well as Commercial Banks have been brought in the picture. The State Governments provide the necessary loan repayment guarantee on behalf of the fishermen's cooperatives who run schemes financed from these banks. Projects

totalling about Rs. 100 million (US\$ 12.5 million) are being financed in the fishing sector by the Agricultural Refinance Corporation, a subsidiary of the Reserve Bank of India.

The economics of mechanised fishing operation have been continuously under review by the Central Government as well as by the State Governments. While it is generally agreed that financial accommodation is unavoidable in the purchase of mechanised boats, opinion seems to be divided about the need as well as extent of subsidies to be given by the Government agencies. No precise conclusion can be drawn about the need for subsidising the cost, which would depend on the capital cost, the nature of fish, the price prevailing, etc. for instance boats engaged in prawn fishing have been working quite satisfactorily, while those engaged on fishing cheap priced varieties of fish had not been working very economically. Even boats fishing for prawns had difficulties in making the operations economical when the intensity of fishing in known areas increased rapidly. At the same time the life of a mechanised boat used for trawling is much shorter than a boat used for gill-netting. The cost of a gill-netter is comparatively small compared to the same sized boat engaged in trawling. This is because of the high horse-power requirement for trawling. In short, where rich prawn grounds are available and where the intensity of fishing is not very high trawling has been extremely profitable although it tends to be less attractive when fishing intensity increased beyond a certain limit. Gill netting for certain varieties with mechanised boats proved to be economical in view of the low unit cost, the longer life of engines and the relatively better quality of fish landed by gill netting. Purse-seining with small mechanised boats, although recent in its development, has been found to be very attractive and remunerative.

The boat building material as well as the engines have registered several fold increases in cost during the last ten years. Teak, the conventional boat building material has become costly. In this context a search for alternative boat building material was made and one of the State Governments has already established a ferro-cement boat building yard. While some ferro-cement boats have already been introduced it would still require substantial improvements before recommending to the Industry. A few fibre-glass boats have also been introduced. Here the main problems is the comparatively high initial cost of the hull.

In the matter of deep sea fishing the difficulties have already been enlisted. Indigenous ship building yards are being strengthened with design, equipment and expertise for the construction of specified types of fishing vessels. As many as 60 vessels are being imported to meet the immediate requirements as well as to serve as prototypes. Government has introduced a scheme for popularising indigenous construction of fishing vessels and the extra cost involved is proposed to be subsidised. Large fishing vessels as well as vessels engaged for fishing for export are entitled to certain remissions on the excise duty on diesel oil. However, the recent fuel price rise coupled with the slump in the foreign market for shrimp and other costly fishery products have created a serious situation in the matter of mechanised fishing including deep sea fishing.

In the context of entry of big business houses into the field of deep sea fishing doubts have been expressed in several quarters about the adequacy of the protection of the small fishermen against competition from both large and small mechanised fishing vessel operations. In this context Government are considering introduction of a legislation under which areas may be demarcated for fishing by different types of boat. It is also proposed to earmark for processing for the fishermen and their cooperatives, a portion of the capacity being created for processing by the large fishing companies. The small fishermen are also assisted in forming themselves into cooperatives for fishing, processing, storage and marketing.

## 5. SOCIAL ASPECTS

For improvement of the socio-economic aspects of living of fishermen, specific schemes have been included for approach roads, water supply and processing facilities in fishing villages and housing, education and medical facilities to fishermen. The scheme for approach roads is intended to provide link roads between existing roads and fishing

villages wherever considered necessary. The water supply is essentially intended to improve the hygienic conditions of the fishing villages as well as that of processing of fish. Fish curing yards are proposed at selected centres to improve the quality of fish processing. Almost all maritime states have got schemes for phased housing of fishermen. Under the scheme areas close to the sea coast are acquired for group housing by fishermen. Certain basic requirements like facilities for drying fish and space for drying of nets are to be incorporated in these housing schemes.

Model fish curing yards were introduced during pre-plan days for improving the quality of fish curing. There has been no significant improvement in these yards over years. It is now proposed to introduce modern fish curing yards with facilities for artificial drying and dehydration of fish. The proposal is still in the formulative stage.

Primary education is compulsory and free in India. To begin with a large number of fishery schools were therefore established to get over the difficulties of fishermen's education when facilities were inadequate. Education facilities have now improved and many of these fishery schools are being affiliated with the State Education Departments, although fishing as a vocational subject is being retained in many of these schools.