

FEATURES

Trends In Sri Lanka's Fisheries Industry in the 70's and 80's

639.2 (548.7)

Lal de Alwis

The fisheries sector could play a major role in Sri Lanka's economy if the untapped resources of the seas around us and the inland waters are properly utilized. Many past plans and programmes intended to develop the sector have recognised this fact but as this paper by Lal de Alwis of the People's Bank, Research Department shows they have not been able to achieve the desired results for many reasons. Sri Lanka's fisheries sector places much reliance on the new Master Plan, that hopes to set right most problems of the past by 1983.

Sri Lanka is in the favoured position of having a 1,100 mile long coastline, with fishing possible all around this coast. In addition the country has 344,000 acres of inland tanks and reservoirs and 300,000 acres of brackish water lagoons, estuaries, swamps and villus available for stocking and harvesting fish. The fishing sector in Sri Lanka should therefore have a relatively high importance in the economy compared to that of most other countries in the region. But the contribution of fishing to the country's Gross Domestic Product has been just over 1 percent during the past several years; while the total value added to the GDP has also been virtually negligible, contributing only Rs. 217 million of a total GDP of 18,501 million in 1979. (See Table I).

Value added	1977	1978	1979
in Rs. million	179	201	217
Percent increase over previous year	5.3	12.3	7.9
Percent share in G.D.P.	1.1	1.2	1.1

Source: *Central Bank of Ceylon*

Fishing was also the main source of income and employment of nearly 43,000 households living

in about 1,000 villages, according to the Census of Fisheries in 1972 (1). The number of active fishermen was estimated at 58,000 or roughly 2.5 percent of the total workforce. Their dependents according to this source were about 255,000. Another 7,000 persons were engaged in allied activities such as distribution and retailing, with about 17,000 dependents. A further 7,400 workers were employed in boat building, net making, ice manufacturing and curing sections with 18,000 dependents. The total employment in the sector on this basis was 72,000 and their dependent population about 300,000 (2). An estimate of the Ministry of Fisheries in March 1980 placed the total full employment in the fishing industry at 79,000 persons together with a further considerable number of part-time employees. (3)

The industry also supplies a substantial portion of the animal protein consumed by the population although, as we shall see, a drop in per capita consumption was recorded in the years since 1972.

Fish Consumption

One of the goals set for the fisheries sector development programme is to increase per capita consumption of fish to 44 lbs. by 1983 (reversing past trends of declining per capita consumption) and thereby help to raise nutritional levels. There is little likelihood of any significant reduction in the importance of fish as a source of protein in view of the existing production and supply constraints in alternative sources of proteins such as meat, milk, eggs and pulses.

The per capita consumption of fish was 31.99 lbs. in 1972. By 1976 consumption levels had declined to 23.94 lbs. (In the same year it was 133 lbs in Norway, 122 lbs in Japan and 84 lbs in Thailand). By 1977 per capita consumption reached 22.92 lbs, the lowest figure for the decade. The recommended allowance of fish by the M.R.I. is 60 grammes per day or 48 lbs per year per head of the population. But the

(1) Census of Marine Fisheries 1972 Sri Lanka conducted by UNDP/FAO.

(2) Ministry of Fisheries-Fisheries Sector Survey — 1978.

(3) Master Plan for the Development of Fisheries in Sri Lanka 1979-83; Ministry of Fisheries. March 1980.

TABLE II

Production, Supply and Consumption of Fish 1972-1979 (In thousand tons)

	1972	1973	1974	1975	1976	1977	1978	1979
Total Local Production of fish	100	99	109	127	123	137	154	166
Export (wet fish equivalent)	0.6	1.3	1.8	1.4	1.7	3.1	4.5	6.2
Total Local supply available for consumption	99	99	107	126	131	134	149	160
Imports (wet fish equivalent)	86	46	37	32	16	9	9	25
Total fish supply	185	144	144	158	147	143	158	185
Local fish supply as % of local consumption	54	68	74	80	89	94	95	86
Mid-year population (in mn.)	13.0	13.1	13.3	13.5	13.7	13.9	14.2	14.4
Per capita annual consumption of fish (in lbs.)	32.0	24.6	24.2	26.1	23.9	22.9	25.0	28.6

Source: Ministry of Fisheries

total fish supply available in 1978 was 158,196 tons; which consisted of a local production (less exports) of 149,576 tons and imports (wet equivalent) 8,617 tons. With the 1978 mid year population at 14,184,000 the per capita fish consumption in that year was 24.98 lbs compared to the 22.92 lbs of 1977, thus registering an increase of 2.06 lbs or 9 percent.

The main reason for the drop in per capita fish consumption as reflected in Table II, is due to the reduction in imports, especially of dried fish. Expansion of the fishing industry and increased production for domestic consumption will therefore not only increase the food supply but also result in an improvement of the nutritional standards of the people. Another fact of significance is that at present about 70 percent of the animal protein consumed is from fish. In 1979 per capita consumption increased to 28.6 lbs but this was due to the high ratio of imports. This resulted from a proportionate decline of local supply (as a percentage of local consumption) when compared to previous years. (See Table II).

Fish Imports

In the course of last year a total of 25,414 tons of fish and fish products were imported as against 8,617 tons in 1978. The quantity of fish imported had been on the decline since 1972, the year in which the highest per capita consumption of 31.99 lbs was recorded and also of the highest level of fish imports which reached 85,480 tons. Along with falling imports per capita annual consumption also recorded a consistent drop over the years. In 1977 per capita consumption had reached 22.92 lbs and imports 9,143 tons. The imports of dried fish and preserved or prepared fish in 1978 was of the order of 1977; but imports of maldivian fish was reduced by nearly 60 percent. There had

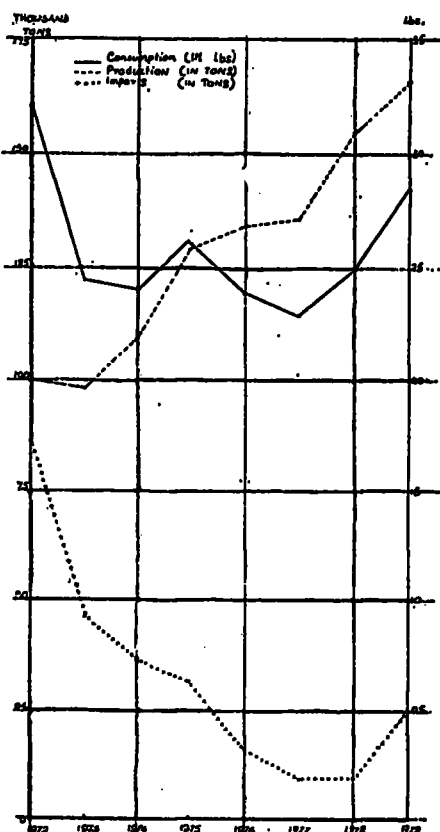
been an increase in the unit prices of imports of about 82 percent in 1978 over the previous year and 90 percent in 1979 over that of 1978. The trend in imports was that with foreign exchange difficulties, there was a falling off in imports in the 197-'s. Most of these imports were fish in the dried form. Since, 1978 however, foreign ex-

TABLE III

Unit value of fish imports (per ton Rs.)

Category	1977	1978	1979
Maldivian Fish	5,914	9,352	16,451
Dried Fish	2,140	6,034	9,085
Preserved or prepared	5,637	7,319	11,052
Others	23,746	10,306	13,333

Source: Ministry of Fisheries



change was available but adequate supplies of dried fish could not be obtained from the traditional producer countries. A large part of the imports have therefore come in canned form.

The value of imports of fish and fish products have shown an unprecedented increase over the last two years. From Rs. 19.9 million in 1977, import values moved upwards to Rs 34.2 million in 1978 and then very steeply to Rs 192 million in 1979. The biggest increase was in that of maldivian fish imports, where the unit value almost doubled in 1978 and again in 1979 the unit value has nearly doubled over that of 1978. The quantity of maldivian fish imported, however, came down to 111,758 kilogrammes from 236,037 in 1979. Per capita consumption levels have shown an upward trend in these two years but so has the import bill; and less significant was the increase in local production. Table II

above, however, indicates that although there had been an increase in local production from 99,000 tons in 1973 to 154,000 tons in 1978 there was no real increase per head in the total supplies distributed among the population. Exports was not a significant part of local production and cannot explain the decline in total supplies. In contrast, imports which made up nearly 46 percent of the total supply in 1972 had declined to about 5 percent of total supply in 1978 and again in 1979 it rose to 13 percent, which however helped to increase per capita consumption.

Exports

In 1979 the total tonnage of fish exports were 3,941 and its value was Rs. 293.6 million; as compared with Rs 233.02 million in 1978 and Rs. 94.88 million in 1977. The quantity of prawns exported in 1978 increased by 51 percent over that of 1977 while that of lobsters decreased by 36 percent. The export value of these two items was Rs. 195.59 million or 84 percent of the total value of exports in 1978. In 1979 though there was a considerable drop in lobster exports, the exports of prawns increased by about 20 percent quantity wise and about

TABLE IV

Unit value of fish exports (Rs. per ton)

Category	1977	1978	1979
Prawns	40,281	81,617	105,118
Lobsters	81,865	137,288	117,007
Shark fins and fish maws	64,610	27,154	178,163
Beach-De-Mer	34,541	94,842	104,466
Fish (alive, chilled or frozen)	21,264	46,124	8,344
Others	8,218	9,655	14,979

Source: Ministry of Fisheries

60 percent value-wise. The value of prawn exports increased from Rs. 158.3 million in 1978 to Rs. 242.9 million in 1979 and the quantity rose from 2.0 mn. kgms in 1978 to 2.4 mn. kgm in 1979 Table IV shows the classified value of exports

Frozen prawns and lobsters were exported mainly to Japan U.S.A., Australia and the Netherlands, while shark fins, fish maws and Beach-de-Mer were exported to Singapore

The rise in fish exports from 505 tons in 1970 to 4,542 tons in 1978 has gradually increased the income of the fisheries sector, though fears were expressed in some quarters that the supply of certain varieties in the local market diminished as a result.

The progress in this sector has been extremely rapid when compared with production for local consumption. The target of Rs. 16 million for 1976 in the Five Year Plan period was exceeded in 1974. Thereafter higher targets were set. In 1976, 1,537.6 tons of prawns and lobsters were exported and the foreign exchange earned was Rs. 64.6 million. If the other fishing products are included the total value exceeded Rs 75 million. It is doubtful, however, whether the same tempo would be maintained, especially in regard to the export of lobsters as a problem of depletion is being experienced in this fishery.

According to the Fisheries Development Programme exports are expected to rise substantially in absolute (but not percentage) terms upto 1983. However, the Ministry of Fisheries conscious of the dangers of unlimited exploitation for export is hoping to monitor exports and will permit increased exports only if they fulfill the following criteria:

- They are high priced species, which do not constitute a major proportion of domestic fish supply.
- There is a high employment and added value content in the production process.

c. There is no depletion of fish stocks of other effects on the ecology.

d. The foreign exchange earnings from overseas sales are substantial.

Export proposal which are based on culture of fish or exploitation of hitherto un-exploited resources leading to additional fish production will get preference.

Fresh Fish Production

Between the five years 1972-77 local fish production increased by about 34,000 tons. Over the next three years from 1978-79 produc-

tion increased by a further 34,000 tons. Total fish production in 1972 was about 100,110 tons (coastal fishery 89.90 percent, offshore and deep sea 2.51 percent and inland fishery 8.3 percent) and the total value of this production was estimated at Rs 184.60 million. Total production in 1976 was 133,731 tons (coastal 90.37 percent deep sea and off-shore, .4 percent and inland 9.23 percent) at a total estimated value of Rs 520.8 million. Compared to the

production of 136,381 tons in 1977, fresh fish production in 1978 was 154,121 tons representing an increase of 17,640 tons of 12.8 percent (Table II). The value obtained by the producers and the market value of production in 1978 was Rs. 799.10 million and Rs. 1,135.20 million respectively compared to the corresponding values of Rs. 598.60 million and Rs. 806.70 million in 1977 Fish production by sub-sectors and their values are given below (Table V). There is generally a consistent improvement in both values and production in each of the sub sectors, with the exception of deep-sea and off-shore fisheries in 1979. Part of this reason for this short fall is from deep sea fishing operations was that some foreign trawlers permitted to fish within our waters had not as agreed declared and given over what they caught. (This is referred to later).

The period 1972-76 covered by

TABLE V

Fish Production by Sub-sectors

Sector	Total Production (Tons)			Value of Production (Rs. mn.)		
	1977	1978	1979	1977	1978	1979
Off shore and deep sea fisheries	307	2,903	2,066	1.4	9.5	11.4
Coastal fisheries	123,411	134,744	146,507	575.0	758.6	935.2
Inland fisheries	12,863	16,474	17,150	22.2	31.0	38.03
Total	136,581	154,121	167,723	598.6	799.1	984.63

Source: Ministry of Fisheries

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the first five year plan was revised in 1974 and extended upto 1977.

The Fisheries Ministry's provisional estimate of fish production for 1979 amounts to 167,806 tons an increase of 9 percent over production in the previous year. The main increase was in coastal fisheries and the rise in production in this sub-sector is attributed to the increase in the number of mechanised fishing vessels and improved availability of fishing gear, engine spare

TABLE VI

Review of total fish production by sub-sectors 1972-76 (Thousand Tons)

Sub Sector	1972		1973		1974		1975		1976	
	Target	Ach.	Target	Ach.	Target	Ach.	Target	Ach.	Target	Ach.
Coastal (includes production of shell fish)	96.5	89.3	101.3	81.9	102.6	99.2	109.7	113.1	120.8	120.9
Inland (excluding brackish water fishing)	12.3	8.3	14.0	6.9	16.5	7.5	13.8	13.1	21.7	12.3
Off-shore and deep sea fishing	7.6	2.5	11.6	2.3	17.3	2.2	8.8	0.9	12.8	0.5
Total	116.4	100.1	126.1	99.1	136.4	108.9	131.8	127.1	155.3	133.7

Source: Ministry of Fisheries

parts and hull building material that has become available with liberalised imports. Production during 1980 has shown a further increase and recorded production for the first quarter of this year was 41,980 tons which is 15 percent more than that of the same period in 1979.

Coastal Fisheries

When the actual performance is assessed, it is clear that there was stagnation in production except in the coastal sub-sector. Production in the coastal fisheries was 146,507 tons representing an increase of 11,763 tons or 8.7 percent over the previous (1978) year's production of 134,744 tons, and there was a slight increase in 1978 over the 1977 year's production. The following summary shows production in the coastal fisheries classified by type of fishing crafts (see Table VII).

It was intended to increase fish production in coastal fisheries sector through an increase in the number of 28-32' inboard engine powered mechanized crafts; an increase in the number of small mechanized fishing crafts powered by outboard motors; and an improvement in the productivity of mechanized boats especially the 28-32' class, and non-mechanized sector; and also increase the local production boats.

It has been found that the failure to increase the number of 28ft. and 32 ft. inboard engine powered craft and also small mechanised fishing craft has retarded the achievements of targets. The delay in the issue of 28-32' boats to fisheries co-operatives due to marginal inefficiency, ineligibility and unpreparedness of the co-operatives to receive boats under the hire purchase scheme; and non-availability of fishing nets; and the shortfall or slackening of boat production due to sharp increase in construction costs, cutbacks in orders for boats by the Fisheries Department, shortage of timber and other boat building material and inadequate foreign exchange alloca-

tions for import of fibreglass raw materials have been put down as the major causes for this failure.

Other obstacles in the way of the development of coastal fisheries were delays in assembly and delivery of inboard engines by local assembly plants; inadequate foreign exchange allocation for the import of outboard motors; and procedural delays in the imports and issues of outboard motors to fishermen.

The problems relating to the co-operatives, fishing gear and timber shortages still continue to exist.

There were many reasons for output shortfalls. The low production of 3½ ton mechanized inboard motor boats operated by Fisheries Co-operatives were due to reasons, such as carrying out fishing operations with inexperienced crew fishermen recruited through poor selection procedures, malpractices, low maintenance of vessels and gear all leading to uneconomic operations.

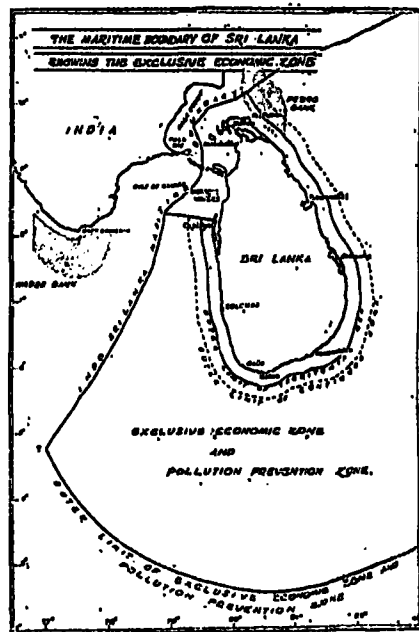
The shortage of fishing gear was another serious problem faced by this sector. The main reason was the inadequate allocations of funds and imports. The loss of fishing time resulting from shortages of spare parts due to inadequate foreign exchange allocations for imports of these spares, scarcity of facilities for maintenance and repair of engines at fishing centres and poor care and maintenance of engines by fishermen were the other major draw backs.

The expansion and improvement of the coastal fisheries sector is given priority in the island's development strategy for the period 1978-1982. The reasons are that the coastal fisheries sector contributes about 85-90 percent of the island's total fish catch and potential resources permit greater expansion in this sub-sector than in the other sub-sectors.

Furthermore, coastal fisheries activities are the main source of employment and income generation

in most of the coastal areas. They also generally give a comparatively higher rate of socio-economic return to inputs.

This sub-sector is also regarded as a valuable foreign exchange earner. The export of prawns and lobsters alone fetched Rs. 14 million in 1975, Rs. 64 million in 1976, Rs. 83 million in 1977 and Rs. 195 million in 1978.



When compared with high technology alternatives in other sectors, this sector has a manageable input cost per ton of fish produced and it is also a sector which uses minimum foreign exchange costs per job created

Also, according to the new Development Programme "this emphasis on coastal fisheries development reflects the Government's view that the owners of coastal fishing boats do not have the expertise or finance to make a rapid transition to offshore and deep sea fishing".

In order to increase the fishing effort in the coastal sub-sector it has been realised that a better capacity utilization of the existing fishing fleet is required. At present coastal fishing crafts are producing less than they are capable of producing. Some of the reasons for this situation and estimated loss may be manned up as follows:

1. Scarcity of fishing nets. This factor combined with the high costs and unsatisfactory distribution of available nets has led to an estimated loss of 54,000 tons per year.

Table VII

Fish production in coastal fisheries classified by fishing craft

Type of Craft	Fish Production (Tons)			% Increase/Decrease	
	1977	1978	1979	1977-1978	1978-1979
3½ ton inboard mechanized crafts	43,149	49,081	49,611	+ 13.7	+ 1.08
Outboard mechanized crafts	39,487	38,124	43,157	- 3.5	+ 13.20
Non-mechanized crafts	40,775	47,539	53,738	+ 16.6	+ 13.04
Total	123,411	134,744	146,507	+ 9.2	+ 8.73

Source: Ministry of Fisheries

ii. Insufficiency of engine spare parts, coupled with high costs and lack of proper repairs and boat maintenance leading to in-operative fishing days. The loss of production due to this factor has been estimated at 10,500 tons per year.

iii. The 3½ ton boats which are owned by co-operatives operate uneconomically and inefficiently due to insufficient crews and lack of crew incentives. Also absence of operation supervision and management has further contributed to the low production of these boats. This loss has been estimated at 7,500 tons per year.

It has been estimated that an average production increase of around 60,000 tons per year could result by remedial action with regard to these factors alone.

Off Shore and Deep Sea Fisheries

Research and exploratory fishing in recent years have indicated promising resources in the off-shore fishing zone, particularly within 25-60 miles from the coast where large stocks of skipjack and tuna are available. Off shore and deep sea production in 1977 was only 307 tons, though production in this sub-sector increased to 2,903 tons in 1978. The increased catch may be accounted for as follows:

- (1) Ceylon Fisheries Corporation produced 639 tons. This includes 94 tons of fish seized from foreign vessels that operated in Sri Lanka waters illegally. (Some of them are Taiwan owned and others Korean).
- (2) Cey-Nor Foundation Ltd., produced 482 tons.
- (3) Sri Lanka Fisheries Development Project (under Asian Development Bank aid) 38 foot vessels produced 1,500 tons.
- (4) The foreign companies who were issued licences produced 252 tons.

The off-shore and deep sea sub-sector was expected to contribute approximately 8,800 tons out of the overall increase of 40,200 tons envisaged in the revised Five Year Plan. The projected increase represented a 220 percent rise over the production estimated for the base year. Actual production gradually decreased, however, until an all

time low of 539 tons was recorded in 1975, i.e. approximately 13.5 percent of the base year's production. The short falls in production were because of the inability of the Ceylon Fisheries Corporation to carry out deep sea operations efficiently with its heavy overheads, managerial and labour problems. The lack of preventive maintenance of the fleet of 5 trawlers and 2 tuna boats, owned by the Ceylon Fisheries Corporation added to its problems. Also, the absence of private sector investment in this sub-sector due to risks, uncertainty, lack of information and know-how; and the lack of incentives and tax concessions for private sector investors, were major constraints in the development of this sector.

As a result of the reasons given above the projected new inputs of 60 ton footers and forty 38 footers were never introduced by the Corporation. But the 38 footers were given to the private sector for deep sea operations.

Table VIII

Fish Production in Inland Fisheries 1978-79 (in tons)		
Fresh Water	1978	1979
Low country tanks and reservoirs	14,070	13,505
Fish Ponds	400	
Villus (flood plains)	580	3,710
Village Tanks	810	
Upcountry tanks and reservoirs	540	273
Sub-total	16,400	17,488
Brackish Water		
Deep lagoons and estuaries	3,400	n.a.
Small lagoons and swamps	900	n.a.
Fish ponds	400	n.a.
Sub-total	4,700	
Total	21,100	

Source: Ministry of Fisheries

The total fish production in 1978 from the Corporation's trawlers amounted to 545 tons and about 60 percent of that was mullet. Production of Corporation trawlers in 1979 amounted to 594 tons.

With the expansion of the Exclusive Economic Zone (EEZ) there is an obligation both to manage the resources of the EEZ and the maximise its economic contribution to the national productivity and welfare.

To be done effectively this would necessarily involve substantial capital investment, and require heavy foreign assistance to meet capital costs, for importation of modern technology and skills, and a substantial upgrading of national skills in navigation and fishing techniques.

The Ministry of Fisheries has concluded that because of the large capital cost of vessels and the lack of local experience in deep sea fishing, these fishing operations can only be established with foreign assistance.

The Ministry has reservations about permitting foreign vessels to fish on licence, partly due to the unhappy experience with foreign fishing companies fishing on licence and partly due to the fact that fishing on licence is difficult to supervise. To ensure an effective control of fishing operations with foreign agency involvement will be that the Ministry's major problem. The last recession this experiment was tried it did not prove feasible.

Inland Fisheries

Production in the inland fisheries increased from 12,863 tons in 1977 to 16,474 in 1978. The Five Year Plan 1972-76 provided for an increase of 10,000 tons by the end of 1976, i.e.e 30 percent over the base year 1970 target. The increase was to have been obtained as follows:

In 1973, a crash programme with a targetted increase in output amounting to 36,500 tons was drawn up. Subsequently in 1974, the crash programme was revised and the targetted increase revised to 21,700 tons. Performance however, was not up to expectation, and the actual production in 1976 was 12,343 tons. (including brackish water fishing). By 1978 production had reached 21,100 tons.

The reasons listed for the short falls in inland fish production were:

- (a) Severe drought in the North Central Province.
- (b) Absence of an increase in productivity per acre.
- (c) Failure to harvest the fresh water bodies stocked with fish regularly and intensively, due mainly to competing claims for the use of fresh water bodies for irrigation, drinking water etc.

- (d) Obstruction to commercial migrant fishermen by permanent residents doing subsistence fishing.
 - (e) Failure of the crash programme of 1978.
 - (f) Failure to introduce the new inputs of boats, nets, pumps, etc. proposed in the last Five Year Plan.
 - (g) Lack of incentives for fresh water fishermen.
 - (h) Inadequacy of the extension services.
 - (i) Failure to pass the regulations necessary for the management of the inland fisheries.
- (e) Development of a programme for stocking and harvesting in small fresh water bodies including seasonal and estate tanks, pilot projects in 5 tanks will be undertaken.
 - (f) Implementation of an experimental cage culture project.

Also, nearly 800 fully equipped non-motorised boats are to be introduced by the Ministry for the exploitation of the resources of the inland tanks and reservoirs. Also, a pilot scheme of 100 different units for the purpose of establishing the viability of pond fish culture has been started and financial subsidies are being given through the state banks to those engaged in these fisheries.

The successful implementation of this programme will also require substantial effort and investment in the areas of research, training and extension, marketing and processing. These aspects are dealt with in the relevant sections in the Ministry's Development Plan. An Aquaculture Development and Training Project for foreign funding has been formulated. This project which is expected to set up pilot demonstration centres, will contain a substantial component for the training of research, management and extension staff and commercial fish farmers. Regulations under the Fisheries Ordinance have also been framed with a view to mediating resource use conflicts. Settlements of conflicts will be made at district level with the full participation of all interested parties.

Extensive culture will also have to be carried out in respect of brackish waters fisheries; and the research and extension facilities necessary for the development of the inland fishing expanded since the development of this sub-sector has been slower than even that of fresh water fisheries. Only one major breeding centre was operating at Pitipane, but this centre has faced several problems, notably water supply. In view of these constraints a substantial production of fish from brackishwater aquaculture is not expected before 1983, but the Ministry is taking steps to establish a strong base for the future.

Plans and Production

Sri Lanka's fisheries industry is noted for its numerous development plans which have failed to

achieve their objectives. Most of them, it is recognised, were ambitious but ill-conceived and unrealistic and therefore could not succeed in most respect, particularly production targets. The present Minister of Fisheries commenting on the earlier plans in his forward to the new 'Master Plan' states "some of the plans placed responsibility on a public sector institution or on the co-operatives, but failed to provide the necessary guidance, support and direction required by such institutions. Others relied on the private sector which was fighting shy to invest because of the uncertain political and financial climate rendered worse by import restrictions and the high risks involved. Besides, where the private sector entrepreneur invested no fish was produced".

The net result is that the Ministry of Fisheries was "saddled with a surfeit of grandiose schemes and proposals" for the development of the fishing industry.

The challenge facing the current development programme (which has taken into account all the pitfalls of the past) is to achieve what previous plans failed to do, namely, achieve the targets they set. The object of the present Plan is simply to almost double production over the next five years so that Sri Lanka would be producing 300,000 tons by 1983 and the consumer will be getting 50 percent above the present level of his supply of fish. The concept of the Plan is that "instead of relying on a new fishery with large boats and new gear it envisages a substantial increase in the existing fishery with boats currently operating in the well known coastal zone. It does propose the creation of new public institutions, but seeks to reduce their direct involvement in catching fish or building boats, activities best left to the private sector". This is the basic means through which it is hoped that production will be taken to 300,000 tons by 1980. There is no doubt that such a doubling of production could solve most of the problems of both producers and consumers in this country and increase the fisheries sector's contribution to the economy many fold.

Inland fishing has been the sector where growth has been most sluggish, for the simple reason that production here involves more problems than the marine fisheries. Unlike marine fisheries, the quantity of fish resources available here depends on the supply of fish for stocking as well as the number of harvesting units. The other problems has been the definite consumer preference for marine fish, inland fisheries has therefore not been a very attractive field. In addition it has been found that the fish breeding stations have been located badly and most of all suffer from a lack of adequate water supplies.

To remove these constraints and increase production, the Ministry of Fisheries has decided to undertake the following programme:-

- (a) Rationalisation of the Ministry breeding and stocking centres, including improvements at some existing breeding centres.
- (b) Experimental fishing on major and medium reservoirs to establish and promote the optimum vessels and gear for exploitation of these waters.
- (c) Provision of credit for the purchase of fishing boats and gear for use in fresh water fisheries.
- (d) Implementation of a pilot project in 4 selected large tanks. The project will include the rent of fully equipped boats and experimental electric fishing.