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FISHERIES IN THE BAY OF BENGAL

Fisheries is an important economic activity in countries with coasts along the Bay of Bengal, viz. Shri Lanka, India, Bangladesh, Myanmar, Thailand, Malaysia and Indonesia. In the Maldives (which is not in the Bay of Bengal, but is deemed to be one of the Bay of Bengal countries from the fisheries' point of view), fisheries is an important activity in terms of employment. The contribution of the fisheries sector to the GNP of these countries may be marginal; yet fishing is important to their economies for several reasons.

- Fish is the most important animal-based protein food of the people in these countries, primarily because it is the least affected by cultural and religious biases and prejudices. The contribution of fish to the animal-based protein supply in some of these countries is: Bangladesh 52 per cent, Indonesia 68 per cent, Malaysia 61 per cent, Shri Lanka 65 per cent and Thailand 52 per cent.
- The fishing industry in the Bay of Bengal area provides employment and sustenance to large numbers of people. Based on a recent estimate, the total number employed on a full-time basis in fisheries in the area covered by the Bay of Bengal Programme (BOBP) is 1.85 million (see Table 1). In addition, a large number of people are engaged in fishing as a part-time activity. The total population in the households

of those engaged in fishing, full-time or part-time, in this area, is estimated at around ten million.

Table 1. Active fishermen in the BOBP countries

Country	No.of active fisherman.
Bangladesh	**1,100,000**
India	486,000
Indonesia	60,118
Malaysia	39,054
Myanmar	22,025
Shri Lanka	10,000
Thailand	33,556
Total	1,850,753

— In recent years, the fishing industry has developed into an important earner of foreign exchange through the export of marine and aquatic products. In the Maldives, 77 per cent of the total foreign exchange earnings is derived from the export of fish and fish products and in Bangladesh fish exports account for 15 per cent of the total export earnings. Though the percentage contribution of the fisheries sector to total export earnings of the country is yet marginal in the other countries in absolute terms, the export earnings have been increasing very fast. As export items, fish and fish products are very important, as the net earnings from these products are extremely high, a result of their being almost one hundred per cent local resource-based.

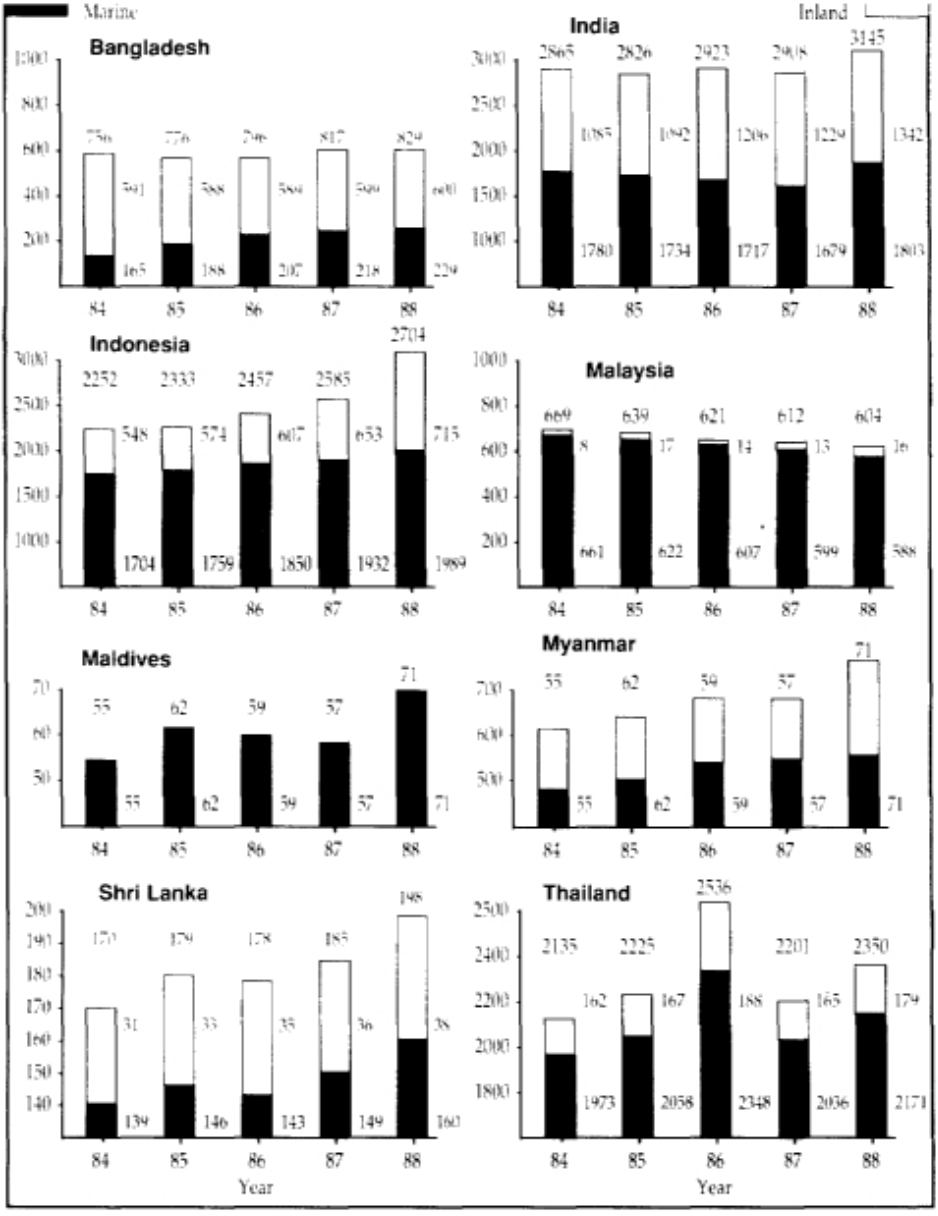
One feature common to all Bay of Bengal countries, with the exception of Thailand, is that it was only after World War II, when they emerged as independent nations, that serious attempts were made to develop their fishing industries. This development was with a view to provide protein for their growing populations and to create and sustain employment opportunities for the thousands of their people living in the coastal areas and in areas in proximity to inland water bodies.

Another common characteristic of the fisheries in the Bay is the importance of the small-scale fisheries, except, perhaps, in Malaysia and Thailand. The predominant role of small-scale fisheries in Maldives, India, Bangladesh, Indonesia and Shri Lanka is reflected in the large numbers of people engaged in marine fishing, the relatively high percentage of traditional and non-motorized craft still operational and the very significant contribution made by these craft to fish production. Further, the formation of companies for fishing activities is still in a rudimentary stage in these countries.

In most of the countries in the Bay of Bengal region, there have been spectacular increases in the production of fish over the past 15 years (1975-1989). In Indonesia and Maldives, there has been a two-fold increase, while in the case of Malaysia, Myanmar, Shri Lanka and Thailand the increases have been 45-55 per cent. In the case of India, the increase is just below 40 per cent. Bangladesh is the only country in which overall production increases have not taken place during this period.

As far as the total production of fish is concerned, important changes have also taken place during this period in respect of the relative contributions of marine and inland fisheries subsectors. In Bangladesh, the contribution of marine fish has grown from 11 per cent in 1975 to 27 per cent in 1989. There have also been increases in the contribution of the marine fisheries sector in Myanmar and Thailand. In the case of most other countries, the contribution of inland fisheries to total production of fish has increased progressively, *e.g.* in India from 35 per cent to 43 per cent, Indonesia

Fig 1: Trends in marine and inland fish landings in the Bay of Bengal Region (1984 - 1988)



from 17 per cent to 27 per cent, Shri Lanka from 12 per cent to 20 per cent. In Malaysia and Maldives alone inland fisheries remain quite negligible in terms of total production.

Figure 1 indicates the trends in respect of marine fish and inland fish production over the period 1984-1988.

The increased production of marine fish has come primarily through the motorization of traditional craft, the introduction of new craft and the introduction and popularization of new' types of synthetic gear, which have replaced the traditional gear. In almost every country, this process has been either instituted or actively supported by the governments in the form of generous subsidies and credit schemes. It is in Thailand alone that the private/commercial sector has taken the initiative of introducing and extending craft and gear; there has been very little state support or intervention in these activities in this country.

However, the increased fishing efforts, mainly in the inshore areas, have resulted in resource problems. Reduced catch per unit effort, fisheries conflicts between different fisherfolk groups and even within the same group are some of the symptoms of these resources problems.

Information relating to fishing fleets of the countries concerned is given in Table 2 (overleaf). These fishing fleets have registered a very substantial increase over the past 15 years. In addition to the increase in numbers, motorization has resulted in a masssive expansion of the fishing capacity, resulting in very impressive increases in the production of fish in all these countries. But the resource problems have also got compounded as a consequence, in some of the countries and in certain fisheries/resources.

Table 2: Fishing craft in the Bay of Bengal region

	CRAFT			
	Traditional			
	motor	non motor.	mech	Total
Bangladesh	437	14,014	2932	17,383
India (east coast states)	1673	98,671	5779	116,117
Indonesia (North Sumatera Province)	715	5500	1211	7,426
Malaysia (Peninsular Malaysia)	779	7029	15,326	23,134
Maldives	3758	—	1754	5512
Myanmar	N.A	NA.	N.A	N.A
Shri Lanka	9920	14,896	3544	28,360
Thailand	N.A	N.A	N.A	N.A

NA. = Not available

In **most countries,** the opportunities which exist for the introduction **of** new capture fishing technologies with a potential for positive impacts on production seem to he very limited. Instead, the pressing need in most countries appears to he to diversify capture fishing methods and gear and also to extend the fishing grounds beyond the areas (continental shelves) which have conic to he fished quite intensively. In Bangladesh, for instance, in the area of marine capture fisheries, the urgent need seems to be to effect a wider diversification of the fishing methods in order to reduce the fishing pressure on some of the target species of fish captured through certain fishing methods, particularly set bagnets. In India, the most pressing need is to extend fishing beyond the continental shelf and, for this, a suitable craft with a longer operational range, greater endurance and with the capability of capturing large pelagic species has to be designed, tested and proven. In addition, energy and cost/energy effective methods for small-scale fishing, suitable gear for small trawlers to diversify fishing and the **use** of by-catch excluder devices

need to be developed. For Shri Lanka, deep sea fishing development continues to be a priority and there is a need to undertake exploratory fishing in the deep sea areas. Connected with this is the need to have better designed vessels, cost-effective both in terms of investment as well as operations. Safety is another aspect which needs to be improved.

In several countries, including India, Thailand and Myanmar, the use of alternative boat-building materials is an urgent need, as the cost escalation in the production of boats has to be contained if fishing units are to continue to be viable.

The increasing emphasis accorded to the development of coastal aquaculture is another feature common to almost every country in the region. In countries such as Bangladesh, Shri Lanka and India, a primary reason for the increased emphasis on coastal aquaculture is the vast potential that shrimp farming/culture has far increased foreign exchange earnings. In countries such as Thailand and Malaysia, coastal aquaculture has helped to absorb a part of the redundant coastal marine fisherfolk who have been affected by deteriorating fisheries resources, and has also contributed to increasing production of fish in the context of the serious limitation on the capacity of marine capture fishing.

However, coastal aquaculture happens to be an area which presents several very complicated problems. In India, Bangladesh and Shri Lanka, shrimp seed continues to be a major problem. Not only is seed not available in sufficient quantities but it is also not available at the right time of the year as required for growing. The collection of seed from the wild is done on a massive scale in Bangladesh and West Bengal in India, resulting in considerable loss of seed. The expansion of brackishwater pond production requires a rapid increase in shrimp hatchery production. While Thailand seems to have made considerable headway in this field, through 'backyard' hatchery development, it will require a greater effort, investment and considerable time in other countries.

A second major problem in coastal aquaculture is connected with shrimp feed supplies. This is a problem common to India,

Shri Lanka and Bangladesh. Due to the non-availability of proteinous ingredients and other necessary inputs, the local compounding of suitable shrimp feed of acceptable quality will continue to be a pioblem. In the meantime, it is necessary for shrimp feed to be imported at considerable cost, thus reducing, by about half, the net foreign exchange benefits available to these countries from coastal aquaculture activities. Effective coastal zone management to tackle the conflicts between aquaculture and other sectors over land and water use and to prevent water pollution is also vitally necessary for brackishwater fisheries development in all these countries.

Fisheries development 'plans' have, from time to time, been formulated and implemented by the governments in all the BOBP countries. But there is considerable differences in emphasis on the role of the state sector in these plans. In countries like Malaysia and Thailand, where private sector enterprises are quite well developed, there has been less involvement by the state, the plans being generally of an 'indicative' nature, defining the development goals and the strategies required to achieve them. In all the other countries, the state plays a much more dominant role in undertaking investments and directing and controlling major activities. However, there has been a growing trend in recent years in these countries to encourage more private sector involvement. Whatever activities the private sector can do better than the state sector are generally being left to the private sector. This policy has led to privatization of the major activities of several state fisheries agencies in Shri Lanka, Bangladesh, and India, while the power base of the State Trading Organisation is generally being eroded in the Maldives.

The objectives of fisheries development plans vary little from one country to another — the main differences being of emphasis rather than substance. The objectives common to most countries are:

- Increased fish production;
- Increased per capita consumption of fish and, thus, improved nutrition standards;

- Increased opportunities for employment; and
- Increased exports and, as a consequence, foreign exchange earnings.

One noteworthy feature of Fisheries Plan objectives is that, in recent times, more and more plans have included resource management/ conservation as an important objective. This is particularly important in the case of Thailand and Malaysia, where many of the capture fisheries seem to have reached, or even exceeded, maximum yield levels. In Shri Lanka too, the catch rates of some of the small pelagic resources show a decline. A UNDP supported Marine Fisheries Project is expected to strengthen the management process in Shri Lanka.

Bangladesh and Maldives are also taking fisheries resource management seriously and mention it in their plan objectives. An analysis of the development plans of five countries (other than India and Malaysia) reveals, in addition to the already listed objectives, focus on resource management/enhancement and infrastructure development. There are also other specific objectives, such as promotion of regional balance (Indonesia and Thailand) and rectifying ethnic imbalances (Malaysia).

It will not be easy to ensure that all the listed objectives can be reached. But they can only be attained if there is a fisheries extension service capable of playing a significant role in implementing and shaping the programmes to support these objectives in such a way as to ensure that progress is made towards reaching the goals. Such extension activity will have to ensure that the programmes are attuned to the needs of the fisherfolk and present them with opportunities within their capabilities. Some **guidelines** to this end are suggested in the following pages.