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**SEMINAR ON POTENTIAL
MARINE FISHERY RESOURCES**

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Central Marine Fisheries Research Institute

(Indian Council of Agricultural Research)

P. B. No. 2704, E. R. G. Road, Cochin-682 031, India

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MANAGEMENT OF POTENTIAL FISHERY RESOURCES

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The prevailing situation in the fisheries sector in many countries of the world can be briefly stated as (1) insufficient information on fish resources, (2) diminishing stock and (3) conflicting uses of coastal areas and types of fishing. Since there is free accessibility to the exploitable resources in the sea, the natural tendency is to make more and more without regard to the real availability. The need for fishery management assumed importance in recent years on account of the uncontrolled, or rather reckless, exploitation of the resources in many countries leading to depletion of stock. Although according to available information the level of exploitation of the fishery resources in our country in general is far below the optimum level, there seems to be too much concentration in certain areas and in respect to certain species which perhaps is a reflection of the lack of fishery management policies or their implementation.

What is the ultimate aim of fishery management? To make full use of the available fish resources without endangering their renewability. Fish in the sea is a self-generating resource. But, as nature would have it, the quantum of resources amenable for exploitation, otherwise called the maximum sustainable yield, appears to be more or less fixed. The primary task of management is to determine the effort needed to exploit the available level of resource. Fisheries management cannot, however, be seen as an isolated policy package. It must in fact be viewed as part of the overall policy measures needed for the most rational exploitation of the total natural resources of a country. In the matter of exploitation of resources, there is an implicit conflict of interests between the end uses. For example, in agriculture there

is a conflict between different crops for available land. In the fishery sector also the conflict is manifest between the inland and marine sector; within the marine sector between the modern sector and the traditional sector; and within the traditional sector between the motorised and non-motorised sectors. In the market, the conflict or disequilibrium is between the potential social demand and the potential supply as determined by the maximum sustainable yield. The function of fishery management is to resolve this conflict and ensure maximum social gain in terms of production, consumption and employment.

Within this broad theoretical framework, let us examine the real situation. The first thing to be examined is whether we have any policy with regard to the management of the potential fishery resources and how far we have succeeded in translating these policy measures into action. Before doing so, we must see what is our present knowledge regarding the fishery resources in the different regions falling within the EEZ of the country. Different estimates are available with regard to the potential resources of the Indian Ocean. As for the Indian waters, the potential is broadly indicated as 4 million tonnes. A break-up of this with respect to the southwest coast, northwest coast, upper east coast and lower east coast is also available. In spite of these macrolevel figures, which have been worked out nearly a decade ago, no accurate estimates regarding the resources falling within the different depth zones off the different maritime states are available. This is a major limiting factor in devising appropriate management measures. It is not known whether a constant systematic effort is made to estimate accurately, at the microlevel, the available resources in each fishing zone on the basis of reliable yardsticks. From the practical point of view the resource estimates will become useful only when we are in a position to suggest the maximum sustainable yield of the important species in the different zones and, based on this, the permissible fishing effort within the modern and traditional sectors. This effort should then enable us to suggest the types and number of craft and gear needed for the effective and economic exploitation of the resources. As a matter of fact, the available information is rather sketchy and totally inadequate from the operational angle.

In this respect, special mention should be made about the attempt made by the Kalawar Committee to estimate—of course based on insufficient data—the maximum sustainable yield and the maximum effort required within the inshore area of Kerala State. The Committee has found that the maximum sustainable yield of the State's inshore waters (50m) is about 4,39,203 tonnes, comprising 3,19,317 tonnes of essentially pelagic and 1,19,886 tonnes of demersal stocks. Based on this the Committee could prescribe the maximum number of craft and gear needed in the traditional and mechanised sectors. Such an estimate, although it amounts to only a first approximation, is needed for the entire country. The responsibility of estimating the exploited resources has been shouldered by the C.M.F.R.I. It should be possible for the Institute to generate more comprehensive data on the resource potential and to prescribe the effort required, and more specifically the ideal fishing methods needed for its optimum economic exploitation.

One thing that appears very relevant to me in this context is the lack of sufficient co-ordination between the research institutions and the state departments of fisheries. Whatever data are presently generated are not used properly. The efforts made to generate the empirical data would become fruitful only when such data get translated into policy measures and the actual fisherman and the country get the benefit of it. The situation calls for more efficient integration between the departments, which should definitely lead to mutual enrichment.

A second point that I want to stress in this context is that all of us who are directly or indirectly responsible for the management of the fishery resources must be aware of the complexities of the larger political and economic system to which the fishery sector is integrally linked. Two important realities of the prevailing situation are (1) the overall financial constraint and (2) the large scale unemployment and poverty among the fishermen. While deploying the resources at the command of the state, the immediate objective should be ensuring maximum social gain which in the present context does not mean optimum exploitation of the fishery resources but providing employment

to the fishermen whose main source of livelihood is fishing. It is common knowledge that further exploitation of the resources has scope only in the deeper areas. But, as it is, private enterprise, motivated by target fishing for deepsea shrimp, is unlikely to go in on a large scale for deepsea fishes because of their limited marketability, except in the case of selected species. As for the state, the future policy should therefore be diversification of fishing into deeper areas. This also is going to pose some problems. The craft and gear presently in use are not suited for the deeper areas. Introduction of the sophisticated deepsea trawlers does not, on the other hand, appear helpful in solving the problem of unemployment among the fishermen. Development of a new generation craft and suitable gear should therefore get the immediate attention of the fishery technologists. This will help to generate new employment opportunities without unduly raising the capital-labour ratio. The scale of investment required being less, unlike in the case of deepsea trawlers, it is also possible to make the fishermen group become owners of the craft and gear. I want to stress this point of ownership particularly because the social objective of the generation of wealth in fishery sector should be to enable the toiling fishermen to enjoy the benefit.

Another important aspect which is to be stressed while considering the management of potential fishery resources is the need for product development. It is a well-known fact that a good portion of the bycatches of the mechanised boats is now thrown away as trash. If these trash fishes are processed into products they become consumable. It has two benefits : (1) the increased availability of fish and (2) generation of additional employment and income. This support measure is also necessary when we start exploiting the resources in the deeper areas which in fresh form have only limited marketability. In other words, product development, which aims at demand building, must go hand in hand with increased effort for exploitation of the potential resources.

Before concluding these brief observations I wish to draw your attention to the limitations of capture fishery in meeting

the growing demand for fish on the one hand and providing gainful employment to the growing dependent workforce on the other. The imperatives of development appears to be such that increasing attention will have to be given in the coming years to the development of mariculture and inland culture fishery. This seems to be necessary to ensure proper management and rational exploitation of the resources in the sea also.