

THE INDIAN OCEAN PROGRAMME AND OTHER UNDP/FAO ASSISTED MARINE FISHERIES PROJECTS IN THE REGION*

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INTRODUCTION

THE Food and Agriculture Organization of the United Nations (FAO), through its Fisheries Department, is in several different ways promoting fisheries development and rational exploitation and utilization of the living resources of the sea. Perhaps the most conspicuous and well-known activities are those falling under the Field Programme, which is mainly concerned with the execution of a large number of development projects, most of which being funded by the United Nations Development Programme (UNDP), either through its Special Fund (SF) or through its Technical Assistance (TA) Sector.

However, also through its Regular Programme FAO is serving the member nations, and the world community at large ; as clearing house for knowledge and information of all aspects of food and agriculture, including fishery and forestry ; as organizer and sponsor of conferences, seminars, training courses, etc., a producer and publisher of manuals within its many fields of work, and as initiator and servicing organization for regional councils and commissions, such as the Indo-Pacific Fisheries Council and the Indian Ocean Fisheries Commission.

While most of the field projects are national ones, through the councils and commissions FAO is trying to stimulate regional approaches where such are rational and applicable, and this paper gives an account of the greatest regional undertaking the Organization has ever been involved in, the Indian Ocean Programme. In addition some brief information is given on the current national marine fishery projects in the region executed by FAO.

THE INDIAN OCEAN PROGRAMME

The International Indian Ocean Fishery Survey and Development Programme (or Indian Ocean Programme, for convenience) exists primarily because of three facts : (1) There are $1,026 \times 10^6$ people living in the countries bordering the Indian Ocean. (2) They have a combined annual protein deficit of 3.0×10^6 MT. (3) The fishery resources of the Indian Ocean are, with some few exceptions, underdeveloped and, it has been estimated that the present annual yield of 2.4×10^6 MT

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can be increased by a factor of 7 to 10, depending upon the assumptions used in making the estimate.

Even given this drastic need and the geographically adjacent means of meeting it, it is unlikely that the Indian Ocean Programme would have come into being as soon as it did, or perhaps even in the form that it did, were it not for the remarkable vision and persistent efforts of the late Dr. W. M. 'Wib' Chapman. Starting at least as early as 1964, Wib spoke to this subject in many fora including the Indo-Pacific Fisheries Council, the FAO Conference, the FAO Committee on Fisheries, the FAO Council, the Advisory Committee on Marine Resource Research and the Indian Ocean Fishery Commission.

If, in this sense, Chapman can be considered to be the father of the Indian Ocean Programme, then the Indian Ocean Fishery Commission may be considered to be the maternal parent. For it was the Commission, at its First Session in September 1968, which formally conceived the Programme and requested the Director-General of FAO to arrange ' . . . for a request on behalf of the Commission for UNDP assistance in the various stages of the Preparatory Phase of the Programme to be presented to the Administrator of UNDP in suitable form and to expedite the implementation of the Programme.' The requested proposal was prepared by FAO and subsequently submitted to the UNDP by a number of interested countries. The process took longer than had originally been anticipated, but support for the Preparatory of Planning Phase of the Programme was provided by UNDP early in 1970. The Programme Leader was recruited at the end of January 1970.

The Planning Phase

The Planning Phase is being carried out in the following context :

(1) The objective of the Programme is fishery development. (2) The Programme is concerned with opportunities for fishery development in the whole Indian Ocean, regardless of whether or not any particular opportunity relates to a country that specifically communicated its support of the Programme to UNDP. (3) It is believed that the objectives of governments with respect to fishery development include one or more of (a) to provide a source of protein, (b) to contribute to general economic development, (c) to provide a source of foreign exchange, and (d) to contribute to meeting various socio-economic needs (*i.e.*, employment). (4) No country can afford to do everything that might be done to stimulate fishery development and indeed this is one of the reasons for a regional approach. (5) Use should be made of existing facilities where possible.

Most of 1970 has been taken up with the process of accumulating information requisite to planning. To this end, a number of subject areas, in which information summaries were necessary, were defined, including resource inventory, distribution and abundance of fish eggs and larvae, stock assessment, management, statistics, survey and charting of resources, environmental research, experimental fishing and introduction of alternative techniques, vessels and equipment, shipyards, harbours, handling and processing facilities, general economic characteristics in the development process, fishery economics, international trade, and economic planning for fishery development. Consultants were recruited for each of these subject areas and, as of mid-December 1970, their reports were either in hand or expected shortly. In addition, certain information was requested directly from the Governments of Indian Ocean countries and, again, the replies are in hand or expected shortly.

Finally, in order to gain some feeling for places, people, problems and possibilities, the Programme Leader has visited Mauritius, Madagascar, Tanzania, Kenya, Somalia, Pakistan, India, Ceylon, Burma, Thailand, Malaysia, Singapore and Indonesia, as well as Korea, Japan and U.S.A.

During January 1971 all of these sources of information as well as those available within FAO, will be drawn together in the preparation of a draft plan for Indian Ocean fishery development. This draft plan will be prepared by a fishery economist, a resource development economist, a development planner, and a systems analyst working with the Programme Leader. During February and March, the draft plan will be reviewed by one or more FAO advisory bodies, such as the Advisory Committee on Marine Resources Research. In April it will be presented to the Executive Committee of the Indian Ocean Fishery Commission. Following review by the IOFC Executive Committee, the plan will be transmitted to governments, the UNDP, World and Regional Banks and other interested agencies and institutions. The necessary steps for implementation can then be initiated. Concurrently, arrangements will be made for a meeting in the autumn of 1971 of representatives of economically developed countries interested in the Programme, at which time the implementation of the Programme and the part each country might play will be considered. In view of the time required for proposals to meet government and UNDP requirements, it seems likely that the autumn of 1972 would be the earliest time at which the operational phase of the Programme could commence.

The Operational Programme

It is of course premature to attempt to state exactly what the Programme will be like, but it is possible to give examples of the kinds of activities which may be stimulated by the Programme. However, it should be kept in mind that the mention of specific places and projects is only in the sense of indicating the kinds of things that will be included in the operational phase, without necessarily implying that the particular example mentioned will itself be included.

Keeping this reservation in mind, it might be suggested that surveys to determine the species, distribution, and abundance of pelagic fishes be given priority over surveys of demersal species, coral dwellers, and mangrove swamp inhabitants, in that order; and that geographic priority might go to the East Africa-Arabian Peninsula, West coast of India, Bay of Bengal, and south coast of Indonesia, in that order. There might be a regional (or subregional) fishery training centre in East Africa, the Indo-Pakistani subcontinent, and the Indo-Malay Peninsula.

There will certainly be key harbour developments essential to fishery development. For example, Somalia has an exceedingly long coastline on the Indian Ocean with no harbour and about half as much coastline on the Gulf of Aden with only one harbour. Fishery development in Somalia must be related, it seems, to harbour development.

Similarly, there will be specific recommendations concerning handling, processing, marketing and distribution facilities. It doesn't do much good, for example, to land large quantities of fish at Phuket or Ranong on the west coast of Thailand if there is no way to get the fish to Bangkok in good condition. In like manner, there may be recommendations concerning vessel design and deck layout and gear design. As appropriate, institutional barriers to the development of fisheries will be

identified. Demand and price projections for such items of international trade as tuna, shrimp, crab, groundfish and fish meal will be supplied.

Finally, in this listing of examples, some new approach must be found to the problem of stock assessment in order to provide necessary management information of a realistic time scale to industry and government. There is needed a regional fishery data centre. There are many opportunities to provide a simple coordinating or integrating mechanism between various programmes and activities. Provision should be made for the services of experts on a regional basis. These kinds of regional activities and services might be provided by what could be considered to be the Technical Staff of the IOFC.

Turning now to the question of financing, it is obvious that at least some of the kinds of things mentioned, harbour development for example, will be very costly. While the funds for such activities will probably derive from a variety of sources, some of them must come from the Indian Ocean countries themselves. Thus, in reaching decisions about participation, each country will have to weigh benefits against costs as well as to weigh the benefits from a fishery development project against the benefits from alternative ways of investing the same amount of funds.

Some projects will be appropriate for country support only. Some will be appropriate for UNDP-country support ; others for bilateral arrangements. Still others may be appropriate for World or Regional Bank loans or technical assistance. And of course it is to be hoped that there will be an increasing number of instances in which developmental work will no longer be necessary and in which direct investment—including joint ventures—by the private sector, or by government in planned economies, will be appropriate. Substantial contributions are expected from the economically developed members of the IOFC. These might be made available under bilateral agreements, by direct contributions to be expended through the Commission, or in kind in the form of vessel time, the services of experts, training grants, etc.

The kinds of examples which have been mentioned as the kinds of activities which will probably be included in the operational part of the Programme are fairly straightforward and present no major obstacles, given adequate funding and serious intent on the part of the countries concerned. However, when one gets into what might be termed ' people problems ', then the solutions are far from facile ; they are in fact extremely difficult.

For example, there is the problem of how to facilitate the ability of the Indian Ocean countries to utilize the fishery resources of the Indian Ocean. Intuitively, it does not make much sense to invest Indian Ocean country funds and UNDP funds in developing Indian Ocean fishery resources for the benefit only of countries outside the Indian Ocean. Again intuitively, neither does it make much sense to allow renewable Indian Ocean fishery resources to remain unharvested, and in this sense wasted, just because Indian Ocean countries may not be able, at this point in time, to harvest them, while there are countries outside the Indian Ocean capable and clearly with right of so doing. Some mechanism must be found which can accommodate these two seemingly opposing views. One possibility relates to a resource which is being fished at essentially the level of maximum sustained yield, primarily by non-Indian Ocean countries, and for which a total annual catch quota is to be set. Here, preferential treatment could be accorded initially to Indian Ocean countries, so that, they could enter the fishery, by allocating some part of the catch quota for this pur-

pose. A second possibility is a joint venture in which a non-Indian Ocean country would supply the necessary technology, equipment and personnel to operate the fishery for an Indian Ocean country on some mutually satisfactory economic basis and with adequate training provisions, so that, if desired, the operation would in time pass, on a planned basis, to the Indian Ocean country. There are, of course, already a number of joint ventures in the Indian Ocean which incorporate some of these features. A third possibility is the formation of what might be called a Regional Fishery Development Agency, with capital from the World or Regional Banks and from the Indian Ocean countries. Such a Regional Fishery Development Agency could invest in one or more fisheries, by contracting for the actual fishing operation for example, with the profits shared by the Indian Ocean countries in proportion to their contributions or whatever other basis might be agreed upon. A fourth possibility is for the non-Indian Ocean country to not participate directly in the fishery, but rather to participate in it only at the secondary level, if you will, as a supplier to the Indian Ocean country of boats, synthetic fibre, diesel engines, can sealers, fish presses, etc. These and other possibilities will be considered on a more quantitative basis so that alternatives can be presented in the draft plan.

There is also the important problem of avoiding overcapitalization. The more entities there are in a fishery and the more different policies and objectives these entities have, the more difficult it becomes to prevent over-capitalization or, in the extreme, perhaps even to define it. Nevertheless, in a region in which investment capital and protein are both in short supply, overcapitalization is to be avoided. In a broader sense, avoiding overcapitalization would also involve reconciliation of policies between countries. It is obvious that not every Indian Ocean country can become a major factor in the longline tuna fishery, nor a major producer of fish meal, nor of shrimp. Some of these policy decisions will be dictated by the geographical distribution of the resource in relation to the location of the country. Others, however, will need some form of accommodation. This might be accomplished through mutual concessions, by joint venture between Indian Ocean countries, or through the activities of a Regional Fishery Development Agency.

The Indian Ocean Programme is the first regional endeavour of its kind. It offers the challenging prospect of the possibility of contributing to the solution of pertinent problems on a timely basis through fishery development. Yet in spite of whatever hopeful solutions may be proposed for the difficult 'people problems', or whatever resources in the form of funds and technical assistance may be made available by the UNDP or through bilateral programmes, fishery development in the Indian Ocean will proceed at an accelerated rate only to the extent that governments take high-level policy decisions to that end and support these policies with people and funds.

CURRENT NATIONAL UNDP/FAO PROJECTS IN THE REGION

While the Indian Ocean Programme is still in its planning and preparatory stage, a number of UNDP/FAO assisted national marine fishery projects are already in operation in the region or have been completed, and still more are being planned. It goes without saying that these activities will, as applicable, all be co-ordinated with the overall Indian Ocean Programme.

The scope and field of emphasis of these projects vary considerably and in the following we shall quickly review the current situation with regard to their objectives

and facilities, concentrating on those which contains significant elements of resources surveying.

Starting in the south there is a small SF project in Mauritius exploring the potentials of commercial fishing on the ocean banks to the north of the island. The project had has its vessel fully operational for 2/3 year only, but other activities, such as a marketing survey has reached a more advanced stage of completion.

In Madagascar there is a SF project which is getting its survey vessel later this year. The plans for the use of this vessel include explorations for shrimps and pelagic resources.

In Mombasa, Kenya one FAO biologist (TA) is assisting the Government's Fisheries Division in surveying the inshore shrimp resources. This project is making use of Kenya's new 72 ft. research vessel, but operations, which are strictly inshore, have been hampered by lack of equipment and adequate funds. Unfortunately this lack of adequate facilities is very often the case with one-man TA projects.

Somalia has a SF project which is conducting a real offshore survey using a chartered USSR vessel. This operation, however, was also started only last year and conclusive results have therefore not yet been reported.

Aden, Southern Yemen, is the base for another SF project which was actually started in 1965, but interrupted from 1966 to 1969. This project has chartered a Japanese stern trawler for surveying the demersal fishing grounds in the Gulf of Aden, while the Government's own vessel is to explore the nearshore pelagic resources.

In Karachi FAO biologist (TA) has now been stationed for several years to assist the Government in surveying the coastal resources off West Pakistan and to help building up the Fisheries Division in Karachi. A Government owned research and exploratory vessel is available and a large amount of recent and past exploratory fishing data has been analyzed.

In East Pakistan here has for more than 3 years been a SF project with its own vessel plus one provided by the Government. One FAO biologist and one oceanographer are presently serving with this project, which has so far produced much new knowledge of the coastal resources off East Pakistan.

In Burma a FAO biologist (TA) was stationed until last July. Further assistance from UNDP/FAO in the field of fisheries is definitely needed and plans for a SF project are being prepared.

There are UNDP/FAO fishery projects both in Malaysia, Singapore and Indonesia, but so far these are exclusively concerned with fishermen's training.

Ceylon has at the moment no UNDP/FAO assisted fisheries activity but proposals for a SF project are under consideration.

Last but not least, India has a long record of marine fisheries projects with assistance of UNDP and FAO. Those which have already been completed were all primarily concerned with training, fishing vessel design and construction, and with experimental and demonstration fishing. Only in the case of the Central

Institute of Fisheries Education, Bombay, which started as a UNDP/FAO project, there was a small element of resources research included. Today one SF project for fishing harbour development is in operation, and another one for Pelagic Fishery Investigation on the South-west Coast (India Pelagic Fishery Project) is hopefully being declared operational shortly. This latter is planned as a resources survey of the stocks of sardine and mackerel. It will be conducted with two vessels, one small (54 feet) for nearshore surveying and another large one (152 feet) for all-year offshore work. The operations will rely heavily on acoustic surveying with purse-seine and trawl fishing for sampling and identification of recordings, but the project will also simultaneously carry out a programme of environmental studies, including fish egg and larvae surveys. The project is for 5 years and the first vessel and international staff is expected to arrive in March this year. The planning and execution of the project, including provision of equipment, is by FAO sub-contracted to the Norwegian Agency of International Development (NORAD), which for this purpose is mobilizing the extensive experience in pelagic resources surveying of the Bergen Institute of Marine Research.