

INDIAN OCEAN PROGRAMME

**development of fisheries
in the exclusive economic zone
of somalia**



UNITED NATIONS DEVELOPMENT PROGRAMME



FOOD AND AGRICULTURE ORGANIZATION
OF THE UNITED NATIONS

DEVELOPMENT OF FISHERIES IN THE EXCLUSIVE
ECONOMIC ZONE OF SOMALIA

Report of an FAO/UNDP International Indian Ocean
Fishery Survey and Development Programme
Mission

FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS
UNITED NATIONS DEVELOPMENT PROGRAMME

Rome, April 1978

The designations employed and the presentation of material in this publication do not imply the expression of any opinion whatsoever on the part of the Food and Agriculture Organization of the United Nations concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries.

Bibliographic Entry:

FAO/UNDP International Indian Ocean Fishery
Survey and Development Programme (1978)
Tech.Rep.Indian Ocean Programme, (19):32 p.
Development of fisheries in the exclusive
economic zone of Somalia. Report of an
FAO/UNDP International Indian Ocean Fishery
Survey and Development Programme Mission.

Exclusive economic zone. Territorial
waters. Sea law. Fishery management.
Fishery development. Fishery regulations.
Fishery resources. ISW, Somalia.

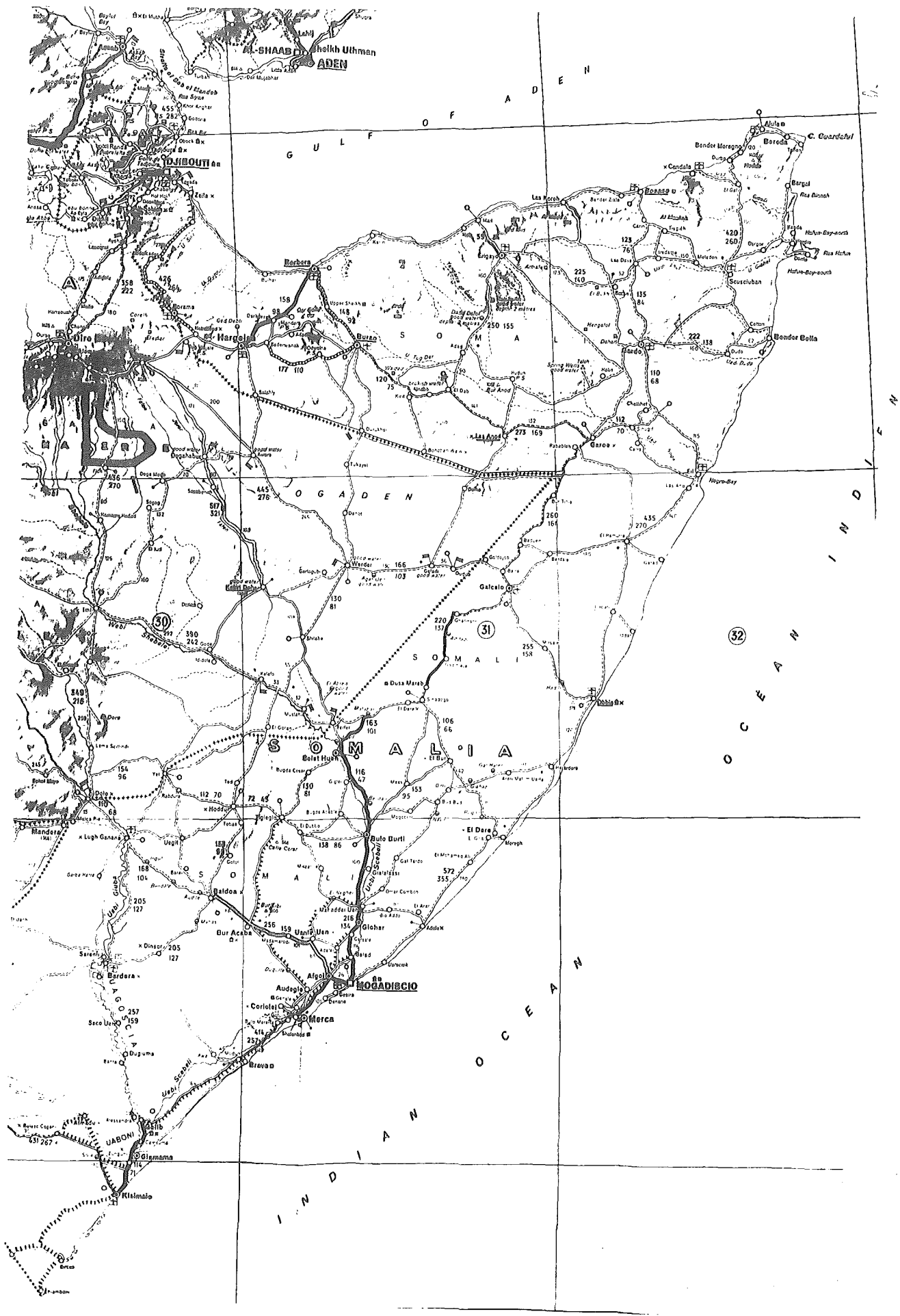
The copyright in this book is vested in the Food and Agriculture Organization of the United Nations. The book may not be reproduced, in whole or in part, by any method or process, without written permission from the copyright holder. Applications for such permission, with a statement of the purpose and extent of the reproduction desired, should be addressed to the Director, Publications Division, Food and Agriculture Organization of the United Nations, Via delle Terme di Caracalla, 00100 Rome, Italy.

SUMMARY

The extension of exclusive economic zones of national jurisdiction in marine waters consequent on the developments of the Law of the Sea has required many countries to examine the implications of such developments for their fisheries and the need to make adjustments. FAO has been providing assistance to countries at their request to examine these situations and to prepare programmes of development. In response to such a request, the FAO/UNDP Indian Ocean Fishery Survey and Development Programme mounted a Mission to Somalia.

This report embodies the findings of this Mission and its recommendations for future action. In addition to this work, the Mission was also requested to suggest emergency measures that would be necessary to cope with the situation that had arisen with the termination of Soviet technical assistance. The report contains recommendations of a short-term nature to meet this situation.

TABLE OF CONTENTS		Page
1.	INTRODUCTION AND TERMS OF REFERENCE	1
2.	RECOMMENDATIONS	2
(a)	Short Term	2
(b)	Medium and Long Term	3
3.	GOVERNMENT POLICY	6
4.	FISHERIES RESOURCES	7
(a)	Coastal Pelagic Fish	8
(b)	Demersal Fish	8
(c)	Tuna	9
(d)	Sharks and Rays	9
(e)	Others	10
5.	STATE OF THE INDUSTRY	10
(a)	Artisanal	10
(b)	Industrial	12
6.	FISHERIES LAW AND ADMINISTRATION	13
7.	TRAINING	16
8.	IMPLICATIONS OF CHANGES IN BILATERAL ASSISTANCE	18
9.	IMPLICATIONS OF CHANGES IN THE LAW OF THE SEA	20
ANNEX I - LIST OF PERSONS MET		23
ANNEX II - PLACES VISITED		25
ANNEX III - LEGAL CONSULTANT - TERMS OF REFERENCE		26
ANNEX IV - PROJECT DOCUMENT 8/SOM/01/M		27



1. INTRODUCTION AND TERMS OF REFERENCE

At its 11th Session held in Rome from 19 to 26 April 1977, the Committee on Fisheries in the light of discussions on the development of the regime of the seas and their implications for fisheries, requested the Secretariat to prepare a programme for the development of the economic zones of developing countries. In response to this request, the Fisheries Department through the FAO/UNDP Indian Ocean Fishery Survey and Development Programme and in consultation with governments of some interested countries decided to send multi-disciplinary missions to these countries to undertake field studies. Among others, a Mission was mounted to Somalia at the request of the Government with the following terms of reference:

- (a) discuss with Government officials the implications of the new ocean regime for fisheries development in Somalia, ascertain Government policy and review the potential for fisheries development and other benefits obtainable from the resources, taking into account biological, geographical, economic, administrative and other conditions at the country and regional levels;
- (b) in the light of (a), make suggestions regarding the steps to be taken to achieve the Government's objectives; and
- (c) propose the means, including the financial measures, of accomplishing these steps.

In November 1977, during a visit to FAO, Rome, the Minister of Fisheries, Somalia, informed the Indian Ocean Programme that a new situation requiring urgent assistance had arisen in Somalia with the cessation of U.S.S.R. bilateral assistance and requested immediate FAO assistance to assess the impact of these changes, particularly in the coastal settlements and to propose measures to lessen the adverse effects of such changes. The Mission's terms of reference were accordingly enlarged to include consideration of this situation.

The Mission comprising Mr. L.I.J. Silva, Assistant to ADG, Fisheries Department, FAO, Leader; Mr. R.L. Payne, Senior Fishery Advisor, Indian Ocean Programme; Mr. J.J. Kambona, Regional Fisheries Officer, FAO, Accra; and Mr. G.F.K. Moore, Chief, Forestry, Wildlife and Fisheries Legislation Section, Legal Office, FAO, visited Somalia from 1 to 11 December 1977. The details of its itinerary and the persons met are included in Annexes I and II.

From the talks the Mission had on arrival with the Minister of Fisheries and high officials of the Ministry and the Coastal Fishery Development Project, it became apparent that while the Government was certainly interested in the formulation of long-term measures to promote fisheries activities, its immediate and major concern was the effect of the termination of the U.S.S.R. bilateral arrangements and the consequent withdrawal of expatriates from the Coastal Fisheries Development Project and the Las Khoreh factory. The Mission, accordingly, gave special attention to this request and formulated a series of quick short-term measures including a Technical Cooperation Programme project proposal which has since been accepted and appears in Annex IV. An interim report mainly confined to short-term actions but also giving some indication of measures to be taken in the longer term was handed over to the Government prior to the Mission's departure from Somalia. The short-term measures are included in the chapter on Recommendations.

The present report takes up both the short-term and long-term measures in greater detail and in a larger perspective and is meant to reflect the views of the Mission on the overall fisheries situation in the light of the changing regime of the seas, the Government's fishery objectives and the means and the resources available. It also considers what actions are the most desirable to obtain the maximum benefit from fisheries.

The Mission would wish to place on record its appreciation of all the arrangements made by the Government and the Acting FAO Country Representative and the project staff of the FAO/UNDP Fishery Project to facilitate its work and the assistance, kindness and hospitality extended to it at all times.

2. RECOMMENDATIONS

(a) Short Term

- (i) To ensure that the boats will be maintained in operational condition to the greatest extent possible and to assist in the training programme, four mechanics should be recruited as early as possible. This is the minimum requirement.
- (ii) Till such time as longer term measures can be taken, immediate steps should be taken to order a minimum quantity of engine and equipment spares; this quantity should be determined by the mechanic attached to the Fisheries Development Project - SOM/75/008.
- (iii) Efforts should be made to obtain the assistance listed above in (i) and (ii) through FAO's Technical Cooperation Programme.
- (iv) Early steps should be taken to provide basic equipment to the repair and maintenance workshops being erected in the centres.
- (v) A land-rover pick-up should be provided to each settlement for the use of the mechanic and his workshop staff.
- (vi) An inventory of engine and equipment spares should be drawn up and requirements of such spares for a period of one year should be determined.
- (vii) If national resources are not available, bilateral assistance should be sought to purchase such spares. As this is a time-consuming process it is suggested that discussions be initiated at a very early date.
- (viii) With the recruitment of the mechanics, the training programme in boat engine repair and maintenance should be recommenced.
- (ix) While not as urgently required as the mechanics, efforts should be made to recruit four Masterfishermen and some processing experts for the settlements. Bilateral assistance should be sought in this connection.
- (x) If the Government succeeds in obtaining the TCP project proposed to fund the recruitment of four mechanics and the purchase of some spares, it is suggested that this TCP project be brought under the supervision of the existing FAO/UNDP Fishery Development Project - SOM/75/008 - which will be able to provide assistance to the individual experts, coordinate their work and economize on resources.
- (xi) Similarly, if bilateral assistance is obtained for the other requirements listed above, it is suggested that the existing FAO/UNDP project be requested to coordinate these inputs.
- (xii) Of the approximately 150 Soviet-made boats, about 50 cannot be operated unless replacement engines are obtained. Early efforts should be made to obtain engines from other sources. A programme should be initiated to replace all the Soviet engines, as procurement of spares is extremely difficult.
- (xiii) An immediate assessment should be made of the situation in the Las Khoreh factory, utilizing the expertise available in the FAO/UNDP Fishery Development Project.

(b) Medium and Long Term

(i) The cessation of U.S.S.R. assistance has affected both the small-scale coastal fisheries and the industrial fisheries. Since Somalia lacks the capacity to develop its industrial fisheries at this stage on its own, it is recommended that the industrial fisheries be taken up for development with expatriate assistance either in the form of joint ventures' licensing arrangements, or by management under contract by competent expatriates of government-owned enterprises. Proposals have been made for the development of the sardinella fishery in the northeast on the latter lines. As this resource offers a good development opportunity, vigorous efforts must be made by the Government to conclude negotiations with interested parties to exploit the resource.

(ii) The artisanal fisheries have been linked intimately to the coastal development project and the resettlement of nomads. They therefore call for sustained assistance through a long period. It is suggested that the UNDP/FAO Fisheries Development Project - SOM/75/008 - which is now going to be entrusted with the task of supervising and assisting activities in these settlements, be expanded and extended to ensure adequate assistance. The extension of the project with increased staff resources to the end of 1978 as proposed by the Project Manager is strongly supported.

The FAO-executed project will certainly not be in a position to provide guidance and assistance to all the coastal settlements. Some priorities and limits should be established. It is proposed that the project confine its assistance to the eastern coast settlements such as Brava, Chismayo, Adale, Eil, etc. The settlements on the northern coast will have to be linked with the factories established at Las Khoreh and proposed for Ras Hafun so that they could benefit from the economic activities taking place in those centres.

(iii) If funds permit, it is suggested that a project designed specifically to meet the problems of the coastal settlements in the north be formulated, somewhat on the same lines and objectives of the present UNDP/FAO project, to take particular care of repair and maintenance problems, fishermen's training and extension. This project will have to be quartered in Berbera or Las Khoreh and should cover all the coastal settlements in the north.

(iv) The FAO Technical Cooperation Programme project was designed to meet an immediate short-term emergency need. Its efforts will therefore have to be supplemented and extended through the UNDP/FAO Fisheries Development Project - SOM/75/008. In relation to the magnitude of the needs, the impact of these two projects cannot be expected to be very significant, particularly in view of the extremely scattered nature of the settlements, the difficulties of access and the small number of expatriate personnel. The efforts of these projects would have a significant impact only if an active presence could be established in each of the settlements. Posting project personnel in these settlements may be possible in the short term but it would not be economic or feasible or convenient to keep such high-cost expatriates for longer periods. Some way has to be found to make better use of the economic resources available.

The Somali Government should therefore give serious consideration to supplementing these efforts through the use of comparatively low-cost expatriate personnel from developing countries to be stationed in the settlements. The Mission is aware that the Government has already engaged such expatriates in different fields, including fisheries. This should be developed further and, if necessary, FAO's assistance obtained to do

this on a systematic basis in terms of technical cooperation between developing countries. Apart from the low cost, which is a major factor in enabling larger numbers to be engaged, the nature of the skills required for these settlements are such that they could be easily available in certain developing countries, particularly in Asia. In addition, there will be smaller problems of cultural adjustment.

It is proposed that the Indian Ocean Programme pursue this idea with the Government of Somalia and possible cooperating developing countries such as India and Sri Lanka.

- (v) If the Government is intent on achieving the targets it has set for itself in the five-year development plan for fisheries, it is absolutely essential that the fisheries administration be strengthened. Senior staff in the Department should therefore be sent for specialized training in fisheries administration, fishery economics and extension work, both in workshops and seminars organized by FAO and its inter-regional projects and also through fellowships. A strong fellowship component should therefore be included in the revised project document of SOM/75/008.
- (vi) In view of the suggestions in Recommendation (i), it is necessary for the existing legislation to be revised and consolidated to take into account the new situation obtaining in the country.
- (vii) A major effort has to be made in training Somali nationals in all aspects of fisheries. The present UNDP/FAO project has as a major aim the training of fisheries personnel in the field but its efforts are insufficient. As stated in the report, it is necessary to coordinate the institutionalized and "academic" training with field and vocational training and to make both these aspects more responsive to actual needs. It is suggested therefore that the training and manpower needs in the sector be examined and assessed and well coordinated long-term training schemes be drawn up taking into account existing institutes such as the Marine Institute, the need to avoid duplication and to meet the practical needs of industry. A consultant to undertake this work should be engaged.
- (viii) As stated in our interim report, the multiplicity of engine types used by the fishing fleets have caused considerable problems of maintenance and repair as well as wastage. As a long-term measure, steps should be taken to standardize the makes. This would help to avoid the kind of problems that the industry is now facing.
- (ix) Road communications are extremely difficult and in some cases do not exist. Villages such as Eil are extremely isolated and marketing of produce is a serious problem. Since the development of a network of roads is a long and expensive process, a quicker alternative would be a system of carrier boats suitably equipped with refrigerated holds which could call at these villages periodically to collect the fish for marketing in the urban areas such as Mogadiscio or for export.
- (x) Suitably equipped repair and maintenance workshops should be established in all the settlements as it was the Mission's observation that over 50 per cent of the boats are idle because of poor or inadequate maintenance and a lack of spare parts. Attempts to cut down on the availability of funds for spare parts will be a false economy if in the long run the means of production go out of use.

- (xi) The cooperatives, while serving some basic needs, have not yet become the central motivating mechanism in the settlements as hoped for. The Mission feels that there are certain basic deficiencies in management and administration and participation of the members which have to be remedied to make these cooperatives more efficient bodies. Thorough examination of their structure and functioning is considered necessary. A consultant should be engaged for the purpose.
- (xii) The extension of its territorial seas to 200 miles has shown the need for Somalia to be closely involved in regional arrangements with regard to shared resources such as the tuna in the Gulf of Aden and possibly the sardinella resource around Socotra, which may be a part of the same sardinella stock found in the Northwest Arabian Sea. It is recommended that Somalia take an active part in the IOFC Tuna Management Committee as well as in the proposed Near East Fishery Commission.
- (xiii) In the long run, more information must be obtained on the state of stocks as some of the proposals, particularly for the sardinella resource, would lead to heavy fishing. A system for the collection of statistics on catch and effort should be introduced and put into effect and the Department of Fisheries, Somalia, should maintain it on a regular basis. The country may need the services of resource assessment experts to integrate this information with information collected for the various surveys such as those done by the DR. FRIDTJOF NANSEN. This would enable the country to have a more adequate picture of the resource situation and plan its development efforts accordingly.
- (xiv) Because of the country's small population and low consumption of fish, fishery development effort in Somalia must be based on export markets. It is therefore very important that the products available for export be of a suitable quality. Quality control measures would therefore have to be introduced both in the processing plants and at the plants of export. FAO could assist in this regard.
- (xv) The services of a legal consultant may be required to assist the Government in drawing up a new Fisheries Act and implementing regulations. He would also be able to advise the Government on the drawing up of guidelines and conditions for future joint venture agreements and for bilateral fishing agreements and in the provision of ad hoc advice which may be required for the proposed fish meal project. His terms of reference are in Annex III.
- (xvi) While the major industrial fisheries could be developed utilizing the sardinella stocks in the northeastern waters, there is a fair potential for further development and expansion of the coastal fisheries of the demersal stocks closer to the shore. Estimates of potential catches of demersal fish range from 30 to 80 000 tons for the entire continental shelf of Somalia, of which approximately 50 per cent is estimated to be located off the eastern coast. The coastal fisheries could be developed to exploit these stocks. Present catches are comparatively small and a modest expansion of the coastal fisheries would not endanger the state of the stocks. Larger vessels with slightly more sophisticated gear would have to be introduced to exploit the fishery. The present coastal fleet does not have the capacity to do so. It is proposed therefore that the services of experts be engaged to examine the possibilities of this fishery, particularly with a view to determining the type and size of boats and gear required for the purpose. Care should be taken in the selection of the type of vessel and equipment because of the comparatively

unsophisticated nature of the existing fishery. It may be more profitable and feasible to introduce the types of vessels that are used for trawling in the waters off India and Pakistan with their less sophisticated machinery and technology. The Government of Somalia may be able to enter into bilateral arrangements with the Governments of those countries for this purpose, or alternatively the Indian Ocean Programme may be requested to assist in effecting such arrangements.

3. GOVERNMENT POLICY

In its Five-Year Development Programme, 1974 to 78, the Government has defined its fishery policy objectives as follows:

- (1) to maximize output and gross income from the national point of view;
- (2) to change the social-economic relations of the people in general and fishing community in particular by increasing the income levels of the poor;
- (3) to create employment opportunities for the greatest possible number of people;
- (4) to expand exports of fish and fish by-products so as to earn more foreign exchange for financing imports of capital thus needed for the development of the country;
- (5) to increase the role of fish as a nutritional supplement to the traditional food consumption pattern.

In practical and physical terms this implied increasing fish production from less than 5 000 tons to 40 000 tons per annum by 1978. This was to be achieved through expansion of the national fleet enabling it to land 20 000 tons; a joint Soviet-Somali fishing company (SOMALFISH) landing 5 000 tons; and the balance of 15 000 tons being supplied by cooperatives, joint ventures and individual fishermen. A total of 109,68 million Somali Shillings was envisaged to be expended for the period 1974-78 in the following main areas:

(a) Cooperative Centres

Establishment of sixteen new cooperative centres in addition to those already established in Adale, Mogadiscio, Kismayu, Merca and Berbera by the end of 1974. The UNDP/FAO Fishery Extension Project was expected to provide training in the use of modern techniques, fishing boats and gear at these centres. Membership of the cooperatives was expected to range from 1 500 to 2 000.

(b) National Coastal Fleet

A coastal fleet of 250 modern boats and 10 vessels of 25 to 30 tons capacity was planned, providing employment for about 1 100 persons.

(c) Fish Harbours

Construction of harbours in Mogadiscio, Alula and Eil to be fully operational by 1979.

(d) Freezer Plants

Three plants of 150 tons to 200 tons capacity to be set up in Mogadiscio, Berbera and Eil.

(e) Extension and expansion of the FAO Fishery Project to provide technical assistance and equipment to the development centres and cooperatives; establishment of pilot marketing systems to promote domestic consumption; quality control for export; design and set up small-scale boatbuilding centres and repair and servicing facilities; establish mobile vocational training institutes and train fisheries technicians and extension workers.

- (f) Establishment of a new fishermen's training school at Bossasso.
- (g) Establishment of a repair base for the fishing fleet at Berbera.
- (h) Fish Processing Cannery, Las Khoreh.

Acquisition of 100 modern boats and 50 dhories to augment supplies to the facility, expansion of the cold storage and repairs to and extension of the pier.

(i) Expansion of the Mogadiscio boatbuilding centre and establish three yards at Bossasso, Kismayu and Berbera.

(j) Establishment of a fishing gear factory.

(k) Establishment of a Maritime and Fishery Institute in Mogadiscio to replace the existing maritime school. The school would have courses in Fishing Techniques, Marine Biology, etc., and Marine Mechanics.

In February 1977, the State Planning Commission in its report "Public Sector Investment Programme for 1977" assessed the implementation of the 1974/78 development programme, and it noted that a number of unforeseen events had affected the attainment of the objectives in the development programme, particularly the oil crisis and a disastrous drought which had continuous repercussions on the economy.

The forecast of the study was that by end 1977, the Five-Year Development Programme would be implemented only around 53 per cent in fisheries. Out of a total allocation of 78 million Somali Shillings for the years 1974, 75 and 76, expenditure amounted to 45.5 million or 58.4 per cent, which was considerably better than other sectors such as electricity and power, transport, mining, etc.

Fish does not loom large in the economy of Somalia. Production is estimated to range from 6 000 to 20 000 tons per annum and in value is less than two per cent of the GNP. The scattered and isolated nature of the fishing villages and the comparatively small numbers engaged in fisheries compounded by transport and access problems add to this insignificance.

Despite the modest contribution it makes, it has a social and potential value far in excess of its present condition. It has a good potential for increased export earnings and the Government, in its attempts to wean away the excess numbers of nomads from their traditional occupations, has turned to the sea and the opportunities it offers for a new life to solve partially these problems. The fishing industry has, therefore, provided the base for a unique experiment in human settlements.

The chapters that follow deal with the fishery situation in the light of this new development and the changes in the ocean regime and attempts to pick out those opportunities that appear suitable to be followed up and developed.

4. FISHERIES RESOURCES

The coastline of Somalia is about 3 200 km long and could be divided into two major zones - 1 000 km in the north bordering the Gulf of Aden and 2 200 km in the east facing the Indian Ocean. The coastline consists of a series of sandy beaches, broken at intervals by rocky outcrops of cliffs which often extend into shallow waters. The continental shelf is narrow and ranges in width from 10 to 15 km, except on the northeast coast where the shelf extends to 50 or 60 km from the coast.

The seasons along the coast are associated with the two monsoon winds - the southwest and northeast.

North of Beder-Eil, the fishing season lasts roughly from September to April, but during these months the number of days that can be spent out at sea is highly variable (turbulent weather in December/January) and does not exceed 120 days per year for the traditional vessel or small motorized boats.

From Obbio to Brava the fishing season takes place during the same months but with possibilities of fishing during the SW monsoon the number of days at sea, although highly variable, may reach 140 days per year for the two types of vessels mentioned above.

On the eastern coast fishing is usually carried out within the limits of the continental shelf and from Brava to Adale and up to the north of Obbio these limits can only be reached by motor vessels. South of Brava and particularly south of Kismayo the shelf is barely 10 km wide and is easily covered by traditional vessels.

At the end of the SW monsoon around October there is an "upwelling" in the northeastern coast between Ras Asir and Socotra. Very high productivity nutrient and plankton values are generally associated with these upwelling areas.

The fishery resources and their production potential are still poorly known due to the low stage of development of the artisanal fisheries, the lack of adequate statistics on catch and effort from these fisheries and the industrialized fisheries. The general lack of research data on resources precludes any accurate assessment of the potential yields, although recent studies by the IOP/NORAD survey vessel DR. FRIDTJOF NANSEN are now producing useful information. The only data available at present are the export figures of dried fish and fishery products and data from the SOMALFISH. Since very little fish is consumed within the country (per caput consumption is estimated at 0.4 kg/a), the export figures expressed in terms of fresh weight equivalent could be a useful indicator of fish landings in the country. The fresh weight equivalent of dried fish exports for 1975 works out to about 5 480 t. With an estimated internal consumption of 1 200 t, total production in 1975 could be estimated at 6 700 t. State Planning Commission figures indicate a similar total. Official statistics provided to FAO, however, give a figure of 32 600 tons.

Despite the paucity of data and conflicting figures, available information enables one to draw the following conclusions regarding potential.

(a) Coastal Pelagic Fish

Rather substantial stocks of sardine, herring and scad have been located on the continental shelf between Ras Asir and Ras Hafun on the northeast coast. Seasonal abundance of stocks are estimated to vary between 120 000 and 370 000 tons. The present data suggest that between 75 000 and possibly 100 000 tons can be exploited annually without endangering the stocks.

(b) Demersal Fish

These resources are at least partially exploited off the entire coast of Somalia and include snappers (Lutjanidae), scavengers (Lethrinidae), groupers (Serranidae), breams (Pentapodidae) and porgies (Sparidae). Other lesser food fishes include goat fishes (Mullidae), sweetlips (Plectrhynchidae), catfish (Ariidae), threadfin breams (Nemipteridae) and lizard fishes (Synodontidae). The following table gives an estimate of this potential in areas where the nomads have been settled.

Estimated Potential of Larger Food Fish in Areas
Where the Nomads have been Settled

<u>Zone</u>	<u>Approx. Shelf Area km²</u>	<u>Production Potential in Tons</u>
East Coast (North)		
Ras Asir - Ras Mabber (9°28'N)	11 000	12 000
Ras Mabber - Ras EL-Cheil	3 800	4 000
Ras EL-Cheil - Mogadiscio	13 500	15 000
Sub-total	<u>28 300</u>	<u>31 000</u>
Coralline Zone (South)		
Mogadiscio (2°N) - Brava (1°N)	900	1 000
Brava - Equator	1 230	1 250
Equator - Ras Kiombone (2°S)	2 050	2 250
Sub-total	<u>4 180</u>	<u>4 500</u>
Grand Total	<u>32 480</u>	<u>35 500</u>

Source: State Planning Commission

The potential at 10 kg/ha appears fairly high but this rather low total estimate of the prime food fish can be attributed to the relatively small area of the continental shelf. According to Moal and Bressolie (1975) the production potential of demersal fishes for the entire coast is about 80 000 t of which about 50 per cent appears to lie on the eastern coast of Somalia. More conservative estimates put the figure around 40 000 tons.

(c) Tuna

Mainly yellowfin and skipjack tuna have been traditionally caught in the waters off the northern coast in the Gulf of Aden but catches have been fluctuating between 2 000 and 8 000 tons per annum. As much as seventy-five per cent of the fish is harvested in the months of October and November.

(d) Sharks and Rays

The families represented include: hammerheads (Sphyrinidae); grey sharks (Carcharinidae); Mako shark (Suridae).

They are mostly abundant in the Gulf of Aden and off part of the east coast where they regularly represent about 40 per cent of the fish caught. Moal (1971) estimated a standing stock of 50 000 t north of lat. 20°N and a potential annual yield of 30 000 t per annum. Any extensive exploitation plans must, however, be accompanied by sound management measures as it has been noted that the catches of the artisanal fishery contained many young sharks.

(e) Others

Spiny lobsters (Palinuridae) are found off the entire coast of Somalia both inshore and offshore. All the major East African species, i.e. Palinurus ornatus, P. versicolor, P. penicillatus, P. dasypus and P. japonicus are represented. P. mossambicus occurs in medium depth water and two other species, Puerulus sewoli and Puerulus carinatus are found in the deep water fishery and so is the Nephrops andamanicus. There is a discernible increase in catch as one moves from Ras Kiambone in the south to Eil in the north.

Other resources which could augment the catches of fishermen include oysters and molluscs, squid and cuttlefish, bêche-de-mer and turtles. The status of these resources is not known and more scientific data is required before any large-scale planned exploitation can take place. For some of them, e.g. turtles, there is a great need for regional cooperation to cover the entire Western Indian Ocean to ensure the conservation and management of this resource.

5. STATE OF THE INDUSTRY

The organized fishery may be divided into artisanal and industrial sectors.

(a) Artisanal fishing communities are found in the following places:

Ras Kiambone
Kismayo
Brava
El Ahmed
Merca
Mogadiscio
Adale
Eil
Bander Bella
Obia
Alula
Habo
Candala
Bossasso
Las Khoreh
Berbera

With the exception of Ras Kiambone and Kismayo, all the other settlements were organized under the Coastal Development Project and assisted by technicians supplied by a Soviet Aid Agreement. At the time of the Mission's visit, all the Soviet technicians had left the country.

Under the present set up the fishermen are organized in cooperatives and are required to sell their catch to the societies at fixed prices. In the areas where canning plants are located, the canning plants purchase only tuna and other fish is sold to the cooperatives which in turn sell them to retailers - who have to sell them at fixed commission rates. The cooperative societies maintain rather meagre records of purchases and prices paid to the fishermen. In some areas, the fishermen sell fresh fish while in others they sell sundried fish to the cooperative societies. The records are maintained under four broad categories, each consisting of two or more varieties of fish according to local price parities. The data pertain only to the quantities marketed by the fishermen and do not include the catch retained for their domestic consumption. The reports from all cooperative societies are not yet available on a regular basis.

The statistics of manpower and craft are shown below:

<u>Item</u>	<u>1971-72</u>	<u>1972-73</u>	<u>1973-74</u>	<u>1974-75</u>
1. Fishermen - Full-time	4 000	4 000	4 000	4 000
2. Fishermen - Occasional	16-18 000	16-18 000	16-18 000	16-18 000
3. Trawlers	-	-	2	10
4. Local Craft - Estimated	2 000	2 000	2 000	2 000

Source: Ministry of Fisheries

The Coastal Development Project, described elsewhere in this document, was established recently to assist in the settlement of approximately 15 000 nomads, providing them with food, medical facilities, schools and the means to earn a living either from the sea or otherwise. This transfer of large numbers of people into the traditional fishing settlements would have had a significant impact on the local communities. To what extent this has disrupted the traditional groups has not been assessed.

About 450 open diesel-powered boats have been supplied by the Government to the fishermen of Somalia. An approximate breakdown of boats categorized by source is as follows:

<u>Boat Source</u>	<u>Engine Manufacture</u>	<u>Power</u>	<u>Approx. No. Units Supplied</u>
U.S.S.R.	U.S.S.R.	2 cyl 25 Hp at 1 800 RPM	150
Sweden	Volvo Penta	1 cyl 8 Hp at 2 200 RPM (of which 100 units are complete and a second 100 engines are supplied but boats not yet built)	200
Kenya	YANMAR	1 cyl 8 Hp at 2 000 RPM	60
Kenya	YANMAR	2 cyl 18 Hp at 2 000 RPM	40
Greece	Petter	2 cyl 22 Hp at 1 800 RPM	25
Italy	SLANZA	1 cyl 8 Hp at 2 200 RPM 2 cyl 20 Hp at 2 200 RPM	10 5
Sri Lanka	YANMAR	2 cyl 22 Hp at 2 000 RPM	30
Somalia (Hamar Type)	YANMAR	2 cyl 18 Hp at 2 000 RPM	15
Somalia (U.S.S.R. Type)	YANMAR	2 cyl 18 Hp at 2 000 RPM	15
Total			<u>550</u>

Note: Of the above, 100 Volvo Penta-powered fibreglass boats are to be built in Somalia: as noted, the engines have been supplied but the boats had not been constructed (10 Dec. 1977). It is reported that 100 additional boats are on order from Sri Lanka. It is also reported that the Mogadiscio boatyard has on hand fifteen 2 cyl 18 Hp YANMAR engines for which the boats are not yet constructed.

Approximately 150 powered boats have been distributed to the Coastal Development Project communities at El Ahmed, Brava, Adale and Hil. The remaining boats, about 300 in number, have been distributed to the other centres except for a substantial number which awaits distribution from Mogadiscio harbour.

(b) Industrial

- (i) Las Khoreh: A Government-owned integrated tuna cannery with a capacity of 20 tons of fish per day was built with U.S.S.R. technical assistance in 1966. It is supplied by a fleet of houris and small open diesel powered boats which fish with gillnets and short longlines. The complex contains a cold storage, a freezer, can-making facility, a reduction plant and its own boilers and diesel electric power supply.
- (ii) Habo: This is an Italian-owned tuna cannery with a capacity of 20 tons of fish per day supplied by a fleet of houris and small open powered boats. The plant was built about 1935 and operated sporadically until 1958.
- (iii) Candala: A tuna cannery similar in size, age, ownership and operation to Habo. Neither Habo nor Candala are operating this season (1977-78).
- (iv) Bolimoog: This consists of a freezer-cold storage with a small reduction plant for offal and diesel electric power plant. Freezing capacity is normally 60 tons per day in blast air units and 1 500 tons can be held in the cold storage. The plant was built with U.S. Government financial support in 1965 but is now owned by the Somali Development Bank, a Government organization. The fish for the plant is supplied by a fleet of houris and small open power boats. Eight hundred tons of product have been exported in the last two years.

All of the four installations mentioned above are on the north coast and are without harbours. None is viable.

- (v) Kismayo: This is a small freezer cold storage with a flake ice manufacturing unit designed primarily for the processing and export of lobster and shrimp from the southeast coast. The unit was built by Prodma, a commercial Somali corporation affiliated with Fearn International of the United States. Constructed in 1968, the plant was operated for less than one year. It has not operated, except for a few brief months, since it was closed in 1969. It presently belongs to the Somali Government.
- (vi) SOMALFISH: A joint U.S.S.R.-Somali venture which operated ten coastal freezer trawlers in Somali waters. In 1976, the peak year, the catch was 3 500 tons of fish and 500 tons of deep water lobster. The vessels have now left Somali waters and the organization's remaining function is to act as sales agent for the dried, cured fish produced by the cooperatives.
- (vii) SIADCO: This is a joint Government Iraqi-Somali venture for development in the fields of agriculture, animal husbandry and fisheries. The fisheries element owns six Spanish-built twin rig shrimp-type trawlers and two U.S.S.R.-built coastal type freezer trawlers. The project was formed in 1977 and is just now becoming active.

6. FISHERIES LAW AND ADMINISTRATION

There are a number of laws affecting activities in the fishery sector. The most important are listed below. There is a need for a separate fisheries law that can provide a basis for the development of policies and the management of fisheries under the new ocean regime.

Jurisdictional Limits

- (a) The Somali Territorial Sea and Ports Act
Law No. 37 of 1972

The limits of the territorial sea are set at 200 nautical miles and fishing in the territorial sea is reserved for vessels flying the Somali flag and other authorized vessels.

Fisheries Laws

- (a) The Maritime Code, 1959, as amended

Fisheries in Somalia are governed by Articles 66 to 72 of the Maritime Code of 1959. Under the Code a distinction is made between major fishing activities and minor fishing activities. The former are to be carried out only under concessions granted by decree of the Minister of Sea Transport for periods up to nine years renewable. The concessions are not exclusive and "the Maritime Authority" has the power to determine the number of concessions to be granted for each area. Where concessions are granted for trawling over large areas, adequate preservation and processing plants must be established on shore. Concessions are subject to payment of an annual rent determined according to the nature and value of the concessions.

Minor fishing activities require a licence issued by the Maritime Authority on an annual basis. However, licences are not required for fishing by "conventional" (artisanal) methods. To protect minor fishing activities, major fishing activities are prohibited within 500 metres of the coast.

There is no express provision for the making of any regulations under the Code, and, so far as is known, no regulations concerning fisheries have ever been made.

Laws Affecting the Operation of Fishing Vessels

- (a) The Maritime Code, 1959, as amended

All vessels, including fishing craft, are required to be registered with the appropriate Port Captain's office. The Maritime Code is presently under revision and the assistance of an IMCO legal expert is being sought in the preparation of a new Code.

Laws Affecting the Organization and Development of Artisanal Fisheries

- (a) Law establishing the Coastal Development Project - Law No. 36 of 6 April 1977

The Law establishes the Coastal Development Project, which is an autonomous legal entity under the supervision of the Minister of Fisheries.

Its functions include the settlement of nomads in fishing communities and the manufacture of fishing equipment such as boats and nets. It derives its funds from banks and international organizations, from services performed by the project and income from fishermen's cooperatives. Budgets and accounts prepared on an annual basis are approved by the Minister of Fisheries. Financing and accountability are governed by the law on autonomous agencies.

(b) Law on Cooperative Development in the Somali Democratic Republic - Law No. 40 of 1973

The Law provides for the formation and organization of cooperatives in all sectors of the economy, including fisheries. The types of cooperative organization promoted range from the semi-collective to the higher level collective cooperatives. In the fisheries sector, the first stage is represented by Fishery Service and Marketing Cooperatives in which fishermen join together for cooperative marketing, processing and storage of their catches and joint purchase of improved equipment. Boats and other equipment are individually owned and are operated under the management of the fishermen and their families. This stage is viewed as a transitional phase to develop the cooperative spirit and create the psychological and economic conditions necessary for the establishment of full Fishery Production Cooperatives. In the latter, all boats, equipment, processing and storage facilities and other means of production are to be collectively owned and managed, work is to be organized collectively and income distributed according to the work done by members. Inputs are to be purchased and catches marketed collectively either through state organizations or cooperative shops.

Laws Affecting the Establishment and Operation of Fisheries Industries with Particular Reference to Foreign Investment and Joint Ventures

(a) Exemption from Customs Duties in Favour of Newly Established Industrial and Mineral Exploitation Enterprises and Agencies Concerned with Social Development - Law No. 26 of 10 November 1961

The Law provides for exemption from customs duties on imports for the establishment or expansion of industrial and agricultural enterprises, etc.

(b) Foreign Investment Law - Law No. 7 of 1977

Under this Law investments are sought primarily for the establishment, expansion or reactivation of productive enterprises for the development of agriculture, fisheries, industry or other listed sectors of the economy. All approved foreign investment is to enjoy certain rights with respect to the repatriation of profits and capital. Up to 30 per cent of capital invested may be repatriated as profits, interest, foreign loan repayments or dividends for approved productive investments, or 10 per cent for registered investments classified as non-productive. Where profits earned in one year by a productive enterprise are less than 30 per cent, the unused portion can be accumulated for the three successive years. Capital investments can be freely repatriated after five years or seven years in the case of non-productive enterprises.

International Fishing Agreements and Foreign Fishing

(a) Reciprocal Fishing Agreements

Somalia has no reciprocal fishing agreements with neighbouring countries. An agreement with the People's Democratic Republic of Yemen some years ago, under which a number of Yemen boats fished in Somali waters and delivered fish to processing establishments on the north coast, has since lapsed. A number of foreign companies, however, have been given permission over the last few years to conduct exploratory fishing operations in Somali waters.

6. FISHERIES LAW AND ADMINISTRATION

There are a number of laws affecting activities in the fishery sector. The most important are listed below. There is a need for a separate fisheries law that can provide a basis for the development of policies and the management of fisheries under the new ocean regime.

Jurisdictional Limits

- (a) The Somali Territorial Sea and Ports Act
Law No. 37 of 1972

The limits of the territorial sea are set at 200 nautical miles and fishing in the territorial sea is reserved for vessels flying the Somali flag and other authorized vessels.

Fisheries Laws

- (a) The Maritime Code, 1959, as amended

Fisheries in Somalia are governed by Articles 66 to 72 of the Maritime Code of 1959. Under the Code a distinction is made between major fishing activities and minor fishing activities. The former are to be carried out only under concessions granted by decree of the Minister of Sea Transport for periods up to nine years renewable. The concessions are not exclusive and "the Maritime Authority" has the power to determine the number of concessions to be granted for each area. Where concessions are granted for trawling over large areas, adequate preservation and processing plants must be established on shore. Concessions are subject to payment of an annual rent determined according to the nature and value of the concessions.

Minor fishing activities require a licence issued by the Maritime Authority on an annual basis. However, licences are not required for fishing by "conventional" (artisanal) methods. To protect minor fishing activities, major fishing activities are prohibited within 500 metres of the coast.

There is no express provision for the making of any regulations under the Code, and, so far as is known, no regulations concerning fisheries have ever been made.

Laws Affecting the Operation of Fishing Vessels

- (a) The Maritime Code, 1959, as amended

All vessels, including fishing craft, are required to be registered with the appropriate Port Captain's office. The Maritime Code is presently under revision and the assistance of an IMCO legal expert is being sought in the preparation of a new Code.

Laws Affecting the Organization and Development of Artisanal Fisheries

- (a) Law establishing the Coastal Development Project - Law No. 36 of 6 April 1977

The Law establishes the Coastal Development Project, which is an autonomous legal entity under the supervision of the Minister of Fisheries.

Its functions include the settlement of nomads in fishing communities and the manufacture of fishing equipment such as boats and nets. It derives its funds from banks and international organizations, from services performed by the project and income from fishermen's cooperatives. Budgets and accounts prepared on an annual basis are approved by the Minister of Fisheries. Financing and accountability are governed by the law on autonomous agencies.

(b) Law on Cooperative Development in the Somali Democratic Republic - Law No. 40 of 1973

The Law provides for the formation and organization of cooperatives in all sectors of the economy, including fisheries. The types of cooperative organization promoted range from the semi-collective to the higher level collective cooperatives. In the fisheries sector, the first stage is represented by Fishery Service and Marketing Cooperatives in which fishermen join together for cooperative marketing, processing and storage of their catches and joint purchase of improved equipment. Boats and other equipment are individually owned and are operated under the management of the fishermen and their families. This stage is viewed as a transitional phase to develop the cooperative spirit and create the psychological and economic conditions necessary for the establishment of full Fishery Production Cooperatives. In the latter, all boats, equipment, processing and storage facilities and other means of production are to be collectively owned and managed, work is to be organized collectively and income distributed according to the work done by members. Inputs are to be purchased and catches marketed collectively either through state organizations or cooperative shops.

Laws Affecting the Establishment and Operation of Fisheries Industries with Particular Reference to Foreign Investment and Joint Ventures

(a) Exemption from Customs Duties in Favour of Newly Established Industrial and Mineral Exploitation Enterprises and Agencies Concerned with Social Development - Law No. 26 of 10 November 1961

The Law provides for exemption from customs duties on imports for the establishment or expansion of industrial and agricultural enterprises, etc.

(b) Foreign Investment Law - Law No. 7 of 1977

Under this Law investments are sought primarily for the establishment, expansion or reactivation of productive enterprises for the development of agriculture, fisheries, industry or other listed sectors of the economy. All approved foreign investment is to enjoy certain rights with respect to the repatriation of profits and capital. Up to 30 per cent of capital invested may be repatriated as profits, interest, foreign loan repayments or dividends for approved productive investments, or 10 per cent for registered investments classified as non-productive. Where profits earned in one year by a productive enterprise are less than 30 per cent, the unused portion can be accumulated for the three successive years. Capital investments can be freely repatriated after five years or seven years in the case of non-productive enterprises.

International Fishing Agreements and Foreign Fishing

(a) Reciprocal Fishing Agreements

Somalia has no reciprocal fishing agreements with neighbouring countries. An agreement with the People's Democratic Republic of Yemen some years ago, under which a number of Yemen boats fished in Somali waters and delivered fish to processing establishments on the north coast, has since lapsed. A number of foreign companies, however, have been given permission over the last few years to conduct exploratory fishing operations in Somali waters.

(b) Joint Venture Agreements

(i) SOMALFISH

By a protocol and agreement of 1974, the Governments of Somalia and U.S.S.R. agreed to establish a joint venture company (SOMALFISH) in order to catch, process and market fish, for an initial period of five years, renewable, with 51 per cent of the shares held by the Somali Government and 49 per cent by the U.S.S.R. Government. The Somali Government was given an option to buy up all the shares of the company. Under the initial protocol, the company was to start operations with ten ships to be provided by the U.S.S.R., of which five were to belong to the Somali Government, their value to be repaid on terms to be stipulated in the agreement between the parties. In addition to its strictly commercial functions, the joint company was to assist in the development of fishermen's cooperatives, to explore the fish stocks of the country, and to upgrade catching and processing techniques. After its establishment, the company played an active part in the development of cooperatives and coastal nomad settlement centres. Although not specifically renounced, the basis of the agreement was destroyed with the departure of the Soviet personnel and all ten vessels in late 1977.

(ii) SIADCO

The Somali-Iraqi Corporation for Agricultural Development (SIADCO) was established under an agreement signed by the two Governments in 1977. The company is owned jointly (on a 50/50 basis) by the Somali and Iraqi Governments and covers livestock production, crop production and fisheries, including fish production, processing and marketing. The joint company was set up for a term of ten years, renewable for a further five years. The nominal capital of the joint company is set at 30 million U.S. dollars, with at least 20 per cent of the capital to be paid up within six months and the remainder to be paid up within two years. Payment of capital may be by cash, property required for production activities, or means of production. The Iraqi Government is to provide the necessary amounts of foreign currency required to fulfil the objectives of the corporation, including the cost of imported equipment. The foreign currency component of the Somali Government's share in the paid up capital is to be advanced by the Iraqi Government under a long-term loan.

Fisheries Administration

(a) Ministry of Fisheries

The Ministry of Fisheries was established as a separate Ministry in January 1977. It has an establishment of 319 under a Minister and Director-General, although at present many of the posts are still vacant. The Ministry operates through five departments dealing, respectively, with Cooperative Development, Fishery Industry, Planning, Financial Administration and Manpower Formation and Training.

(b) Ministry of Sea Transport

Prior to January 1977 the fisheries administration formed part only of a combined Ministry of Fisheries and Sea Transport. Following the establishment of a separate Ministry of Fisheries, it appears that the division of responsibilities between the two Ministries has not yet been clearly settled. While the Ministry of Sea Transport has acknowledged primary responsibility for navigation matters, both Ministries claim competence for issuing fishing licences under the Maritime Code. Fishing vessels, in any case, are subject to registration by the Port Officer for the area concerned.

(c) The Coastal Development Project

The Coastal Development Project, which has responsibility for the development of fishermen's cooperatives and, in particular, for the implementation of the nomad coastal settlement projects, is an autonomous agency under the supervision of the Minister of Fisheries.

(d) Ministry of Industry

The Ministry of Industry has certain responsibilities with respect to the development and supervision of fish processing plants, including fish meal plants. The exact nature of the division of responsibilities in this respect with the Ministry of Fisheries is not clear.

(e) Fishermen's Cooperatives

A total of 18 fishermen's cooperatives has been established along the coast. While the Coastal Development Project has responsibility for assisting and supervising all fishermen's cooperatives, in practice their efforts have been directed almost exclusively to the four coastal resettlement projects at Eil, Adale, Brava and El Ahmed. In these settlements the original fishermen's cooperatives have apparently been merged into the resettlement projects. Administration is thus handled directly by the Coastal Development Project staff, although there are plans for establishing administrative machinery that would include the representation of the nomads. It appears, however, that there are no plans for the "fishermen's cooperatives" to have an existence separate from that of the community administration itself. Within the resettlement communities, all means of production, such as boats and equipment, are owned communally, as in the more advanced type of fishermen's cooperative.

7. TRAINING

A brief summary of schools which can contribute to the training required to develop and support the fisheries in Somalia is given below.

(a) Somali Institute of Development, Administration and Management (SIDAM)

This Institute is more than ten years old and since 1974 has received UN assistance through OTC. The Institute provides training, consultation and research in administration, government and management.

(b) Mogadiscio Technical Institute

The Mogadiscio Technical Institute is a non-residential technical high school which receives assistance from UNESCO including the funding of three experts. Students enter the Institute upon completion of primary and intermediate education. Three four-year courses of study are offered: Mechanical, Automotive Mechanics and Electrical, and graduates attain a mid-level technician status. In 1977 the school had 365 students enrolled in these courses. In addition, a two-year post secondary technical teacher programme is offered and in 1977, 40 students were enrolled in the programme. The lack of Somali counterparts has become a chronic problem and it would appear that the school would not be able to function without assistance.

(c) Hargeisa Technical Institute

This Institute is similar to the Mogadiscio Institute but emphasizes the civil and construction engineering fields as well as teacher training.

(d) Agricultural Institute, Afgoi

This Institute is a 4-year residential school with approximately 240 students. In addition to a normal agricultural programme, the Institute is preparing graduates for extension work and this experience could be useful to the fisheries sector.

(e) National Fisheries and Marine Institute

This Institute, opened in 1971, is the only technical school devoted exclusively to marine and fisheries activities. The Institute received generous assistance from IDA for physical development in 1975. Construction work on new buildings is expected to commence in 1978.

Enrollment in 1977 was 223 students broken down as follows: 1st year - 106; 2nd year - 57; 3rd year - 26; 4th year - 34. Located at Mogadiscio, the Institute is a four-year post intermediate school, i.e. for students who have completed eight years of schooling on entrance. Admission is competitive and applicants must do well in mathematics and science to be admitted.

Training courses are offered in Mechanics, Navigation and Fisheries Processing. All the instructors are expatriates. There are two instructors in Mechanics, one in Navigation and two in Fisheries. No students have completed the Fisheries curriculum to date. Eighty-four students specializing in Navigation graduated in 1975; 16 students specializing in Navigation graduated in 1976; and 34 students will graduate with specialization in Mechanics in 1977. Of the present students (223), thirty-one are in the Fisheries curriculum and will graduate in 1980.

The Institute is short of equipment, workshops, texts, materials, instructors and counterparts. Graduates receive little or no practical work and sea experience. Thus, the Institute, which has been in operation since 1971, has not yet achieved a minimally satisfactory level of operations and does not yet meet the present and future needs of the nation in terms of trained manpower. World Bank assistance is expected for the purchase of equipment and training materials.

In summary, Somalia suffers from serious shortcomings in its various technical training Institutes with little immediate prospect for improvement. Furthermore, the country has become increasingly dependent on expatriate instructors in view of the failure to provide counterpart staff to the various assistance programmes. However, there does exist a nucleus of relevant training programmes which can be used to build a programme of studies for fisheries training.

Somalia needs extensive fishery training assistance in all areas, some of which are identified below. Such assistance will require a substantial investment and donor contribution must be sought. However, assistance without counterparts is self-defeating since it results in increased dependence on expatriate experts.

The training assistance which might be provided to Somalia falls into three major categories:

(a) Strengthening National Institutions

The National Fisheries and Marine Institute lacks most of the essential elements required of a Fisheries Training Institute. No clear job related purpose has been established for the Institute since no clear skill requirements have been identified for the industry. Thus, the Institute does not and cannot fulfil national maritime fisheries manpower needs since these needs have not been carefully identified and quantified.

Although the Institute has a course on "Fisheries", it is confined to processing and the school as such lacks a fisheries emphasis. There have been no graduates in fisheries since the Institute opened its doors. However, with outside assistance and with the cooperation of the Somali authorities, it is possible to reverse this situation.

Relevant curricula should be developed, suitable equipment obtained and practical courses commenced. The possibility of enlarging the scope of the Institute to handle all aspects of training should be explored. This does not require the Institute to conduct courses in all fields but the coordination of training could be done through the Institute thereby tying the Institute to the users. Thus, SIDAM could offer accounting and management training to selected individuals from fishing cooperatives but the planning and organization of this training could be done through the Institute. The same arrangement could apply to other existing vocational schools, especially Mogadiscio Technical Institute where repair and maintenance could be taught to selected students interested in fisheries. As part of an expanded responsibility, the Institute should develop an Extension Worker Programme to help meet a critical need.

In order that the users of the trained manpower may influence the type of training offered there must be a closer working and advisory arrangement with industry and cooperatives. At present, the training is detached from the "real world" whereas the purpose of the Institute is to prepare students to enter a career in the "real world".

(b) Training and Demonstration Project, i.e. Strengthening Cooperative Settlements

Based on the experience of SOM/75/008, a second project should be undertaken as quickly as possible to provide training and assistance to the cooperative settlement along the north coast, with its Headquarters in Berbera, in the following areas:

- (i) boat and engine maintenance and repair;
- (ii) use and maintenance of gear;
- (iii) processing at the primary production level;
- (iv) cooperative administration and management.

The expatriate manpower required for this project would include the following specialities in numbers to be fixed on the basis of the cooperatives to be included and the logistics involved:

- Administrative - Cooperative Specialist
- Mechanic
- Processing Specialist
- Masterfisherman
- Building - Construction Foreman

(c) Strengthen Existing Project

A third course of action to be considered would be to strengthen the existing project by adding:

- Mechanics - technician level
- Gear Technicians
- Processing Specialist

They would work through the existing team as extension workers. Again the number of experts required would be a function of the settlements to be included for assistance.

8. IMPLICATIONS OF CHANGES IN BILATERAL ASSISTANCE

Following the severe drought in northern Somalia in 1974/75, the Government resettled in the southern areas of the country large numbers of nomads who had lost their means of livelihood. Fifteen thousand nomads were assigned to three coastal settlements (Eil, Adale and Brava with its satellite Al Ahmed) where fishing was expected to be their primary means

of livelihood. These settlers have been organized into "Fisheries Cooperatives", and efforts are being made to train them as fishermen and in other fisheries activities such as processing, net making and mending, boat maintenance and repair. At the same time, the settlers are engaged in the construction of houses, offices, workshops, stores, schools, dispensaries and fish processing facilities in the settlements.

FAO was originally involved in the improvement of traditional fishing at Brava, Adale and Eil but with the expanded resettlement of nomads, FAO was replaced by Soviet Bilateral Technical Assistance which over the two-year period (1975-77) has provided:

- (a) 44 technical assistance personnel (including Masterfishermen, Mechanics, Civil Engineers and Interpreters);
- (b) fishing equipment, vehicles (80) and about 150 boats;
- (c) assistance in settlement planning and construction design;
- (d) building materials, cement asbestos roofing sheets for construction of the infrastructure;
- (e) technical training for the nomads in marine engine maintenance and repair and in fishing and fish processing.

The Somali Government set up the Coastal Development Project as the Government counterpart to handle all aspects of the development of these nomadic fisheries settlements.

The infrastructure development of the four nomadic settlements was impressive and the progress as at December 1977 was as follows:

	<u>Eil</u>	<u>Adale</u>	<u>El-Ahmed</u>	<u>Brava</u>
Houses	110	214	25	227
Schools/Classrooms	-	24	-	24
Hospitals/Dispensaries	1	1	1	1
Stores	1	1	1	1
Office	1	1	1	1
Workshop	-	-	-	1

The termination of Soviet assistance has disrupted the work considerably.

The table below indicates the number and type of boats in the settlements and their condition. Of the 151 boats delivered, only 55 were operational. The causes range from inadequate maintenance and repair facilities to a general lack of equipment and spare parts. The situation has been compounded with the withdrawal of the Soviet technicians who operated the repair and maintenance workshops.

<u>Settlement</u>	<u>Type/Source of Engine/Boat</u>	<u>No. of Engines</u>	
		<u>Total</u>	<u>Operational</u>
Eil	Russian	23	7
	Yanmar/Kenya	7	-
	Volvo Penta/Sweden	2	-
Adale	Russian	20	6
	Yanmar/Kenya	14	5
	Volvo Penta/Sweden	15	14
	Lister/Mogadiscio	1	-
El-Ahmed	Russian	8	6
	Yanmar/Kenya	1	6
	Volvo Penta/Sweden	5	-
Brava	Russian	15	8
	Yanmar/Kenya	13	-
	Volvo Penta/Sweden	10	9
	Italian	2	-
	Kenya fibreglass canoes	15	-
		<u>151</u>	<u>55</u>

Of the 66 Soviet boats, 27 were operational, which was certainly better than the overall average, but the sudden departure of the Soviet technicians will aggravate problems. In addition, of the 80 vehicles provided under the Soviet Technical Assistance, 50 per cent were off the road at the time of the Mission's visit.

The heavy dependence of these settlements on the assistance provided through Soviet bilateral agreements, ranging from civil construction engineers and materials, to plant, equipment, boats, transport and technicians and the great shortage of trained Somali personnel to handle this work meant that the withdrawal of Soviet assistance would have serious repercussions on the viability and very existence of these settlements. It is not necessary to catalogue these repercussions. The Mission has noted them and as an immediate short-term measure has proposed assistance under FAO's Technical Cooperation Programme. The Director-General of FAO has accepted this recommendation and approved a TCP project which would help Somalia to face the immediate situation until such time as the UNDP/FAO Fishery Development Project is revised and receives additional funds for a further period and until bilateral assistance is forthcoming.

9. IMPLICATIONS OF CHANGES IN THE LAW OF THE SEA

Geographical and Resource Implications

With the extension of jurisdiction to 200 miles, a very considerable area of sea has been brought under Somali jurisdiction. Not all of this area, however, is productive in terms of fishery resources. As noted earlier in this report, the relatively narrow continental shelf configuration means that most of the productive or potentially productive fishing grounds are quite close inshore, falling well within the previous 12-mile limit. One important exception, however, is the sardinella and other coastal pelagic fish resources off the northeast coast between Ras Asir and Ras Hafun, where the continental shelf is wider, extending up to 60-70 km from the coast. The FRIDTJOF NANSEN sightings placed the sardinella resources well within the continental shelf limits, and mostly within 30 miles or so from the coast. Available data indicate an allowable annual yield of between 75 000 and possibly 100 000 tons.

In addition to the northeast coast sardinella resource, oceanic pelagic fish, including tuna, are to be found further offshore, particularly off the north coast in the Gulf of Aden. Little is known, however, about the size of these resources.

Delimitation of Boundaries

The extension of jurisdiction from 12 to 200 miles raises questions of boundary delimitation with neighbouring countries. The main delimitation issues will inevitably be with the People's Democratic Republic of Yemen over the boundary on the Gulf of Aden, where the total width varies from under 100 miles to about 250 miles, and around the Islands of Socotra and Abd al Kuri, where the limits from the Somali coastline are in the order of about 60 miles and 150 miles respectively. At the moment PDR Yemen claims fisheries jurisdiction of only 18 nautical miles but this may change. Some form of agreement delimiting boundaries then will be required. From the conceptual point of view the delimitation in the Gulf of Aden should present few difficulties, given the generally regular configuration and roughly parallel nature of the opposing coastlines. The delimitation around the Islands of Abd al Kuri and Socotra may raise more complex issues, but is unlikely, in any event, to affect present jurisdiction over the sardinella resources as sighted by the FRIDTJOF NANSEN.

Effects on Present Fishing Operations

The extension of jurisdiction to 200 miles has had little significant impact on the pattern of current fishing operations. Local artisanal fishing is generally confined to within a few miles offshore. Industrial fishing has been limited in practice to the joint Somali-U.S.S.R. venture, SOMALFISH, now inoperative following the departure of the ten SOMALFISH trawlers and the SIADCO operations which are only now getting underway. At the present time no industrial fishing operations are undertaken by Somali flag vessels in the jurisdictional waters of other countries. On the other hand, no significant commercial fishing operations by foreign flag vessels appear to have taken place in recent years in waters now covered by the Somali 200-mile zone. Permission for exploratory fishing has been given to a number of foreign companies over the last few years, however, and some exploratory fishing operations have taken place.

In summary, the extension of jurisdiction to 200 miles in 1972 has had little significant impact on the current pattern of fishing operations. But it will have an impact on the course of the future development of the fishing industry. On the one hand, the development of the resources brought under its jurisdiction will be subject to the control of Somalia. On the other hand, Somalia will need to seek new arrangements with outside management expertise in order to acquire the capacity that it now lacks in order to exploit fully those resources.

Development Opportunities

The substantial sardinella resources off the northeast coast between Ras Asir and Ras Hafun now under Somali control offer good opportunities for development. A commercial project for the exploitation of these resources has already been proposed and is under consideration by outside funders. One factor hindering the growth of the Somali fishing industry, however, is the dearth of local commercial fisheries management experience. If the commercial project is to succeed, it is essential that proper arrangements be made for obtaining foreign management expertise on either a management contract or joint venture basis.

Management and Enforcement

Extended jurisdiction over fisheries generally implies increased demands from the point of view of management and enforcement. In the case of Somalia, the inshore nature of most of the known resources tends to lessen these demands. So far as foreign fishing operations are concerned, it is understood that at the moment there is no systematic and comprehensive surveillance and enforcement programme in force dealing with fisheries. To mount a large-scale programme involving aircraft and enforcement vessels and communications systems in the

near future would, it is believed, be costly and would be unlikely to receive political priority in the present circumstances, particularly in view of the lack of evidence of significant foreign flag commercial fishing operations within the Somali 200-mile zone. Where foreign fishing operations are authorized, then control over the operations can be obtained to some extent through strict reporting procedures and the placing of observers on board the vessels, as is apparently already in the case of foreign survey operations. In addition, the conclusion of "umbrella" bilateral fishing agreements can offer an effective way of improving enforcement (see below). In any case, more detailed provisions will be required in the fisheries law and regulations to improve the effectiveness of controls over both illegal fishing and authorized operations by foreign flag vessels.

Where local traditional and industrial fisheries are concerned, a legal framework will need to be established, within which future management measures may be taken, although it is suggested that present controls should be pitched at a low level in view of the need for development rather than restraint.

Foreign Investment and Joint Ventures

Extension of national jurisdiction over fisheries calls for the formulation of policy towards foreign investment in fisheries, including joint venture arrangements. The Government has already concluded two joint venture arrangements (SOMALFISH AND SIADCO) and is interested in the prospect of further ventures. In order to help prepare for the negotiation of such ventures, however, it is suggested that guidelines be drawn up covering the main points to be included in any future joint venture agreements.

Bilateral Fishing Agreements

At the moment Somalia has no bilateral fishing agreements in force with any country, not counting, of course, the joint ventures SIADCO and SOMALFISH. If the Government wishes to promote joint venture enterprises as a means of achieving fisheries development using foreign management expertise, or if it wishes to permit foreign fishing operations under conditions designed to maximize local benefits, then it may be advisable to negotiate "umbrella" bilateral intergovernmental fishing agreements with the countries concerned. While joint ventures or licensing agreements can be concluded directly with individual foreign companies, such "umbrella" agreements can offer advantages. They may, for example, allow for better enforcement by passing some of the responsibility for supervising foreign vessel operations onto the enforcement machinery of the foreign flag state. They may also provide an opportunity for enlisting bilateral assistance from the foreign state over the whole range of fisheries management and development.

Management of Shared Resources

The extension of jurisdiction raises the issue of joint or regional management over shared resources. In the case of Somalia, these would include resources such as the tuna of the Gulf of Aden and possibly the sardinella resources of the northeast coast, although not enough is known about the latter to be sure. In such cases it is important that Somalia take an active part in regional management schemes such as the Indian Ocean Fisheries Commission Committee on Tuna Management, and the proposed new Near East Fisheries Commission.

LIST OF PERSONS MET

1. Mr. Osman Jama Ali, Minister of Fisheries
2. Mr. J. Crkovic, Project Leader, UN Project in State Planning Commission
3. Mr. P. Brewster, UNDP Planning Project
4. Mr. Ahmed Jama Saeed, Co-Manager, UNDP Fishery Project
5. Mr. I. Robertson, Project Manager, UNDP Fishery Project and Acting SAA/FAO Country Representative
6. Mr. Bashir A. Gardaad, Director of Fisheries
7. Mr. Ahmed Noor, Director of Budget, Ministry of Finance
8. Mr. Abbas, Project Officer
9. Mr. Mohammoud Ahmed Dubsayeh, Vice President, SIADCO
10. Dr. Wail, SIADCO
11. Dr. Mohamoud, Chairman, SIADCO
12. Mr. Abokar Gaal, General Manager, Coastal Development Project
13. Mr. Hashi A. Bare, Department of Transport and Supplies, SIADCO
14. Mr. Ahmed Ismail, Director, Social Affairs, SIADCO
15. Mr. J. de Ryckman de Betz, Economic Advisor, EEC Mission, Mogadiscio
16. Mr. Chaco, World Bank Representative
17. Mr. G. Ozerov, UNDP Resident Representative, Somalia
18. Mr. S.K. Zacheria, Deputy Resident Representative, Somalia
19. Mr. Abdulla Mohammed Abdi, Chairman, Brava Settlement
20. Mr. Barbieri, Refrigeration Engineer-Adviser, State Planning Commission
21. Mr. F. Holder, WFP, Rome, Member of WFP Evaluation Mission
22. Mr. P. Jobber, WFP Adviser, Member of WFP Evaluation Mission
23. Mr. De Vermees, ILO, Member of WFP Evaluation Mission
24. Chairman, Eyl Settlement

25. Mr. Salah Al-Hamaad, Director of Fisheries, Coastal Settlement Agency
26. Director-General, State Planning Commission
27. Mr. F. Girgis, UNIDO
28. Dr. Abdi Razak Ali Haji, Director, Department for Legislation, Ministry of Justice and Religious Affairs
29. Dr. Yussif Eilmi, Legal Adviser, Ministry of Justice and Religious Affairs
30. Dr. Manja-Singh, Legal Adviser, Ministry of Justice and Religious Affairs
31. Dr. Mohamed H. Ibrahim Hamke, Marine Director

PLACES VISITED

Mogadiscio	2-5.12.77
Al-Ahmed and return to Mogadiscio	6.12.77
Adale (Payne and Kambona - Silva and Moore remain in Mogadiscio)	7.12.77
Mogadiscio	8.12.77
Eil	9.12.77
Mogadiscio	10.12.77
Nairobi	11.12.77
Rome	12.12.77

ANNEX III

LEGAL CONSULTANT - TERMS OF REFERENCE

- (a) To assist the Government in drawing up a new Fisheries Act and implementing regulations.
- (b) In addition, the fisheries lawyer should also look into the following topics:
 - (i) drawing up guidelines and minimum conditions for future joint venture agreements with foreign partners and bilateral fishing agreements;
 - (ii) advising on legal issues arising out of the proposed fishmeal project, and in particular the establishment of a public corporation and the drawing up of a management contract as appropriate;
 - (iii) advising on legal problems connected with fishermen's cooperatives; and
 - (iv) advising on the division of responsibilities between the respective Ministries, with particular reference to boat licensing and fisheries management controls.

ORGANISATION DES NATIONS UNIES POUR
L'ALIMENTATION ET L'AGRICULTURE



ORGANIZACION DE LAS NACIONES UNIDAS
PARA LA AGRICULTURA Y LA ALIMENTACION

FOOD AND AGRICULTURE ORGANIZATION
OF THE UNITED NATIONS

PROGRAMME DE COOPERATION TECHNIQUE TECHNICAL COOPERATION PROGRAMME PROGRAMA DE COOPERACION TECNICA

Country: Somali Democratic Republic

Project Title: Assistance to the Coastal Fisheries Development
Project

Project Number: 8/SOM/01/M

Starting Date: 1 March 1978 Completion Date: 28 February 1979

Government Ministry
responsible for
project execution: Ministry of Fisheries

FAO contribution: U.S.\$ 150 000

Signed: _____
(on behalf of Government)

Signed: Edouard Saouma
Director-General
(on behalf of FAO)

Date of signature: _____

Date of signature: _____

I. BACKGROUND AND JUSTIFICATION

The natural resources of Somalia are not abundant. The grazing of livestock and the growing of maize, millet, sorghum, oilseeds, bananas and sugar are the mainstays of the economy. Fishing is next.

The indigenous fishery, based on the activities of about 4 000 full-time and 12 000 to 15 000 part-time fishermen, has traditionally been socially vital in the coastal region. Following the upland drought of 1973-75, the fisheries became even more important as an alternate employment opportunity for the displaced nomads whose flocks deteriorated as a consequence of the failure of the grazing region.

In the drought resettlement programme, 270 000 people in danger of imminent starvation were gathered in relief camps for emergency feeding. Subsequently, about 15 000 were organized and located in three coastal villages - Eil, Brava and Adale; others were located in agricultural villages inland and some upon the return of normal rainfall, rebuilt their herds and returned to their pre-drought occupation.

The three coastal settlements of Eil, Adale and Brava (plus El-Ahmed, a satellite of Brava) were organized under the Coastal Fisheries Project, a semi-autonomous agency within the Ministry of Fisheries. Within each of the settlements a programme of house construction was instituted; a number of diesel-powered fishing boats about 6 to 9 metres long each were secured from Sri Lanka, Kenya, Sweden, U.S.S.R. and India; hospitals and schools were constructed and a programme to train the nomads in fishing and fish processing was initiated.

The Government of Somalia 1977 budget for the Coastal Development Project is 35 million Somali Shillings of which 27 million has been spent up to 1 December 1977. It expects to continue to support this project to completion, i.e. to self-sufficiency, which it hopes will evolve by 1982.

The core of the Coastal Fisheries Development Project staff was a team of 44 experts supplied on a bilateral aid basis. It included Masterfishermen, processing experts, marine engineer, mechanics, civil engineers plus administrative staff and planning sector. That team departed unexpectedly in November 1977. The UNDP/FAO Fishery Development Project - SOM/75/008 - was not in a position to help without extra staff and funding for which no provision could be made from existing sources. The Government's programme in the fishery resettlement areas will be retarded if the means to harvest the fish are not maintained. The need therefore to fill the gap left by the departure of the bilateral aid experts becomes urgent and the speed with which their replacements can be fielded is considered critical. The Indian Ocean Fishery Survey and Development Programme of FAO will supply three man-months of expert time on an immediate basis. But the most urgent needs are to provide the services of small boat mechanics and to supply a limited amount of spare parts for motors.

II. OBJECTIVES OF THE ASSISTANCE

The general objective of the project is to assist the three new fisheries communities of Eil, Brava and Adale created by the CFDP through proper repair and maintenance of their fishing boats. Its immediate objectives will be (i) to provide the facilities required to help keeping the small fishing boats of these communities in operating conditions to the greatest extent possible, and (ii) to train counterpart mechanics and fishermen to properly repair and maintain their boats.

III. WORK PLAN

The activities of the three mechanics to be assigned to the project will be coordinated by the Manager of the FAO/UNDP Project SOM/75/008 and they will work within the framework of the Coastal Fisheries Development Project.

The experts will be assigned to Eil, Brava (servicing its satellite, El Ahmed) and Adale for a period of one year. They will maintain the fleet of small boat engines there and will teach the fishermen to maintain those engines. Supporting facilities will be those presently

available - i.e. housing, repair shop and its facilities and, in addition, the spare parts supplied under the TCP Project. The latter will be ordered immediately upon funding becomes available and will be specified by the mechanic of Project SOM/75/008, who will survey the project sites, inspect their facilities, determine the number, makes and types of equipment to be maintained and prepare spare parts and equipment orders. The wind down of the existing stock will be accompanied by programme of cannibalization to maintain as many units operational as possible.

IV. INPUTS TO BE PROVIDED BY FAO

(1) Experts Services

Three small boat diesel engine mechanics for one year. They will be capable of maintaining Volvo, Yanmar, Lister, and engines of the U.S.S.R. - of installing them and of maintaining small boats, of both fibreglass and wood construction. The experts will train the fishermen in the care, maintenance and use of the engines. The experts will be selected on the basis of their ability to work in remote areas with a high degree of independence. They will be required to have demonstrated initiative. Language skills in order of their desirability are Somali, Italian, English, Arabic, Swahili.

Terms of Reference

The experts will maintain the engines and boats, recognizing that cannibalization on a programmed basis will be necessary for each make of engine. The experts will train the fishermen in the care, maintenance and use of small diesel engines. They will determine the parts and equipment needs on a continuing basis and send corresponding lists to the Project Manager, SOM/75/003.

(2) Equipment and Supplies

Engine and small boat spares as specified by the Project Mechanic, SOM/75/008 in the limits of the budget allocation.

(3) On-the-job training which will be financed both by this Project and the Coastal Fisheries Development Project.

(4) FAO's Indian Ocean Fishery Survey and Development Programme will monitor the Project.

V. REPORTING

Each mechanic will prepare an inception report during the first month of assignment, followed by bi-monthly progress reports. Each report will indicate activities foreseen and/or achieved, spare part requirements and possibilities of cannibalization. A short terminal report will summarize the results achieved and offer recommendations as may be deemed appropriate.

All project reports will be submitted to the Project Manager, SOM/75/008, who will forward them to FAO Headquarters.

VI. GOVERNMENT CONTRIBUTION AND SUPPORTING ARRANGEMENTS

The Government will provide suitable accommodation and basic furniture for the experts in each location, local transport and the facilities for maintenance and repair of the plant and equipment. It will assign a counterpart to each expert. The Ministry of Fisheries will, in cooperation with the relevant Government Ministry and the FAO/SAA, arrange for the clearance of experts, customs clearance of parts and equipment and arrange for the

local purchase of project equipment and supplies. The Government, in addition, will be seeking assistance from other sources to supplement the activities of the TCP project and to ensure continuation of its activities after its completion.

Government contribution:

Personnel component (counterpart staff)	So.Sh. 40 000
Equipment component	100 000
Maintenance and running	260 000
Support services and miscellaneous	<u>100 000</u>
	So.Sh. <u>500 000</u>

PROJECT BUDGET COVERING FAO CONTRIBUTION

(in U.S. dollars)

COUNTRY: Somali Democratic Republic
PROJECT TITLE: Assistance to the Coastal Fisheries Development
Project
PROJECT NUMBER: 8/SOM/01/M

	<u>Total</u>	<u>1978</u>	<u>1979</u>
10. Personnel	90 000	75 000	15 000
40. General operating expenses	10 000	8 000	2 000
60. Equipment	50 000	50 000	-
	<u>150 000</u>	<u>133 000</u>	<u>17 000</u>

TECHNICAL REPORTS OF THE INDIAN OCEAN PROGRAMME

1. Iran - Formation of a Fisheries Development Branch within the ADBI. Labon, A., IOP/TECH/75/1.
2. Pêcherie de Crevettes - Rapport au Gouvernement de la Republique Malgache. Labon, A., IOP/TECH/75/2 (not published).
3. Fisheries Development Possibilities in the Republic of Kenya. Labon, A., IOP/TECH/75/3.
4. A Report on the Building Up of a Statistical System for the Collection of Marine Fisheries Statistics in the United Arab Emirates. Banerji, S.K., IOP/TECH/75/4.
5. Report to the Ministry of Agriculture and Fisheries - United Arab Emirates. Labon, A., IOP/TECH/75/5.
6. Some Developments in the Tuna Fisheries in the Indian Ocean. Kearney, R.E., IOP/TECH/75/6.
7. Statistical System of Marine Fisheries in Mauritius. Banerji, S.K., IOP/TECH/76/7.
8. Establishment of an Agricultural and Fisheries Development Authority in the United Arab Emirates. Gustafsson, N. and G.K.F. Moore, IOP/TECH/76/8.
9. United Arab Emirates - Programme of Development of Fishery Harbours and Landing Places Reconnaissance Survey Report. Guckian, W., IOP/TECH/76/9.
10. Fishery Statistical System in Sri Lanka. Banerji, S.K., IOP/TECH/76/10.
11. Summary Report on Cruise of the R/V SHOYO MARU in the North Arabian Sea. Yamanaka, H., Y. Nishigawa, J. Morita, (translated and edited by S. Hayasi, Indian Ocean Programme), IOP/TECH/76/11.
12. The Sultanate of Oman Five Year Fisheries Development Plan. Labon, A., IOP/TECH/77/12 (not published).
13. Fisheries and Marketing in the Yemen Arab Republic. Campleman, G., V. Perovic and B. Simons, IOP/TECH/77/13.
14. Summary Report on Cruise of the R/V SHOYO MARU in the North Arabian Sea. Yamanaka, H., M. Yukinawa and I. Nakamura, IOP/TECH/77/14.
15. Report of the Joint Mission to Plan Development of the Sardinella Fisheries in the Bali Strait. IOP/TECH/77/15.
16. Markets for Fish Meal in the Near East Region. Naylor, J., IOP/TECH/78/16.
17. Development of Fisheries in the Exclusive Economic Zone of Sri Lanka. Campleman, G., IOP/TECH/78/17.
18. Implications of the Extended Zones of Maritime Jurisdiction for the Fishing Industry of Thailand. Labon, A., J. Carroz and J. Gulland, IOP/TECH/78/18 (in preparation).
19. Report of a Mission to Examine the Implications of the New Ocean Regime for Fisheries Development in Somalia. Silva, L.I.J., R.L. Payne, J.J. Kamona and G.F.K. Moore, IOP/TECH/78/19.

