

الجمهورية اللبنانية  
مكتب وزير الدولة لشؤون التنمية الإدارية  
مركز مشاريع ودراسات القطاع العام

## PROJECT PROFILE

Republic of Lebanon  
Office of the Minister of State for Administrative Reform  
Center for Public Sector Projects and Studies  
(C.P.S.P.S.)

## PROPOSAL FOR

# THE REHABILITATION AND DEVELOPMENT OF THE FISHERIES SECTOR IN LEBANON

FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS  
Regional Office for the Near East (RNEA)

Cairo, Egypt  
May 1994

**SUMMARY OF  
PROJECT PROFILE PROPOSAL**

**Recipient Country:** Lebanon

**Title:** The Rehabilitation and Development of the Fisheries Sector in Lebanon

**Donor Agency:**

**Executing Agency:**

**Government Implementing Agency:** Ministry of Agriculture (Department of Fisheries)

**Starting Date:** 1995

**Duration:** 5 years

**Donor Contribution:** US\$ 10,000,000

**Government Contribution:** L.L. 4,212,500,000 (In Kind)

## CONTENTS

	<u>Page</u>
1. INTRODUCTION	1
1.1 The Country	1
1.2 The Economy	1
1.3 The Fisheries Sector	2
1.4 Origin of Project Profile Proposal	3
2. PROJECT JUSTIFICATION	3
3. PROJECT PROPOSAL	6
3.1 Project Objectives	6
3.2 Activities	7
4. PROJECT ACTIVITIES	11
5. PROJECT INPUTS	14
5.1 Donor Inputs	14
5.2 Government Inputs	17
6. PROJECT OUTPUTS	18
7. PROJECT COSTS	19
7.1 Donor Costs	19
7.2 Government Costs	20
8. WORK PLAN	21
9. MONITORING AND EVALUATION	21
10. IMPLEMENTATION PRIORITIES	21

## 1. INTRODUCTION

### 1.1 The Country

Lebanon is situated on the eastern coast of the Mediterranean Sea. It is predominantly a mountainous country, rising steeply from the sea coast in the north and from narrow coastal plains in the south. Its total land area is 10,452 square kilometers. It has a maximum length of 195 Kilometers and is approximately 55 kilometers in average width. The length of its coastline is 245 kilometers. The continental shelf is generally narrow, especially in the south. In the absence of more reliable statistics, the present population of Lebanon is estimated between 3 - 3.5 million people.

Due to the country's mountainous terrain, which in some areas rises to fairly high altitudes, at one point to 3,000 meters. Several rivers flow in Lebanon mainly the Assi and Litani Rivers. In the fertile Beka'a valley, few lakes exist mainly Lake Qaroun. In addition, a large number of natural springs in various parts of Lebanon exist, thus contributing to an abundance of fresh water resources.

### 1.2 The Economy

Before 1975, Lebanon had one of the most advanced and highly active economies in the region. It served as a major trade and financial services centre for the region as a whole and had a prosperous and volatile economy. However, the civil war which lasted fifteen years, 1975-1990, has had a devastating impact on the country's economic and social development. Physical destruction has been extensive and the overall production capacity, in all sectors, has been significantly reduced.

During periods of lull in the warfare, the Government attempted to prepare for reconstruction but, because of internal conditions, it has not been possible to implement policy decisions and projects. However, despite such a negatively affected economy and precarious security conditions, the Government maintained and supported reconstruction efforts. For example, in 1984 at the request of the Government, international assistance was mobilized through the United Nations to promote reconstruction and development programmes. But, the security situation continued to jeopardize any efforts to bring about relief.

### 1.3 The Fisheries Sector

The Lebanese fisheries dates back in history to the ancient Phoenicians. However, due to the generally modest resources in the territorial waters of Lebanon, the fishery continued to be basically, inshore, traditional and small-scale. Before 1975, the total annual landings were about 5,000 tons. Fish production continued, even during the years of hostilities, but landings dropped to not more than 1,000 - 2,000 tons a year. This drop was due to several reasons, among which is the fishermen dislocation, security restrictions, marketing and distribution difficulties, loss of gear and equipment, absence of Government support and control and destruction of shore facilities.

Relatively, little knowledge is known in Lebanon about the physical, biological and oceanography of the eastern Mediterranean. The fauna is relatively rich, being composed of some 400 species. However, commercial catches are mainly from the *Clupeidae*, *Serranidae*, *Scomberidae*, *Sparidae*, *Mulloidae*, *Mugillide* and the *Carrangidae* species. High quality sponge *Uspongia officinalis* grows on rocky bottom areas of the sea. The water is characterized by a relatively high salinity, but studies on currents to substantiate their movements are not carried out. Likewise, seasonal changes of the basic parameters also require study. Plankton surveys are lacking thus hindering more knowledge on productivity. The need for such information would require a sustained research programme for the overall marine fisheries sector.

With the end of the civil war in 1990, and with the return of law and order and improvements in the security situation, urgent attention is now given to the rehabilitation and the development of the various sectors of the Lebanese economy, among which is the fisheries sector. The sector needs considerable efforts for its rebuilding and revitalization. These efforts, by necessity, should include a rehabilitation programme for the rebuilding of the human resources including fishermen, scientists, fisheries administrators, researchers and managers; reconstruction of infrastructure facilities destroyed over a twenty years period; compile knowledge and statistics of the present fisheries resources situation - marine and inland; reorganizing fishermen into institutions supported with financial credit schemes; fish marketing and distribution channels and supplies of fishing gear and equipments.

While efforts are being concentrated on a rehabilitation programme of the sector, a fisheries development programme should be carried out simultaneously to insure the sustainability of the rehabilitation programme. The development programme would include a stock assessment survey of the resources, especially that such a survey has not been carried out for at least two decades coupled with the destructive and unlawful fishing methods which were practiced during the war years. The programme also should include the development of possibilities to practice mariculture to increase local landings of high value marine fish species, which are highly preferred, for local consumption and for export purposes. The expansion of fresh water aquaculture, utilizing the abundant fresh water resources from rivers, lakes and natural springs should also be highly considered in order to increase local fish supplies.

#### **1.4 Origin of Project Profile Proposal**

With the end of the civil war in 1990, and the Government of Lebanon taking charge of a major reconstruction programme of the economy of the country, H.E. The Minister of Agriculture of Lebanon visited FAO Regional Office for the Near East in December 1993, during which he requested assistance in the rehabilitation of the agriculture and fisheries sectors. On the basis of this request, the Regional Fisheries Officer, RNEA, visited Lebanon during the period 26-30 April, 1994 to review the status of the fisheries sector.

As a result of the visit, during which extensive discussions were held with H.E. The Minister, the Director of Fisheries and others, it was agreed that a Project Profile Proposal for the rehabilitation and development of the fisheries sector would be prepared by RNEA to be submitted to the Ministry of Agriculture, which will, in its turn, submit it through the Government proper channels to potential donor agencies for possible funding and implementation by the appropriate executing agency.

## **2. PROJECT JUSTIFICATION**

The knowledge about the Lebanese fisheries is scanty and not precise after at least two decades of neglect. No proper collection of fisheries data and statistics of the sector were made. Nor an assessment was made of fishing boats, gear and infrastructure facilities,

which were mostly destructed during the civil war. The fishermen population was also not accounted for since many of them abandoned the profession, due mostly to hostilities and security reasons.

However, from empirical knowledge, discussions, and observation made and from various related literature cited, it is estimated that present day catches declined from about 5,000 tons/year before the civil war to about 1,500 tons during the war years rising to about 2,000 tons in 1993. However, since it is not possible at this time to give a proper estimate of the potential fish resources expected from Lebanese waters, a previous estimate indicated that a justifiable sustainable annual yield from inshore and offshore (high seas) resources is about 35,000 tons/year. This figure which seems rather high, will require, verification through a proper stock assessment survey. If it is verified, it would mean a potential increase of Lebanese fish landings by at least seven-fold, after the fishery is brought back to its pre-civil war levels. However, in comparison with the fisheries of neighbouring countries, the more probable landings, after a comprehensive rehabilitation programme has been successfully implemented, local fish landings may be gradually increased by about 25 - 30% of pre-civil war levels i.e. 6,000-6,500 tons/year from the inshore fishery, i.e. an increase of 3,000-4,000 tons a year. However, in the absence of stock assessment survey it would be difficult to give an estimate of the potential yield from the off-shore fishery.

The demand for fish in Lebanon is rather high, specifically for fresh marine fish. It is estimated that future annual demand could reach 20,000 tons a year. Pre-civil war per capita consumption was about 4 kg/year. Fish importation from neighbouring countries supplemented local supplies by about 10,000 tons in 1993, valued at about US\$ 4 million. A rehabilitation and development Project would gradually increase supplies from local landings and reduce dependence on imports, thus saving on already scarce hard currencies. Average prices for local fish species is about US\$ 15/kg.

The pre-civil war fishermen population was about 4,000. Their numbers dropped to about 1,000-3,000 in 1982-1985. The 1993 figure is 3,250 fishermen now operating in the Lebanese inshore fishery. (The average size of a fisherman's family is 8.5.) The fishermen depended solely on income from their fishing operations, which at this time lacks proper facilities, infrastructure and means of fishing. These fishermen are operating about 1000 boats of less than 8 meters L.O.A. of which about 40 boats are motorized. Many of the boats

damaged during the war were repaired, while those completely destroyed were never replaced.

The annual income for each fisherman is estimated at US\$ 250, which is very low in comparison with incomes from other sectors of the economy, in an atmosphere of rising inflation. The fishermen, after several years of neglect and abandonment, lack access to credit, institutional organizations, proper fish marketing and distribution channels, reasonably priced services of fishing gear and equipment, etc. The provision of such facilities within a rehabilitation programme would substantially improve their standard of living, increase their fishing efforts, would promote the recruitment of fishermen and create jobs in the fishing industry and its ancillary services.

A rehabilitation of the fisheries sector, to bring about the fishing to its pre-civil war conditions, would require a fisheries development programme to support the rehabilitation efforts to insure the sustainability of projects implemented. Such a programme, beside including investigations and research activities in extending the fishery into off-shore, or more distant fishing waters, also the possibility of mariculture, would open opportunities to increase supplies of high-value fish species to increase local supplies and export possibilities to neighbouring markets.

Such a consideration would be enhanced with the completion and refurbishing of the Institute of Oceanography and Fisheries (IOF) in Batroun with proper laboratories, appropriately sized research vessels, etc. Completion of the Institute would provide Lebanon, and possibly neighbouring countries, with a research centre to cater for a cadre of marine scientists and research workers along with a more extensive knowledge of the fisheries of the eastern Mediterranean.

Likewise, the abundance of fresh water resources would provide an opportunity to expand aquaculture in Lebanon for species that are highly demanded by the inland population, such as Trout, Tilapia and Carp species. The Aquaculture Research Centre (ARC) at Anjar is hardly operational. It is neglected, very poorly staffed and lacks appropriate facilities. The Centre should be re-activated. It could serve as a pilot project to provide services to the general public. It could provide advice on establishing private fish farms, game fishing for the tourists and become a reliable source of seedlings, technical advice and extension support



services in the area. Another such pilot station should be established next to Lake Qaroun in the Beka'a valley to serve the same purpose as the ARC at Anjar. With proper feasibility studies carried out, both aquaculture centres could consider adding cold water and warm water species for culturing in addition to the presently cultured species, thus increasing the potential of expanding activities, disseminating research results and creating a "cottage industry" suited very appropriately to a very attracting touristic area of Lebanon.

Based on the above state of the fishery in Lebanon, and the prospects for the revitalization and up-grading of the infrastructure, human resources, institutionalization, increased catches, and also through the development of new activities in off-shore fishing, in mariculture and the expansion of aquaculture, to create a well developed and sustained fishery, a project for the rehabilitation and development is very well justified.

### 3. PROJECT PROPOSAL

#### 3.1 Project Objectives

##### 3.1.1 Long Term Objectives

- Rehabilitate the fisheries sector to at least its 1974 conditions;
- Expand the marine fisheries activities to more distant off-shore waters;
- Up-grade the efficiency of the fishing fleet;
- Develop fisheries human resources and improve their standards of living;
- Institutionalize fishermen into cooperatives by setting up integrated "Fishery Development Centres" in major fishing landing sites;
- Initiate fisheries research in areas of marine and fresh water fisheries and aquaculture;
- Establish the fisheries statistics and data collection system and documentation;
- Reduce reliance on fish imports; and
- Engage in mariculture and aquaculture of fish species mainly for export.

##### 3.1.2 Immediate Objectives

- Replenishment and repair of lost and damaged fishing gear and

equipments;

- Assert Government rules and regulations for control and monitoring of fishing operations;
- Establishment of an institutionalized credit scheme (revolving fund) for fishermen to acquire means of fishing;
- Provide technical and administrative support to small-scale fishermen;
- Up-grade and expand the Governmental Fisheries Department through appropriate staffing;
- Improving marketing, distribution and transportation systems from landing sites to markets; and
- Up-grade quality of fish and sea food products.

### 3.2 Activities

The main areas of activities would be concentrated on marine fisheries, fresh water fisheries, fishermen training, institutionalization, fisheries research and development.

Therefore, the activities in each of the above areas would include the following:

#### 3.2.1 Marine Fisheries

The marine fisheries in Lebanon are mostly inshore fisheries operating about 1,000 boats operated by some 3,250 fishermen producing about 2,000 in 1993. The infrastructure to support the sector has suffered destruction and negligence during a 15 years period. In order to revitalize this sector, five integrated "Fishery Development Centres" (FDC) in major fish landing sites should be established. The appropriate sites would be: Tripoli, Jbail, Beirut, Sidon and Tyre. The size and services to be offered by each FDC, to be determined according to size of the fishery and number of fishermen in each site. In each of these FDCs, a Fishermen Cooperative Society, where such a cooperative does not exist should be established. Each should have a suitable jetty for the fishing boats, a cold store, ice making plant, refuelling, fresh water, loading and unloading facilities, workshop for repair and maintenance, fish

transport facilities, stores, processing hall, net loft and administration building. The administration of the FDC will be run by the Cooperative Board with support and extension services from a strengthened Governmental Fisheries Department at the Ministry of Agriculture. Each Cooperative will establish and operate a "Revolving Fund" (RV) to provide fishermen with assured access to easy credit. The initial seed money for the RV to be provided by the Project. (The administration of the RV may be turned over to the already existing Agriculture Credit Bank, if the Bank is strengthened to include expertise in fisheries/cooperatives credit.) The Cooperative will also assist fishermen in the marketing of their catches for a service fee.

The five major FDCs would also cater for the various minor landing sites along the coast each according to its proximity from an FDC.

### 3.2.2 Freshwater Fisheries

Fresh water fisheries in Lebanon, although, at present, are considered very negligible, are generally practiced in two ways: in rivers and lakes and in natural spring-water areas. Fresh water fisheries in rivers is seasonal while the fisheries in the natural lakes and in spring-water areas are more permanent. Therefore, the expansion of fresh water fish can be carried out through the upgrading and expansion of activities at the ARC at Anjar where spring-water is abundant. The ARC requires proper staffing, equipment, etc. so that it could serve as a pilot centre for the provision of fingerlings, technical advice and management support to the general public in the Anjar area as a means of expanding popular fresh water species such as Trout, Tilapia and Carp. A fresh water fish culture station should also be established next to Lake Qaroun in the Beka'a valley to provide similar services as those suggested to be provided by the ARC. Expansion in fresh water fisheries, through natural development and aquaculture, would provide significant supplies of fish to the local market especially that the areas of expansion have a very good marketing outlet, catering for the numerous touristic restaurants and game fishing areas.

### 3.2.3 Institutionalization

To establish an effective fisheries rehabilitation and development project, the proper institutionalization of the fisheries sector is essential. The Fishermen Cooperative Societies, which existed before 1975, have mostly disintegrated. Although some were re-established after 1990 but their effectiveness under conditions of lack of financial and administrative support to the sector, has been very limited. Therefore, for the purposes of meeting successfully the objectives of the project, the institutionalization of the sector is essential.

The establishment of an integrated "Fisheries Development Centres" (FDC) in the major fish landing sites is a means for institutionalizing the fishermen. The fishermen in each of these FDCs would join together to form a local Fishermen Cooperative Society. The Cooperative would, through an elected Board, run the affairs of the fishermen including fish marketing services and the facilities of the FDC. It also would establish, with the support and supervision of Governmental Ministries concerned, the rules and procedures which will govern the operations of the Cooperative. Fishermen from smaller fish landing sites along the coast, would affiliate themselves with the Cooperative that is nearest to them. To promote membership, Cooperatives' services should be limited to members only.

The Fisheries Department in the Ministry of Agriculture would require strengthening in staff and funds. Besides regulating the fisheries sector by establishing and enforcing laws for a better control and monitoring of the sector, a "Fishermen Extension Section" (FES) should be established. The FES, with proper staffing, would establish direct relationship with the Board of the Cooperative to insure that extension services to fishermen are given and rules and regulations are followed. The FES may become the Projects' counterpart agency in the implementation process.

### 3.2.4. Fisheries Research and Development

As a means of sustaining the efforts in rehabilitating and developing the Lebanese fisheries sector, a programme of research in fisheries is essential. The nucleus of a fisheries research centre was constructed in Batroun before

1975, but was never operated due to the civil war. The building, which is suitably located on the beach, was supposed to house the "Institute of Oceanography and Fisheries", is standing. However, it will need various repairs and completions of its laboratories, and various associated facilities. It consists of a seven storey building for the administration and dormitory. Attached to it is a three storey building for laboratories for research activities in Oceanography and fisheries. Another building for the library and reading rooms. An Aquarium and a Fish Museum building are also standing in the compound, but were also not completed.

The original objectives of establishing the Institute were to undergo study of biological and physiological environment of the Lebanese coastline, fish stock assessment, population dynamics, fish mortality, etc. and for training of skippers in marine fishing. Mariculture investigations were also planned.

Repairs and completion of the Institute will be most beneficial for the overall fisheries development. The Project should include funds for the Institute to be completed. It should be provided with a moderate size research vessel, a docking jetty with facilities, equipment for the laboratories, completion of the Aquarium and Museum, training facilities for marine fishing.

The eventual completion and operation of the Institute would provide an opportunity to expand its activities to include services to other countries in the region. It could also provide essential research activities for studies on pollution problems which affect the fisheries and their ecology. Research will provide information on the indigenous and migratory species in Lebanese waters. It will also provide knowledge on currents, seasonality, availability of non-traditional fish species suitable for commercial exploitation and knowledge on other marine products such as sponge, and its proper exploitation techniques. Also, knowledge on bivalves, crustaceans, resources, etc. would be gained.

The proposed research vessel will carry out experimental and exploratory fishing as well as provide training facilities. Results achieved will be introduced to fishermen through the established extension services with improved fishing methods and equipment.

4. PROJECT ACTIVITIES

Specifically, the Project activities as outlined above, would be as follows:

<u>Activity</u>	<u>Location</u>	<u>Duration</u>
<p>1. <u>Project Headquarters</u>                      Since the project is comprehensive in its coverage to rehabilitate the fisheries in Lebanon, the headquarters of the Project would be located with the Fisheries Department in the Ministry of Agriculture, Beirut.</p>	<p>Beirut                      and other related                      Ministry                      Offices</p>	<p>5 years</p>
<p>2. <u>Fishery Development Centres (FDC)</u>                      Five FDCs will be established in the main five fish landing sites. Each would be appropriately equipped with infrastructure facilities including fishing harbors, cold stores, ice plant, fish handling, and processing hall, net loft, workshop, supplies stores fuel and fresh water supplies, and administration building. The FDC will also cater for smaller fish landing sites along the coast.</p>	<p>Tripoli                      Jbail                      Beirut                      Sidon                      Tyre</p>	<p>3 years</p>
<p>3. <u>Fishermen Cooperative Societies</u>                      In each FDC, a Fishermen Cooperative Society should be established, if no one already exist. Smaller fishermen groupings could be affiliated with the five major Cooperatives.</p>	<p>Tripoli                      Jbail                      Sidon</p>	<p>3 years</p>

4. Credit Scheme (Revolving Fund)  
 The Project should provide seed money for a Credit Scheme to allow fishermen access to institutionalized credit for the provision of fishing gear, equipments and the mechanization of boats on easy-term basis. The seed money to be managed by each Cooperative under a revolving fund rules, supported and supervised by the appropriate Ministries. All areas 5 years
5. Institute of Oceanography and Fisheries (IOF)  
 Funds should be allocated to complete and equip the IOF with laboratories, materials, furnishing, jetty, and training facilities for skippers, biologists and fisheries research workers. Batroun 2 years
6. Research and Training Vessel  
 A multi-purpose research and training vessel of about 20 m. L.O.A. to be operated by the IOF. It should be equipped with research facilities and should be suitable for purse-seining with light attraction, bottom and pelagic long-lining and gill netting. Exploratory and demonstrative fishing operations, etc. Batroun and FDC Areas 5 years
7. Aquarium and Fish Museum  
 While the structure of the Aquarium and Fish Museum are already standing, funds could be allocated at a later stage of Project activities. The operation of these two functions will complement the activities of the IOF. Batroun 1 year

8. Introduction of New Fishing Gear and Equipments:
- Development of the efficiency of fishing operations would require introduction of new equipment such as echo-sounders, power-blocks, on experimental basis, in the outset. If successfully utilized, such equipment to be added to equipments provided to fishermen through the credit scheme.
- Tripoli  
Jbail  
Beirut  
Sidon  
Tyre
- 2 years
9. Modification and Up-grading of Existing Fishing Equipment:
- The Project to provide technical knowledge for the modification and up-grading of operational boats, gear and related equipment to improve efficiency, design, lay-out and expansion of operations in two FDCs for later-on generalization to other FDCs.
- Tripoli  
Sidon
- 1 year
10. Training and Fellowships:
- On-the-job training of new recruits of fishermen on fishing methods should be part of the Project. A programme of fellowships abroad for advanced training in various areas of fisheries to be administered by the Project should be included.
- All Areas
- 3 years
11. Support to Government Fisheries Administration:
- In order that the above activities are implemented on sustainable basis, support to the governmental fisheries administration by establishing Fisheries Extension Section (FES) is essential for the organization and management matters and for post-project activities.
- Beirut
- 5 years



## 5. PROJECT INPUTS

### 5.1 Donor Inputs

#### 5.1.1 Personnel (International)

##### a. Project Manager (Fisheries Development)

He will be responsible for all Project operations and the meeting of Donor and Government obligations towards the Project. He is to supervise the work of the experts, contractors, consultants, counterparts etc. assigned to the Project. He is to plan, coordinate and monitor their work to implement the work programme. Advise on the establishment of FES at Ministry, selection of FDC sites, co-ordinate with cooperatives on their establishment and operation, selection of gear, equipment training programmes, etc. and the reconstruction and work programme of IOF for fisheries research.

Duty Station

Project H.Q.

Duration

60 m/m

##### b. Marine Biologist/Stock Assessment Expert

Design and implement a stock assessment survey of in-shore and off-shore waters of Lebanon including a reliable system for a systematic fisheries data collection for the small-scale fishery. Identify and promote the use of appropriate fishery resource and evaluation technique. Prepare initial review of the state of the fish stocks and determine annual sustainable yield. Advise on various fisheries management and development options available. Advise on completion and refurbishing plans of IOF and Aquarium.

Project H.Q./

Batroun

24 m/m

c. Fishing Technologist

Supervise the rehabilitation of gear and fishing equipment at the FDC in coordination with the cooperatives. Advise and assist on the rehabilitation of existing fishing boats, gear and equipment and advise on the planning and construction of new, more efficient boats, equipment and related infrastructure facilities. Advise on training of counterpart staff on-the-job and fellowships abroad.

Project H.Q./  
FDCs

24 m/m

5.1.2 Personnel (National Experts)a. Masterfisherman

In cooperation and coordination with the Gear Technologist will conduct exploratory/ demonstrative fishing to ascertain good grounds for use of appropriate gear. Will establish a demonstrative unit at FDCs to train counterparts and new fishermen recruits on new fishing methods and gear to raise efficiency of fishing effort.

Project H.Q./  
FDCs

50 m/m

b. Socio-Economist/Fish Marketing/Credit Advisor

Will supervise and advise on the organization of the Fishermen Cooperatives Societies within the five FDCs. Assist in the implementation of the day-to-day operations of the cooperatives, fish marketing channels and techniques, including supply and distribution of fishing materials and equipment. Will also assist in the establishment and administration of the revolving fund to provide access to easy credit for provision of supplies, etc.

Project H.Q./  
FDCs

50 m/m

c. Marine Engineer

Will provide practical experience in operating and maintenance of marine inboard and outboard engines and associated engineering and fishing equipment on board small fishing boats. Will be responsible for the installation, operation and maintenance of diesel engines on new, and possibly larger boats, equipment and tools and train and supervise counterparts in each of the workshops to be established in FDC's.

All Areas                      50 m/m

d. Consultants (International and/or national)

To supplement, as required, the work of project staff in specialized subjects, such as:

- Boatbuilding		5 m/m
- Fish handling and processing		5 m/m
- Mariculture/shrimp specialist		4 m/m
- Fisheries Economist		4 m/m
- Fresh water culture		4 m/m
- Fishery Statistician		2 m/m

All Areas                      24 m/m

5.1.3 Contractual Services

- Design and construction of 5 integrated Fishery Development Centres (FDCs) including jetty, cold stores, ice plant, administration building, materials store, etc.
  - Purchase of a multi-purpose research/ fishing vessel of about 20 L.O.A. through international tender.
  - Completion and refurbishing of the IOF, Fish Museum and Aquarium in Batroun.
  - Re-design and construction works of Anjar Freshwater Centre.
- All Areas

- Design and Construction of Freshwater  
Station at Lake Qaroun

5.1.4 Equipment

Provision to be made for supplies of fishing gears and fishing equipment, engine workshop equipment and tools, vehicles, office equipment, outboard and inboard engines. Provision to be made for power-blocks (net haulers), echo-sounders, electrical lights for purse-seining etc. for training and demonstrative/exploratory fishing in deep waters/bottom fishing techniques, long-lining, and fishing in possible trawling areas.

5.1.5 Other Donor Inputs

- Project Servicing Costs
- Administration Costs
- Inflation Factor
- Counterparts Supplements
- Revolving fund (Initial Amount)
- Duty Travel
- Fellowships and Training
- Reporting and Monitoring

5.2 **Government Inputs**

- The host Government (Lebanon) will provide furnished offices at Project Headquarters (Ministry of Agriculture), equipped with adequate office equipment and communication facilities..
- It will assign the required number of counterpart staff-technical and support staff including the Co-Manager.

- It will provide the necessary local support, transportation facilities, etc. and facilitate Project operations with other Government departments.
- It will provide operational expenses not covered by other inputs.
- Provide all necessary assistance for international staff and their local standing.

## 6. PROJECT OUTPUTS

Several outputs of far reaching social and economical effects are expected to be produced during and after the implementation of this Proposed Project. Some of such outputs will be physically felt and brings immediate benefits in the process of rehabilitation and development of the overall Lebanese economy. Other outputs, as a result of activities, would be felt in time.

The apparent outputs are summarized as follows:

- Gradual increase of fish landings from local waters reaching about 3000-4000 tons annually, (valued between US\$ 4.5-6 million) thus reducing imports, saving hard currencies and, possibly expanding exports of high value species;
- improvement of fishing effort through up-grading of manpower, equipment and introduction of more efficient fishing techniques and methods;
- repair and/or replacement of old, destructed and lost fishing gear and equipment;
- institutionalization of fishermen within cooperatives in integrated Fisheries Development Centres (FDC)
- establishment of easy credit facilities to fishermen;
- better exploitation of inshore fishing grounds and exploration of off-shore waters for other commercial fisheries; shrimp, sword fish, sponge, etc.
- more reliable and credible biological, oceanographic and statistical information on the fisheries situation and its ecology;
- exploration of the mariculture opportunities available along the Lebanese

- coastline,
- up-grading and expanding fresh water fish culture and better exploitation of fresh water resources;
- creation of jobs and increase in income to help raise standards of living of fishermen;
- establishing a good base for fisheries research and sustainable development;
- creating a well trained and highly professional cadre of fisheries scientists, workers and managerial talent;
- a well documented fishery industry;
- better developed fish marketing and distribution channels as well as higher quality fish products;
- more reliable sources of fish for touristic areas, restaurants and institutions; and
- opening-up of opportunities for private investments in fish farms around the country.

## 7. PROJECT COST

### 7.1 Donor Costs

7.1.1 <u>Personnel (International)</u>	<u>Duration</u>	<u>Cost US\$</u>
- Project Manager	60 m/m	600,000
- Marine Biologist/Stock Assessment	24 m/m	300,000
- Fishing Technologist	24 m/m	300,000
7.1.2 <u>Personnel (National)</u>		
- Master Fisherman	50 m/m	100,000
- Socio-Economist/Fish Marketing/Credit Advisor	50 m/m	100,000
- Marine Engineer	50 m/m	100,000
- Consultants (National and International)	24 m/m	<u>150,000</u>
<u>Sub-Total</u>		<u>1,650,000</u>
7.1.3 <u>Contractual Services</u>		
- Multi-purpose 20 L.O.A. Research/Training Vessel		200,000

-	Completion of IOF, Museum and Aquarium	2,500,000
-	Establishing 5 FDCs	1,000,000
-	Anjar Freshwater Centre	500,000
-	Lake Qaroun Station	<u>200,000</u>
	<u>Sub-Total</u>	<u>4,400,000</u>

#### 7.1.4 Equipment

-	Fishing gear supplies	
-	Workshop tools and equipment	
-	Power blocks, echo sounders, refrigerators, etc.	
	<u>Sub-Total</u>	<u>2,000,000</u>

#### 7.1.5 Other Donor Inputs

-	Project servicing Costs	
-	Administration Costs	
-	Inflation Factor	
-	Counterpart Supplements	
-	Revolving Fund (Initial Amount)	
-	Duty Travel	
-	Fellowships and Training	
-	Reporting and Monitoring Costs	
	<u>Sub-Total</u>	<u>1,950,000</u>
	<u>Total Donor Costs</u>	US \$ 10,000,000

## 7.2 Government Costs

-	Furnished Offices and Communication Facilities,	
-	Counterpart Staff	
-	Local Transportation and Logistical Support	
-	Miscellaneous Operational Expenses	
	<u>Total Government Costs</u>	L..L. 4,212,500,000 <sup>1</sup> (US\$ 2,500,000)

---

<sup>1</sup> 1 US \$ = L.L. 1,685 (May 1994)

## **8. WORK PLAN**

A detailed Project Work Plan for the implementation of the Project should be prepared by the Project Manager in cooperation and coordination with the Co-Manager and other Officials at the Ministry of Agriculture. The recruitment of the Project Manager to be done shortly before the starting date of the Project under a "Preparatory Phase" of about four months to finalize the Project formulation. The Work Plan should include setting up of Project headquarters, selection of FDC sites, contacts with main cooperatives available and identification of new cooperatives, etc. The Work Plan should be brought forward periodically in consultation with the Donor and Counterpart Agency.

## **9. MONITORING AND EVALUATION**

The Project will be subject to periodic review in accordance with the policies and procedures established by the Donor, in consultation with the Executing Agency and Counterpart Ministry.

## **10. IMPLEMENTATION PRIORITIES**

From the overall assessment of the fisheries sector in Lebanon as outlined in this Profile, it is apparent that the sector as a whole requires various actions to rehabilitate the sector as well as develop it on a sustainable basis.

However, priorities in the process of implementation may be considered on the basis of the more urgent needs to the less urgent needs. Assuming that a donor is positively identified, and priorities has to be set, obviously the rehabilitation of the small-scale marine fisheries sector, through the setting-up of the 5 FDCs, the institutionalization of fishermen in cooperatives, the initiation of a credit scheme (Revolving Fund) and the provision of means of fishing should receive top priority.

Next priority in implementation should be the completion of the IOF in Batroun to serve the research and development of the sector. The purchase of the research vessel is also important. The completion of the Museum and Aquarium, may be carried out at a later stage.



Regarding mariculture and aquaculture, if sufficient scientific and economical studies have been made on the viability of both activities, mariculture should receive a higher priority in implementation over fresh water aquaculture.

During the "Preparatory Phase" of four months, the sequence and strategy for implementation of the fisheries sector in Lebanon, would be set.