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DEVELOPMENT OF FISHING AND FISHERIES

IN DJIBOUTI - PHASE I

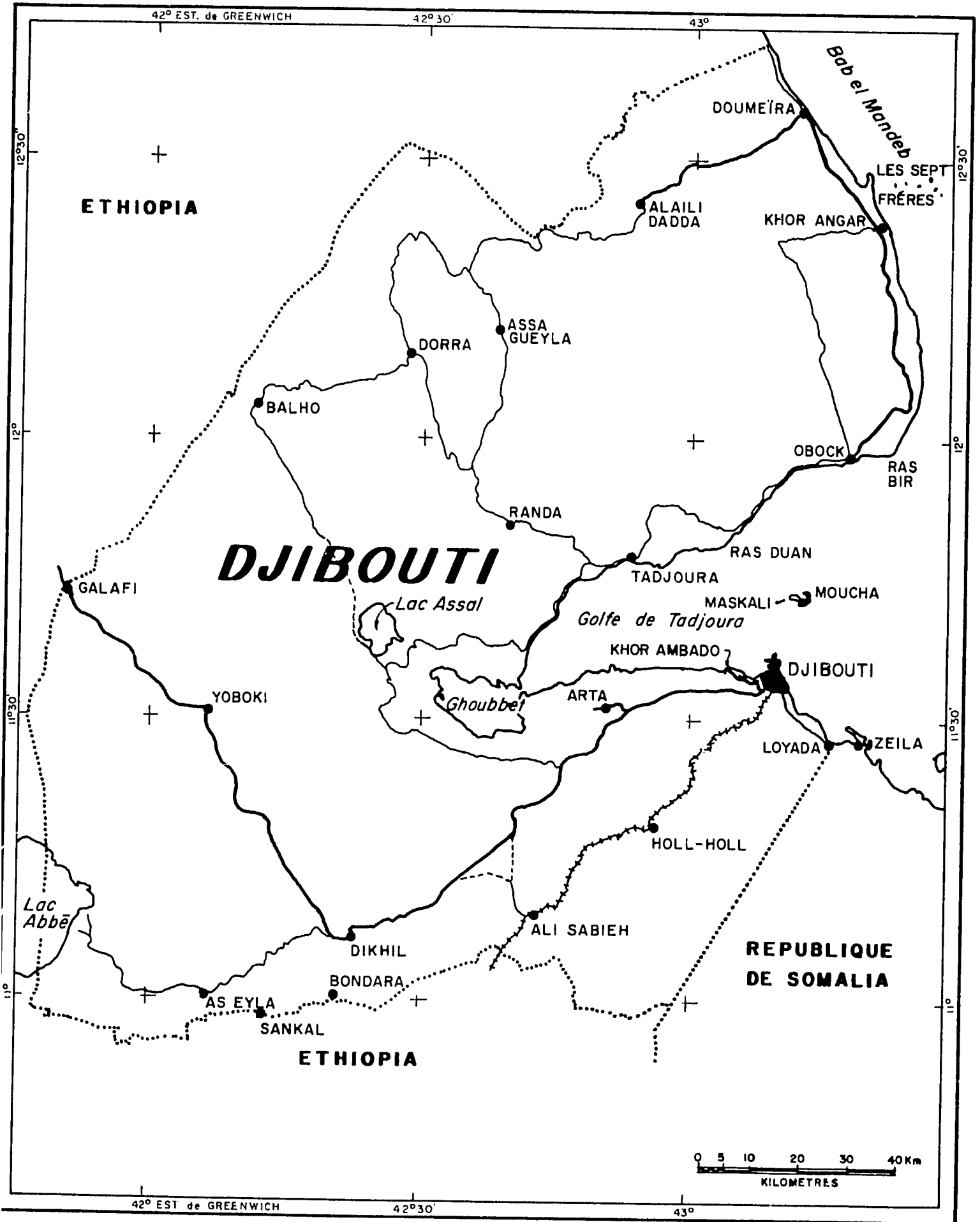
VOLUME I

Final Report on
Resources Development Associates
Technical Assistance Contract
AID/AFR-C-1630
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Paul A. DeRito, Project Manager, contributed the majority of the information related to progress of the project to date, with special emphasis on cooperative development and administration, surveys of marketing and sales, production and harvesting, wholesale and retail distribution, fish handling and storage, and relationship to other donor activities. Mr. Dee W. McFadden prepared sections on fishing techniques, training, and boat building. Mr. Theodore McNeil prepared the section on administration and management. Mr. Keith W. Cox developed the oyster culture program. Mr. John Carnegie developed the graphs and figures. Mr. Robert W. Campbell provided background information, scheduling, and editing.

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ACRONYMS

The following acronyms and abbreviations are in common use throughout this report:

ACPM	- Association Cooperative de Peche Maritime - Fisheries Cooperative
CRS	- Catholic Relief Services
FAC	- Francais Assistance Cooperation
FAO	- Food and Agriculture Organization
FIDA	- Fonds International Pour le Developement de L'Agriculture
GROD	- Government of the Republic of Djibouti
IFAD	- International Funds for Agricultural Development
ONARS	- Organizational National Pour L'Aide de Refugée et Sinistre
RDA	- Resources Development Associates
SEP	- Service Elevage et de la Peche, Fisheries and Livestock Service
SIDA/LWF	- Swedish International Development Agency/Lutheran World Federation
UNDP	- United Nations Development Programme
UNICEF	- United Nations International Children's Emergency Fund
USAID	- United States Agency for International Development
WFP	- World Food Program

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1.0 EXECUTIVE SUMMARY

Since the Republic of Djibouti gained independence in June 1977, various foreign donors have established assistance programs to help in the development of the country. Such support has been forthcoming in three general areas: refugee assistance, agriculture, and fisheries. The regional political situation and a sustained drought in 1979-1982 created vast numbers of refugees and drought victims who migrated to Djibouti for safe haven from the Somalia-Ethiopia border conflict. U.S. government efforts, prior to 1979, concentrated almost exclusively on assistance to the various refugee programs.

In 1979, the U.S. government, through its Agency for International Development, began modest development assistance in the areas of agriculture and fisheries. The fisheries program was the first to be selected and implemented. In the field of agriculture, a program was initiated to establish a soils/water research and analytical capability within the Ministry of Agriculture. This would be accomplished by providing a complete chemistry laboratory and training therein and by training Djiboutian professionals in soil mapping procedures for agricultural development. It was expected that benefits from such a program would only accrue over a protracted period of time.

In the field of fisheries, a program was developed which was expected to have a more immediate impact. It had been determined, through short-term services, that the fishing sector and the fishery resource held great promise for potential development. In fact, the fisheries are most likely Djibouti's most important resource and certainly a resource most easily exploited.

1.1 Original Project

Recognizing the needs of and potential for fisheries development in Djibouti, USAID initiated efforts in 1979 to provide meaningful assistance to compliment the efforts of the other donors. The Fisheries Development Project was approved and authorized for two years in January, 1979 for total funding of \$498,000. Grant funds were fully obligated in August, 1979. GROD contributions were set at \$214,000, giving a total project budget of \$712,000.

The purpose of the project was to assist the Ministry of Agriculture (MOA) in its efforts to create a viable system for the improved harvesting, handling/storage and marketing of fish. At the same time, the project provided assistance toward strengthening the institutional capacity of the Fisheries Service of the MOA and to support or augment private sector initiatives in the fishing industry. The successful completion of the project was to result in an improved nutritional status for the majority of Djiboutians, as well as increased income for nearly 300 fishermen, merchants, and other artisans in the fishing industry.

1.2 Amended Project-First Extension

Because of various dealys, implementation of the original project did not begin on schedule and, in some cases, certain activities slipped by as much as 18 months. Nevertheless, overall progress achieved in the first year of the technical assistance contract was exceptionally encouraging. Two-year goals for some activities were met in less than one year. The project became a centerpiece of GROD's attention. These factors convinced USAID that an extension and expansion to the project was desirable.

In September, 1981, an amendment to the original project was approved. In essence, the amendment provided for an 18-month extension to the life of the project. The Project Advisor's tour of duty was extended by 18 months, an additional 11 man-months of TDY boat builder/master fisherman assistance was programmed to cover an additional activity (boat building), and two months of short-term technical support was added to cover a second additional activity (oyster culture) as well as general home office backstop. In addition, the project amendment included funds for major commodity purchases, including an ice machine for Tadjoura and electric generators for Obock and Tadjoura. At the request of the Fisheries Service, training funds were earmarked for an observational study tour in the USA for the Chief of Service of Livestock and Fisheries.

The project amendment increased the total project budget from \$712,000 to \$3,651,500. The USAID contribution increased from \$498,000 to \$978,000. GROD contribution increased from \$214,000 to \$394,000. FAC contributed \$150,000. International Fund for Agriculture Development (IFAD) provided concurrently two million dollars.

1.3 USAID Mid-Project Evaluation

In December, 1981, a formal mid-project evaluation was conducted by USAID's REDSO/EA of Nairobi. It should be stressed here that this evaluation covered the Association Cooperative de Peche Maritime as a whole and included an evaluation of the USAID project. It was not an evaluation of the RDA Technical Assistance contract per se, but included reference to the contract only as it directly affected the Cooperative.

The evaluation was summarized as follows:

"Major progress has been made in the area of institutional development, commodities have been supplied and steps have been made to improve the fishing industry as a whole. Yet a well-defined training program has yet to be established

and certain specialized assistance is still evolving (boat building, oyster culturing and other untapped marine product development). The project has played a significant role in the growth of the Cooperative Association, through direct intervention and management. Now the focus will have to shift to assistance in creating internal capabilities for managerial and financial self-sufficiency. This is possible, yet additional USAID assistance would enhance this effort. The help of USAID in improving internal control systems and transport/production capabilities would be a valuable additional input into the ACPM."

1.4 Administrative and Financial Management Evaluation

As a result of recommendation in the Mid-Project Evaluation regarding the need for assistance in creating capabilities within the Coop for managerial and financial self-sufficiency, USAID made arrangements for short-term assistance through the National Association of Schools of Public Affairs and Administration. A training and management consultant, Mr. Ray N'Tungamulongo Tshibanda, visited Djibouti in June of 1982 in order to assist the Cooperative in establishing an improved accounting system and to assess the management capabilities and needs of the SEP. The report summarizing Mr. Tshibanda's findings, entitled "Improving Management at the Djibouti Fisheries Cooperative Association: A Fiscal Management System", praised the successes to date accomplished by the Coop but was critical of the lack of an effective administrative and financial management system.

As a consequence of these findings, Mr. Tshibanda set up the framework of a complete accounting system that would be appropriate for the Cooperative. In addition, he recommended that:

- a. a fiscal manager and clerk accountant be hired in addition to the accountant secretary already in place to properly staff the financial services of the Cooperative.

- b. personnel policies and salary schedules be uniformized to improve internal control as well as the accountability of all employees towards the Cooperative management.
- c. an organization chart with clear job descriptions be prepared allowing for an effective coordination of all various management functions and requiring that no decisions with financial implications be ever taken without the prior consultation with the fiscal manager;
- d. a management training program aimed at enhancing the overall understanding of sound management requirements be designed and given to all Cooperative employees having supervisory and critical supervisory and critical support functions.

1.5 Amended Project-Second Extension

The overall successes of the Fisheries Development Project had encouraged both USAID and the GROD to seek to continue development assistance in this sector. It was decided that a major second phase of this effort would be forthcoming, and plans were initiated to seek funding and the necessary agreements. However, because there was an imminent need to intervene in the several areas noted previously, namely financial management and an increase in training, it was decided to seek an extension of the Phase I project and to delay implementation of the Phase II until the full impact of these changes could be evaluated.

In April, 1983, the project was again amended to extend its life an additional one year until August, 1984, at which time Phase II was scheduled to commence. Major features of this amendment included extension of the Project Advisor's tour of duty by 12 months, provision of a

Financial Manager to assume financial duties at the Coop in response to the Tshibanda report, finding local-hire Djiboutians to fill the positions of deputy Cooperative manager, accounts clerk, chief accountant and shipwright, and continuance of training in the areas of fishing, boat building, management and accounts. The project extension funded an additional 17 man-months of the Masterfisherman who was to continue training, exploratory Fishing, and advisory services in the boatyard. Additionally, the extension called for procurement of a 40-foot multipurpose fishing vessel to be used for training, exploratory fishing, and the beginning stages of a stock assessment program that is to be fully implemented in Phase II. Finally, the extension included funds for a socio-economic study, needed as a precursor to justification for a Phase II and funds for final evaluation of Phase I and project design of Phase II.

This second project extension increased the total project budget from \$3,651,500 to \$5,006,500. The USAID contribution increased from \$978,000 to \$1,978,000. The GROD contribution increased from \$394,000 to \$750,000.

1.6 Socio-Economic Study

In 1983, USAID financed a socio-economic study to determine the feasibility of Phase II success from the standpoint of social acceptance and economic viability. The study conducted by FAO defined the beneficiary groups who might benefit from the project.

"The direct beneficiaries of the project are the 260 fishermen, the individuals who have on-shore jobs related to fish handling and supplying the fishing industry (an additional 250-300 people) and the families of these two groups. Indirect beneficiaries include the consumers, who will have access to a lower cost, locally produced protein food. By the end of the project it is estimated that these indirect beneficiaries will number approximately 120,000 individuals living in 20,000 households who will be eating (on average) 2 meals with fish per month. A second category

of indirect beneficiaries are the organizations/businesses who purchase fish wholesale from the ACPM. Certain of these use fish in feeding programs for needy persons (i.e., WFP and CRS), the balance benefit from a source of fresh fish to include in the meals they provide to employees, hospital patients, customers, etc."

One of the persistent questions expected to be answered by this study related to the acceptance of fish as a food source by the retail customers, particularly the poorer groups. Local experience has shown that fish, when delivered fresh and clean, is widely accepted, even by Nomad groups far inland. The surveys and subsequent analysis conducted in this study overwhelmingly reaffirm this finding. Fish consumption patterns can be summarized as follows:

- (a) Interview surveys conducted in three neighborhoods near the center of the city and two further out found that 75% of households were already eating fish an average of twice per month and a further 15% reported a willingness to eat fish if it could be purchased nearer their home.
- (b) There were indications in the interview survey that increased incomes may favor increased fish consumption. It appears that the sample was somewhat biased to middle class consumers (given the large numbers who owned such items as T.V. sets, and the higher than average level of education) and it is possible this was a factor in the high percentage reporting fish consumption. Analysis of the survey data also indicates that fish consumption increased with the level of income. However, other considerations also favor fish consumption, i.e., all interviewees in one poorer area (which was primarily Afar) reported eating fish though amounts purchased per meal were lower.

1.7 Background of Technical Assistance Contract - Resources Development Associates

In March of 1980, Resources Development Associates (RDA) was awarded a two-year contract through competitive procurement. This contract included provision of a Project Advisor/Manager for a two-year period, a Masterfisherman for three months, a Marketing/Cooperative Development Advisor for six months, and various short-term technicians for nine months. Total estimated cost of this original contract was \$299,000.

In September, 1981, the original contract was extended and amended. The extension carried the contract through August, 1983 and includes 18 months of time for the Project Advisor/Manager, 11 months for a Fishing Development Advisor, and six months for a variety of short-term technical specialists.

In April, 1983, the contract was once again amended to incorporate a one-year extension to activities. This extension carried the contract through August, 1984 and included funding for an additional 12 man-months of effort for the Project Management Advisor, 15 man-months for the Masterfisherman, 15.5 man-months for a resident Fiscal Manager, 6 man-months home office support, 65 man-months of local hire services for the ACPM, and procurement of a forty-foot multipurpose fishing vessel for use in the exploratory fishing/stock assessment program.

Finally, in September 1984, the contract was amended to provide a transition period between Phase I and Phase II start-up.

1.8 Contract Progress and Results

The Djibouti Fisheries Development Project has been in effect for over five years now and has produced results far in excess of those originally intended. In August, 1982, RDA published a mid-project report entitled

"Development of Fishing and Fisheries in Djibouti." This report documented progress made in the first 2-1/2 years and served as a cornerstone for the development of the Phase II effort.

The original project was limited in scope compared to the project as it now stands. The present project has expanded to cover virtually all phases of fisheries development. The Executive Summary is thus broken down into major sections covering production, handling, storage and processing, marketing, administration and management, and research.

1.8.1 Production

Assistance in increasing production has been provided through several different approaches. The fishing methods previously utilized by the artisanal fishermen were observed. Several new techniques or modifications to established techniques were introduced. Training in the use of these techniques was provided. New gear was made available through the Cooperative. A boat repair and boat production facility was established. The following details the efforts made and results achieved in increasing production.

At the present time, the fishermen of Djibouti are limited to a small number of catching methods. As a result of their lack of hand tools and the necessary skills to use tools, very few innovations are attempted. The principal gear used for fishing is:

- (1) Single hook hand lines, one line per man
- (2) Trolling lines, one or two lines per boat
- (3) Gill nets
- (4) Free diving for lobsters

The introduction and acceptance by the fishermen of manually operated fishing reels would greatly improve the catch rate per unit of effort. There are several reasons for the increased catch rate potential. The most important factors are:

- (1) Decreased landing time after fish is hooked
- (2) Less effort than hand lining
- (3) Ability to fish multi-hook gear
- (4) Less chance for gear tangle so that fishermen can spend more time fishing while in the fishing area
- (5) Ability to utilize much heavier weights, making it possible to fish at greater depths and in more adverse wind/tide conditions.
- (6) The ratchet assembly on the reel minimizes the danger of line burns/cuts when fishing in shark infested areas.

1.8.1.1 Fish Traps

In order to assess the potential catch rate of fish traps, a standard model trap was fabricated from reinforcing rod and galvanized chicken wire. Six sets were made with this trap in the same area between the middle of December, 1983 and March 21, 1984. Individual catches ranged from 51 fish weighing 56 kgs to 100 fish weighing 151 kgs. The average number of fish caught in these six sets was 81 and the average weight per set was 112 kgs.

The people involved in this experiment are convinced that it would be impossible to catch fish consistently at this rate, but the results indicate that this could be a lucrative method for boats capable of trap fishing. There are several boats presently engaged in the fishery that are capable of conducting a fish trap operation. These boats would need power pullers installed, but the potential income from such a fishery would warrant the expenses of boat modification and gear acquisition.

1.8.1.2 Small Boat Construction and Repair

Djibouti has no shipyards. A few craftsmen from Yemen repair dhows and other traditional vessels working in the open air with primitive hand tools. Their services are too expensive for constructing and repairing small fishing craft. Further, there is no local wood suitable for boats in Djibouti; most is imported from Ethiopia and is very expensive.

The ratio of fishermen to boats is about 6:1 (240 fishermen to 42 boats). Of the number of fishermen, only about 80 are considered full-time, the remainder are unemployed or have to take other jobs, primarily due to the lack of additional boats.

In keeping with the objectives of the fisheries program to increase production and employment, it was decided that additions to the working fleet could immediately enhance potential for fish capture. A considerable number of the boats in the fleet are either in minimal operational status or completely inoperable. It was determined that these boats could quickly be put back into service if repaired.

The Phase I Project implemented a boat repair and boat building sub-activity which utilized a patented fiberglass process called C-Flex. The materials for this process are produced by Seeman Fiberglass of New Orleans.

The C-Flex sheathing system was designed to protect the hulls of new and old wooden boats from rot and marine parasites, problems that cause the majority of layups of the Djibouti fleet. It is a simple process that covers the hull with a high-strength skin of fiberglass that will greatly increase the life and strength of the hull and will dramatically reduce the cost of maintenance.

In addition, new vessels may be constructed using C-Flex. As the C-Flex method does not require a mold, the capital required is very low and C-Flex boatyards can be built anywhere there is available labor; only hand tools, some basic power tools and a sheltered area are required. The boats are constructed over simple frames which can be used as often as needed. Successful transfer of this technology to Djibouti will result in not only repair of the present fleet, but the birth of a new private enterprise industry for the country, that of small-scale boat construction.

1.8.1.3 Cooperative And National Fisheries Production

Since March 1979, the Fisheries Service (SEP) has been compiling statistics on the quantity of fish arriving at the Pecherie. In March of 1981, when the ACPM (Fisheries Cooperative) assumed control of the Pecherie, it began keeping records with RDA technical assistance, of daily fish purchases. In June of 1982, the Fisheries Service (SEP) began a sampling and fisheries statistic program of Pecherie landings only with the assistance of the Red Sea Regional Program (FAO).

An extrapolation based on an estimate of what was produced and sold by independent fishermen and consumed by the fishermen themselves provided a basis for national annual catch.

The extrapolation percentage used in 1979 and 1980 was thirty percent. This figure was derived by the Fisheries Service based on field observations. In 1981, the extrapolation was reduced to twenty percent. The Fisheries Cooperative was reporting an increase in 1981 from 1980 of fishermen selling their catch to the Pecherie. It was reasoned that an increase in the number of fishermen selling their catch to the Pecherie was linked to a concomitant decrease in the number of independent fishermen selling their fish at independent outlets. Thus the Fisheries Cooperative would be reporting a higher percentage of the total national catch.

In 1982, it was decided (by the Fisheries Service) to eliminate the extrapolation percentage. A comparison of yearly totals showed a slight increase in actual production from 1981 to 1982. The number of actual fishing units selling their catch to the Pecherie in 1982 equaled the extrapolated total for 1981. Did this mean a decrease in fishing effort?

	<u>1979</u>	<u>1980</u>	<u>1981</u>	<u>1982</u>	<u>1983</u>
(Actual) Production (KG)	164,969	203,076	295,394	298,907	282,812
Boats	20	18	50	63	60
Fishermen	68	80	127	143	137

	<u>1979</u>	<u>1980</u>	<u>1981</u>	<u>1982</u>	<u>1983</u>
(Extrapolated) Production (KG)	251,090	312,568	385,282	-----	-----
Boats	24	29	60	-----	-----
Fishermen	108	118	171	-----	-----

Without base data on the actual numbers of boats and fishermen or a sampling program yielding statistical evidence of production at locations other than The Pecherie this question could not be answered. Until reliable data could be analysed it was decided to drop the extrapolation percentages.

Fisheries production levels in Djibouti are influenced by four major factors; climate, demand, ex-vessel prices, and traditional fishing areas.

The resources of fish and other marine fauna vary in distribution and abundance throughout the year in response to prevailing wind conditions:

November - February	Northeast wind
May - September	Southwest wind
July, August	Khamsin (Northerly wind)
March, April, October	Transition (Variable)

During the summer season, May through September, prevailing wind conditions induces a summer upwelling of nutrient-rich water coming to surface from depths of 100-200 meters. Off the Djibouti coast the water warms up and a thermocline develops at 20-30 meters. The presence of this warm water develops ideal fishing conditions. Pelagic fish (e.g. sardines) feed in this nutrient-rich water and in turn become a food source for the larger pelagics (tuna, kingfish, barracuda) and demersal species. Shallow depth hand-lines 20-30 meters can be used to catch these fish. The cooler weather, November through February, causes the thermocline to sink and with this a dispersal of pelagic and demersal species. The deeper thermocline, 100-200 meters, poses less than ideal conditions for hand-line fishermen. The use of bottom set gill nets is prevalent during the winter season.

Production increases after the Khamsin period, tending to peak in October-November. Good weather combined with summertime fishing conditions (shallow thermocline) explain this increase.

A gradual decrease in production occurs after the month of November, signaling the beginning of the winter season. January tends to show an increase from the previous month due to the mullet fishery. They are found in concentrated numbers along the southern coast to the border of Somalia. Mullett are caught in gill nets, the primary gear used in the winter season.

Fisheries Cooperative production has been declining since it reached its peak in 1982. The original USAID project production goal set in 1980 for the ACPM was an increase in production by 10-15 percent by the end of two years. The project had successive annual increases of about 25 percent in 1980 and 1981. The 1982 result was 1 percent higher than 1981. The 1983-1984 production figures show an overall 5 percent decline.

For Phase II a goal of increasing production by 100 percent has been set. Given recent problems this may not be possible to attain. It is more realistic to assume production levels will increase modestly to some figure 10-15 percent higher than peak production reached in 1982. There are no short-term solutions to increased production. The combined efforts in Phase II towards marketing, research and training will be evident at the end of the project.

An analysis of production from 1979 through 1983 shows a pelagic to demersal catch ratio of 4:6. The estimated fisheries resources show a 5:2 pelagic to demersal ratio of potential catch. Even though current demersal production is well below potential yield, the Djibouti fishery is currently too one-sided. Phase II activities should address the increased utilization of pelagic stocks.

1.8.2 Handling, Storage And Processing

The RDA technical assistance team devoted a major portion of its time in addressing, handling, storage and processing needs. This section discusses what was done to improve infrastructure and methodology in relation to handling, storage and processing.

1.8.2.1 Upgrade Of Facilities

In a country such as Djibouti, the lack of a complete cold chain system was a major constraint towards fishery development. Existing facilities at the start of the project, March, 1980, were limited.

Operating as a private concern, the Fisheries Service leased to a private entrepreneur a 40m³ cold store (+2 degrees C) and 30m³ freezer store (-18 degrees C). Also included in the lease agreement, was the use of the sales/processing area (120m²). The entrepreneur was charged 50,000 DF/month for the sales/processing area and a one time charge of 15DF/KG of fish received for the use of the cold stores. All fish received was weighed and recorded by the Fisheries Service.

Operating at an average sales volume of 500 kilograms of fish per day, there was adequate storage for chilled fish. Little use was made of freezers except to freeze and store bait. The entrepreneur had good market sense and bought only what he knew he could sell. The RDA technical assistance team worked with the private entrepreneur during the projects first year. The rudiments of the cold chain system in existence could be improved with the use of ice on vessel and in storage. The result would be a better quality product that perhaps might stimulate consumption and production. The Fisheries Service, with support from French assistance, purchased a flake ice machine the latter part of 1980. The ice machinery consisted of two flake ice machines rated at 1.4 tons/day and a 6-ton refrigerated storage silo (-18 degrees C). A site was prepared to house the machinery. The electrical requirements of the ice machinery necessitated the installation of a special transformer. In January of 1981, the ice machine became operational. Ice was made available free to fisherman as well as to the entrepreneur for storage. It became readily acceptable by both and a definite improvement was noted in the quality of fish. Before-hand, there was little or no ice even though it was encouraged by the Fisheries Service. Block ice was available locally at a prohibitive price of 20 DF/kg.

The Djibouti Fisheries Cooperative (ACPM) established in May 1980, took over fish commercialization in March of 1981. The entrepreneur had taken ill and died the month before. The Cooperative decided to set new prerogatives. The decision was made to purchase fish in excess of previous levels as an encouragement to fishermen. This coincided with an increased marketing effort aimed at institutions and restaurants.

The Fisheries Service (SEP) was able to finance, through its annual budget, the construction of 90m³ freezer store (-20 degrees C) and the purchase of a 20m³ prefabricated blast freezer (-40 degrees C). These units became operational in August of 1982. With this additional capacity, 18,000 kilograms of whole weight fish could be stored frozen (90m³ x 400 kg/m³ x .5). Combined with the 6,000 kilograms from the other freezer, total capacity equaled 24,000 kilograms of whole weight fish (equal to one month's production).

In 1984, the final year of their project, IFAD envisioned the need for additional storage capacity. In May of 1984, this unit, 50m³ (-20^o C), became operational. The storage capacity (50m³ x 400kg/m³ x .5) equaled 10,000 kilograms. The total freezer storage capacity of 34,000 kilograms of whole weight fish is more than adequate to meet projected needs.

1.8.2.2 Upgrade of Methods

Methodology upgrade in handling, storage and processing has been a continuing ongoing endeavor by the RDA Technical Assistance Team. Initial observations made in 1980 showed no on-vessel use of ice, no evisceration and bleeding of fish, rough handling of fish in receiving and fish stored in the chill room without ice. It was apparent that improvements were needed. The private entrepreneur running the fisheries operation had little concern to improve quality being satisfied with his present sales volume. It was only after the Cooperative took control of commercialization that methodology could be improved.

In the progression of fish from the water to the consumer, there are practices in handling, storage and processing that insure good quality and saleability.

1.8.2.3 Fish Drying And Smoking

As an alternative to cold or frozen storage, drying can be a useful method of fish preservation. Three years ago, Yemeni fishermen were coming to the northern coasts of the Obock region to catch the seasonal migrations of sardines. The sardines were caught with beach seines, dried on the beach, packed in jute sacks and then shipped to Yemen. GROD banned this activity in the hope that Obock fishermen would take it up. The Obock fishermen though lacked the equipment and organization so the sardine fishery has been virtually untouched.

In April, 1981, CRS, with RDA Technical Assistance, started an experimental pilot drying facility for sardines to determine the kinds of sardines to be dried, combinations of salting and drying procedures, and storage methods to best preserve the dried fish. CRS had hoped to introduce dried fish in its school lunch feeding programs in the northern regions. This mini-activity was funded for \$6,000 with the idea that other donor money would continue it in the future.

Small family fish dryers were constructed and sent to the refugee camps. Instructions in salting and drying were given and several demonstrations runs performed. The CRS Food and Nutrition supervisor said the tests were quite successful. When fresh fish markets open in the interior of the country, the consumer has an alternative to refrigeration as a means of preservation.

Since June, 1981, CRS has been drying all wastes from the Pecherie. The plan is to use the dried wastes for fertilizer for the CRS projects in the interior of the country. The original drying site was located next to

the Djibouti slaughterhouse (about 2 km from the Pecherie). Every day, about 100-200 kilograms of fish heads, racks, and offal were transported to the site by the Cooperative. Laborers hired by CRS would lay out the waste on screened drying racks. After about 2-3 days, the waste was collected and stored in burlap sacks.

The drying site was transferred to a site provided by the Ministry of Agriculture at its Palm Plantation in Ambouli with the idea that it would eventually take over the operation. In 1982, a fish grinder was purchased to grind the pieces of dried fish into finer particles for more effective use as fertilizer. It was installed at the MOA site. The observed utility for the fish fertilizer by the Djiboutian farmers has increased demand beyond what the facility could produce. The small fish grinder lacked the size to effectively grind the dried fish pieces. The facility was failing to keep pace with the amount of fish waste being provided to it.

CRS had allocated approximately \$12,000 to continue this activity. Plans called for the construction of a prototype fish waste grinding unit, enlargement of the grinding area to accommodate the new grinder, purchase 600 sacks of fish fertilizer per year for two years from the MOA, purchase a donkey and cart for the transport of the dried waste to the grinding area (about 1.5 km distance).

Finally, RDA has looked into the possibilities of selling smoked refrigerated fish to its wholesale/retail customers. Smoked salmon imported from Norway sells in the Djibouti supermarkets at \$25.00 a pound! Tests with one fish smoker were conducted with tuna, mackerel, and snapper. The smoked fish was test marketed to Fisheries Cooperative clientele. They were very enthusiastic. Ten additional smokers arrived in February, 1982. Because of lack of space at the Pecherie, this activity was not started. Once the extension to the receiving area is opened additional space can be

found. However, the RDA Technical Assistance Team recommends it be encouraged as a private sector activity. These units are available at the low cost of 50 dollars each. Each unit is capable of smoking 10 kg of fish. Mangrove trees (in abundance) can provide the fuel.

1.8.3 Marketing

From a historical prospective, marketing efforts have been hampered by the lack of a coherent work plan. The original contract asked RDA to conduct surveys of demand/consumption and existing marketing facilities. The project acquired two insulated trucks (0.5 and 2.0 MT capacity) to support the maximum extension of the cold chain system.

At the beginning of the project, the ACPM was a new entity. Fish sales were conducted at three sites only - Pecherie, Central Market and Ambouli Market.

It had been envisioned that the results of a marketing questionnaire would provide base-line data needed to justify the establishment of additional retail outlets. SEP decided, in fact, that this questionnaire need not be the sole basis for market selection, but rather provide information in determining fish preference and methods of preparation. The SEP selected the retail sites in response to population densities.

In March-April of 1982, the CRS Demonstrational/Promotional Team formulated, with the help of RDA Technical Assistance, a fish consumption questionnaire. In June, 1982, the questionnaire was given at the Balbala MCH center. The positive results of the questionnaire did not necessarily reflect reality.

In order to plan for future activities in fisheries sector, it was judged necessary to have sound base-line data concerning:

1. The current importance of fish purchases and preparation by institutions and individual households, in order to determine constraints on fish sales.
2. The actual state of the population involved in fishing, their families, etc. with particular emphasis on the willingness of descendants to enter fishing as a profession.

USAID provided funding for two FAO consultants to conduct a socio-economic study (April-May, 1983). The RDA Project Manager worked closely with the consultants in providing informational and logistical support.

The study was to provide data concerning if and to:

1. What degree the Djiboutian population is inclined to eat fish and if and to what extent sales could be increased by improving wholesale sales to institutional clients.
2. Demographic characteristics of artisanal fishermen and their families with particular emphasis on recruitment of young fishermen.
3. Data concerning the economic issues of expenditures and production of the fishermen.

The results of the socio-economic study were provided in two parts: Marketing and the Socio-Economic Situation of Fishermen. Since this section concerns marketing only, the summary on marketing is provided here:

"The assumption that the Djiboutian population dislikes fish has been found to be invalid. The demand for fish exceeds the present supply. All increases in production, as far as public marketing is concerned, have been absorbed by consumers regardless of the increase in price of fish.

In Djibouti-town, there is only very limited access to fish. (Two selling points for local population - ACPM and Central Market - and three where expatriates buy their fish - 2 supermarkets and one private fish shop). All IFAD outlets to be opened, close to traditional buying centers, are expected to do well, provided they have regular and sufficient supplies of preferred species.

The management of retail-outlets should be responsible not only for sales but also for providing information and playing the important role of promoter. The role of the outlets must be seen as a long-term impetus to consumption. The impact of pilot outlets on surrounding clientele should be evaluated over a period of time. Conveniently located outlets should be able to sell c. 10 tons/annum in the first year after being opened.

The household survey shows that the present fish consumption (in the areas observed) is approximately one tenth of the meat consumption; 75% of the interviewees eat fish twice a month (month of survey=May, month with good availabilities). Fish consumption is reduced during Ramadan and periods of limited landings. The majority of fish consumers declared their intention to eat more fish, provided accessibility was improved. The majority of the population segment which, at present, does not purchase fish, has declared its willingness to eat fish if more easily accessible. Definite refusal of fish was only reported from 8% of interviewees due to general dislike. Effective sales will greatly depend on how the outlets function. Private consumption of fish increases significantly with higher level of income and particularly with higher level of education.

Changes in the present level of fish intake in Djibouti by private consumers will require a medium-term commitment of promotion. Short term increase in sales can be achieved by improving the relationship between ACPM and the organizational buyers. Promotional activities should be developed and all actual and potential institutional clients should be regularly supplied with information (e.g., on a monthly basis) on the availabilities of species and their prices and should be given efficient and hygienic service including prompt delivery.

Both the private consumers as well as institutional clients, prefer fresh fish and only a few species. Frozen fish is not yet well accepted. Private consumers prefer Dorades, Spanish mackerel and Tuna, account for c. 75% of their purchases. A promotion campaign must aim at widening the variety of fish accepted and increase the acceptability of frozen fish as a substitute to fresh merchandise."

An important element of the Cooperative marketing strategy are the retail outlets. Other than assisting in the design of the markets, RDA has not played a major role conferring that to IFAD.

The retail outlets, operational since September, 1983, are located in high density population centers. The outlets are located in close proximity to either existing markets (produce and beef) or MCH centers thus, they have access to women, comprising a major portion of the retail client base.

The performance of the outlets has been weak. From September to October, 12 tons of fish were sold. This represents an average of 3 tons per month, or 100 KG per day. The daily totals range from a high of 25 KG/day/outlet.

There are two reasons that could explain poor performance to date, fish preference and bad management. The Djiboutian preference to a few species, kingfish, small jacks and dorades, is a limiting factor. Since this group represents only 60T of the total catch, there is a great deal of demand for a limited source. Bad management is both the fault of the ACPM and the retail outlet managers. The ACPM is not doing enough follow-up surveillance. Some of the managers have not lived up to their contractual obligations (selling only fish at the outlet) having been observed selling produce and other items. The ACPM has changed management in only one outlet to date.

Even though there is no coherent marketing plan and the national per head consumption of 1.3 KG/capita year is not much for a population of 300,000 inhabitants, it is certainly a large amount to be handled by two outlets (Pecherie and Central Market). The new outlets still are not yet having an impact on sales.

Many consumers are not familiar with certain fish. Promotion is a method to create awareness among the consumer that can lead to the expansion of the market. Catholic Relief Services (CRS) has largely assumed contractor responsibilities for fish promotions including demonstrations, education, advertising and marketing. Since 1981, through their USAID Food and Nutrition Grant and UNICEF Project, CRS has extensively promoted fish in Djibouti City and all the districts. The RDA Project Manager has aided CRS in designing and implementing their fisheries project activities.

1.8.4 Administration and Management

At the beginning of the project, it was the contractor's task to assess the potential for Cooperative development. The Government of Djibouti, prior to the contractor's arrival, had formulated a set of Cooperative bylaws (See Appendix L). These were approved and signed into law by the President of the Republic in May 1980. The Cooperative, as envisioned, would be one that made available fishing gear and materials to the fishermen. There was nothing in the bylaws that mentioned that the Cooperative would be involved in the buying and selling of fish.

Today, however, the Cooperative has extended its function to fish procurement and sales, thus permitting it to utilize profit therefrom, to reinvest in materials for the revolving credit fund, and eventual purchase by Cooperative members.

The bylaws of the Cooperative will be changed to include its new activities. Currently, membership in the Cooperative is open to both fishermen and fish vendors. It is found that both factions are often at odds with each other and decision-making is often difficult. The GROD has decided that Cooperative membership, in the future, will be opened only to certified fishermen.

A revolving credit fund was established in October, 1980. As envisioned in the project paper, the fund would be an extension of the Fisheries Service, managed jointly by the RDA Project Manager and the Chief of Service for Fisheries. With the creation of the Cooperative, the contractor urged the government to extend its functions to include the revolving credit in hopes of further reinforcing the Cooperative through capitalization. Appendix M contains a copy of the bylaws establishing the revolving credit fund.

The administrative and management tasks at this point were handled easily by the RDA Project Manager and the Cooperative Director. With the Cooperative extending its function to fish procurement and sales in March of 1981 administrative and management burdens immediately became apparent. The Cooperative, local management and expatriate staff were not ready to perform this new role. Long-range plans did include extension of Cooperative activities into fish sales but this was 1-2 years in the future. With the death of the private entrepreneur at the Pecherie, in February of 1981, it was reluctantly decided, in lieu of letting another fish merchant establish his base at the Pecherie, it would be easier to take full control now, than later.

The second extension to the project in May of 1983 had as a major priority the strengthening of the financial management capabilities of the Cooperative.

1.8.5 Research

Although the Fisheries Development Project is not a research effort per se, it has encompassed several subactivities which may in part be considered applied research. These activities have included an oyster culture experiment and the design and initiation of a stock assessment program.

The oyster culture experiment was designed to test the technical and institutional viability of growing high quality oysters from cultured seed produced in the U.S. Successful mariculture of this type could provide high returns from a modest initial investment. The experiment was a qualified technical success. The oysters survived transshipment and grew rapidly to a size approaching marketability. However, from an institutional standpoint, the experiment was a total failure. The oysters required a level of maintenance which the Djiboutians seemed not willing to provide and security which was unavailable. The oyster rafts were repeatedly vandalized and were finally cut loose and the oysters stolen. Thus, the experiment was not able to reach its conclusion and the effort was discontinued.

The stock assessment program was designed to establish initial baseline data on the fish stocks in Djiboutian waters with an eventual goal of determining optimum sustained yield of the species now being exploited or likely to be exploited in the future. Design and set up of the program will be carried as a major activity of Phase II. A 40-foot multipurpose fishing vessel has been procured for use in the program. The vessel has been rigged for various types of fishing including bottom fishing, long-

lining, gillnetting, trolling and trawling. The stock assessment program will concentrate on standardized sampling of bottom fish within the 100 Fathom curve and on longlining for shark. Additional data for the program will be provided by the IFAD 14M boat.

1.9 Relationship to Other Donors

The Djibouti fisheries project, as a measure of its success, has attracted a number of other donating agencies from the original FAC/USAID input. The project manager has spent considerable time working with these other agencies in helping with the design and implementation of projects. These agencies included: International Funds for Agriculture Development, Catholic Relief Services, United Nations Red Sea Regional Project and the World Food Program.

1.10 Summary and Conclusion

In general the USAID and proposed IFAD project appear to dovetail well, AID mainly providing technical assistance (US\$1,266,000), some capital investment (US\$160,000) and training support, short-term consultancies and contingencies (770,000 US\$), while IFAD provides funds for training, credit, production, marketing and technical assistance. The Islamic Development Bank is funding a new fishing port complex at a cost of US\$ 5 million. The status of other proposed projects remain unclear. These are the proposed shark processing project and the construction of a fishing village.

The Government of Djibouti should recognize that despite optimistic and positive conclusions of the IFAD and USAID reviews of Phase I, the first phase did not produce the fish tonnage projected and the investments made did not result in the financial returns envisaged. The IFAD (1980) appraisal was a realistic approach to fisheries development in Djibouti. The project was effectively implemented by the government and consultants, but the results did not meet the expectations.

Setting aside the costs of technical assistance and capital costs, the ACPM may break even given a higher (500 MT approx.) throughput. The only part of the development programme which presently appears capable of paying its way is the credit scheme.

Project programming for a marginal fisheries sector such as that of Djibouti should preferably be done over a longer time scale, e.g. 5 years, and if possible the project's loan funding confined to components which clearly generate income, e.g. fish plant, credit scheme, project boats, workshops, etc.

The main problem facing the project is that of training new fishermen, as production increases are based mainly on additional production units. As described (IFAD, 1984/USAID, 1983) the training scheme does not appear capable of producing the required fishermen. The technical assistance personnel to be obtained through IFAD could include a training officer (master fisherman qualification) and two volunteers, one a boatbuilder and the other a marine mechanic with knowledge of refrigeration. Counterpart training must be far more vigorously implemented than in Phase I.

In evaluating projects and designing new projects, USAID should endeavour to engage personnel with local language capabilities and experience of third world conditions.

2.0 INTRODUCTION

Since the Republic of Djibouti gained independence in June 1977, various foreign donors have established assistance programs to help in the development of the country. Such support has been forthcoming in three general areas: refugee assistance, agriculture, and fisheries. The regional political situation and a sustained drought in 1979-1982 created vast numbers of refugees and drought victims who migrated to Djibouti for safe haven from the Somalia-Ethiopia border conflict. U.S. government efforts, prior to 1979, concentrated almost exclusively on assistance to the various refugee programs.

In 1979, the U.S. government, through its Agency for International Development, began modest development assistance in the areas of agriculture and fisheries. The fisheries program was the first to be selected and implemented. In the field of agriculture, a program was initiated to establish a soils/water research and analytical capability within the Ministry of Agriculture. This would be accomplished by providing a complete chemistry laboratory and training therein and by training Djiboutian professionals in soil mapping procedures for agricultural development. It was expected that benefits from such a program would only accrue over a protracted period of time.

In the field of fisheries, a program was developed which was expected to have a more immediate impact. It had been determined, through short-term services, that the fishing sector and the fishery resource held great promise for potential development. In fact, the fisheries are most likely Djibouti's most important resource and certainly a resource most easily exploited.

Development of this resource, prior to 1979, had been virtually ignored. Only minor efforts had been made to introduce modern fishing methods to the artisanal fishing industry and virtually no commercial fishing industry existed.

The industry, such as it was, consisted of perhaps 140-200 full and part-time artisanal fishermen who harvested approximately 250 tons of fish annually. Marketing of these fish was unsophisticated and inefficient. Many were sold or bartered directly on the beach and the remainder were retailed through the Central Market of Djibouti City and the local markets of Obock and Tadjoura (coastal fishing villages). Little regard was made for sanitation or preservation of the fish. Marketing had to be swift or the product spoiled.

The only semblance of a commercialization of the fishery was the presence of Yemeni fisherman who annually harvested approximately 200 tons of sardines from the northern coast of Djibouti. This was approximately 40 percent of the total catch from Djibouti waters. Benefits of this catch were essentially lost to Djiboutian citizenry.

The Yemeni fishermen have also played a role in sustaining the Djibouti fisheries. Since Djiboutian fishermen have lacked the materials, tools, or skills needed to build or repair their own boats or nets, the Yemeni have provided these services in this area, albeit often at exorbitant prices.

The Government of the Republic of Djibouti (GROD), through its Livestock and Fisheries Service of the Ministry of Agriculture, had been aware of the potential for increased harvesting of fish, and had formulated a plan for such development but lacked trained personnel and adequate

financing. Prior to USAID's entry, the French Economic Assistance Mission (FAC) and the Food and Agriculture Organization/United Nations Development Programme (FAO/UNDP) indicated their interest in providing assistance. Such assistance was to be directed to: (1) upgrading technology and fishing skills; (2) providing means for fish preservation; and (3) improving the institutional capability of the fishing Cooperative, the Fisheries Service and the private sector to handle or market fish.

2.1 USAID Project History

2.1.1 Original Project

Recognizing the needs of and potential for fisheries development in Djibouti, USAID initiated efforts in 1979 to provide meaningful assistance to compliment the efforts of the other donors. The Fisheries Development Project was approved and authorized for two years in January, 1979 for total funding of \$498,000. Grant funds were fully obligated in August, 1979. GROD contributions were set at \$214,000, giving a total project budget of \$712,000.

The purpose of the project was to assist the Ministry of Agriculture (MOA) in its efforts to create a viable system for the improved harvesting, handling/storage and marketing of fish. At the same time, the project provided assistance toward strengthening the institutional capacity of the Fisheries Service of the MOA and to support or augment private sector initiatives in the fishing industry. The successful completion of the project was to result in an improved nutritional status for the majority of Djiboutians, as well as increased income for nearly 300 fishermen, merchants, and other artisans in the fishing industry.

In coordination with the government and other donors, USAID provided assistance in three separate fishery activities:

1. upgrading technology and fishing skills as evidenced by new techniques and equipment being used by artisanal fishermen with consequent increases in harvests,
2. providing means for preservation of fish as evidenced by installation and indigenous operation of appropriate ice-making facilities and the developing and application of dry-salted fish techniques with consequent reduction in post-harvest losses,
3. improving the institutional capability to handle and market fish as evidenced by the development of fishing cooperative(s), adequate administration of such cooperative(s), the expansion of retail outlets and of transport facilities, and functioning promotion/demonstration activities.

The \$712,000 budget for this original project covered all phases of the project. Figure 1 shows the breakdown of these funds into six different categories: technical services, commodities, participant training, evaluation, housing, and contingency. A description of these inputs follows:

1. Technical Assistance (\$284,000). A contract for technical assistance was awarded to Resources Development Associates of Diamond Springs, California, in March, 1980 for \$299,000. Under this original contract, a Project Manager/Fisheries Generalist (24 months) provided long-term advisory services to the Director of the Fisheries Division and supervised the implementation of the AID Project. He provided appropriate on-the-job training to artisanal fishermen, managed the fish demonstration program, supervised a revolving credit fund with Fisheries Division staff

for purchases of fishing gear, organized a transport system for movement of fish, developed contacts with potential consumer groups, and undertook simple marketing innovations.

	USAID	GROD	TOTAL
	U.S.	U.S.	U.S.
A. Technical Services	\$284,000	\$124,000	\$408,000
B. Commodities	105,000	15,000	120,000
C. Participant Training	24,000	5,000	29,000
D. Evaluation	7,000	-0-	7,000
E. Housing	50,000	-0-	50,000
F. Contingency	28,000	70,000	98,000
TOTAL:	\$498,000	\$214,000	\$712,000

FIGURE 1: PROJECT BUDGET - ORIGINAL PROJECT

In addition, RDA provided a total of eight months of short-term assistance consisting of advisors in marketing, fishing technology, cooperative development, and data completion.

RDA, in addition to providing the above technical services, was responsible for conducting a series of demonstration and educational activities (\$23,000), and procurement of fishing gear and fish storage equipment for the revolving credit fund administered by the project manager and the Fisheries Division (\$53,000). The fund sold the items to both fishermen and merchants on a selectively discounted basis.

2. Participant Training (\$24,000). A total of six-person months of short-term training involving five persons was proposed. This included training and observation in marketing, cooperative management and fisheries development.

3. Commodities (\$105,000). In addition to the commodities procured by the technical assistance contractor, the project also financed the procurement of a flake-ice machine/generator (plus accessories), and three project vehicles, as well as spare parts, a 27-foot Yamaha project workboat/fishing boat, outboard motors, cold boxes, nets and fishing gear.

4. Evaluation (\$7,000). Funds were included to permit one outside fisheries specialist to join the REDSO, AAO/Djibouti, MOA evaluation team which evaluated progress made under the project and helped to determine whether additional AID assistance was warranted. The special evaluation took place in December, 1981.

5. Housing (\$50,000). The project provided housing for technical assistance personnel.

6. Contingency (\$28,000).

7. GROD Contribution. The Djibouti Government supported this project with a contribution of \$214,000, equivalent to 30 percent (30%) of

total project cost. The various components included staff services (\$121,000), support and operation costs (\$32,000), use of facilities (\$15,000), and promotion/demonstration activities (\$10,000). Inflation and contingency factors totalling \$36,000 were also included.

The staff services included the existing three Fisheries Division personnel, three to four additional staff that were required during the course of project implementation, and five Fisheries and Livestock service support personnel (part-time). In addition, there were additional support and operating expenses that were being assumed by the MOA for vehicle operation and maintenance, and for the Obock fishery facility and the Fisheries Division headquarters unit. Furthermore, the GROD contributed the use of its facilities at the Pecherie, a building to house the flake-ice machine/silo generator and refrigerated box at Obock and an adequate water supply for the facility there. Lastly, the MOA was to make available \$10,000 to support the fish demonstration education program. This included making arrangements for space at the four secondary city markets and those in Ali-Sabieh and Dikhil and securing radio time, arranging for fish demonstrations; and coordinating its efforts with those of the Governors of Obock and Tadjourah, to ensure that project activities received adequate support and local participation.

In addition to AID, the French Economic Assistance Mission (FAC) also indicated their intention to provide assistance for fisheries development. Together with the government, the donors proposed to channel complimentary assistance to three separate but related fishery activities: (1) upgrading technology and fishing skills, (2) providing means for preservation of fish, and (3) improving the institutional capability (fishing cooperative, Fisheries Division and private sector) to handle and market fish.

The French have provided assistance to Djibouti fishing opportunities. The current FAC effort was directed at traditional fishing and included the following inputs: (1) technical assistance to the Fisheries Division (minimum one year), (2) two flake-ice machines for Djibouti City, and (3) unspecified assistance in cooperative development. The estimated value of this assistance was \$150,000.

2.1.2 Amended Project-First Extension

Because of various delays, implementation of the original project did not begin on schedule and, in some cases, certain activities slipped by as much as 18 months. Nevertheless, overall progress achieved in the first year of the technical assistance contract was exceptionally encouraging. Two-year goals for some activities were met in less than one year. The project became a centerpiece of GROD's attention. These factors convinced USAID that an extension and expansion to the project was desirable.

In September, 1981, an amendment to the original project was approved. In essence, the amendment provided for an 18-month extension to the life of the project. The Project Advisor's tour of duty was extended by 18 months, an additional 11 man-months of TDY boat builder/master fisherman assistance was programmed to cover an additional activity (boat building), and two months of short-term technical support was added to cover a second additional activity (oyster culture) as well as general home office backstop. In addition, the project amendment included funds for major commodity purchases, including an ice machine for Tadjoura and electric generators for Obock and Tadjoura. At the request of the Fisheries Service, training funds were earmarked for an observational study tour in the USA for the Chief of Service of Livestock and Fisheries.

The project amendment increased the total project budget from \$712,000 to \$3,651,500. The USAID contribution increased from \$498,000 to \$978,000. GROD contribution increased from \$214,000 to \$394,000. FAC contributed \$150,000. International Fund for Agriculture Development (IFAD) provided concurrently two million dollars. Figure 2 shows the breakdown of project funding for the amended project.

Under the amended scope of work, the two additional activities were boat-building/repair and oyster culture. Under the technical assistance contract, RDA conducted both of these activities. The boat-building/repair consisted of sheathing traditional fishing boats with fiberglass planking and in constructing new vessels, using local designs and western designs as molds. Plans called for building one or two vessels and sheathing 5-10 hours.

The oyster culture experiment consisted of attempting to grow, on floating racks, high quality oysters for eventual sale in the local expatriate-oriented markets. The experiment was to determine whether imported species would grow and whether the process could be successfully institutionalized.

	AID	GROD	FAC	IFAD	TOTAL
A. Technical Services	\$652,000	\$237,000		\$ 667,000	\$1,556,000
B. Commodities	216,000	60,000	150,000	1,140,000	1,566,000
C. Participant Training	9,000	5,000			14,000
D. Housing	75,000				75,000
E. Contingencies/ Evaluation	26,000	92,000		322,500	440,500
TOTAL:	\$978,000	\$394,000	\$150,000	\$2,129,500	\$3,651,500

FIGURE 2: AMENDED PROJECT-FUNDING BREAKDOWN

2.1.3 USAID Mid-Project Evaluation

In December, 1981, a formal mid-project evaluation was conducted by USAID's REDSO/EA of Nairobi. It should be stressed here that this evaluation covered the Association Cooperative de Peche Maritime as a whole and included an evaluation of the USAID project. It was not an evaluation of the RDA Technical Assistance contract per se, but included reference to the contract only as it directly affected the Cooperative. To quote the evaluator, Mr. Timm Harris:

"The purpose of this report is to make a brief overall assessment of the Association Cooperative de Peche Maritime (fishing Cooperative of ACPM) and to make general recommendations on possible solutions in certain problem areas or areas of weakness. It is seen as important to view the ACPM as a whole, rather than isolate a given component (such as the USAID project), as the success or failure of the Society is not determined solely by the success or failure of an individual project or component."

In general, the evaluation was very positive. It recognized "major progress" toward many goals. It also pointed out, as should be the case, areas of weakness which must be addressed. The technical assistance team agreed with many points of the evaluation and took steps to strengthen them.

The evaluation was summarized as follows:

"Major progress has been made in the area of institutional development, commodities have been supplied and steps have been made to improve the fishing industry as a whole. Yet a well-defined training program has yet to be established and certain specialized assistance is still evolving (boat building, oyster culturing and other untapped marine product development). The project has played a significant role in the growth of the Cooperative Association, through direct intervention and management. Now the focus will have to shift to assistance in creating internal capabilities for managerial and financial self-sufficiency. This is possible, yet additional USAID assistance would enhance this effort. The help of USAID in improving internal control systems and transport/production capabilities would be a valuable additional input into the ACPM."

Appendix A contains a copy of the REDSO/EA evaluation.

2.1.4 Administrative and Financial Management Evaluation

As a result of recommendation in the Mid-Project Evaluation regarding the need for assistance in creating capabilities within the Coop for managerial and financial self-sufficiency, USAID made arrangements for short-term assistance through the National Association of Schools of Public Affairs and Administration. A training and management consultant, Mr. Ray N'Tungamulongo Tshibanda, visited Djibouti in June of 1982 in order to assist the Cooperative in establishing an improved accounting system and to assess the management capabilities and needs of the SEP. The report summarizing Mr. Tshibanda's findings, entitled "Improving Management at the Djibouti Fisheries Cooperative Association: A Fiscal Management System", praised the successes to date accomplished by the Coop but was critical of the lack of an effective administrative and financial management system. (See Appendix B.)

The report stated that:

"The Djibouti Fisheries Cooperative Association constitutes a typical example of a development project that merits to be supported: it has viable national resource base (seafish); it corresponds to a government priority and enjoys government political and financial support; it addresses real social and economic needs (animal protein deficiency and income generation) and has a good potential for resolving them (fairly good returns); it is headed by technically competent and remarkable conscientious nationals; it enjoys the confidence and support of major donor agencies which work in an orderly and coordinated manner; it is a private institution striving to provide an answer to public concerns; it is viewed as a model and could have lasting positive demonstration effects. However, the Cooperative has problems, mainly management problems, and it needs help in that direction. It does not have any structural groundings nor does it attest to the existence of reliable and well-thought through management policies and systems. To the contrary, the Cooperative appears to be in an urgent need of such policies and systems, the present relative vacuum representing a factor of uncertainty as to the future of the Cooperative as a viable and self-sustaining enterprise. More specifically, the management deficiencies mortgaging the Cooperative future may be summarized as follows:

- o although designed as a private concern, the Cooperative is currently managed as a quasi-"parastatal" or public enterprise, entirely dependent upon the Fishery and Livestock Service for both equipment and policy orientation;
- o the Cooperative has no organization chart differentiating functions, nor job descriptions setting work standards to properly guide integration, cooperation, staffing, responsibility allocation, and serve as a means for improved accountability, and a basis for objective performance evaluation;
- o although all technically well-qualified, and exceptionally dedicated to their work, the Cooperative as well as the Fisheries and Livestock Service leadership members present severe limitation management-wise, which explains that: (1) no cost accounting has ever been made and that fish is sold below its cost price; (2) no accounting system exists beyond the mere recording of cash transactions and thus the actual financial health of the enterprise is unknown; (3) no plans are made to take advantage of the facilities currently enjoyed (thanks to Government subventions) to start building strong foundations that could ensure that the Cooperative survives the eventual government and donor agencies support withdrawal (asset acquisition; amortization and depreciation plans,...); (4) not enough creativity and aggressiveness has been shown in trying to increase local fish consumption, a rather necessary condition for the Cooperative development."

As a consequence of these findings, Mr. Tshibanda set up the framework of a complete accounting system that would be appropriate for the Cooperative. In addition, he recommended that:

- a. a fiscal manager and clerk accountant be hired in addition to the accountant secretary already in place to properly staff the financial services of the Cooperative.
- b. personnel policies and salary schedules be uniformized to improve internal control as well as the accountability of all employees towards the Cooperative management.

- c. an organization chart with clear job descriptions be prepared allowing for an effective coordination of all various management functions and requiring that no decisions with financial implications be ever taken without the prior consultation with the fiscal manager;
- d. a management training program aimed at enhancing the overall understanding of sound management requirements be designed and given to all Cooperative employees having supervisory and critical supervisory and critical support functions.

2.1.5 Amended Project-Second Extension

The overall successes of the Fisheries Development Project had encouraged both USAID and the GROD to seek to continue development assistance in this sector. It was decided that a major second phase of this effort would be forthcoming, and plans were initiated to seek funding and the necessary agreements. However, because there was an imminent need to intervene in the several areas noted previously, namely financial management and an increase in training, it was decided to seek an extension of the Phase I project and to delay implementation of the Phase II until the full impact of these changes could be evaluated.

In April, 1983, the project was again amended to extend its life an additional one year until August, 1984, at which time Phase II was scheduled to commence. Major features of this amendment included extension of the Project Advisor's tour of duty by 12 months, provision of a Financial Manager to assume financial duties at the Coop in response to the Tshibanda report, finding local-hire Djiboutians to fill the positions of deputy Cooperative manager, accounts clerk, chief accountant and

shipwright, and continuance of training in the areas of fishing, boat building, management and accounts. The project extension funded an additional 17 man-months of the Masterfisherman who was to continue training, exploratory Fishing, and advisory services in the boatyard. Additionally, the extension called for procurement of a 40-foot multipurpose fishing vessel to be used for training, exploratory fishing, and the beginning stages of a stock assessment program that is to be fully implemented in Phase II. Finally, the extension included funds for a socio-economic study, needed as a precursor to justification for a Phase II and funds for final evaluation of Phase I and project design of Phase II.

This second project extension increased the total project budget from \$3,651,500 to \$5,006,500. The USAID contribution increased from \$978,000 to \$1,978,000. The GROD contribution increased from \$394,000 to \$750,000. Figure 3 illustrates project funding levels for the second extension.

	AID	GROD	FAC	IFAD	TOTAL
A. Technical Services	\$1,463,000	\$386,000		\$ 667,000	\$2,516,000
B. Commodities	205,000	260,000	\$150,000	\$1,140,000	1,755,000
C. Participant Training	11,000	5,000			16,000
D. Housing/Local Support	110,000	7,000			117,000
E. Contingencies/Evaluation	188,000	92,000		322,500	602,500
TOTAL:	\$1,977,000	\$750,000	\$150,000	\$2,129,500	\$5,006,500

FIGURE 3: 2ND EXTENSION AMENDED PROJECT-FUNDING BREAKDOWN

2.1.6 Socio-Economic Study

In 1983, USAID financed a socio-economic study to determine the feasibility of Phase II success from the standpoint of social acceptance and economic viability. The study conducted by FAO defined the beneficiary groups who might benefit from the project. Appendix C contains a copy of the Socio-Economic Study.

"The direct beneficiaries of the project are the 260 fishermen, the individuals who have on-shore jobs related to fish handling and supplying the fishing industry (an additional 250-300 people) and the families of these two groups. Indirect beneficiaries include the consumers, who will have access to a lower cost, locally produced protein food. By the end of the project it is estimated that these indirect beneficiaries will number approximately 120,000 individuals living in 20,000 households who will be eating (on average) 2 meals with fish per month. A second category of indirect beneficiaries are the organizations/businesses who purchase fish wholesale from the ACPM. Certain of these use fish in feeding programs for needy persons (i.e., WFP and CRS), the balance benefit from a source of fresh fish to include in the meals they provide to employees, hospital patients, customers, etc."

One of the persistent questions expected to be answered by this study related to the acceptance of fish as a food source by the retail customers, particularly the poorer groups. Local experience has shown that fish, when delivered fresh and clean, is widely accepted, even by Nomad groups far inland. The surveys and subsequent analysis conducted in this study overwhelmingly reaffirm this finding. Fish consumption patterns can be summarized as follows:

- (a) Interview surveys conducted in three neighborhoods near the center of the city and two further out found that 75% of households were already eating fish an average of twice per month and a further 15% reported a willingness to eat fish if it could be purchased nearer their home.

(b) There were indications in the interview survey that increased incomes may favor increased fish consumption. It appears that the sample was somewhat biased to middle class consumers (given the large numbers who owned such items as T.V. sets, and the higher than average level of education) and it is possible this was a factor in the high percentage reporting fish consumption. Analysis of the survey data also indicates that fish consumption increased with the level of income. However, other considerations also favor fish consumption, i.e., all interviewees in one poorer area (which was primarily Afar) reported eating fish though amounts purchased per meal were lower.

It is clear from the information that significant numbers of households already consume fish despite difficulties of access. In addition, it appears that fish consumption is not viewed as a cheap substitute for meat, but rather as a means of increasing the variety in the diet (fish consumers mentioned taste rather than price as the reason for consuming fish). Fish is definitely not excluded from the menu.

The combination of ready access and lower prices, as well as the favorable position of fish (a new product which has been accepted by the wealthier sections of society), should result in rapidly expanding sales. Accordingly, it is feasible to project that 20,000 households will be purchasing and consuming two fish meals per month by the end of the project.

In addition to acceptance of fish as a food source, the socio-cultural analysis looked at the question of whether the fishermen will readily accept training and new technology.

Increasing the productivity of fishermen will depend upon the willingness of fishermen to learn and use new fishing techniques and equipment. The strong family structure and the authority of the older fishermen indicates the value of convincing them first of the usefulness of new techniques rather than concentrating on youths who may not have their own boats for some years. In addition, fishermen (whether young adults or older men) have learned to fish by working with their father or other relatives. Effective training must be by demonstration in concrete fishing situations, not in an abstract classroom setting.

The rapid and total acceptance of engines rather than sail power indicates the willingness of fishermen to accept new techniques and pay for new equipment when they are convinced of the value of the innovation. The current low returns from fishing efforts and low incomes provide a strong incentive for fishermen to accept more productive techniques. The project will ensure that they have an opportunity to learn the techniques in a manner which is appropriate to the culture.

2.1.7 Fishery Development-Phase II

The overwhelming success of Phase I has led to development of plans for a continuation of assistance in the fisheries sector. Present plans call for initiation of Phase II activity during the last month or so of Phase I. Phase II will provide assistance over a three-year period and has been budgeted at approximately \$3 million, a level of effort and funding approximately twice that of Phase I.

The Phase II project is designed to improve the utilization of the local fishery for the benefit of the Djibouti populace. The project will help increase fishermen income, increase the national capacity to process

and market seafood, provide access to seafood for the entire urban populace, and enhance the ability of the Government of the Republic of Djibouti (GROD) to support the fisheries industry as a whole. The strategy involves the use of extensive technical assistance and training of local personnel, and minor commodity support. In addition to short-term specialized technical assistance, long-term technical assistance will be offered over the three-year life of the project in the areas of policy and program formulation, marine biology research, financial and operations management, marketing, fishermen training and equipment testing. The projected benefits of Phase II include: a 25% growth in the fishing fleet size, an overall internal rate of return of 21%, increased income for fishermen, the fisheries cooperatives and retailers, and a 100% increase in seafood production.

The project consists of a variety of activities designed to improve production, processing and marketing of fish in Djibouti, and to strengthen the institutions which administer the fisheries industry in Djibouti. These activities will include training of fishermen in more efficient techniques for fishing and fish processing; research on and exploration of fisheries resources; trials and demonstrations of new fishing gear, equipment and techniques; improvements to existing fish marketing plan based on market analyses and the construction of a marketing office; the development of a national fisheries industry strategy and policies; and the formulation and implementation of improved financial control systems for the principal fish marketing organization in Djibouti, the Association of Marine Fisherman (ACPM).

2.2 Background of Technical Assistance Contract - Resources

Development Associates

In March of 1980, Resources Development Associates (RDA) was awarded a two-year contract through competitive procurement. This contract included provision of a Project Advisor/Manager for a two-year period, a Masterfisherman for three months, a Marketing/Cooperative Development Advisor for six months, and various short-term technicians for nine months. Total estimated cost of this original contract was \$299,000.

In September, 1981, the original contract was extended and amended. The extension carried the contract through August, 1983 and includes 18 months of time for the Project Advisor/Manager, 11 months for a Fishing Development Advisor, and six months for a variety of short-term technical specialists.

In April, 1983, the contract was once again amended to incorporate a one-year extension to activities. This extension carried the contract through August, 1984 and included funding for an additional 12 man-months of effort for the Project Management Advisor, 15 man-months for the Masterfisherman, 15.5 man-months for a resident Fiscal Manager, 6 man-months home office support, 65 man-months of local hire services for the ACPM, and procurement of a forty-foot multipurpose fishing vessel for use in the exploratory fishing/stock assessment program.

Finally, in September 1984, the contract was amended to provide a transition period between Phase I and Phase II start-up.

2.2.1 Contractor Objectives

The objectives of the original technical assistance contract are specified as follows:

1. By means of periodic surveys or other means, develop data regarding:
 - (a) family fish consumption habits in the cities of Djibouti, Ali-Sabeh, and Dikihil and relate them to demand/supply factors,
 - (b) existing marketing system and facilities supportive thereof,
 - (c) existing production techniques (catch) and elements supportive thereof, e.g., boats, etc.,
2. assess existing harvesting methods and introduce improved fishing gear and techniques (on-the-job training to artisan fishermen),
3. upgrade handling and storage by providing ice-making facilities and fish storage containers, experimentation with (dry) fish preservation,
4. improve the marketing system by: (a) enhancing demand through development of promotional and educational demonstrations, and (b) enhancing supply through creation of new retail outlets, and providing assistance/advice in organizing transport to service new and old outlets,
5. assess the potential for development of Cooperative(s) and provide assistance as warranted,
6. using fishing gear and fish storage equipment as capital, establish/manage a revolving credit fund, and train MOA Fisheries Division personnel in its operation,

7. ascertain the training needs of MOA fisheries personnel, fishermen and merchants, and arrange training programs to meet the needs,
8. provide recommendations regarding all aspects for the development of the fishing sector and future U.S. involvement/support of same.

2.2.2 Contractor Goals

The goals of the original technical assistance contract are specified as follows:

1. an increase in harvest of 10-15 percent by the target group,
2. establish the benefit of fishing gear provided and stimulate increased demand (15%) for additional purchases through the revolving credit fund,
3. a self-sustaining credit fund being capably managed by MOA Fisheries Division personnel,
4. if credit Cooperatives are determined by the contractor to be workable, to assist in the development of bylaws and credit fund mechanisms,
5. 10-15 percent increase in fish consumption,
6. periodic demonstrations established at retail outlets; T.V. and radio documentaries developed and receiving regular air time; and surveys taken to determine the most effective advertising medium,
7. increased distribution resulting from:
 - a. six additional retail outlets,
 - b. improved transport,
 - c. additional storage facilities/methods developed in conjunction with other donors.

8. fifty fishermen and MOA Fisheries Division personnel trained, with consequent ability of Fisheries Division MOA to plan (in particular, to draft a 5-year development plan) and to implement any new activities in artisanal fishing gear.

2.2.3 Amended Contract - First Extension

In the fall of 1981, the original TA contract was amended to extend the project 18 months and to provide for new contract activities. The new contract activities are directly related and contribute to the overall objective of the project. The new contract activities include: (1) establishment of facilities for small-scale boat building using C-Flex materials; (2) investigation of the feasibility and possible implementation of an oyster culture pilot project; and (3) to assist the GROD in developing capacity to undertake small-scale industrial fishing activity through continuation of exploratory fishing and on-the-job training in new fishing techniques.

2.2.4 Amended Contract - Second Extension

In April, 1983, the RDA technical assistance contract was amended to provide additional services as follows:

- a. an additional year for the present resident management advisor
- b. 15 person months services of a Master Fisherman least 13 person months of which will be provided in-country and the remainder in assisting in the outfitting of the exploratory vessel in the U.S.
- c. 15.5 person months of a resident Fiscal Manager to develop and install fiscal management program within the ACPM and provide similar advisory services to SEP.
- d. provide an additional six person months of home office support including the design of a fish stock assessment research program

to be started by the Contractor utilizing the exploratory fishing vessel.

- e. provide procurement supply services for the purchase of the exploratory fishing vessel, project supplies, equipment and vehicle.
- f. provide for up to 65 person months of local services, needed to assure attainment of project objectives. Such services will be provided through job-shop purchasing between the individuals involved and either the Cooperative or the contractor. The Deputy Manager, Chief Accountant and Accounts Clerk will work under agreement with the Cooperative, the agreement being governed by local laws and customs as well as the desires of the Cooperative and the GROD. The shipwright and administrative assistant will work under similar agreement with RDA. They will not be employees of RDA but rather independent contractors. Their agreements will likewise be governed by local laws as applicable to these cases.

2.2.4.1 Technical Services

Specific tasks of the contractor's long-term advisors will be as follows:

- a. Management Advisor

The management advisor will continue to serve primarily as the advisor to the manager of the ACPM and will direct, in consultation with the Manager and Chief of Service, the activities of the Deputy General Manager. As Manager Advisor, he will continue to be responsible for providing guidance on Coop (ACPM) by-laws and procedures for receiving, storing and packaging/marketing of fish products.

He will be expected to assist the SEP and ACPM in the development of cold-store facilities in Obock. Responsibility for day-to-day oversight of the Coop's revolving fund will henceforth fall within the purview of the Contractor's Fiscal Manager. The Management Advisor will be responsible for coordinating this project and his contract efforts on close liaison with other donor activities, namely, FAC, IFAD, FAO and the Italian Government.

He will assist the SEP and ACPM in meeting certain special covenants of the grant, namely that they will enter into an agreement which will specify responsibilities and functions of each entity in carrying out the on-going program to improve artisanal fishing industry.

He will continue to have responsibility for promotion and educational aspects of fisheries development in coordination with CRS and UNICEF.

He will arrange for procurement of local project commodities such as vehicles and items required for ACPM in conformance with good business practices, i.e., solicitation of bids and selection based upon lowest bid and/or quality of goods including servicing.

b. Masterfisherman

The Masterfisherman will be responsible for providing continuing assistance in support of the boat repair facility at the SEP, however, his primary responsibilities will be to: (1) provide exposure of improved artisanal fishing techniques to fisherman by means of the project boat, (2) assist in selection and outfitting of a 40' research vessel, and upon delivery, training a counterpart crew in undertaking a stock assessment based upon the U.S. Department of Commerce, National Marine Fisheries grid matrix system. In support of the above, the Masterfisherman will develop a schedule for formalized training on the project boat within 30 days of his initial arrival in-country. Included will be the number of fishermen to be trained and the techniques to be transferred along with the modalities for transfer. It is intended that the Masterfisherman will devote the bulk of his in-country time to training and demonstration on the project workboat up to the time of the exploratory vessel's arrival. Prior to the completion of the training task, the Masterfisherman will submit report assessing accomplishments and recommending the manner in which training could continue to be pursued within or outside of this activity. The Masterfisherman will then return to the U.S. to assist in acceptance testing of the vessel and minor outfitting if required. The Contractor will be responsible for attesting to the supplier having provided the boat requested per bid specification.

c. Fiscal Manager

The Fiscal Manager will assume responsibility for providing assistance to the ACPM on all financial matters. He is expected to assist in implementing and maintaining a proper accounting system such as was initially introduced by the short-term fiscal consultant. Together with the Management Advisor, he will be tasked to recommend an improved management system for the ACPM, encompassing personnel, planning, bookkeeping, reporting and marketing. The overall objective is to move the ACPM to greater independence. Inherent in achieving this objective is the need for the Fiscal Manager to determine all costs and returns owing from the ACPM operations.

Based upon the above, it is expected the contractor can provide impetus to the GROD's satisfying its special covenant, i.e., for the SEP to enter into an agreement which will include such management and financial detail as necessary to clearly define the functions of each party, ownership of various assets, and the distribution of income and expenses derived from the artisanal program.

To attain the above, the Fiscal Manager will: (a) review the ACPM and SEP personnel structure including salary benefit scales, and recommend critical personnel requirements and assess ACPM capability to cover cost of such services in near term, (b) establish, implement and record stock inventory of ACPM asses; (c) further develop the bookkeeping system to include a general ledger, subsidiary ledgers, general and special journals as detailed in pages 33-34 of the Tshibanda report of 8/82, a Fiscal

Management System (incorporated herein by reference), (d) further develop the accounting system to:

(i) allow a continuous and accurate recording of all receipts and expenditures (date, origin, justification), and help determine both the cash balance and the cash flow requirements;

(ii) produce information needed to keep the management always informed on the extent and the conditions of the Cooperative indebtedness;

(iii) formalize the invoicing process and describe an accounts receivable monitoring system to improve the Cooperative's performance in collecting its dues;

(iv) introduce procedures to help control expenditures, and a better management system to help reduce losses;

(v) discriminate between the three main activity areas in which the Cooperative is involved (Fish Catching and Marketing: FCM; Boat Building and Repair: BBR; Revolving Credit Fund: RCF), and so facilitate the monitoring and comparison of their respective performance; prepare timely financial analyses needed to guide management decisions.

(5) undertake an analysis of the supply-demand market forces with recommendations on pricing at point of receipt, wholesale and retail.

In addition, the fiscal manager will supervise and provide on-the-job training to ACPM fiscal personnel. He will also provide guidance to the management advisor and the ACPM general manager on improved methods/flow for receiving, selling and marketing and provide similar guidance to the retail outlet owners.

2.2.4.2 Vessel Procurement

Informal negotiated procurement procedures will be used by the Contractor to purchase a fishing vessel for use under this Contract. This vessel shall conform to the following specifications:

1. Base boat as per Nairobi Cable 2210 (incorporated herein by reference)
- *2. Engine - Perkins V8.540
- *3. Flying Bridge with controls
4. Enclose house with aft bulkhead, window and door
5. Galley with 2 burner LPG stove, ice box, sink, manual fresh water pump - 200 gal. water, counter tops
6. Settee converts to upper and lower bunks
7. Extra V-Berths (total of 4)
8. Marine head, (manual)
9. Transom door
10. Fish hold: Minimum 400 cubic feet, 3" urethane foam 4' x 6' x 6" hatch trunk, electric sump pump
11. Towing bits, two aft, one forward
12. 2 hydraulic powered and two manual bottom fishing reels with fiberglass drums and S/S stanctions
13. Hydraulic trap hauler: 12" S/S head, TC-24 pump, tank, tank filter, 8" manual clutch, swinging davit
14. Long line reel, 10 mile reel, aluminum, fairlead rollers and level-wind, gill net rollers on top
- *15. Depth Recorders: 502D and 600B
- *16. ITT Radio Model STR-12 25 watt
17. Compass: Ritchie dn-46 - 2 each
18. Engine compartment insulation
19. Electric windshield wiper
20. Radar: Furuno F.R. 1.600 16 mile
- *21. Mast & Boom
- *22. Hydraulic Powered seine winch
23. 3 extra circuits in electric panel
- *24. 3KW 24VDC auxiliary diesel-driven generator with hydraulic pump
25. Refrigeration for fish hold
26. Shipping Cradle
27. Trolling Poles
28. Safety and lifesaving gear:
 - Fire Extinguishers
 - Life Jackets
 - Life raft
 - Medical Kit
 - Ground tackle
 - Search Light
 - Distress Signals
 - Horn
 - Bilge Pumps
29. One-mile long line gear
30. U.S. Coast Guard certification

*These items are in accord with IFAD and GROD Specs.

2.2.5 Amended Contract - Third Extension

In September of 1984 the contract was amended a third time. Due to delays in the start of Phase II, USAID decided it was necessary to provide additional technical services for an orderly transition between Phase I and Phase II. The contract as amended provided a seven month extension from August 31, 1984 to March 31, 1985.

This third project extension increased the total project budget an additional \$180,000. Figure 4 illustrates the end of project funding levels for the entire project.

	AID	GROD	FAC	IFAD	TOTAL
A. Technical Services	\$1,643,000	\$386,000		\$ 667,000	\$2,696,000
B. Commodities	205,000	260,000	150,000	1,140,000	1,755,000
C. Participant Training	11,000	5,000			16,000
D. Housing/Local Support	110,000	7,000			117,000
E. Contingencies/Evaluation	188,000	92,000		322,500	602,000
TOTAL	\$2,177,000	\$750,000	\$150,000	\$2,129,500	\$5,186,000

FIGURE 4 : 3rd Extension Amended Project-Funding Breakdown Final

3.0 Contract Progress and Results

The Djibouti Fisheries Development Project has been in effect for over five years now and has produced results far in excess of those originally intended. In August, 1982, RDA published a mid-project report entitled "Development of Fishing and Fisheries in Djibouti." This report documented progress made in the first 2-1/2 years and served as a cornerstone for the development of the Phase II effort.

The original project was limited in scope compared to the project as it now stands. The present project has expanded to cover virtually all phases of fisheries development. This report is thus broken down into major sections covering production, handling, storage and processing, marketing, administration and management, and research.

3.1 Production

Assistance in increasing production has been provided through several different approaches. The fishing methods previously utilized by the artisanal fishermen were observed. Several new techniques or modifications to established techniques were introduced. Training in the use of these techniques was provided. New gear was made available through the Cooperative. A boat repair and boat production facility was established. The following sections of this report detail the efforts made and results achieved in increasing production.

3.1.1 Improved Fishing Methods - Exploratory Fishing

At the present time, the fishermen of Djibouti are limited to a small number of catching methods. As a result of their lack of hand tools and the necessary skills to use tools, very few innovations are attempted. The principal gear used for fishing is:

- (1) Single hook hand lines, one line per man
- (2) Trolling lines, one or two lines per boat
- (3) Gill nets
- (4) Free diving for lobsters

The few fishermen who pursue their trade diligently catch an impressive amount of fish. These are the people who would most benefit from the introduction of improved gear and fishing methods.

An exploratory fishing program conducted over an extended period of time should locate new and unfished areas that the fishermen could utilize. Most of the fishermen fish in well established locations and spend very little time and effort searching for new productive areas.

3.1.1.1 Bottom Fishing With Manual Reels

The introduction and acceptance by the fishermen of manually operated fishing reels would greatly improve the catch rate per unit of effort.

There are several reasons for the increased catch rate potential. The most important factors are:

- (1) Decreased landing time after fish is hooked
- (2) Less effort than hand lining
- (3) Ability to fish multi-hook gear
- (4) Less chance for gear tangle so that fishermen can spend more time fishing while in the fishing area

- (5) Ability to utilize much heavier weights, making it possible to fish at greater depths and in more adverse wind/tide conditions.
- (6) The ratchet assembly on the reel minimizes the danger of line burns/cuts when fishing in shark infested areas.

The project has four commercial style manual snapper reels. These reels have been used and demonstrated both on the Yamaha project boat and on the fiberglass dory. Fishermen who have seen these reels in action have expressed a desire to use this equipment. There are no reels available for sale in Djibouti. It is possible to fabricate a local reel, but the cost could be a negative factor. The RDA masterfisherman has built and successfully demonstrated two hand-made reels. Using the experience gained from these two reels, a workable design has been drawn and attempts to interest a local machine shop in test manufacturing a few reels is underway.

A reasonable estimate of the value of reels would be that a fisherman could, under identical conditions, at least double the catch using a single hook.

The plans for the next step in promoting the use of reels is to make a portable reel stand and install it temporarily on various boats to demonstrate the gear under actual artisanal fishing conditions.

3.1.1.2 Bottom Fishing With Multi-Hook Equipment

With the use of reels it is possible to fish with multi-hook gear. Because of the size and vitality of the fish caught on handlines, it is impractical and hazardous to use more than one hook.

Several multi-hook bottom fishing arrangements have been tested. Some of the gear used was purchased from a U.S. Commercial fishing gear company,

and some was experimental gear put together in Djibouti. The commercially manufactured gear used was:

- (1) 3 and 7 hook monofilament snapper assemblies with 3/5 pound lead balls and circle tuna hooks.
- (2) 10 hook "American Fish Sticks" made from PVC pipe and rigged with circle Tuna hooks.

The monofilament snapper assemblies caught fish, but gear loss was unacceptably high because of bottom hang-ups. When the gear was retrieved, it was usually tangled and a lot of time was wasted removing fish and untangling leaders. Each time the gear was untangled, the leaders and main line became more misshapen and difficult to use. Use of this gear was discontinued. The "American Fish Sticks" proved to be very efficient. It is not unusual to catch 8 fish on this 10 hook assembly. Very few bottom hang-ups were experienced and no gear to date has been lost. It is possible for one man to fish two hand reels. Several fishermen have observed the use of these "fish sticks" and are interested in obtaining them. For them to use this type of equipment successfully, a reel is necessary. Twenty sticks, 6 hooks each, have been fabricated and are available for sale at the Coop, but lack of reels presents a problem. The RDA fisherman, in an hour period, using 2 reels boated approximately 200 kilos of bottom fish from 85 meters (See mission logs, Figure 5 through Figure 12). From the experience gained by using the manual reels and fish sticks, it is obvious that the introduction of this gear would be of great benefit to the artisanal fishermen and well within economic reality. It is reasonable to predict that the total cost of reel, stick and line would be realized in additional catch in 3 to 5 fishing days. Photos 1 and 2 show fish sticks and other bottom gear assemblies in operation.

The locally made experimental gear used:

- (1) Wire sticks with monofilament leaders, 5 hooks
- (2) Short lines, monofilament main line and leaders, 15 hooks
- (3) Short lines, tarred nylon main and leaders, 15 hooks
- (4) Modified PVC fish sticks, 20 hooks
- (5) Modified PVC fish sticks, 10 hooks
- (6) Modified PVC fish sticks, 4/6 hooks
- (7) Fish manger, 24 hooks

This gear was tested using both regular and circle tuna hooks. The catch rate for the circle hooks was many times greater than for the regular hooks. It is evident that the success of this type of gear is dependent upon the use of the circle hooks.

(1) WIRE STICKS:

The wire sticks proved to be workable tools, but not as good as the PVC sticks. Two types of wire were tested, seven strand stainless trolling wire and 1/8" steel wire. The seven strand wire twisted and frayed and after a few pulls was unusable. The single strand wire stock could be straightened out with little difficulty. Each of these assemblies was six feet long and had 5 hooks at evenly spaced intervals. The ganions were monofilament, swiveled to the main wire to minimize tangling. This assembly proved to be a successful and workable tool that can be easily and inexpensively fabricated by the fishermen.

(2) SHORT LINES, ALL MONOFILAMENT:

This gear catches fish but presents several problems. Probably the most serious disadvantage is the danger of shark activity while boating in the fish. It was determined that this gear would not be practical on small boats without power pullies.

(3) SHORT LINES, TARRED NYLON:

The same problems are experienced with this gear as with the monofilament short lines. With high speed power pullies and fished from larger boats with adequate work space, short lines would prove efficient.

(4) PVC STICKS, 20 HOOKS:

The prototype proved to be unworkable because of excessive drag while being lowered and raised. For the experience gained, it is evident that a working model could be made. The advantage of this gear over conventional fish sticks is problematical. A power puller is necessary to operate this tackle.

(5) PVC STICKS, 10 HOOKS:

After several modifications, a simple and inexpensive design was formulated, eliminating most of the hardware. The present design eliminates most of the problems encountered while fishing the commercial models. These are fabricated from locally available materials, and simple enough for individual assembly. Most of the fishermen who have seen these sticks in action would like to be able to use them, but reels are necessary.

(6) PVC STICKS, 4 - 6 HOOKS:

The fabrication of these sticks proved simple and inexpensive, almost all of the hardware (swivels, etc.) used on the commercial stocks was eliminated, but none of the versatility was lost. Because of the shortened length of the sticks, they are easier and safer to manipulate on a small boat. If a longer stick with more hooks is needed, two or more of the short sticks can be joined. This is a tool that could be fabricated by individual fishermen.

(7) FISH MANGER:

This device is fabricated from reinforcing rod and chicken wire. It consists of a single panel, one meter square, with hooks on short leaders tied to the chicken wire. Floats were attached to the upper edge to hold the unit in an upright position. Although the prototype caught fish, it proved difficult to handle. From experience gained using this gear, it is evident that a workable model could be designed. It's potential advantage over the locally made fish sticks may not be enough to make this gear a success. A power puller is necessary to operate this gear.

FIGURE 5 EXPERIMENTAL FISHING MISSION LOG

DATE: 12/28/83

1. General Information:

Boat Utilized	Yamaha 9 meters	Fishing Location	11° 43' 7" E
Weather	ocean calm winds E 6 to 8 Knts		11° 49' N
Mission Timing, Depart Port		0430 hours	
	Arrive Fishing Grounds	0615 hours	
	Depart Fishing Grounds	1200 hours	
	Arrive Port	1345 hours	

2. Fish Traps:

No. of Traps	1	Soak Time	6 days
Bait Employed	tuna	Depth	83 meters
Capture, Number and Species	85 groupers (Epinephelus Areolatus) 8 snappers (Letrinus Miniatus)		
Total Weight	121 kgs		

3. Bottom Fishing:

No. of Reels and Fishermen Used	2 reels, 2 fishermen	Average Depth	80 meters
Bait Employed	tuna	Total Fishing Time	2 hours
Bottom Gear Employed	Hook Efficiency By Gear NA		
3 and 7 hook monofilament assemblies with circle			
tuna hooks and 3/5 pound			
lead balls			
Capture, Number and Species by Gear	3 and 7 assemblies - 50 groupers 8 snappers		
Total Weight	97 kgs		

FIGURE 6 EXPERIMENTAL FISHING MISSION LOG

DATE: 1/4/84

1. General Information:

Boat Utilized	Yamaha 9 meters	Fishing Location	Dalay 43 7 ^o E
Weather	Ocean calm winds E 4 to 5 Knts		11o49 ⁻ N
Mission Timing, Depart Port		0445 hours	
	Arrive Fishing Grounds	0630 hours	
	Depart Fishing Grounds	1230 hours	
	Arrive Port	1415 hours	

2. Fish Traps:

No. of Traps	1	Soak Time	7 days
Bait Employed	tuna	Depth	83 meters
Capture, Number and Species	51 groupers (Epinephelus Areolatus)		
Total Weight	56 kgs		

3. Bottom Fishing:

No. of Reels and Fishermen Used	2 reels, 2 fishermen	Average Depth	80
Bait Employed	tuna	Total Fishing Time	NA
Bottom Gear Employed		Hook Efficiency By Gear	
	10 hook fish sticks with circle tuna hooks		10 hook fish stick 3 fish set
Capture, Number and Species by Gear	10 hook fish stick		
	23 groupers		
	10 snappers		
Total Weight	67 kgs		

FIGURE 7 EXPERIMENTAL FISHING MISSION LOG

DATE: 1/11/84

1. General Information:

Boat Utilized	Yamaha 9 meters	Fishing Location	Daley 43° 7' E
Weather	ocean calm winds E 4 to 5 knts		11° 49' N
Mission Timing, Depart Port		0520 hours	
	Arrive Fishing Grounds	0705 hours	
	Depart Fishing Grounds	1130 hours	
	Arrive Port	1315 hours	

2. Fish Traps:

No. of Traps	1	Soak Time	7 days
Bait Employed	tuna	Depth	83 meters
Capture, Number and Species	65 groupers (Epinephelus Aerolatus) 3 snappers (Leptocottus armatus)		
Total Weight	100 kgs		

3. Bottom Fishing:

No. of Reels and Fishermen Used	2 reels, 2 fishermen	Average Depth	80 meters
Bait Employed	tuna	Total Fishing Time	2 hours, 30 minutes
Bottom Gear Employed	10 hook fish sticks with circle tuna hooks	Hook Efficiency By Gear	estimate 3 fish per set
Capture, Number and Species by Gear	10 hook fish sticks 110 groupers 5 snappers		
Total Weight	170 kgs		

FIGURE 8 EXPERIMENTAL FISHING MISSION LOG

DATE: 1/24/84

1. General Information:

Boat Utilized	Yamaha 9 meters	Fishing Location	11° 49' N	117° 43' E
Weather	ocean rough winds E 10 to 12 knts			
Mission Timing, Depart Port		0550 hours		
	Arrive Fishing Grounds	0720 hours		
	Depart Fishing Grounds	0930 hours		
	Arrive Port	1200 hours		

2. Fish Traps:

No. of Traps	1	Soak Time	14 days
Bait Employed	frozen tuna	Depth	83 meters
Capture, Number and Species	97 groupers (Epinephelus Aerolatus)		
Total Weight	151 kgs		

3. Bottom Fishing:

No. of Reels and Fishermen Used	0	Average Depth	80
Bait Employed	frozen tuna	Total Fishing Time	15 minutes soak
Bottom Gear Employed		Hook Efficiency By Gear	NA
hydraulically pulled			
26 hook fish manger			
circle tuna hooks			
Capture, Number and Species by Gear	0		
Total Weight	0		

FIGURE 9 EXPERIMENTAL FISHING MISSION LOG

DATE: 1/31/84

1. General Information:

Boat Utilized	Yamaha 9 meters	Fishing Location	Dalay 43 ^o 7' E
Weather	calm winds E 3 to 5 knts		11 ^o 49 N
Mission Timing, Depart Port		0443 hours	
	Arrive Fishing Grounds	0700 hours	
	Depart Fishing Grounds	1245 hours	
	Arrive Port	1500 hours	

2. Fish Traps:

No. of Traps	1	Soak Time	7 days
Bait Employed	tuna	Depth	83 meters
Capture, Number and Species	100 grouper (Epinephelus Aerolatus)		
	2 snappers (Letrinus Minatus)		
Total Weight	138 kgs		

3. Bottom Fishing:

No. of Reels and Fishermen Used	2 reels, 2 fishermen	Average Depth	80 meters
Bait Employed	tuna	Total Fishing Time	2 hours
Bottom Gear Employed		Hook Efficiency By Gear	
26 hook fish manger		manger - 7 fish/set	
10 hook fish sticks		10 hook sticks - 5 fish/set	
5 hook wire sticks		circle hooks 7 fish/set	
circle tuna hooks and No. 3 flat hooks		flat hooks 3 fish/set	
Capture, Number and Species by Gear	all gear		
	136 groupers		
	3 snappers		
	1 rainbow runner		
Total Weight	211 kgs.		

FIGURE 10 EXPERIMENTAL FISHING MISSION LOG

DATE: 2/21/84

1. General Information:

Boat Utilized	Yamaha 9 meters skiff 6 meters	Fishing Location	Dalay 43 ⁰ 7'E 110 49 N
Weather	ocean calm		

Mission Timing, Depart Port	0530 hours
Arrive Fishing Grounds	0750 hours
Depart Fishing Grounds	1220 hours
Arrive Port	1440 hours

2. Fish Traps:

No. of Traps	1	Soak Time	3 weeks
Bait Employed	tuna	Depth	83 meters
Capture, Number and Species	65 grouper (Epinephelus Aerolatus) 6 snappers (Letrinus Miniatus)		
Total Weight	104 kgs.		

3. Bottom Fishing:

No. of Reels and Fishermen Used	1 reel, 1 fishermen	Average Depth	80 meters
Bait Employed	tuna	Total Fishing Time	15 minutes
Bottom Gear Employed	10 hook fish sticks	Hook Efficiency By Gear	NA
Capture, Number and Species by Gear	10 groupers 2 snappers		
Total Weight	20 kgs.		

FIGURE 11 EXPERIMENTAL FISHING MISSION LOG

DATE: 3/6/84

1. General Information:

Boat Utilized	Yamaha 9 meters	Fishing Location	43° 7' E
Weather	calm, light wind		11° 38' N
Mission Timing, Depart Port			0830 hours
	Arrive Fishing Grounds		0950 hours
	Depart Fishing Grounds		1010 hours
	Arrive Port		1130 hours

2. Fish Traps:

No. of Traps	1	Soak Time	10 days
Bait Employed	tuna	Depth	70 meters
Capture, Number and Species	5 sand groupers 4 snappers		
Total Weight	12 kgs.		

3. Bottom Fishing:

No. of Reels and Fishermen Used	Average Depth
Bait Employed	Total Fishing Time
Bottom Gear Employed	Hook Efficiency By Gear
Capture, Number and Species by Gear	
Total Weight	

FIGURE 12 EXPERIMENTAL FISHING MISSION LOG

DATE: 3/12/84

1. General Information:

Boat Utilized	Yamaha 9 meters	Fishing Location	43° 1' E
Weather	calm, light wind		11° 39' N
Mission Timing, Depart Port			0845 hours
	Arrive Fishing Grounds		1005 hours
	Depart Fishing Grounds		1025 hours
	Arrive Port		1205 hours

2. Fish Traps:

No. of Traps	1	Soak Time	6 days
Bait Employed	tuna	Depth	75 meters
Capture, Number and Species	8 sand groupers 1 snapper		
Total Weight	22 kgs		

3. Bottom Fishing:

No. of Reels and Fishermen Used	Average Depth
Bait Employed	Total Fishing Time
Bottom Gear Employed	Hook Efficiency By Gear
Capture, Number and Species by Gear	
Total Weight	



PHOTO 1 PVC FISH STICKS IN OPERATION



27-foot Yamaha with Hand Reels & Fish Trap



Fish
Manger



Multi-Hook Wire Sticks



Catch with Wire Sticks

PHOTO 2 BOTTOM FISHING GEAR

3.1.1.3 Fish Traps

In order to assess the potential catch rate of fish traps, a standard model trap was fabricated from reinforcing rod and galvanized chicken wire (see Figure 13). Six sets were made with this trap in the same area between the middle of December, 1983 and March 21, 1984. Individual catches ranged from 51 fish weighing 56 kgs to 100 fish weighing 151 kgs (see Photo 3). The average number of fish caught in these six sets was 81 and the average weight per set was 112 kgs.

The people involved in this experiment are convinced that it would be impossible to catch fish consistently at this rate, but the results indicate that this could be a lucrative method for boats capable of trap fishing. There are several boats presently engaged in the fishery that are capable of conducting a fish trap operation. These boats would need power pullers installed, but the potential income from such a fishery would warrant the expenses of boat modification and gear acquisition.

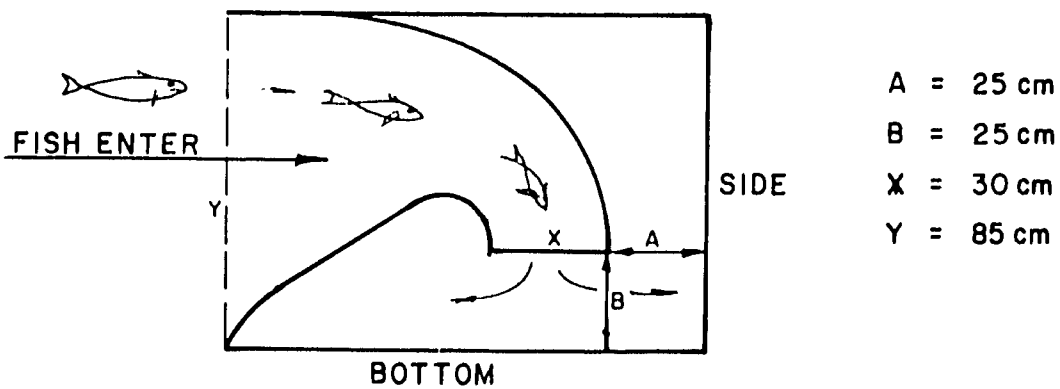
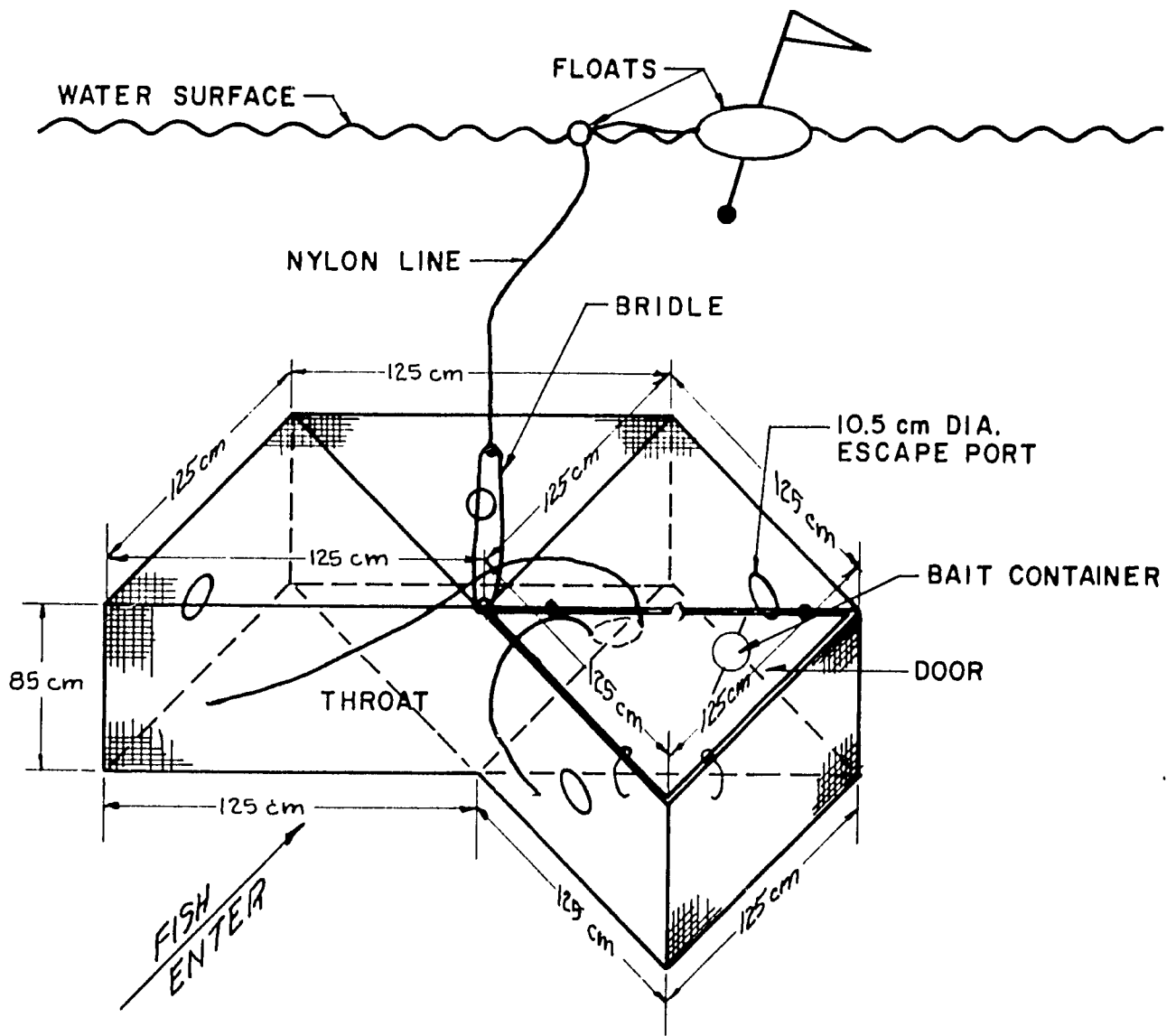


Figure: 13 FISH TRAP



PHOTO 3 FISH TRAP OPERATIONS

3.1.1.4 Crab and Lobster Trapping

Although 20 plastic crab/lobster traps are available, no work has been done on this project. The lobster fishing area is too far from Djibouti City to make practical an exploratory program using the Yamaha project boat. This work is planned to be done aboard the 40' multipurpose fishing vessel. There are indications of a commercial crab population, but the present demand for this species is limited. Plans to explore the crab potential are, at the present time, low priority. If crabs are found in worthwhile quantities, this could be with proper sales procedures, a valuable unexploited fishing resource.

Several models of live holding crates have been made and given to the lobster fishermen. The purpose of this project is to determine if the fishermen will use them, which type of crate they find most practical and if by using crates, it is possible to land the lobsters in better condition.

3.1.1.5 Subsurface Trolling

Several attempts have been made to troll with deep fishing lures. No successful subsurface trolling to date has been accomplished.

These nonproductive experiments should not deter further attempts using this type of gear. This is a method of fishing that could be adaptable to the artisanal fleet, and is an efficient and productive method, proven in other areas.

3.1.1.6 Surface Trolling

The artisanal fishermen traditionally fish with one trolling line per fisherman, and the boat is stopped when a hook-up occurs. This system eliminates the possibility of multi-strikes and limits the catch potential. Trolling poles have been fabricated for the Yamaha project boat and the

boat yard manufactured dory boats. Both boats are capable of trolling with 7 10 lines. The catch rate with the Yamaha project boat has been disappointing. Although fish have been caught, no sustained bite has been experienced. While fishing in the same area, matching trolling speed and using identical lures, artisanal fishermen consistently outfish the project boat. An explanation for this situation is that the fish do not like the engine noise being broadcast through the shaft. On the West Coast of the U.S., almost all diesel-powered trollers are equipped with noise suppressant flexible couplings to eliminate this problem.

As of now, no attempt has been made to use the trolling equipment on the dory other than testing the gear out and making sure that it is fishable. Plans are to use this boat and gear in the future.

3.1.1.7 Trawling

The project has two shrimp trawl-nets, a 16-foot and a 24-foot model. Approximately twenty tows of thirty minutes duration using the Yamaha project boat have been made using the 16 foot model. A large piece of coral was entangled in the net on the last tow, causing extensive but repairable damage. The equipment for hauling trawl nets is inadequate for the use of the larger net. A variety of small fish, considered a delicacy by the European community along with a few 4 to 8 inch shrimp were caught. It is possible that a larger local boat could be rigged to use this gear and supply the limited market for these small fish. The incidental catch of shrimp could help to make this a viable operation.

The IFAD vessel "Khor Angar" has the deck equipment and the necessary nets to implement a commercial scale fishing operation using both bottom and midwater trawls, purse seines and deep water gill nets. Photos 4 and 5 show the deck equipment.

The projected USAID 40-foot boat will compliment the "Khor Angar" by being equipped to engage in many of the fishing methods that can be utilized by the artisanal fleet. The use of these two boats, with their many capabilities, can result in more reliable data concerning the potential sustainable yield of the Djibouti fishing zones.

3.1.1.8 Summary

The projected exploratory fishing program for this project extension has been hampered by two factors. The delay in delivery of the 40-foot boat and the lack of adequate crew for the Yamaha project boat.

Handling the fish trap gear aboard the Yamaha project boat requires attention, skill and hard work. Only when it was possible for Mr. Tello or Mr. DeRito to act as crew members, was it deemed safe to work this gear. Although this gear was fished only sporadically, the results are promising. Six new fish traps have been fabricated and are ready to use.

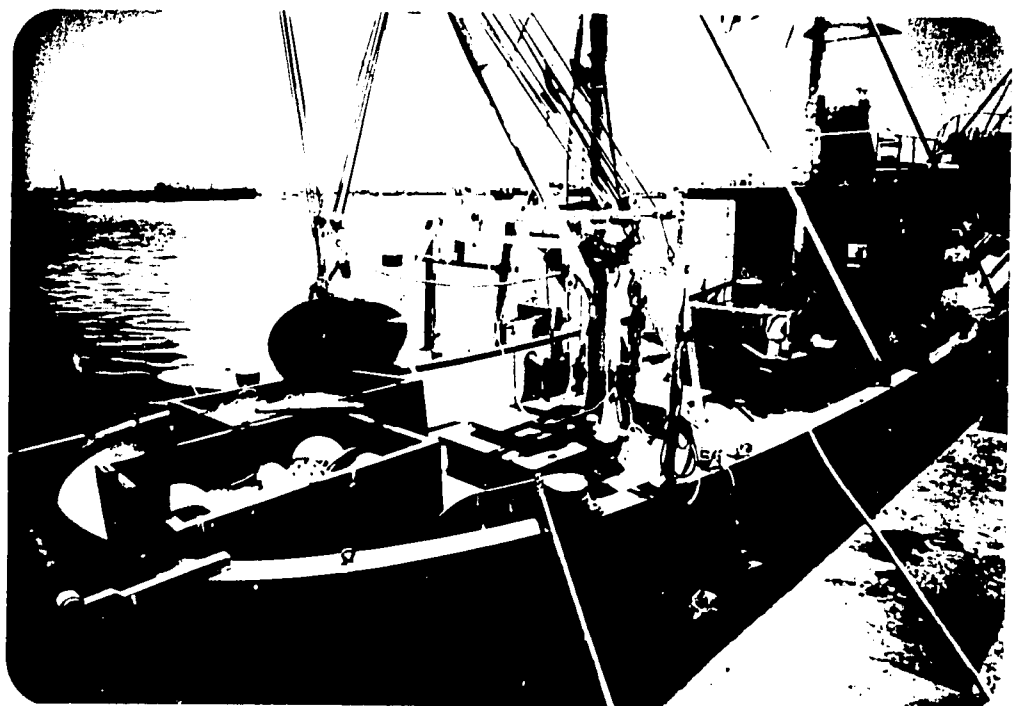
Mylar overlays have been made to register over the navigation charts of this area. The entire area has been divided into two mile squares conforming to the latitude and longitude lines. Each square is numbered. Duplicate work sheets have been drawn and printed to record locations and fishing information. With these overlays and work sheets, it will be possible to keep an easily understood running record of areas fished and pertinent information, and to simplify relocation for subsequent fishing.

It is hoped that these numbered overlays will be used by all agencies involved in various aspects of the exploratory fishing program so that correlation of data can be easily accomplished.

PHOTO 4
I.F.A.D. VESSEL
"KHOR ANGAR"
NOTE POWER BLOCK



PHOTO 5
"KHOR ANGAR"
SET FOR GILL
NET FISHING



3.1.2 Production-Training

Training in production techniques has been supplied by various means. A project workboat, a 28-foot Yamaha, was procured and was used as a training platform, upon which techniques could be tested, and if successful, be demonstrated to the fishermen. In addition, the RDA masterfisherman accompanied various fishermen in their own boats, observed their techniques and showed them new techniques appropriate to these vessels (Photos 6 and 7). Finally, the 40-foot multipurpose fishing vessel was to have been used in part as a training platform to demonstrate techniques appropriate to larger vessels. However, its late delivery has precluded that activity from taking place in Phase I. The following sections detail the results of this part of the project.

3.1.2.1 Project Work Boat-Yamaha

The Yamaha project boat was delivered to the fishery compound in 1981. It was necessary to build and install floorboards, hatch covers, electrical system, running lights, standing and running rigging, electronic equipment and fishing gear (Photo 8). This work was completed a few days before the departure of the RDA Masterfisherman, so that only limited sea trials were made. With no permanent personnel to maintain and operate the boat, it was underutilized and undermaintained. On subsequent trips by the RDA masterfisherman, objectives other than the maximum use of the project boat were determined to be more important. As a result of understaffing and undermaintenance, the project boat has never fully fulfilled its potential.

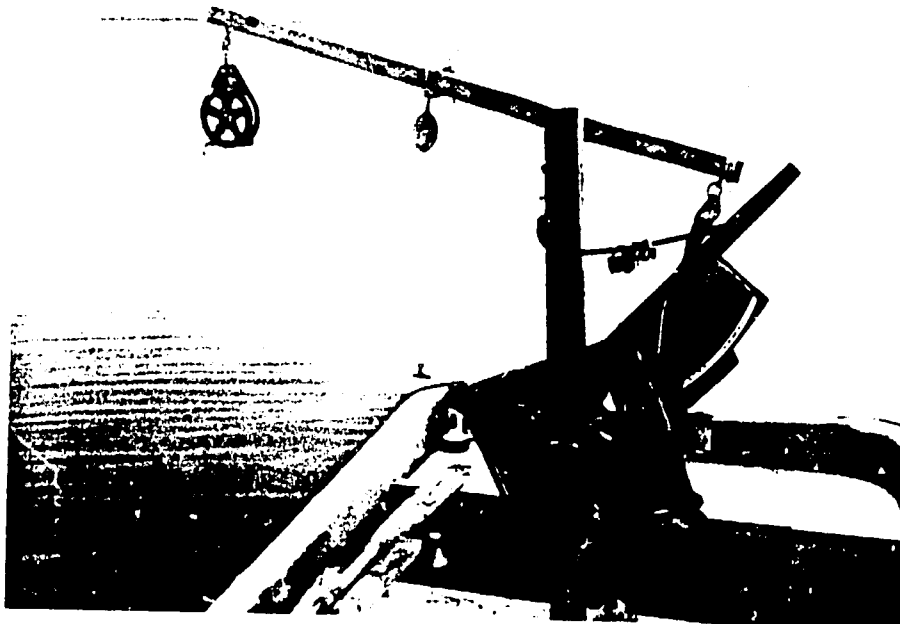


PHOTO 6 LOCALLY PRODUCED BOTTOM REEL OUTFITTED ON FISHERMAN'S BOAT



PHOTO 7 DJIBOUTIAN FISHERMAN TIED OFF PROJECT SKIFF DURING BOTTOM REEL DEMONSTRATION AT "DA LAY"

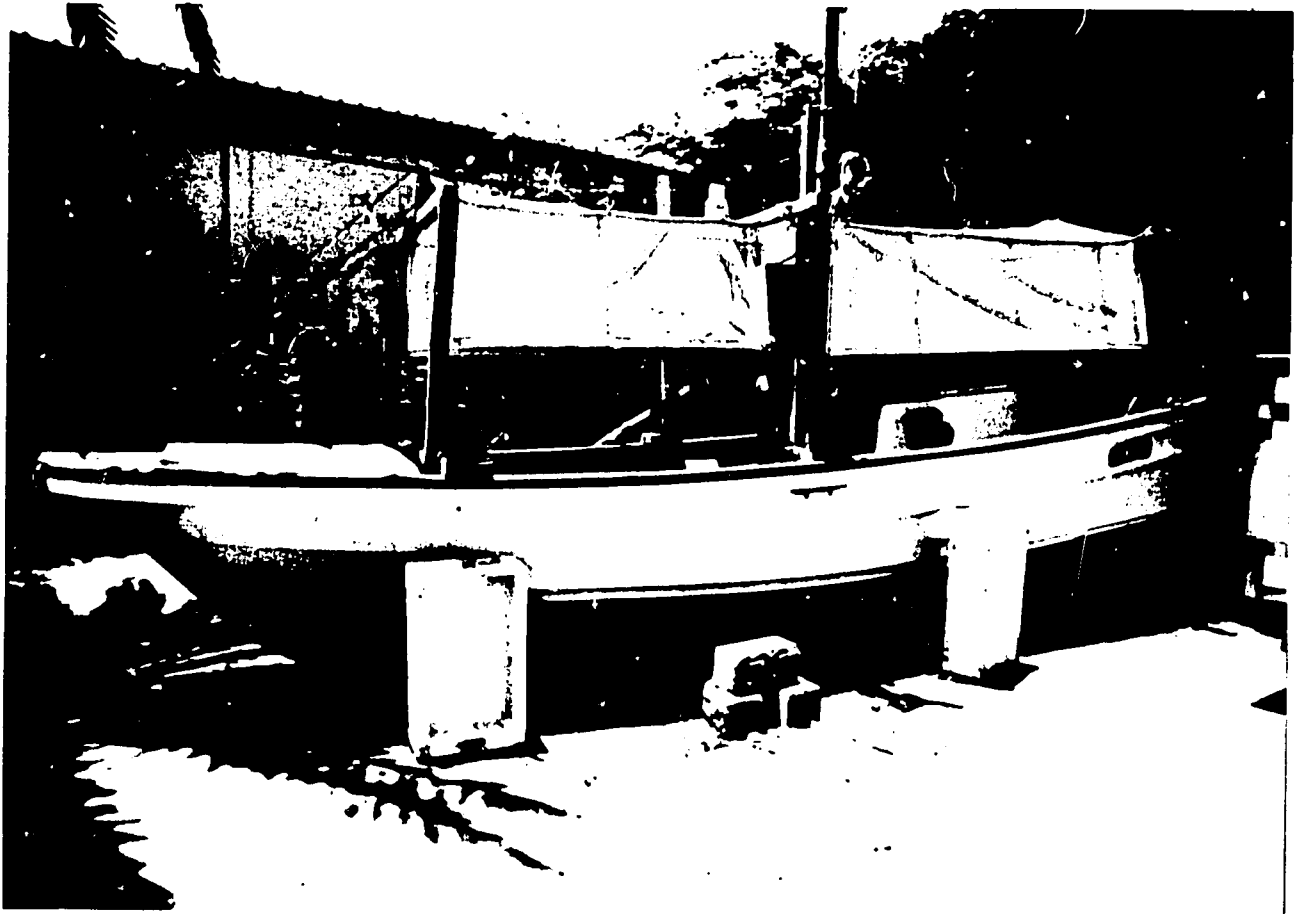


PHOTO 8 OUTFITTING YAMAHA BOAT 1981



PHOTO 9 YAMAHA BOAT RETROFITTED FOR TRAP AND BOTTOM FISHING 1983

Several operations have been accomplished with the project boat with varying degrees of success. Fishing with snapper reels and traps have been the most productive uses. Hauling ice to Obock and fish back to Djibouti proved to be impractical from a financial standpoint. Fishing bottom gill nets in deep water was found to be possible, but not entirely practical. Surface trolling has been carried out, but has not proven to be successful as envisioned. The boat was used in the oyster program, but this program was hindered by lack of operating personnel.

Since January 1, 1984, the project boat has been covering all its operational expenses, excluding labor (fuel, oil, ice, bait, fishing gear, parts, paint, etc.) from the value of the fish caught while experimenting with various types of gear. Photo 9 shows the Yamaha boat fitted for trap and bottom fishing.

This boat, staffed with an enthusiastic and work-oriented crew, could play an important role in training fishermen in new skills and in demonstrating gear that would be transferrable to the artisanal fleet.

3.1.2.2 Fishermen's Boats

The majority of the artisanal fishing fleet in Djibouti is made up of wooden boats ranging in size from 4 to 8 meters. With few exceptions, at the start of the USAID project, these boats were in poor condition. As a result of the boat repair program, a portion of the fleet has been repaired with fiberglass coatings. Some of the boats repaired were deemed beyond repair, so that these boats can be considered new additions to the fleet. IFAD and CRS have made available thirteen 8 meter fiberglass boats to the Fisheries Cooperative for sale to fishermen. All of these boats were purchased and are in productive use. Almost all of the boats are powered with outboard motors. A few of the small inshore boats are hand powered.

Three 8.5 meters fiberglass boats manufactured in Sri Lanka are currently engaged in the fishery. These boats are diesel inboard powered, and with adequate fishing gear could be an important factor in increased production. The methods and gear now fished on these boats are strictly traditional so that the catch potential per unit of effort is no greater than on the older boats. About the only advantage now is that the boats are capable of travel in worse weather, making longer trips and carrying a larger crew. Several modifications could be made to these boats to vastly improve their catch potential as well as improve the quality of fish delivered. The installation of adequate holding boxes and/or a permanent insulated hold, chilled water refrigeration systems, manual or powered hand reels, power net puller with chutes for setting nets over the stern and power equipment for hauling traps are among the possible modifications that would convert these boats into modern fishing machines.

In addition to the fiberglass Sri Lanka boats, there are several other boats in the fleet large enough to use fish traps. A few of these larger boats actively engaged in trap fishing could dramatically increase overall production. Photos 10 through 12 illustrate the type of boats used by Djiboutian fishermen.

The fishermen have been convinced that using ice to preserve the quality of their catch is financially advantageous. The next logical step would be to design an insulated box that would be more practical than junk refrigerators.

The installation of manual snapper reels appears to be the easiest way to increase production and eliminate some of the hardships associated with artisanal fishing.



PHOTO 10
FOREGROUND-WOODEN
HOURIS TYPE
BACKGROUND-SRI
LANKA 8.5 METER
FIBERGLASS BOATS

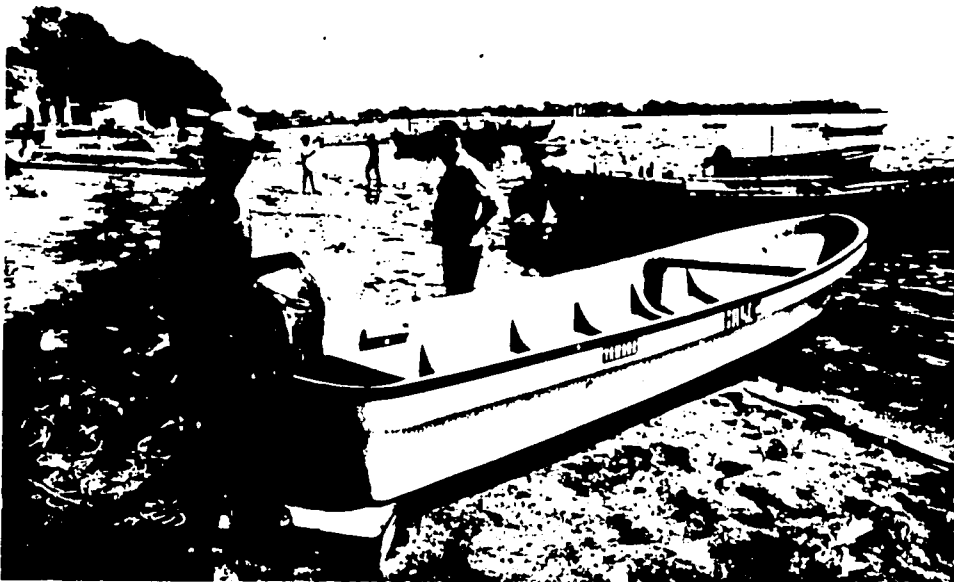


PHOTO 11
8 METER FIBERGLASS
BOAT

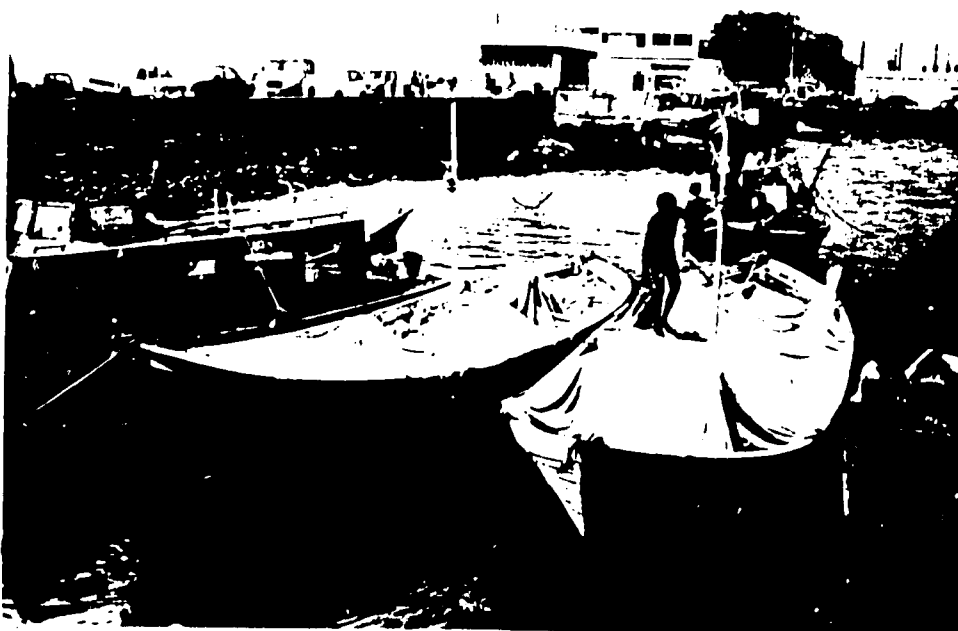


PHOTO 12
9METER WOODEN
"DOUBLE ENDERS"
DIESEL POWERED

Commercial fishing is a difficult, dirty and demanding occupation that many people find too taxing to pursue. Because of the type of boats, lack of gear, difficulty of unloading and provisioning across the beach and the distance between market and fishing area, artisanal fishing in Djibouti is especially difficult. Until it is possible for the fishermen to improve the quality of their life, recruiting young people into the fleet is going to be extremely difficult.

Many improvements can be made to make fishing in Djibouti easier and more profitable. Some of the improvements would be inexpensively and easily implemented. Other improvements will prove to be costly. Figure 14 illustrates a typical 3.5 meter diesel powered vessel outfitted for trap and bottom fishing.

The new ice machine near the beach and the new receiving area newly installed at the rear of the fishery building will eliminate a great deal of the time and labor now used in unloading and provisioning the boats. The boat yard has assisted by making repairs and modifications more readily available and reducing unproductive down time. The introduction of mechanical fishing gear, both manual and power operated, would increase production as well as reduce the fishermen's workload. Modifications to the boats such as more comfortable seats, covered forepeaks to keep food and attire dry, gunnel rollers for both hand lines and nets, spray shield, and sun shades could make fishing easier.

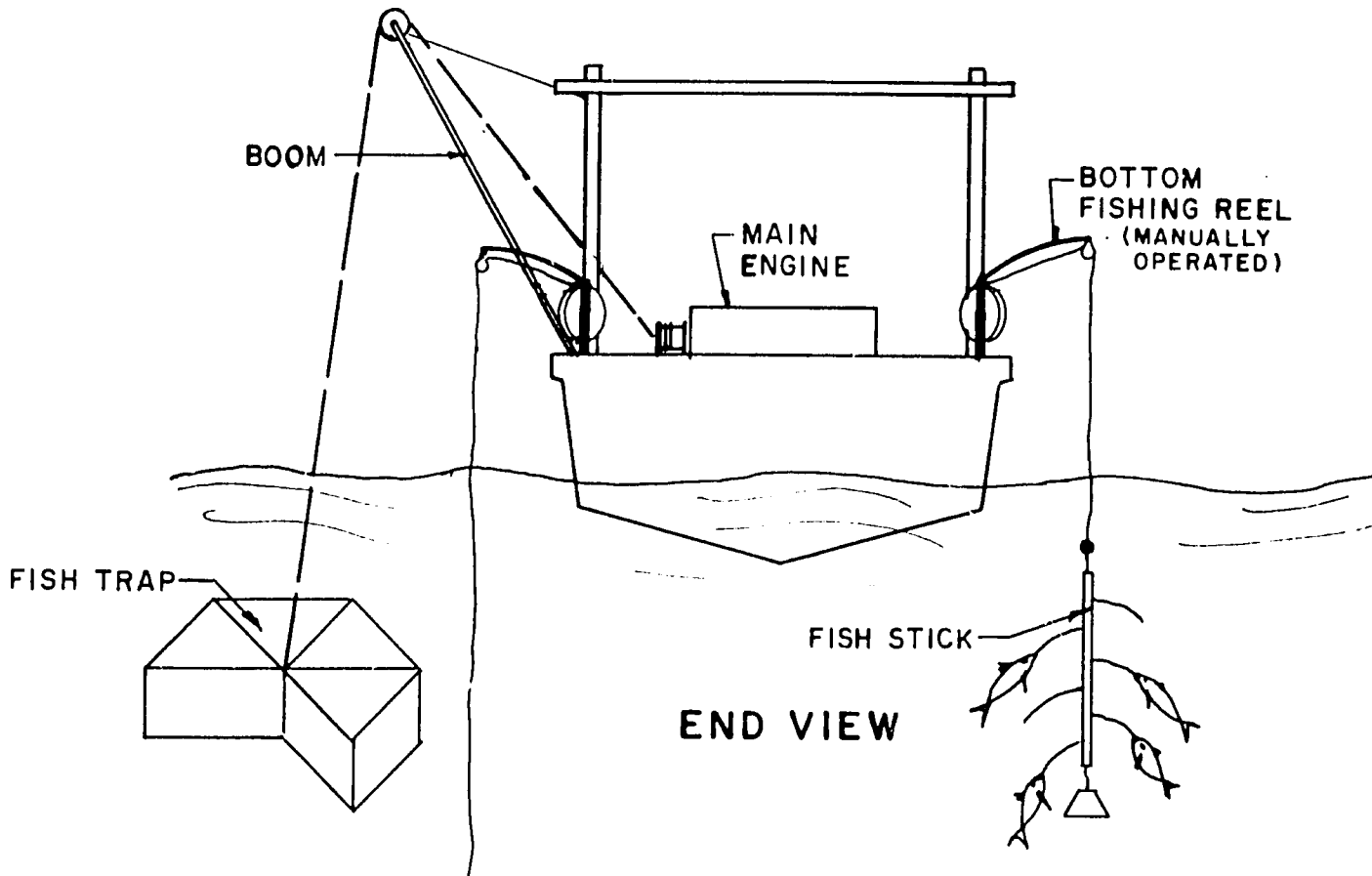
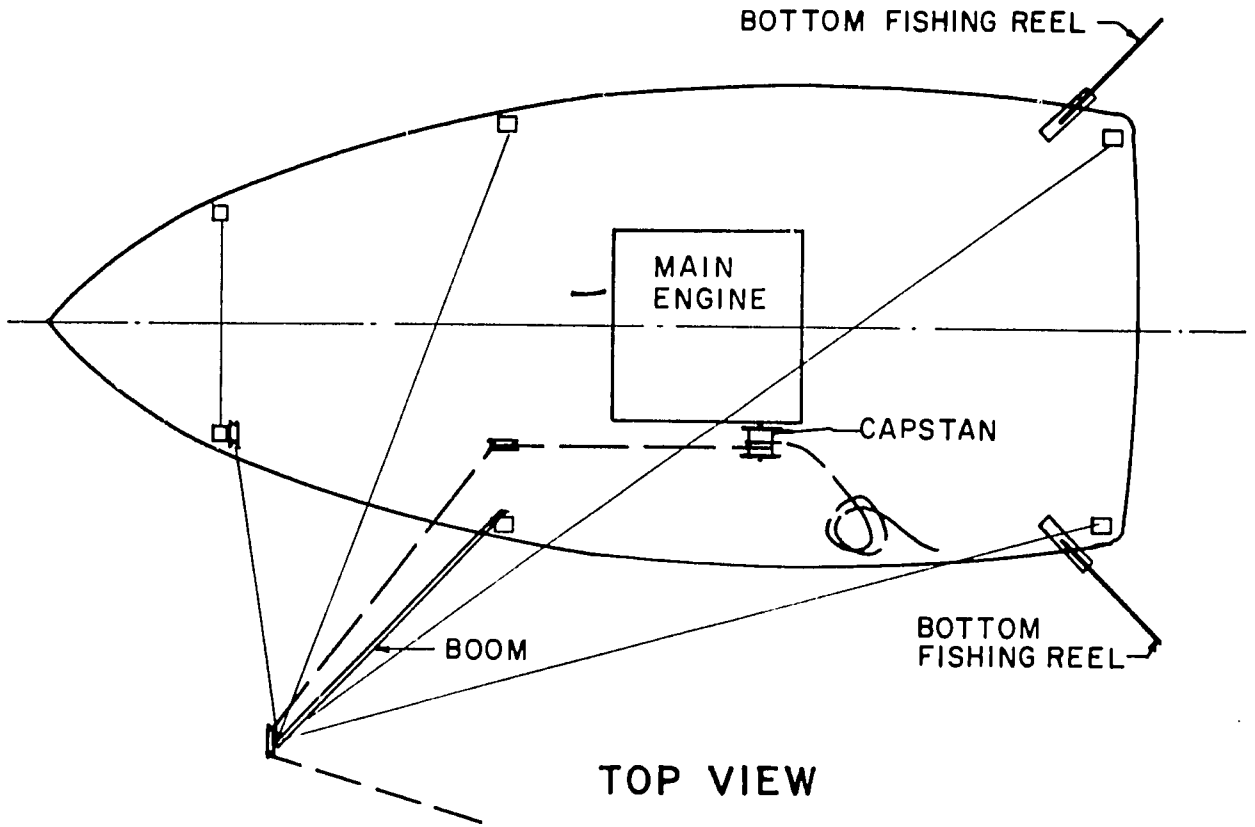
A beach slipway with hand operated winch to pull boats out of the water for minor repairs, cleaning and painting would eliminate a lot of the time and effort now expended in these activities. This could be a simple and inexpensive project.

The gear lockers recently built allows the fishermen to store safely their fishing gear and equipment at the anchorage. Prior to this installation, the fishermen had to either carry their nets, motors, etc. home with them or leave them lying on the beach. With the completion of the fuel depot at the fishery, another time consuming and difficult activity will be alleviated and the cost of buying and transporting fuel will be reduced.

If more boats are to be made available by donors to the fishermen through the Cooperative Revolving Credit Fund, a survey should be made to find the most suitable type of boat for use in this area that is available falling within budget limitations.

Slightly larger boats powered with simple inboard diesel engines with a little more crew accommodation, range, sea kindliness and carrying capacity would improve the lot of the fishermen. These modest improvements should not have a detrimental effect on the artisanal fleet nor cause a need for extensive training in motor maintenance and boat handling.

**Figure: 14 TYPICAL 8.5 METER BOAT
OUTFITTED FOR TRAP FISHING
AND BOTTOM FISHING**



3.1.3 Small Boat Construction and Repair

Djibouti has no shipyards. A few craftsmen from Yemen repair dhows and other traditional vessels working in the open air with primitive hand tools. Their services are too expensive for constructing and repairing small fishing craft. Further, there is no local wood suitable for boats in Djibouti; most is imported from Ethiopia and is very expensive.

The ratio of fishermen to boats is about 6:1 (240 fishermen to 42 boats). Of the number of fishermen, only about 80 are considered full-time, the remainder are unemployed or have to take other jobs, primarily due to the lack of additional boats.

In keeping with the objectives of the fisheries program to increase production and employment, it was decided that additions to the working fleet could immediately enhance potential for fish capture. A considerable number of the boats in the fleet are either in minimal operational status or completely inoperable. It was determined that these boats could quickly be put back into service if repaired.

The Phase I Project implemented a boat repair and boat building sub-activity which utilized a patented fiberglass process called C-Flex. The materials for this process are produced by Seeman Fiberglass of New Orleans.

The C-Flex sheathing system was designed to protect the hulls of new and old wooden boats from rot and marine parasites, problems that cause the majority of layups of the Djibouti fleet. It is a simple process that covers the hull with a high-strength skin of fiberglass that will greatly increase the life and strength of the hull and will dramatically reduce the cost of maintenance.

In addition, new vessels may be constructed using C-Flex. As the C-Flex method does not require a mold, the capital required is very low and C-Flex boatyards can be built anywhere there is available labor; only hand tools, some basic power tools and a sheltered area are required. The boats are constructed over simple frames which can be used as often as needed. Successful transfer of this technology to Djibouti will result in not only repair of the present fleet, but the birth of a new private enterprise industry for the country, that of small-scale boat construction.

3.1.3.1 Facilities

The boat repair and building subactivity started in December, 1981. A temporary work area in the Government fisheries warehouse was assigned to the boat repair activity. Work benches were constructed to accommodate one boat at a time.

CRS furnished a number of power tools for the boat repair operation, including a planer, table saw, saber saw, hand-held circular saw, arc welder gas welder, sander with various attachments, and other miscellaneous equipment. In conjunction with the tools furnished by USAID, a moderately-equipped repair facility was created.

Initial success of the temporary boat repair facility led to construction of a permanent facility. The permanent boat yard was put into operation by RDA personnel and Djiboutian trainees.

The building and equipping of the yard was jointly financed by CRS and USAID funds with CRS being the major contributor. Supplies of fiberglass repair materials and allied supplies were also furnished by these two agencies.

The boat yard encompasses approximately 2500 square feet of walled secure area with concrete floors and corrugated metal overhead. In addition, an area of approximately 1600 square feet, shaded with a temporary plastic overhead is in use adjacent to the boat yard. This area is utilized for fiberglass sheathing repairs and is capable of housing three boats.

An air-conditioned room for the storage of fiberglass resins, paints, mastics and thinner is located in the boat yard proper. Resin has been successfully maintained in this cool room for a period slightly exceeding two years before its shelf life was expended. Without this cool room it would be impossible to keep fiberglass resin in a usable condition for more than a few months.

The boat yard is equipped with hand tools and power tools. Most of the power tools used in the fiberglass operation are air-powered. Two compressors furnish the air pressure for these tools. One compressor is driven by an electric motor and one by a gas engine.

Normal wear has put some of the power tools out of commission, but none are beyond repair. None of the boatyard employees have had previous training in the use and care of power tools. As a result, the equipment has been subjected to above average abuse. A lack of respect for hand tools, coupled with an underdeveloped sense of their value and a limited skill in their use, caused some difficulties in maintaining an adequate supply of hand tools in a workable condition.

The secure area of the boat yard, beside containing the resin and paint storage room, also encompasses an office, tool locker and motor repair facility. The table saw, band saw and other larger power woodworking tools are located in this area.

It has been demonstrated that the yard facilities and equipment are ample to accommodate the repair of old and the construction of new small boats. The work accomplished shows that it could be financially profitable to operate this yard as a private business, and still offer a reasonable financial price structure to the boat owners.

3.1.3.2 Methods, Wood Repair, Sheathing, and New Construction

All of the boats are candidates for some form of wood repair or modification. Usually, the wooden boats are allowed to deteriorate to a state that the only means to economically repair them is with the C-Flex process. It is difficult to make a long lasting wood repair, mainly because of the low quality of wood available.

The new fiberglass boats furnished by CRS and IFAD were not equipped with seats or floorboards, necessitating some woodwork on each of them.

The majority of work accomplished to date in the yard has been repairing boats and applying a fiberglass sheathing using the C-Flex material and method. After it has been decided to sheath a particular boat, it is brought into the shaded area adjacent the yard and placed in a keel-up position. The first steps in the repair operation are to clean the hull to bare wood and make any necessary repairs to the woodwork (Photo 13). Next, the hull is faired with putty made from a filler mixed with fiberglass resin. At this point the hull is ready for sheathing. A coating of non-hardening flexible based mastic is applied to cover the entire exterior of the hull. Immediately, the 12-inch wide C-Flex planking is embedded in the mastic, and is held in place by short wooden strips nailed through the planking into the hull (Photo 14). The mastic is allowed to cure overnight before the hold down strips are removed. After the strips have been removed,

the planking is permanently stapled to the hull. After stapling, a coating of resin is applied and allowed to harden. A laminate of fiberglass mat, woven roving, and mat is layed up over the C-Flex. The laying up is done all at one time creating a very strong "sandwich" laminate. A flood coat of resin is applied over the laminate. After it has set, the hull is sanded and finished with an application of gel coat (Photos 15 and 16).

It is difficult to predict the life expectancy of a sheathed boat, but as of now, the only deterioration visible is the result of normal usage. The fishermen are almost universally happy with their repaired boats and have found that their down time for maintenance has been reduced.

A total of twenty-six boats were sheathed (see Figure 15). Some of the boats were so badly deteriorated, that they had been beached as unusable and unrepairable. The rehabilitation of these derelicts into workable boats are considered as additions to the fleet and not as repairs to existing boats.

A total of five new all glass boats have been built during this project. The lines for the first boat were taken from an unrepairable model (Photo 17). Male frames were assembled and the boat was built as a one-off C-Flex planked boat. After some ballasting adjustments were made, this boat was put into service. It is a smaller paddle powered boat used for inshore reef fishing. The owner is one of the oldest working fishermen. He is very proud of his new boat and has maintained it with care. Recently, he has been ill and unable to work. During his illness the boat broke anchor and washed onto the rocks. The boat suffered slight damage, demonstrating how resilient a fiberglass boat can be.



PHOTO 13 FIRST STEP IN C-FLEX
SHEATHING, CLEANING HULL TO
BARE WOOD



PHOTO 14 REMOVING WOODEN BATTENS AFTER MASTIC HAS CURED

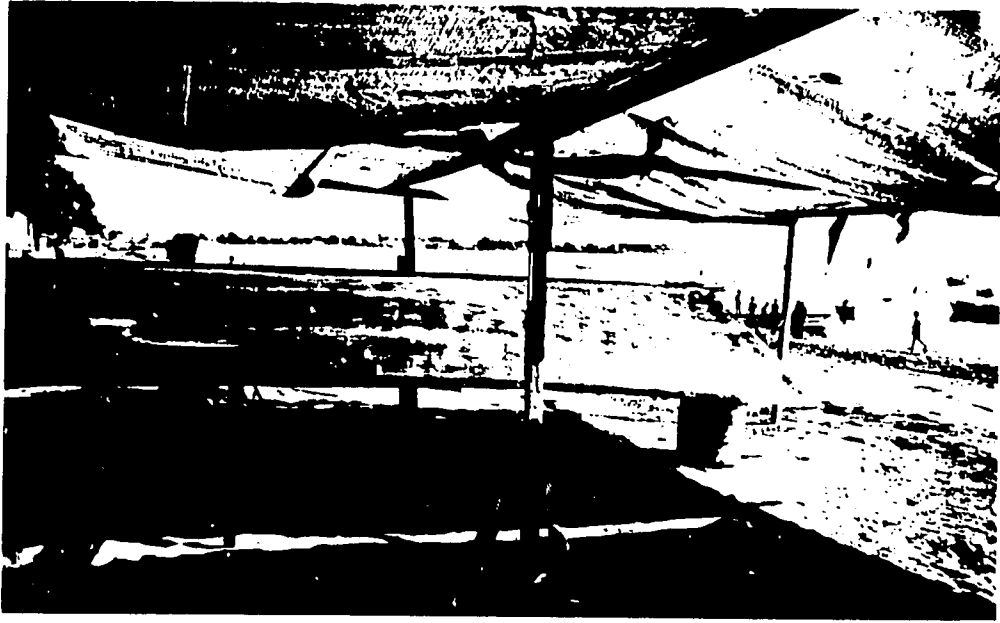


PHOTO 15 SHEATHED BOAT

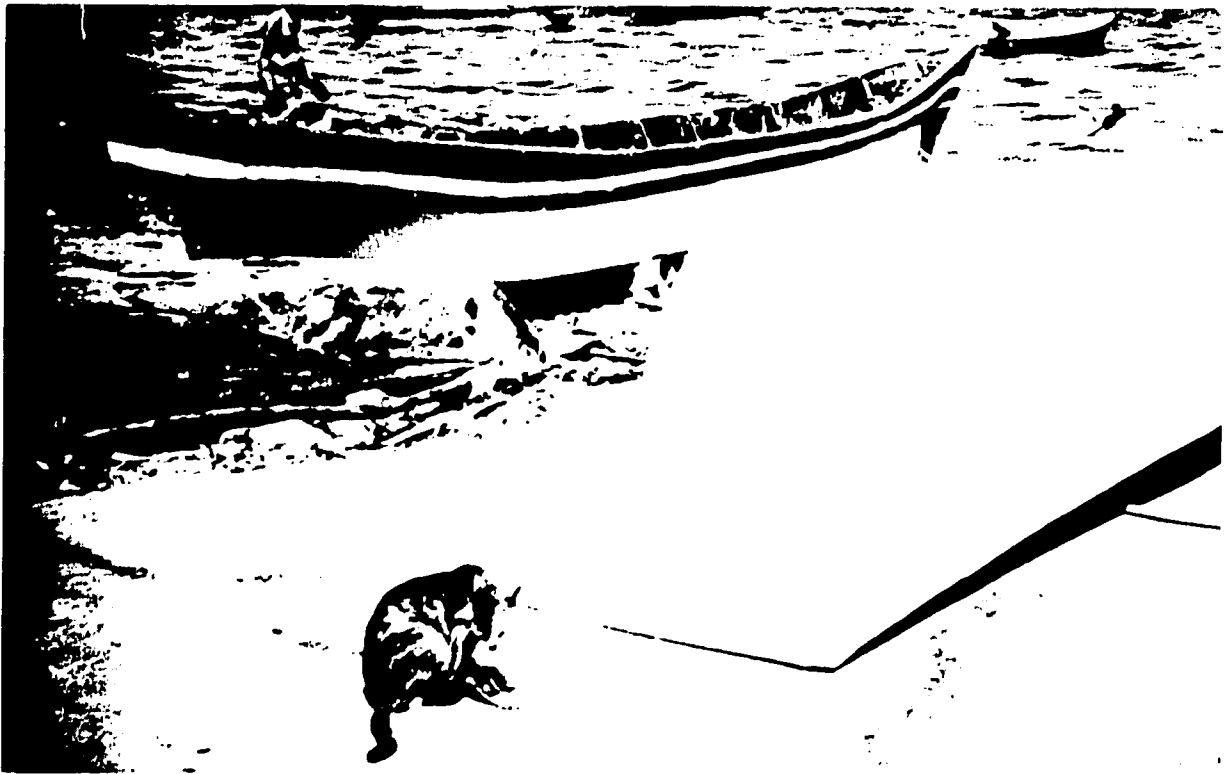


PHOTO 16 SHEATHED BOAT WITH GEL COAT

C-Flex Sheathing Client Listing

<u>Name</u>	<u>Contract Number</u>	<u>Amount in Djibouti Francs</u>
Mohamed Farah ^{<u>1.</u>}	----	209,835 DF
Souleman Omar	01-C	128,137
Ismael Abdi	02-C	120,600
Ahmed Kassim ^{<u>2.</u>}	----	----
Marzouk Sengor	04-C	210,050
Mousfa Hassan	05-C	54,270
Gafar Salem	06-C	158,287
Ali Mohamed Youssef	08-C	176,375
Gaber Yayah	10-C	188,437
Fitini Mohamed	11-C	129,645
Abdou Soulemam	12-C	137,185
Cheko Ali	13-C	147,735
Idriss Moussa	14-C	233,665
Souleman Omar	15-C	229,140
Ali Hadji ^{<u>3.</u>}	16-C	----
Ali Hadji Tadjoura	17-C	212,560
Megag Faden	18-C	117,585
Abdillah Ali	19-C	171,855
Souleman Idriss	20-C	263,380
Abdalluh Saleh Ali	21-C	138-690
Said Ben Said	22-C	198,990
Abubaker	23-C	107,030
Ali Hassan	24-C	209,545

FIGURE 15

<u>Name</u>	<u>Contract Number</u>	<u>Amount in Djibouti Francs</u>
Ali Saleh	25-C	183,915
Abdou Awad	26-C	180,900
Mohamed Youssef	27-C	383,059

1. No charge in lieu of use of boat for first sheathing operation
2. No charge, in lieu of using boat as mold for fiberglass houris
3. No charge, assumed as loss

FIGURE 15, Continued

The second boat built was also a C-Flex planked hull. A boat that was in the yard for sheathing was used as a male mold (Photos 18 through 24). All of the irregularities of the lines are duplicated in the new boat. At the time of launching, the boat was completely filled with water to test buoyancy. Even with several people in the boat, it proved to be unsinkable. Later, it was decided that the flotation used up too much room and it was all removed. This boat remained the property of the Coop and is loaned to fishermen who need to work while their boats are under repair. It has been successfully fished by several people and has given them an opportunity to earn money during a time when they would normally be under-employed.

The third boat constructed was also a C-Flex planked (Photo 25) boat. The male model was built from plans for a twenty foot dory. A four-inch layer of foam was sprayed in the bottom and decked over with plywood and fiberglass. This boat remains the property of the Coop and is used for project work. With a fifteen-horsepower outboard mounted in the motor well, two people and gear aboard, a speed of twelve plus knots was averaged running both directions over a measured course. The boat is stable, seaworthy and a good working platform.

The boat was used to tow and position a pontoon barge while putting down six concrete mooring blocks, each of them measuring one cubic meter. This work showed the boat to be rugged and versatile and convinced the people involved of the value and desirability of this type of small boat.

A mast and trolling poles were built and installed on the dory. One of the hand operated snapper reels was also installed. The trolling gear

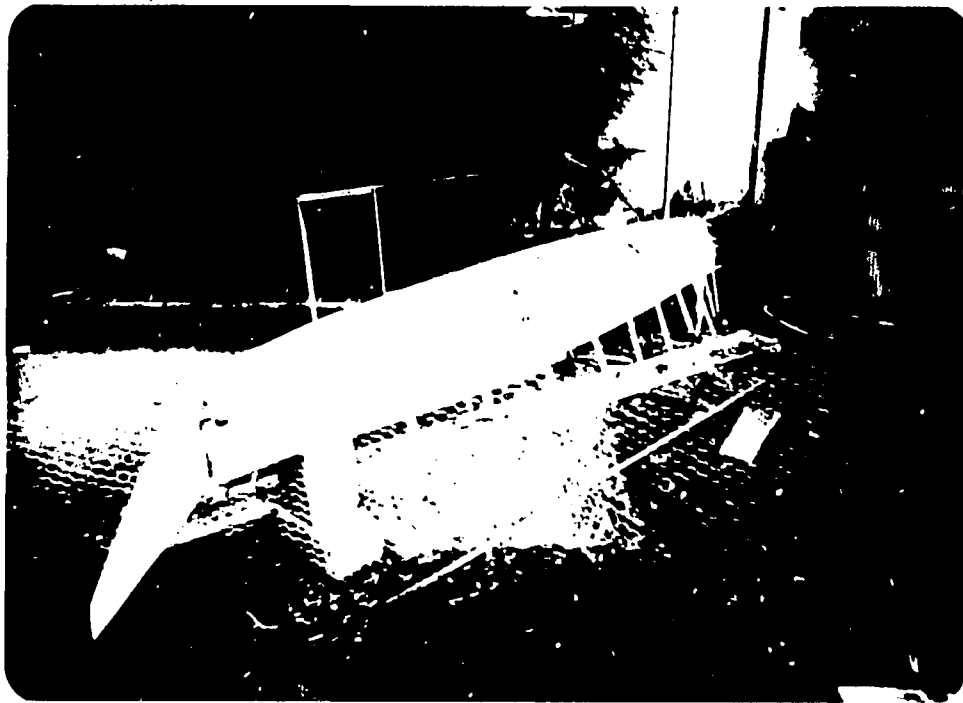


PHOTO 17 FIRST C-FLEX BOAT BUILT FROM THE LINES OF AN
IRREPARABLE BOAT AS A ONE-OFF OPERATION

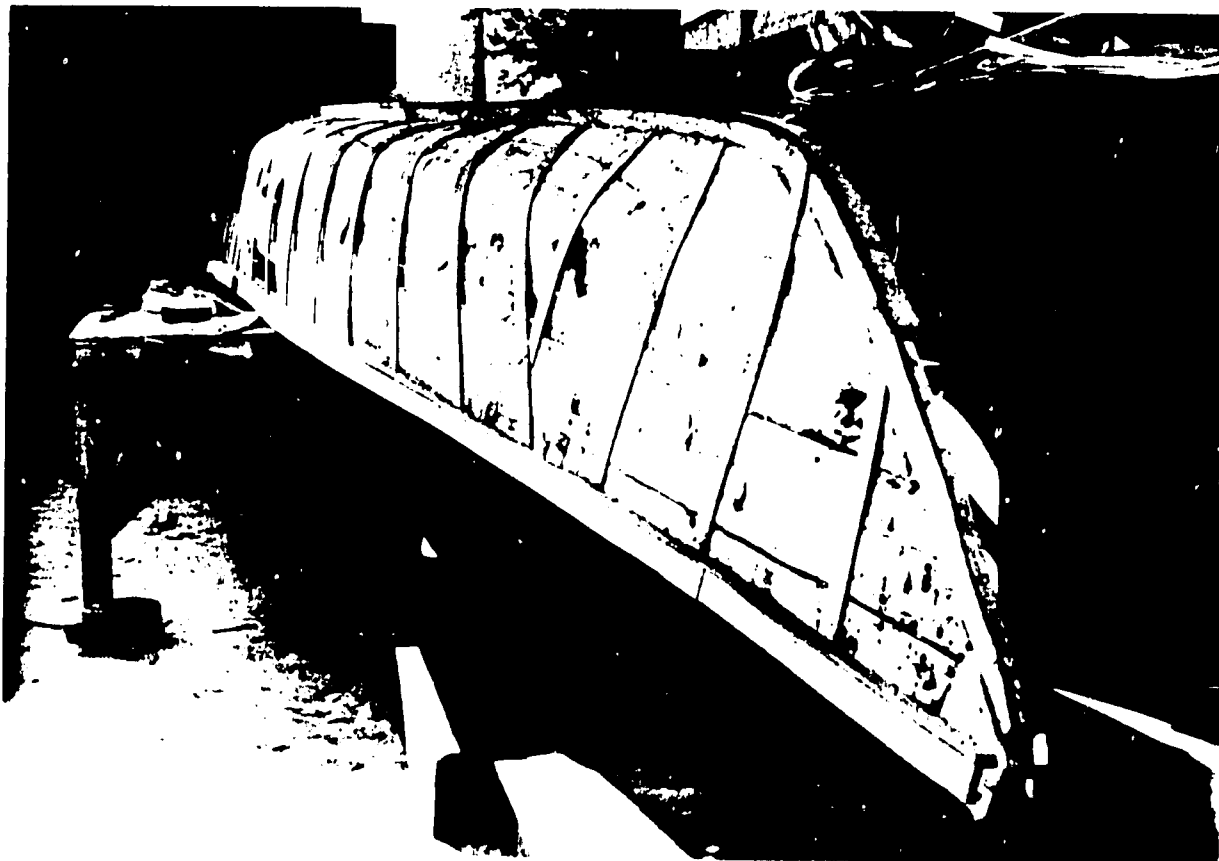


PHOTO 18 SECOND BOAT BUILT USING OLD BOAT AS A MALE MOLD.
THE MALE MOLD WAS LATER SHEATHED

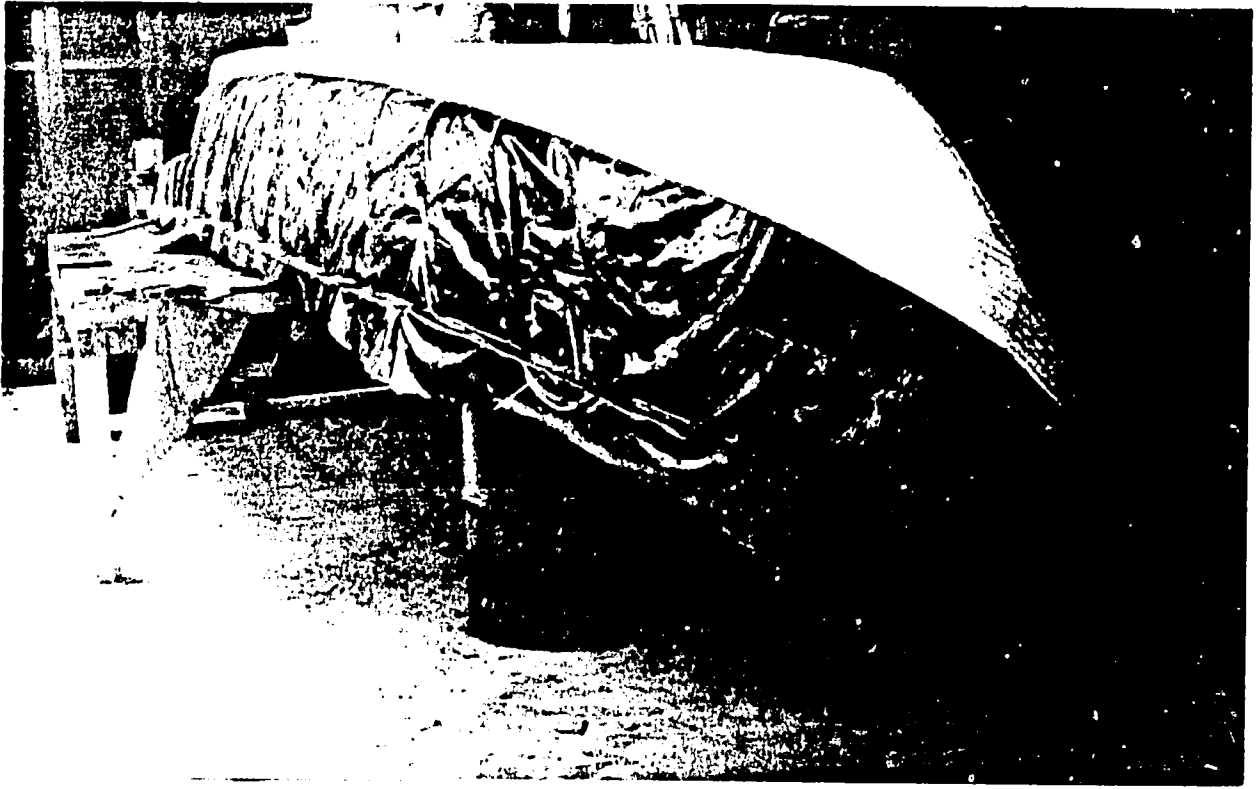


PHOTO 19 C-FLEX PLANKS ATTACHED TO FRAMES



PHOTO 20 RESIN BEING APPLIED TO C-FLEX



PHOTO 21 LIFTING OFF THE NEW HULL



PHOTO 22 PLACING NEW HULL IN CRADLE FOR COMPLETION OF INTERIOR

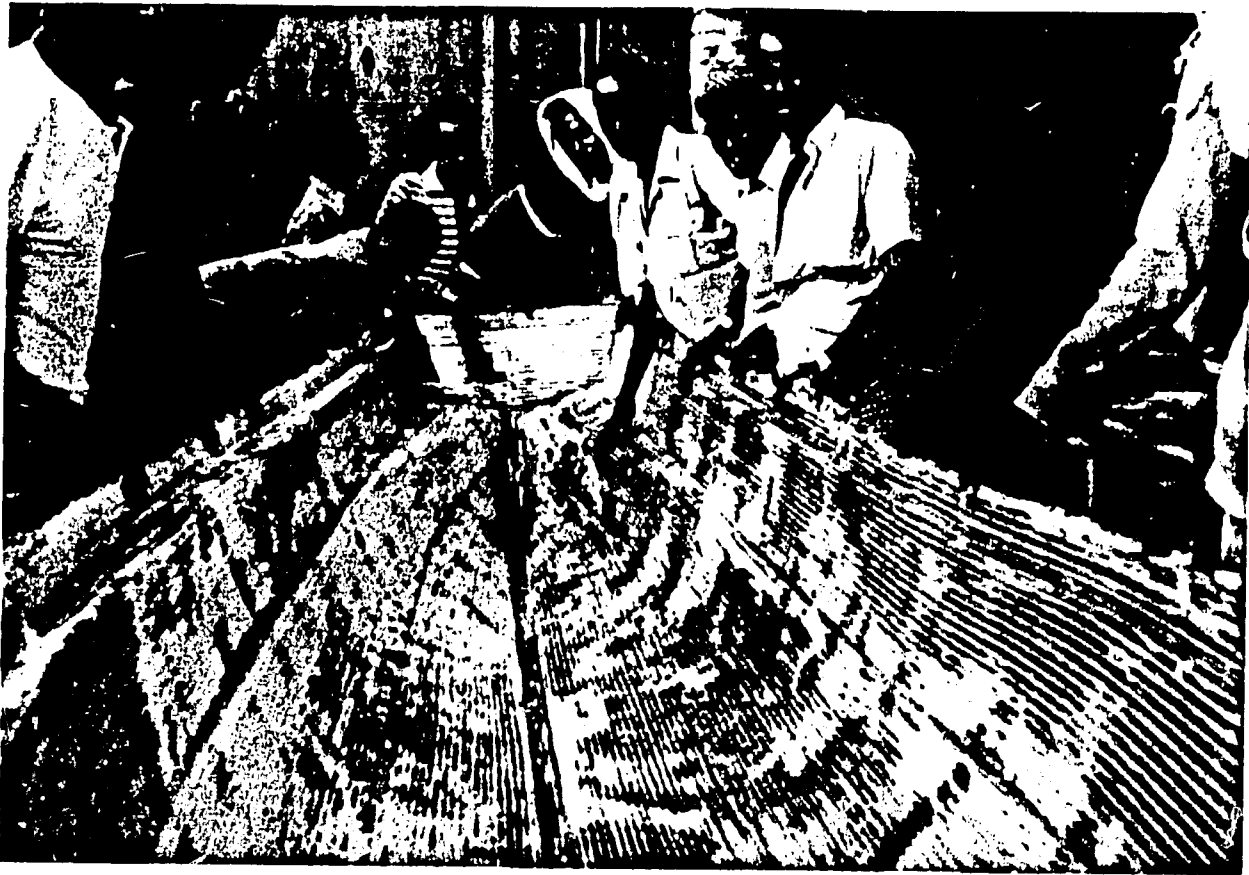


PHOTO 23 BOATYARD WORKERS AND INTERESTED OBSERVERS INSPECT HULL INTERIOR



PHOTO 24 NEW BOAT BEING PREPARED FOR SEA TRAILS AFTER HAVING COMPLETED STABILITY AND FLOATION TEST TO BOTH FISHERMEN AND BUILDERS' SATISFACTION. NOTE INSULATED FISH HOLD MID-SHIP

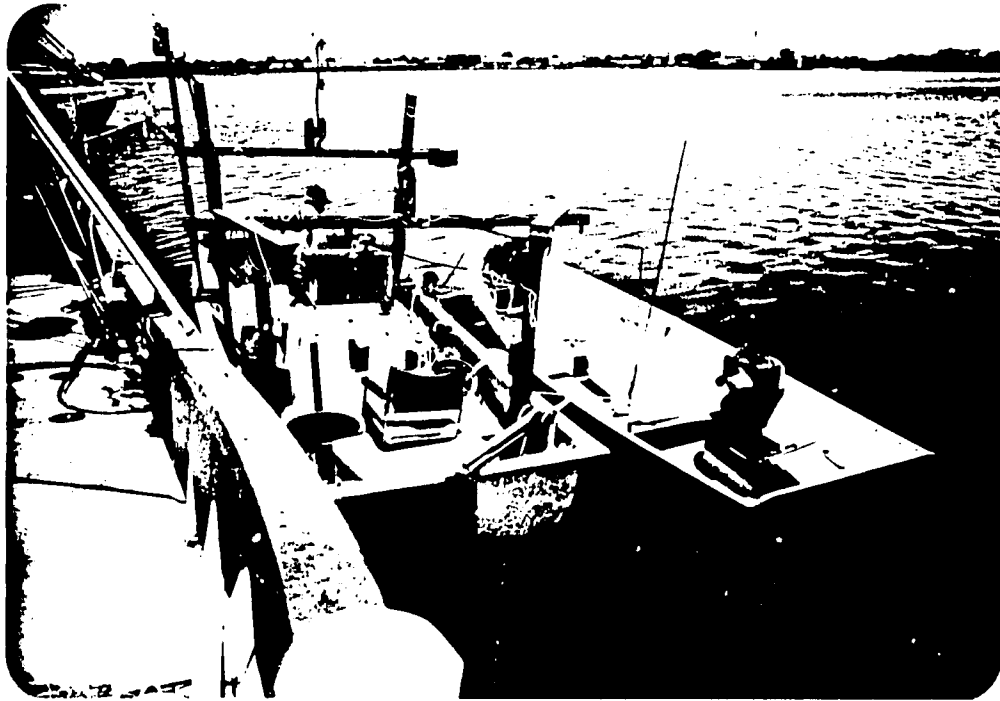


PHOTO 25 COMPLETED C-FLEX PLANKED DORY TIED ALONG SIDE YAMAHA BOAT

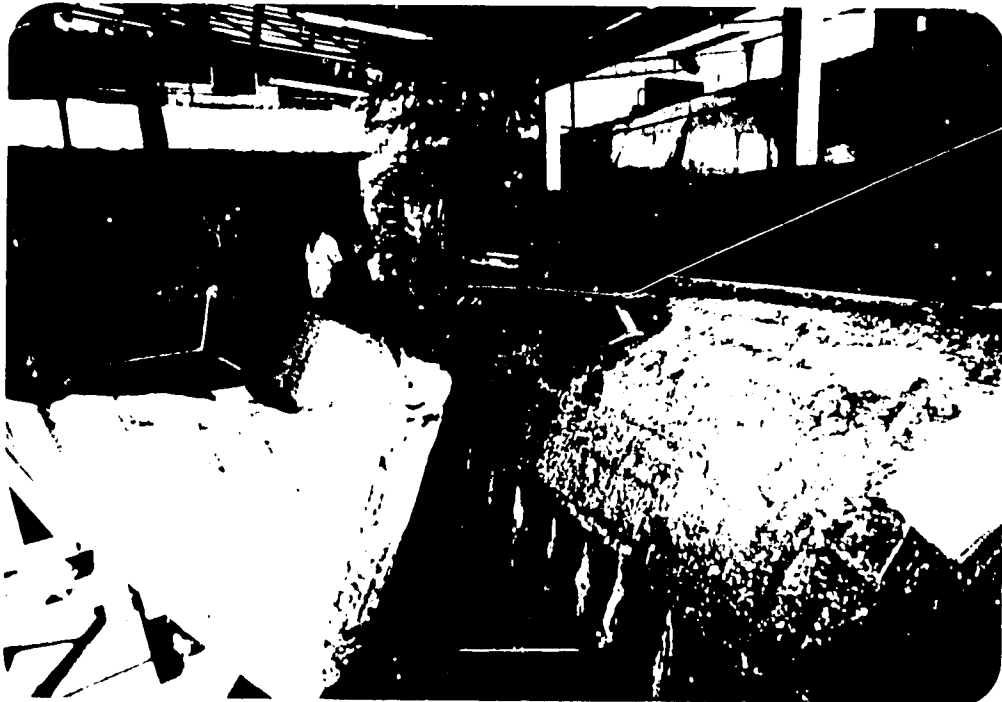


PHOTO 26 SECOND DORY LEFT OF PICTURE CONSTRUCTED OF RIGID FOAM AND FIBERGLASS LAMINATE. RIGHT OF PICTURE SHOWS 9 METER BOAT ON MOLD, NOTE ANTI-ROLLING CHOCKS.

has been tested only for workability. The snapper reel had been used under normal fishing conditions and demonstrated the value of this gear in the Djiboutian fishery.

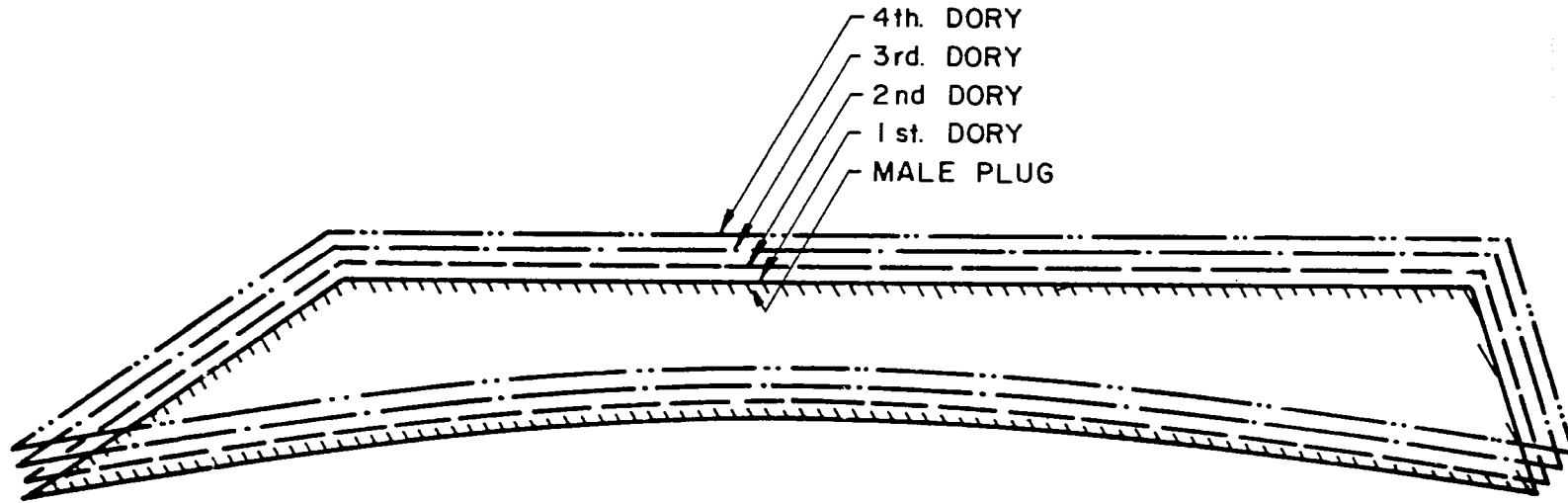
An additional dory boat was completed in August, 1984. This boat has an insulated fish box hold and is outfitted for a transom mounted outboard motor instead of a well. The method of construction was rigid foam and fiberglass sandwich. It was built over the same male plug as the first C-Flex planked twenty-foot dory. It has a smoother exterior and interior finish (the rigid foam application makes a fair boat) and weighs less. The boat is currently being used by a gill net fisherman.

The construction of future dorys will be over the same male plug. The flat bottom will vee'd slightly. Four dorys will be constructed over the male plug, one on top of the other using what is termed the "stack method". Figure 16 illustrates the principle of the "stack method". After the first dory is layed up to a completed exterior finish, it is framed out to allow another dory to be stacked on top of it with the frame becoming part of the second dory. This is done again for a third and a fourth. This allows the boat yard to pull a dory off the stack for completion (interior) as the need arises. It reduces the need for space and male plugs.

FIGURE 16

STACK METHOD OF DORY CONSTRUCTION

110



SIDE VIEW
NO SCALE

The boat yards most recent completion was a boat 9 meters in overall length. This was the biggest boat that has been attempted in the yard. The lines for this boat were taken from a local boat, but slightly modified. Some flair was added in the bow, the beam was increased about 18 inches and anti-rolling chocks were installed below the waterline. (Photos 27 through 31).

Work on this boat was accomplished on a slack time basis, resulting in slow construction progress. It is a C-Flex planked hull. The interior features an insulated one-ton fish hold and a forward self-bailing work deck. In addition, forward there are a gear and anchor storage compartments.

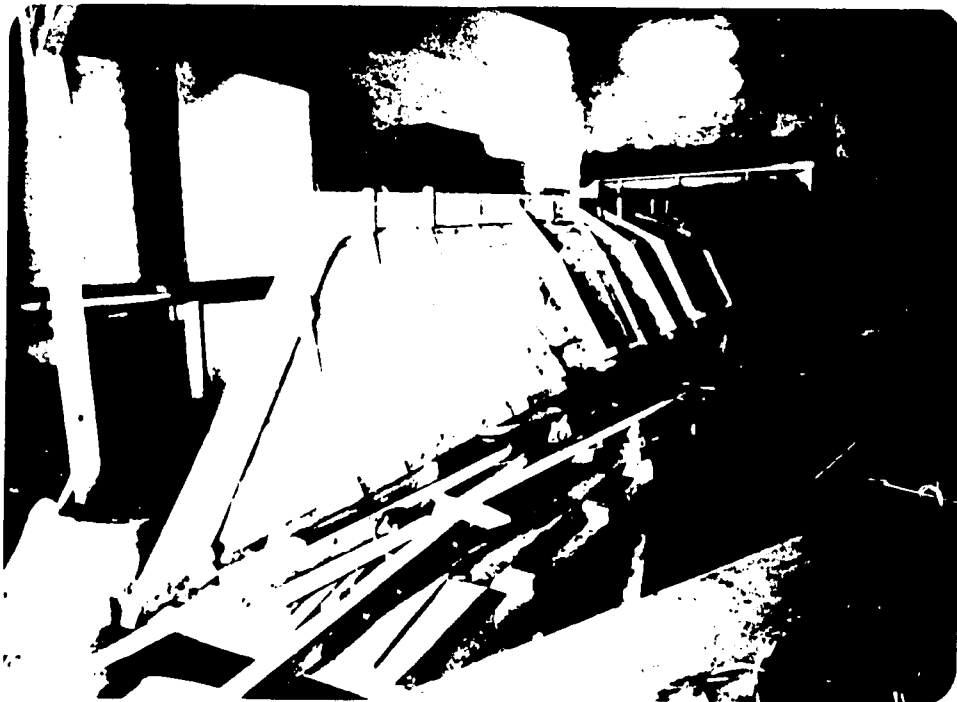
The boat was originally intended to be outfitted with a small inboard diesel engine but was later changed to outboard power because of lack of funding and time. Two 15 hp outboards working in tandem have been outfitted for the boat. After successful sea trials the boat was sold to a Djiboutian fisherman.

Other related work was accomplished in the boat yard including general repair to wooden boats (Photos 32 and 33). Several insulated ice boxes have been built, but for this to be completely practical, a method must be developed to build lightweight boxes.

Three live crates were built, each of a different design. These crates have been given to lobster fishermen for testing. It is hoped that by using these live crates, the lobsters can be delivered to the Coop in healthier condition than at the present time. If the results of the testing of these live crates are favorable, it is anticipated that all of the lobster Fishermen will want to be equipped with them.

A few prototype gunnel rollers for handlining have been placed on selected Yatcha fiberglass boats. The fishermen using these rollers report that pulling fish is a little easier and the rails are not cut up and damaged by the friction of the line as the fish is being pulled from the sea. No great demand has been noted for these rollers, but if a model was to be designed that could be ruggedly and inexpensively fabricated, most of the handliners would install them.

Various types of fishing gear and equipment have been built using the yard facilities. Fish traps of different designs, hand-powered bottom fishing reels, PVC sticks, trolling poles, ice boxes, gear lockers and anchors are some of the miscellaneous items that have been fabricated.



PHOTOS 27 CONSTRUCTING PATTERNS FOR 9 METER BOAT

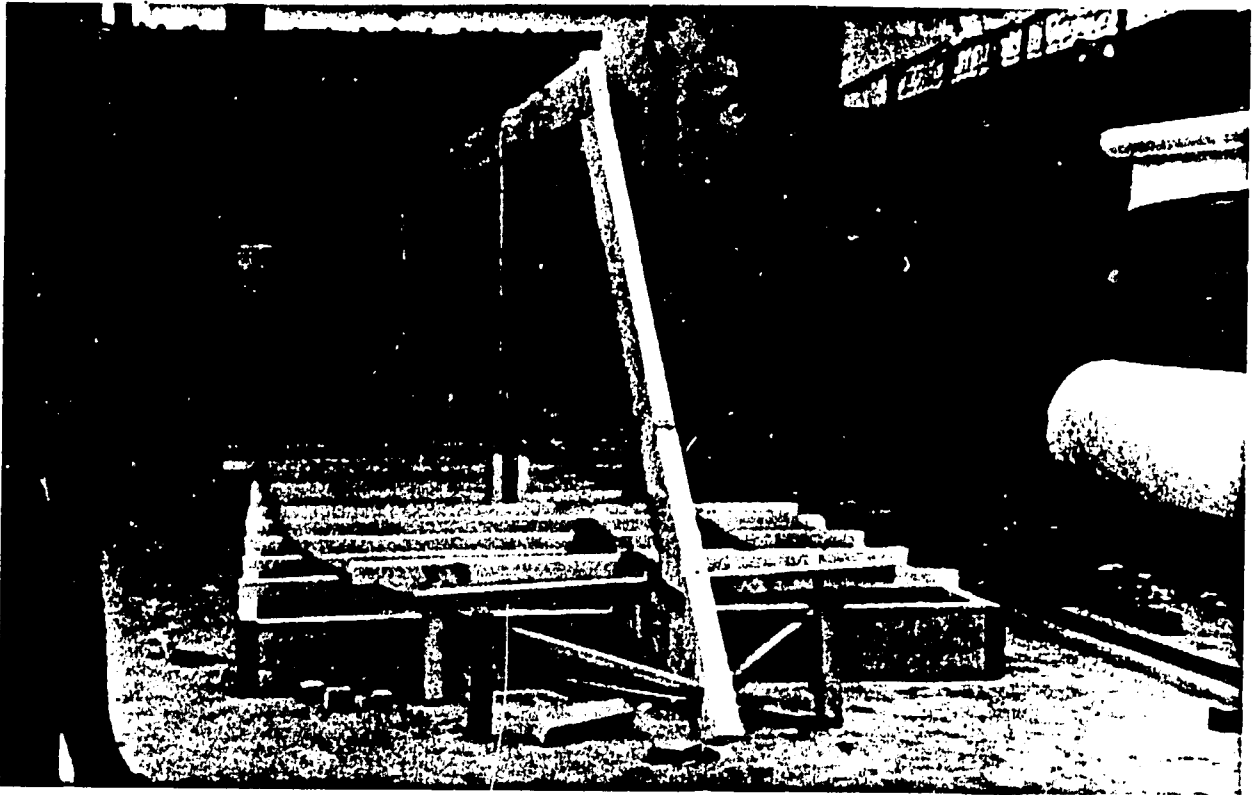


PHOTO 28 BUILDING PLATFORM WITH KEEL AND STEM PATTERNS IN PLACE. THIS SET OF FRAMES IS BEING FABRICATED SO THAT IT CAN BE USED TO BUILD AS MANY BOATS AS DESCRIBED



PHOTO 29 DETAILED VIEW OF BOW SECTION WITH ONE SIDE OF FRAMES AND FAIRING STRIPS IN PLACE

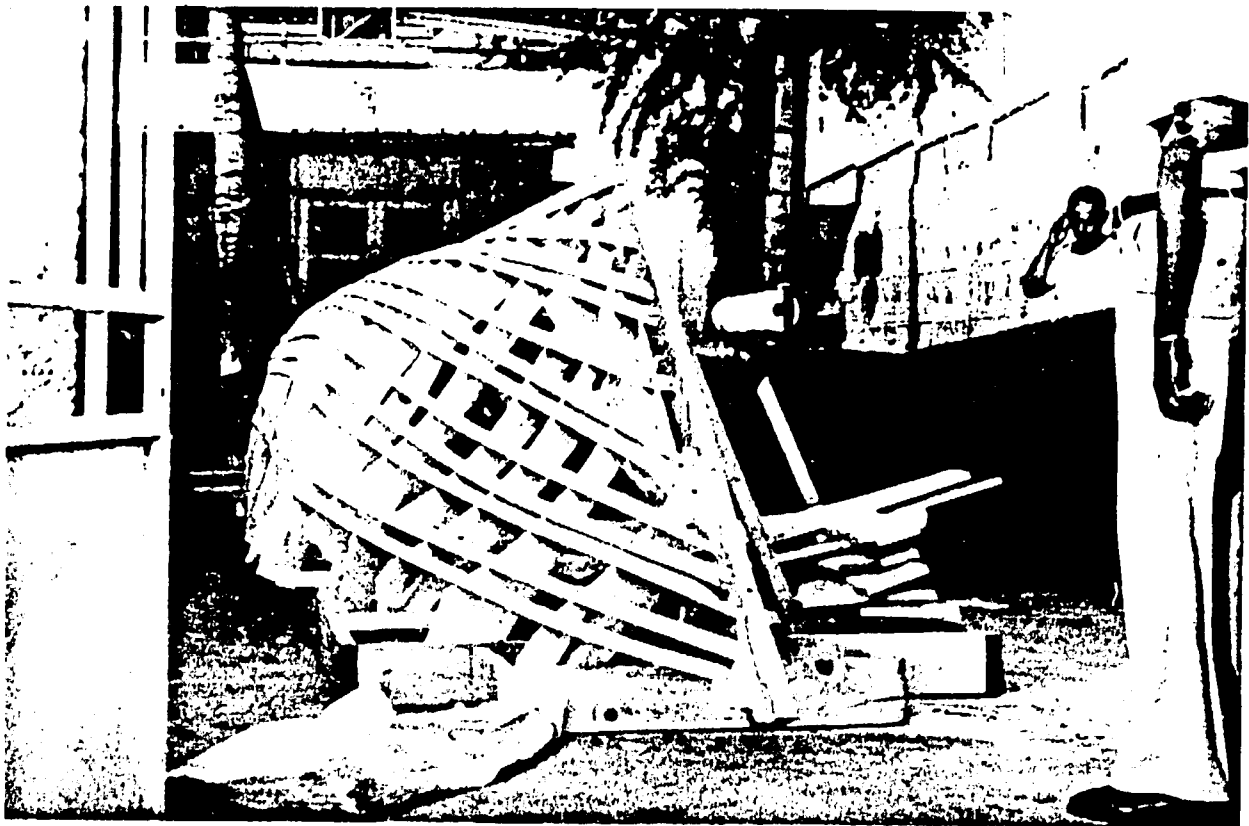


PHOTO 30 VIEW OF FRAMES SHOWING HOW MODIFIED TO INCORPORATE FLARE

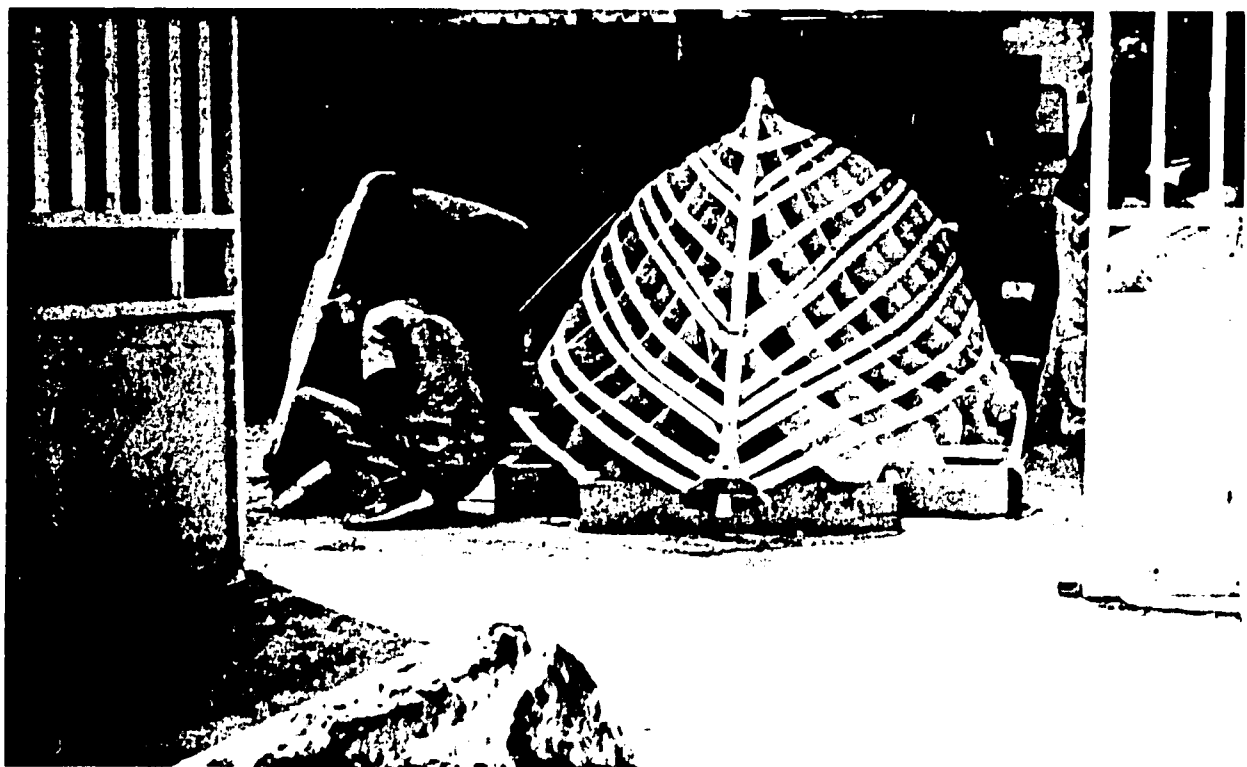


PHOTO 31 NEW FRAMES ASSEMBLED AND READY FOR C-FLEX PLANKING



PHOTO 32 INSULATED FISH BOX UNDER CONSTRUCTION USING C-FLEX MATERIALS



PHOTO 33 MINOR REPAIRS BEING DONE ON A WOODEN BOAT

3.1.3.3. Training of Personnel

The boatyard has 3 permanent employees. Staff levels increase if work slows down in the adjacent outboard motor repair shop or through down time on the project work boat. This can add as many as 3 workers to the boatyard.

Training in the skills necessary to repair boats and sheath them with fiberglass is a success. The entire operation from bringing the boat to the work area through the eventual launching is accomplished entirely by Djiboutian employees.

The actual work time spent on these sheathing and repairing operations is within the norm. What is of concern, though, is the total elapsed time that it takes to do the job. The high elapsed time on operations erodes the profit margin which for boatyard operations is low.

It is a rare occasion when all boatyard workers are present in the yard at the same time. They have all managed to find excuses to be absent during some portion of the working day. RDA, which is responsible for boatyard operations, has repeatedly advised the ACPM administrative section on the boatyard workers' bad habits. Some measures were taken, such as suspensions without pay, to improve the situation.

3.1.3.4 Results - Costing, Financial Viability, Contracting Methods

RDA was tasked to determine whether the boat building repair operation is financially viable to the Fisheries Cooperative. If determined not viable, alternative solutions were to be offered, such as turning it over to the private sector.

To determine financial viability of the boat building operation, it was necessary to first examine how revenue was generated. This information can then be incorporated into a financial statement.

Generated revenue in the boatyard comes from two sources, sheathing/repair operations and new boat construction. The first sheathing operation was controlled to determine the amount of time and materials used. It was broken into two parts: preparation and sheathing. Material costs were based on the CIF price established by RDA's original order. Ten percent was added to the CIF price. This is the maximum margin of profit allowed under Fisheries Cooperative internal by-laws for revolving credit fund materials. Labor costs were charged at 500 Djibouti francs/hour.

The breakdown of costs were as follows:

PREPARATION

<u>Description</u>	<u>Unit Price</u>	<u>Total Djibouti Francs</u>
80 man hours	500 DF/hour	40,000
1/2 carton fiberglass filler	6960 DF/carton	3,480
3 liters of resin	320 DF/liter	960
Wood		1,000

SHEATHING

<u>Description</u>	<u>Unit Price</u>	<u>Total Djibouti Francs</u>
2 13.5m C-Flex-39	2025 DF/m	28,150
14 liters glue	2290 DF/liter	32,060
7.3 kg fiberglass mat	595 DF/kg	4,345
9.6 kg woven roving	540 DF/kg	5,185
84 liters resin	320 DF/liter	26,880
2 liters primer paint	1545 DF/liter	3,090
2 liters finish paint	1745 DF/liter	3,490
10 liters acetone	155 DF/liter	1,550
2 liters catalyst	835 DF/liter	1,670
1500 galvanized staples	1 DF/staple	1,500
.6 kg nails (hold wooden battens)	1800 DF/kg	1,080
Tool depreciation		14,395
80 man hours	500 DF/hour	<u>40,000</u>
		209,835 DF

Future sheathing operations were to be charged by the square meter² because of the varying sizes of the wooden boats. For the 13.5m boat that was originally done, the cost per square meter came to 15,075 DF. Presently jobs are costed out using this figure.

An improvement in methodology has eliminated the use of some materials. Tool depreciation originally calculated over the sheathing and construction of 10 units decreased with the addition of fiberglass materials purchased by CRS and RDA's second order.

The new breakdown of costs for the 13.5m² were as follows:

PREPARATION

<u>Description</u>	<u>Unit Price</u>	<u>Total Djibouti Francs</u>
80 man hours	500 DF/hour	40,000
3 liters of resin	320 DF/liter	960
Wood		1,000

SHEATHING

13.5m ² C-Flex 39	2355 DF/m ²	31,795
14 liters glue	2370 DF/liter	33,180
7.3 kg fiberglass mat	565 DF/kg	4,125
9.6 kg woven roving	525 DF/kg	5,040
84 liters resin	375 DF/liter	31,500
10 liters gelcoat	1145 DF/liter	11,450
10 liters acetone	180 DF/liter	1,800
2 liters catalyst	880 DF/liter	1,760
1500 galvanized staples	1 DF/staple	1,500
1 kg. glass bubbles	285 DF/kg	285
Tool depreciation		5,250
80 man hours	500 DF/hour	<u>40,000</u>
		208,645

The difference between the two breakdowns was negligible. The increase in the price of materials was balanced out with the decrease in tool depreciation (depreciation divided over more units) and the elimination of the use of some materials.

The contracting method was based on the amount of square meters of area to be sheathed. Figure 17 shows how a typical 8 meter wooden boat was measured.

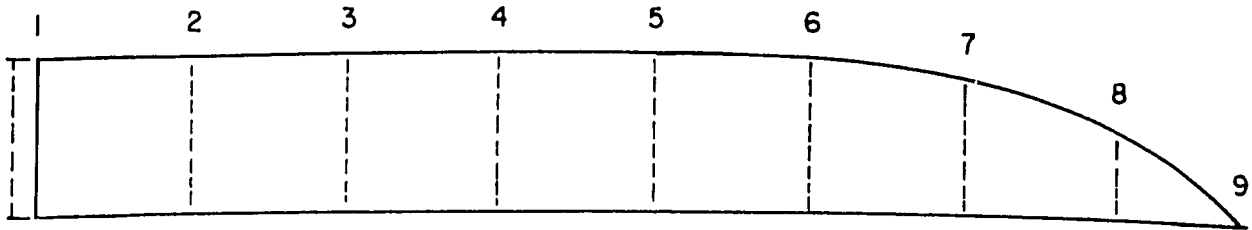
A wooden boat, or houri, when viewed from the side, has a distinctive shape. This shape is characteristic of all sizes of boats that may range from 5 meters to 12 meters in length.

The boat was first placed keel side up. The length of the boat is measured along the keel from the stern to the bow (side view). Every one meter was marked off. At each of these stations, the length was measured from the keel to the gunnel following the contour (end view).

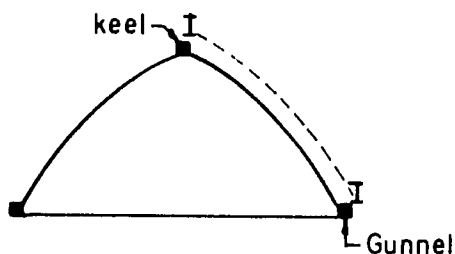
This information was then put on graph paper. The result is a flattened top view of the boat. The number of divisions or boxes falling within the inside area are added up. A certain number of divisions or boxes by the scale that was used will equal one square meter. The total number of divisions or boxes divided by the number that equals one square meter resulted in the total square meter area. This was then multiplied by cost per square meter.

The fisherman entered into an agreement with the Cooperative before actual work has begun. Because of the varying sizes of boats, the range of costs have been from about 55,000 DF to about 385,000 DF. Some fishermen have opted for what is called the "half sheath option". The boat was sheathed just to the waterline, which turns out in most cases to be about $1/2$ the total surface area of the boat. This option was used on the somewhat newer wooden boats that have rot only below the waterline and are in good shape above.

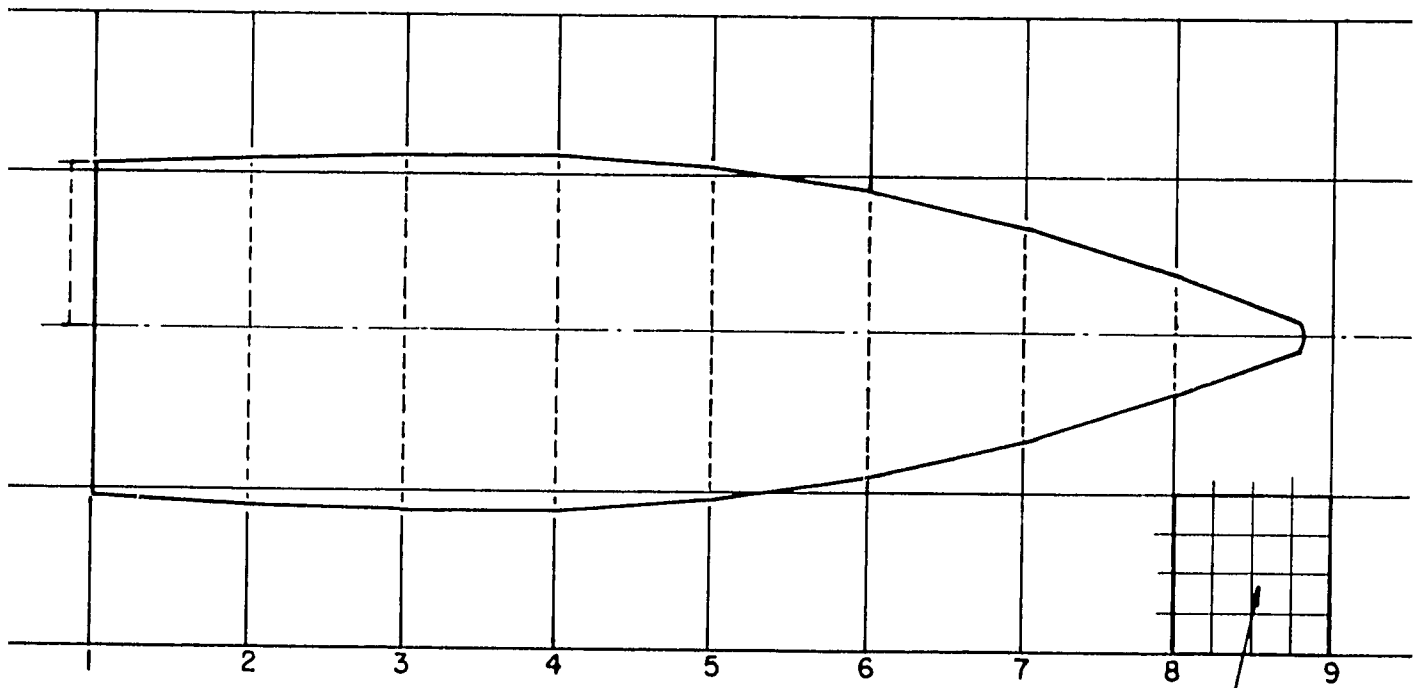
FIGURE: 17 DETERMINATION OF SURFACE AREA FOR A TYPICAL WOOD BOAT



SIDE VIEW



END VIEW



TOP VIEW

Equals one square meter

The second way the boatyard generated revenue was by new boat construction. New boat construction has gone through several experimental models before deciding on one that has proved to be acceptable to Djiboutian fishermen. By the end of August, 1984, the boatyard has built a 5 meter houris, an 8 meter houris, a 9 meter modified hours and two 6.5 meter dorys. Under construction are 4 modified 6.5 meter dorys (stack method). From a cost standpoint, the amount of time and material per square meter has been about the same for each of the boats constructed. Differences occur depending on what is done to the interior.

The cost breakdown for the modified or traditional dory was as follows:

<u>C-FLEX OPTION</u> ^{1.}		<u>Unit Price</u>	<u>Total Djibouti Francs</u>
<u>Description</u>	<u>2</u>	<u>2</u>	
13.5m C-Flex 65		2975 DF/m	40,165
24 kg fiberglass mat		650 DF/kg	15,360
50 kg woven roving		525 DF/kg	26,250
150 liters resin		375 DF/liter	56,250
10 liters gel coat (exterior)		1145 DF/liter	11,450
5 liters finish paint (interior)		1715 DF/liter	8,575
10 liters acteone		180 DF/liter	1,800
3 liters catalyst		880 DF/liter	2,640
1 plank hardwood (gunnels)		4000 DF/plank	4,000

1. C-Flex option uses the 12 inch C-Flex planking over a male plug

<u>Description</u>	<u>Unit Price</u>	<u>Total Djibouti Francs</u>
1 plank whitewood (seats)	3750 DF/plank	3,750
Hardware (screws, nails, washers)		2,000
Tool depreciation		5,250
1.3m flotation	32000 DF/m	41,600
160 man hours	500 DF/hour	<u>80,000</u>
	TOTAL	299,090
Optional hold 1.5 cubic meters		30,000

1.

DIVINCYL OR AIREX OPTION

<u>Description</u>	<u>Unit Price</u>	<u>Total Djibouti Francs</u>
13.5m Divincyl	5480 DF/m	73,980
All other costs same as C-Flex Option		
.5 cubic meter floatation	32000 DF/m	<u>16,000</u>
	TOTAL	307,305
Optional hold 1.5 cubic meters		30,000

The Divincyl option is slightly more expensive than the C-Flex option. The insulated hold has been made an option. Net fishermen prefer insulated coolers to the integrated fish hold.

Projected financial viability of the boatyard based on current costing policies and revenue generated shows the operation to be little more than a break even operation (Figure 18 Projected Annual Profit/Loss Statement). Using the same line headings, the actual statement (Figure 19 Profit/Loss Statement Jan. '82 - Aug. '84) shows a net loss of 2,531,080 DF. It must be noted though that for the first 6-8 months, time was spent in facilities set-up, training and product development.

1. Divincyl or Airex option uses, sheets of Divincyl or Airex insulation over a male plug

FIGURE 18: PROJECTED ANNUAL PROFIT/LOSS STATEMENT
DJIBOUTI FISHERIES COOPERATIVE BOATYARD

<u>Sales</u>	<u>Total Djibouti Francs</u>
	<u>1.</u>
New construction - 15 dorys @ 307,305 per dory	4,609,575
Sheathing 195m2 @ 15075 DF/m2	2,939,625
<u>Costs</u>	
	<u>2.</u>
Materials sheathing 195m2 x 8640	1,684,800
	<u>3.</u>
Materials new construction 15 dorys @ 204,575 per dory	3,068,625
	<u>4.</u>
Labor 150,000 DF per man month	1,800,000
	<u>5.</u>
Depreciation of capital equipment	100,000
	<u>6.</u>
Electricity	600,000
	<u>7.</u>
Water	<u>12,000</u>
TOTAL COSTS	7,365,425
GROSS PROFIT	7,549,200
NET PROFIT	283,775

-
1. Sales - assuming time for 3 boatyard workers (1760 hr/year x 3) divided equally to new boat construction and sheathing operations. 2640 man hours divided by 160 man hours per dory equals 16.5 dorys. Rounded down to 15 because of vacation and sick leave. 2640 man hours divided by 13.5m2 (amount estimated one man can do in one month) equals 195m2 of sheathing operations.
 2. Sheathing materials - 8,640 francs worth of material per square meter.
 3. Construction materials - there are 204,750 francs worth of material per dory.
 4. Labor - 3 workers with salaries of 60,000, 50,000 and 40,000 DF respectively.
 5. Depreciation - straight line depreciation of major power tools over 5 years.
 6. Electricity - estimated consumption equal to 50,000 DF per month.
 7. Water - estimated consumption equal to 1,000 DF per month.

FIGURE 19: CUMMULATIVE PROFIT/LOSS STATEMENT DJIBOUTI
 FISHERIES COOPERATIVE BOATYARD JANUARY 82 - AUGUST 84

<u>Sales</u>	<u>Total Djibouti Francs</u>
Sheathing Operations	3,378,920
<u>Value Constructed Boats</u>	
1-8 meter houris	300,000
1-9 meter houris	590,000
2 dorys	600,000
<u>Costs</u>	
Materials - sheathing	1,780,000
- new construction	1,090,000
Labor	2,700,000
Depreciation	250,000
Electricity	1,500,000
Water	30,000
TOTAL COSTS	7,350,000
GROSS PROFIT	<u>4,818,920</u>
NET LOSS	2,531,080

From these figures it shows that the best the cooperative boatyard could do is a breakeven operation and it only occurring if worker productivity improved.

As an alternative to a government subsidised operation USAID requested RDA to locate individuals who might be interested in boat building and to devise a work plan and market study as to how it might operate.

Finding interested individuals proved not to be a problem. The boatyard has received a great deal of publicity in the local press which lead to inquires from individuals and firms. Previous expertise, while a plus, was not prerequisite. Experience has proven that the techniques and skills needed can be easily transferred. The RDA team would provide the technical assistance needed at the beginning . A general list of criteria for selection would be:

1. general knowledge of carpentry or wood working skills,
2. successful track record to the individual or firm in other entrepreneurial endeavors with preference to construction related projects,
3. capital necessary to make an initial investment.

The RDA devised operations plan assumes that the selected individual/firm would use the present boatyard facilities. After selection the individual/firm would enter into a contract with the Cooperative. The general content of the contract would have:

1. lease agreement to pay the cooperative on a monthly basis for the use of the facility, tools, equipment, etc.,
2. price agreement for cooperative members for sheathing operations on a per square meter basis,
3. price agreement for cooperative members on new boat construction on a per unit basis,

4. price agreement for cooperative members for general repairs for wooden and fiberglass boats on a labor and materials basis,
5. priority consideration on repair and sheathing for fishermen's boats.

Other points to be considered would be the disposition of fiberglass materials in stock. They could be purchased by the individual/firm or be used exclusively for cooperative related repair of construction. The cooperative would be billed only for labor.

Potential candidates would be interested in what the perspective market for boatbuilding operations would be. Two sources of sales have been identified, the cooperative and the private sector.

The privately managed boatyard can count on a limited level of sales from the cooperative. Based on the existing houris fleet of about 60 including the 25 houris that were sheathed by the cooperative, there exists the potential for about 35 sheathing operations. New construction would be limited to the amount of new entrants into fishing and those fishermen wanting to aquire another fishing boat. Proposed estimates (USAID, IFAD) of future production (at least doubled) would require then at least as many new boats as old. But assuming that there will be improvements in technology through training this number can be reduced by half. This would leave about 30 units as potential sales.

There are the same two areas new construction and sheathing where the private sector could provide the boatyard with sales. The modified dory could make an excellent entry into the recreational boat field. For expatriates water related activities are a primary way to spend leisure time. An increasing number of Djiboutians have also become interested in recreational boating judged by the number of inquiries made at the

boatyard. While this potential source of sales has been identified, it would require an in depth marketing study to determine volume.

RDA has identified an area, private sector sheathing, where long term sales potential exists. There is a number of large wooden boats (boutres, dhows) used primarily for commerce and transport. These vessels originated from Yemen but are Djiboutian registered. When in need of refurbishing, these boats are hoisted out of the water by crane and worked on by a cadre of Yemeni boat builders. The refurbishing processing is often long and it is not usual for a boat to be dry-docked 6 months or longer. By reason of their monopoly the costs are very high.

A marketing promotional campaign could convince an owner to sheath his boat in lieu of traditional repair. The costs would be determined on a square meter basis. These boats fall into a range of 40-80 square meters. Based on current sheathing costs used by the Cooperative (\$85/square meter) these boats can be sheathed for 3,500-7,000 dollars. This is about one half less than traditional repair. Time estimates using a 3 man crew would fall into a range of about 1 to 2 months. This is considerably less than the 6 months it takes for traditional repair.

RDA recommends that the privately managed boatyard set-up a mobile sheathing unit. This is necessary because the sheathing of these boats will be done at the Port of Djibouti or L'Escale. The costs are outlined in Figure 20.

RDA firmly believes that private sector boatbuilding is a viable alternative to the current Cooperative managed system. The future of boatbuilding activities in Djibouti should be addressed in the Phase II activity.

FIGURE 20: Mobile Sheathing Unit Costs

Item	Cost (U.S. Dollars)
One-half ton pick-up	9,000
Gas powered air compressor ^{1.}	2,000
Air tools ^{2.}	1,000
Hand tools ^{3.}	500
Fiberglass materials ^{4.}	11,000
Fiberglass accessories ^{5.}	<u>2,000</u>
Total	25,500

1. Gasoline powered air compressor should have a least a rating of 17 SCFM (standard cubic feet per minute). This will allow the compressor to run two high air volume tools at the same time, sanders or grinders rated at 8 SCFM.

2. Minimum air tools needed, 2 sanders, 2 grinders, 1 drill, 1 cut-off or reciprocating saw, 2 staplers.

3. Minimum hand tools needed, hammers, chisels, planes, flat-ground saw, combination square, measuring tape, pistol grip stapler, bevel, screwdrivers.

4. Fiberglass materials are variable depending on amount of work to be done and the size of crew. The above was calculated on the number of square meters a 3-man crew can sheath in 6 months (considered optimum time for resin storage).

13.9 square meters/month x 3 men = 41.7 square meters
 41.7 square meters/month x 6 months = 250.2 square meters
 250.2 square meters x \$45 materials/square meters = 11,000 dollars

5. Fiberglass accessories such as sanding discs, dust masks, staples, nails, wood, etc. are considered expendables and as a general rule are equal to about 20% of the value of fiberglass materials.

3.1.4 Cooperative And National Fisheries Production

Since March 1979, the Fisheries Service (SEP) has been compiling statistics on the quantity of fish arriving at the Pecherie. In March of 1981, when the ACPM (Fisheries Cooperative) assumed control of the Pecherie, it began keeping records with RDA technical assistance, of daily fish purchases. In June of 1982, the Fisheries Service (SEP) began a sampling and fisheries statistic program of Pecherie landings only with the assistance of the Red Sea Regional Program (FAO).

An extrapolation based on an estimate of what was produced and sold by independent fishermen and consumed by the fishermen themselves provided a basis for national annual catch.

The extrapolation percentage used in 1979 and 1980 was thirty percent. This figure was derived by the Fisheries Service based on field observations. In 1981, the extrapolation was reduced to twenty percent. The Fisheries Cooperative was reporting an increase in 1981 from 1980 of fishermen selling their catch to the Pecherie. It was reasoned that an increase in the number of fishermen selling their catch to the Pecherie was linked to a concomitant decrease in the number of independent fishermen selling their fish at independent outlets. Thus the Fisheries Cooperative would be reporting a higher percentage of the total national catch.

In 1982, it was decided (by the Fisheries Service) to eliminate the extrapolation percentage. A comparison of yearly totals showed a slight increase in actual production from 1981 to 1982. The number of actual fishing units selling their catch to the Pecherie in 1982 equaled the extrapolated total for 1981. Did this mean a decrease in fishing effort?

	<u>1979</u>	<u>1980</u>	<u>1981</u>	<u>1982</u>	<u>1983</u>
(Actual)					
Production (KG)	164,969	203,076	295,394	298,907	282,812
Boats	20	18	50	63	60
Fishermen	68	80	127	143	137
(Extrapolated)					
Production (KG)	251,090	312,568	385,282	-----	-----
Boats	24	29	60	-----	-----
Fishermen	108	118	171	-----	-----

Without base data on the actual numbers of boats and fishermen or a sampling program yielding statistical evidence of production at locations other than The Pecherie this question could not be answered. Until reliable data could be analysed it was decided to drop the extrapolation percentages.

Two proposals were put forth to aid in the accumulation of baseline data needed to determine the national catch. One proposed a program using the Fisheries Service (SEP) and the Maritime Affairs Service (Ministry of Port) to initiate a program of registering all fishing boats and crews. Previously only the larger boats were registered. The Maritime Affairs Service would provide the enforcement for the registry regulations and the Fisheries Service and Fisheries Cooperative, the incentive to induce the fishermen to register their boats. These incentives would be to sell duty free fuel, fishing gear, or outboard motors only to those fishermen or boats registered. These regulations were passed into law in late 1983 with registration beginning in 1984.

The second proposal was to initiate a sampling program at possible landing sites other than the Pecherie such as The Port of Djibouti, L'Escale and the Central Market. The Red Sea Regional Project marine biologist

provided a concept paper as to how this might be accomplished. It was unfortunate that this regional project concluded its activities (December, 1984) before implementing the program. RDA believes this task is important enough to include it under the Scope of Work for the USAID Phase II Fisheries Biologist. With data on the number of boats, fishermen, and landings a reliable figure on national catch can be obtained.

The existing data production from Fisheries Service and ACPM is analyzed in the following sections.

3.1.4.1 Tendencies In Fisheries Production

Fisheries production levels in Djibouti are influenced by four major factors; climate, demand, ex-vessel prices, and traditional fishing areas. This section discusses how each factor tends to effect the production curve.

The resources of fish and other marine fauna vary in distribution and abundance throughout the year in response to prevailing wind conditions:

November - February	Northeast wind
May - September	Southwest wind
July, August	Khamsin (Northerly wind)
March, April, October	Transition (Variable)

During the summer season, May through September, prevailing wind conditions induces a summer upwelling of nutrient-rich water coming to surface from depths of 100-200 meters. Off the Djibouti coast the water warms up and a thermocline develops at 20-30 meters. The presence of this warm water develops ideal fishing conditions. Pelagic fish (e.g. sardines) feed in this nutrient-rich water and in turn become a food source for the larger pelagics (tuna, kingfish, barracuda) and demersal species. Shallow depth hand-lines 20-30 meters can be used to catch these fish. The cooler weather, November through February, causes the thermocline to sink and with

this a dispersal of pelagic and demersal species. The deeper thermocline, 100-200 meters, poses less than ideal conditions for hand-line fishermen. The use of bottom set gill nets is prevalent during the winter season.

Figures 21 and 22 graphically illustrates seasonal production levels. As would be expected, production levels are high in the April-May period. Production decreases in the following period of June-July. This is the Khamsin season (literally 50 day wind). The traditional houri fleet loses fishing days due to unfavorable weather conditions.

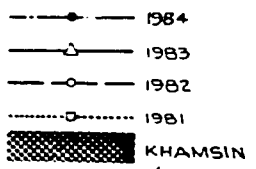
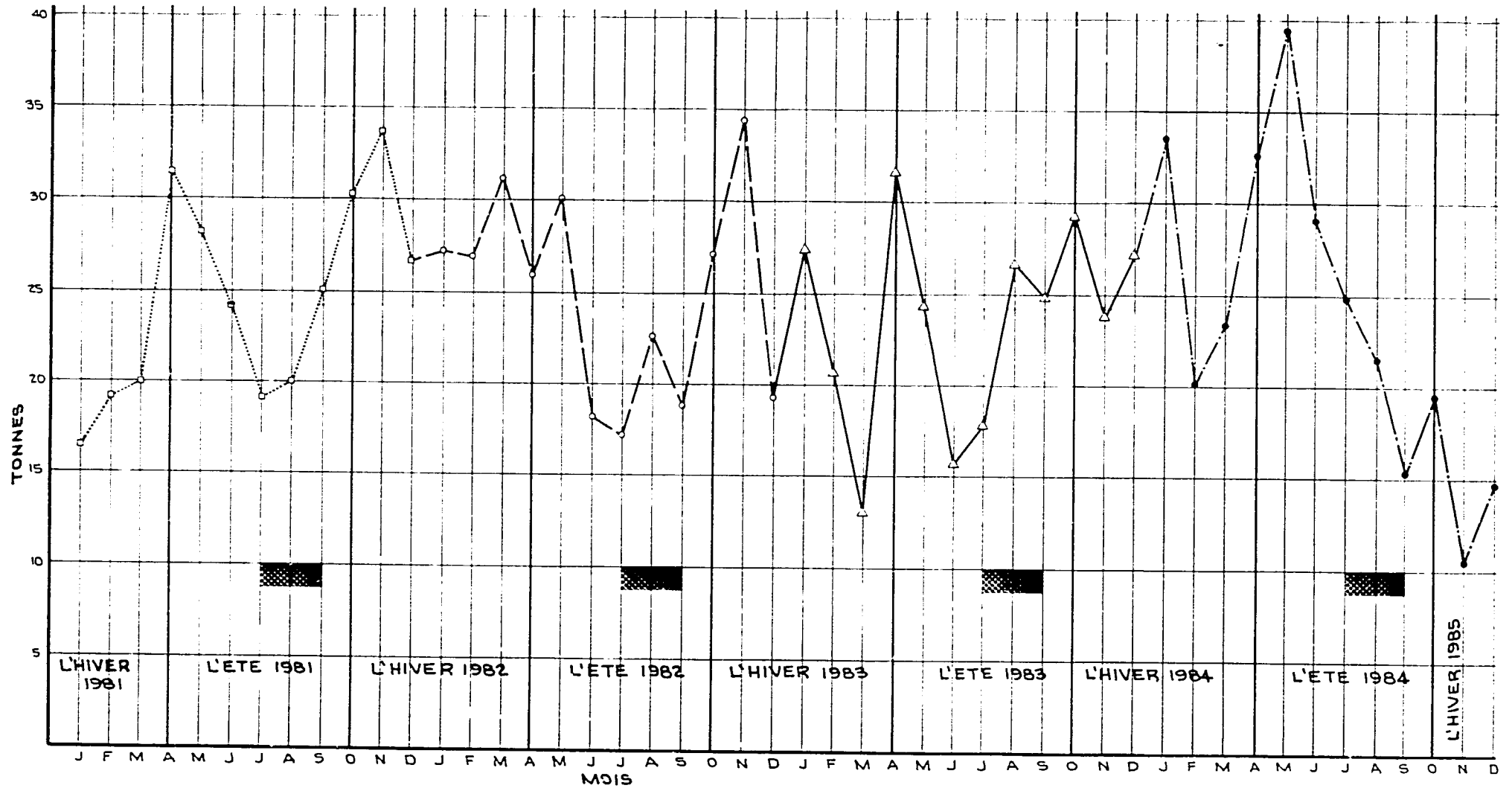
Production increases after the Khamsin period, tending to peak in October-November. Good weather combined with summertime fishing conditions (shallow thermocline) explain this increase.

A gradual decrease in production occurs after the month of November, signaling the beginning of the winter season. January tends to show an increase from the previous month due to the mullet fishery. They are found in concentrated numbers along the southern coast to the border of Somalia. Mullett are caught in gill nets, the primary gear used in the winter season.

Occasionally there occurs on the production curve climatic anomolies to what would be normally attributed to an increase or decrease.

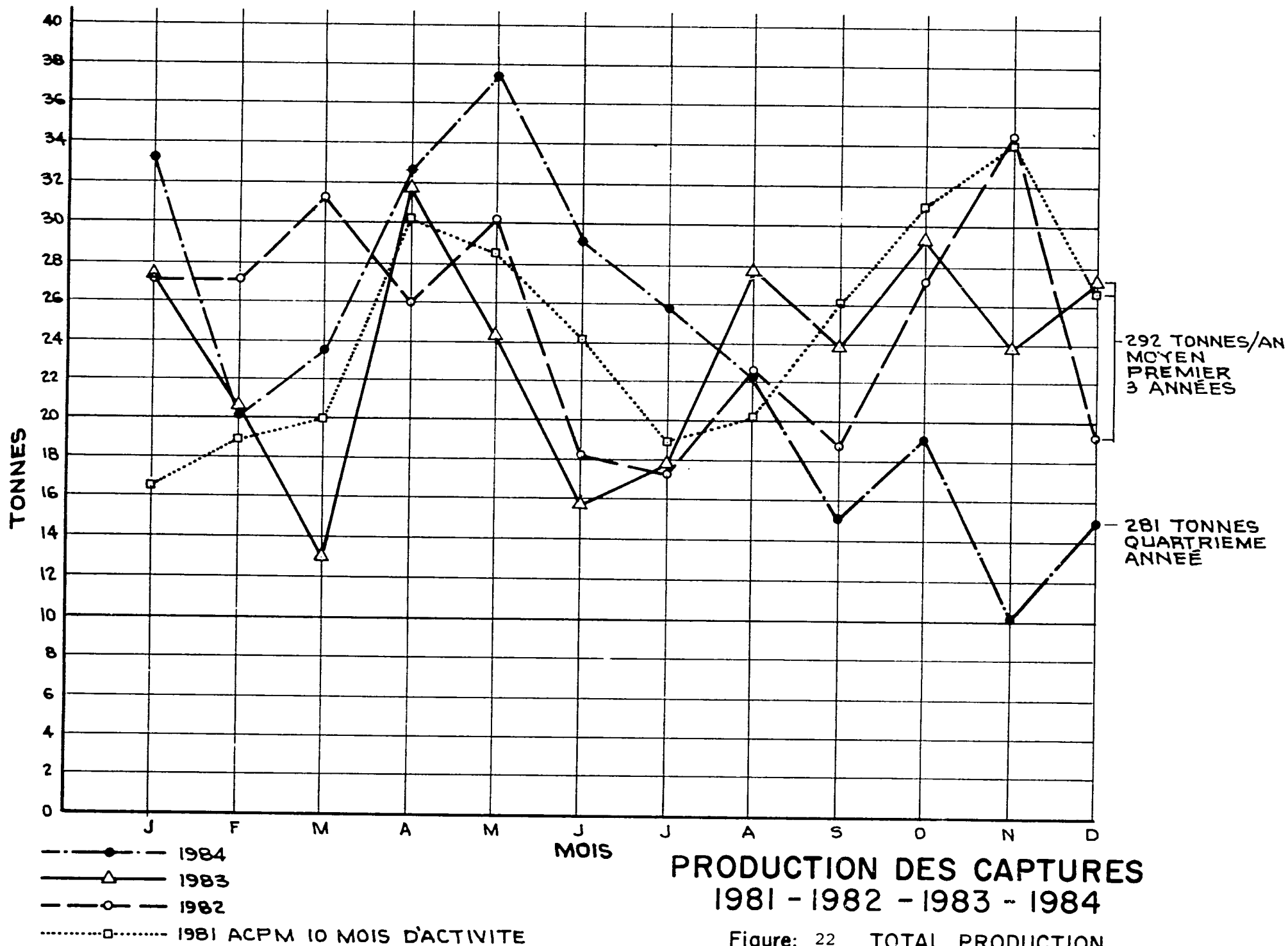
One such occurred in March-April of 1982. Normally, April production can be expected to be better than March production. This has held true for the 1981, 1983 and 1984 seasons. What occurred in 1982 was a "weather reversal". March weather was excellent indicating an early summer. Production was in excess of 31 tons, a 50 percent increase from March 1981. In late March, the weather deteriorated with strong winds and rain until mid-April.

To help minimize the effect of climate on the production curve it was necessary to improve the stability of fishing platform, and to introduce new gear technology.



PRODUCTION DES CAPTURES
PAR SAISON 1981 - 1982 - 1983 - 1984

Figure: 41 TOTAL PRODUCTION BY SEASON



The boat building program has addressed this problem with the introduction of the modified dory. The Yamaha fiberglass skiffs purchased by IFAD has also improved boat stability.

Exploratory fishing and the introduction of new gear technology began in the later years of the Phase I effort. The demonstration of bottom fishing reels to the Djiboutian fishermen has been successful. This program can aid the hand-line fishermen in the winter months when fishing depths (100 meters) make it impractical to use the single hook handline.

The RDA masterfisherman has demonstrated the use of the reel in catching the spotted grouper (*Epinephelus areolatus*) at depths of 90 meters with a bottom reel and multi-hook line. This program took place in December (1983), January and February (1984).

A summary of monthly seasonal production 1981-1983 (Figure 23) shows the relationship of weather to major species caught and gear employed. The relationship stresses the delineation between winter and summer fishing. The 1984 figure, as yet tabulated, will add the spotted grouper to the major species caught column for December, January and February. The grouper has also been fished successfully throughout the year by the IFAD vessel "Khor Angar" through its trap fishing program.

The research program of Phase II will further address the problem of minimizing climatic effects on the production curve through an exploratory/experimental fishing during the winter months.

The remaining effects on the production curve, demand, ex-vessel prices and fishing grounds, are not as evident or predictable as climate. Their combined effect to date has tended to lower overall production.

FIGURE 23 SUMMARY OF MONTHLY SEASONAL PRODUCTION 1981-1983

<u>Month</u>	<u>Season</u>	<u>Meteorology</u>	<u>Major Species Caught</u>	<u>Gear</u>
January	Winter	Winds NE 5-15 knts	Snappers, Dorads, Kingfish, Tuna	Gill Nets
February	Winter	Winds NE 5-15 knts	Snappers, Mullet, Dorads, Kingfish	Gill Nets
March	Winter Transitional	Winds variable, rain	Dorads, Snappers, Mullet, Jacks	Gill Nets, Handlines, Trolling
April	Summer	Winds variable	Baracuda, Snapper, Kingfish	Handlines, Trolling
May	Summer	Winds SW 0-5 knts	Kingfish, Jacks, Snappers	Handlines, Trolling
June	Summer	Winds SW 5-15 knts	Kingfish, Jacks, Snappers	Handlines, Trolling
July	Summer	Winds SW variable, and N 10-20 knts	Jacks, Snappers	Handlines, Trolling
August	Summer	Winds SW variable, and N 10-20 knts	Jacks, Snappers	Handlines, Trolling
September	Summer	Winds SW 5-15 knts	Snappers, Tunas, Jacks	Handlines, Trolling, Gill Nets
October	Summer Transitional	Winds variable	Snappers, Tunas, Dorad	Handline, Trolling, Gill Nets
November	Winter	Winds NE 0-5 knts	Jacks, Tunas	Handlines, Trolling, Gill Nets
December	Winter	Winds NE 0-5 knts	Tunas, Kingfish, Snappers	Gill Nets

1. By descending order left to right

Total extrapolated production for 1979 was 251 metric tons. Extrapolated production in 1980 was 313 tons, an increase of 25 percent over the production of the previous year. Extrapolated production in 1981 was 385 metric tons, an annual increase of 23 percent over 1980. Even if the extrapolation was kept (30 percent) for 1982, 1983 and 1984, the resulting successive metric tons produced, 389, 364, and 363 indicate a slight increase (1 percent) and then a successive decline.

Demand (covered in greater detail in Section 3.3 Marketing) expressed as a curve fluctuates inversely to the production curve. Demand expressed as sales are higher in the winter months than in the summer months. This is directly opposite to production (except November) where the potential to produce more fish is greater in the summer than winter. The ACPM in the summer months freezes excess production to be held for future sales. If the demand was greater the potential to produce could be easily met during this period. Inversely the ability to produce in the winter (climatic factor) would result in increased sales during this period when the demand is higher. A combination of new gear technology (improving winter time catch) and promotional marketing will minimize the effect of demand on the production curve.

The ACPM experienced a dramatic decline in production for the latter part of 1984. The first six months of 1984 was the highest six month production total in ACPM history. If second half production averaged at least the 1983 and 1982 totals ACPM 1984 total production would have approached 320 metric tons. The actual second half production totals were the lowest in ACPM history.

Two factors were the cause of this decline, the ACPM pricing policy, and the loss of a traditional fishing ground. The pricing policy (covered

in greater detail in Section 3.4.2.3.4 Cost/Pricing Analysis) was changed in 1984 from a fixed price system to a variable fixed price system.

For the three previous years the ACPM was purchasing fish at a fixed price. Regardless of supply, members were offered the same price for their fish throughout the year. This encouraged fishermen to sell their catch to the ACPM and worked to their advantage during the summer months. It worked less to their advantage in the winter months of lower production levels where independent fish buyers offered a higher price for their catch. ACPM management decided in 1984 to eliminate the fixed price system to better compete with the independent fish market. The Fisheries Service (SEP) approved the ACPM plan and it was implemented in May of 1984.

The ACPM membership, through their elected board of directors, approved the plan. Even though they were receiving less money for their catch, May of 1984 production approached forty tons. Problems occurred later in the summer when the fishermen wanted higher prices for their catch, even though under the variable-fixed price system the higher price would not be offered until the winter months of December through March. This resulted in a steady decline in production.

Occurring at the same time, which compounded the decline, (and a reason for the fishermen asking a higher price for their catch) was the loss of a traditional fishing area off the coast of Somalia near the Djiboutian border.

An informal agreement between the governments of Djibouti and Somalia allowed Djiboutian fishermen to fish on the Somalia side of the Djiboutian border. In exchange, the Djiboutian government allowed the local Somalia Fisheries Cooperative at Zeila to fish in Djiboutian territorial waters and

to sell a limited amount of their catch (those species of fish higher in demand, e.g. kingfish, mullet) to the ACPM. The ACPM, in any case, would give priority to the Djiboutian fishermen when there was an over abundant supply (e.g. May 1984 production). The informal agreement broke down after complaints by the Zeila fishermen to their local officials. They did not want Djiboutian fishermen in their area if they in turn could not sell all of their catch to the ACPM. In the past, there had never been the occasion (of over supply) for refusing to buy the catch from Zeila fishermen.

The fishermen who have traditionally fished the Somalia waters (est. 50 percent of ACPM membership) for many years were now limited to those areas remaining along the Southern coast, being unfamiliar with the northern coastal areas (Obock region). Since the more productive side of the Southern fishery was on the Somalia side their production decreased. The northern fishery having its own inherent problems (Section 3.2.5) nevertheless was now contributing the majority of fisheries production.

The ACPM will have to improve this situation or be faced with pre-1981 production levels for 1985. The solutions will include formal negotiations with the Somalia government if it is desired to continue using those fishing grounds, improve the infrastructure of the northern coastal fishery and educate those members unfamiliar with the northern coast. The ACPM pricing policy will have to change to reflect on the actual supply and demand situation (e.g. auction system).

3.1.4.2 Production Results

Yearly production results including the number of fishermen and boats from 1979-1983 can be found in Appendix D, Fisheries Activities Statements. Figure 24 examines month-by-month Fisheries Cooperative production. An analysis pertaining to increased fishing effort is found in Appendix E.

As was explained in the previous section Fisheries Cooperative production has been declining since it reached its peak in 1982. The original USAID project production goal set in 1980 for the ACPM was an increase in production by 10-15 percent by the end of two years. The project had successive annual increases of about 25 percent in 1980 and 1981. The 1982 result was 1 percent higher than 1981. The 1983-1984 production figures show an overall 5 percent decline.

For Phase II a goal of increasing production by 100 percent has been set. Given recent problems this may not be possible to attain. It is more realistic to assume production levels will increase modestly to some figure 10-15 percent higher than peak production reached in 1982. There are no short-term solutions to increased production. The combined efforts in Phase II towards marketing, research and training will be evident at the end of the project.

An analysis of production from 1979 through 1983 shows a pelagic to demersal catch ratio of 4:6. The estimated fisheries resources show a 5:2 pelagic to demersal ratio of potential catch. Even though current demersal production is well below potential yield, the Djibouti fishery is currently too one-sided. Phase II activities should address the increased utilization of pelagic stocks.

FIGURE 24 ACPM MONTHLY PRODUCTION TOTALS

	<u>1984</u>	<u>1983</u>	<u>1982</u>
January	33 238.95 kg	27 434.70 kg	27 240.40 kg
February	20 021.00	20 645.20	27 014.9
March	23 551.35	13 079.30	31 157.70
April	32 529.50	31 663.00	25 959.30
May	37 336.70	24 333.000	30 097.75
June	27 123.65	15 723.40	18 127.10
July	25 914.25	17 882.40	17 150.80
August	22 390.30	26 699.15	22 575.05
September	15 084.05	24 872.80	18 737.90
October	19 186.90	29 337.00	27 124.10
November	10 056.00	23 800.60	34 401.50
December	<u>14 988.20</u>	<u>27 242.65</u>	<u>19 285.10</u>
Total	281 420.85	282 713.20	298 871.60
Recapitulative:			
Fish	278 402.40	279 230.10	294 708.30
Lobster	2 700.95	3 094.05	3 386.20
Squid	<u>317.50</u>	<u>389.05</u>	<u>777.70</u>
Total	281 420.85 kg	282 713.20 kg	298 871.60 kg
Jan-June	173 801.15 kg	132 878.60 kg	159 597.15 kg
July-Dec	107 619.70	149 834.60	139 274.45

3.1.5 Recommendations For The Future - Production Section

Recommendations for the section on production can be summarized by the following two categories; research and training.

The research effort planned for Phase II should be defined as a series of tasks. These tasks are gear selection, experimental fishing, exploratory fishing and stock assessment. The final component of this research effort would be training. All new gear is first tested for its effectiveness through the experimental fishing program. Demonstration of this pre-tested gear to experienced fishermen comprises one part of the program. Training for less experienced fishermen (crew members) and new participants in fishing is the other component. These recommendations are covered in greater detail in Section 3.5 Research.

Boatbuilding recommendations included looking for private sector involvement. The RDA technical assistance team in Phase I did a preliminary study and market analysis.

3.2 Handling, Storage And Processing

The RDA technical assistance team devoted a major portion of its time in addressing, handling, storage and processing needs. This section discusses what was done to improve infrastructure and methodology in relation to handling, storage and processing.

3.2.1 Upgrade Of Facilities

In a country such as Djibouti, the lack of a complete cold chain system was a major constraint towards fishery development. Existing facilities at the start of the project, March, 1980, were limited. Operating as a private concern, the Fisheries Service leased to a private entrepreneur a 40m³ cold store (+2 degrees C) and 30m³ freezer store (-18 degrees C). Also included in the lease agreement, was the use of the sales/processing area (120m²). The entrepreneur was charged 50,000 DF/month for the sales/processing area and a one time charge of 15DF/KG of fish received for the use of the cold stores. All fish received was weighed and recorded by the Fisheries Service.

Operating at an average sales volume of 500 kilograms of fish per day, there was adequate storage for chilled fish. Little use was made of freezers except to freeze and store bait. The entrepreneur had good market sense and bought only what he knew he could sell. The RDA technical assistance team worked with the private entrepreneur during the projects first year. The rudiments of the cold chain system in existence could be improved with the use of ice on vessel and in storage. The result would be a better quality product that perhaps might stimulate consumption and production. The Fisheries Service, with support from French assistance, purchased a flake ice machine the latter part of 1980. The ice machinery

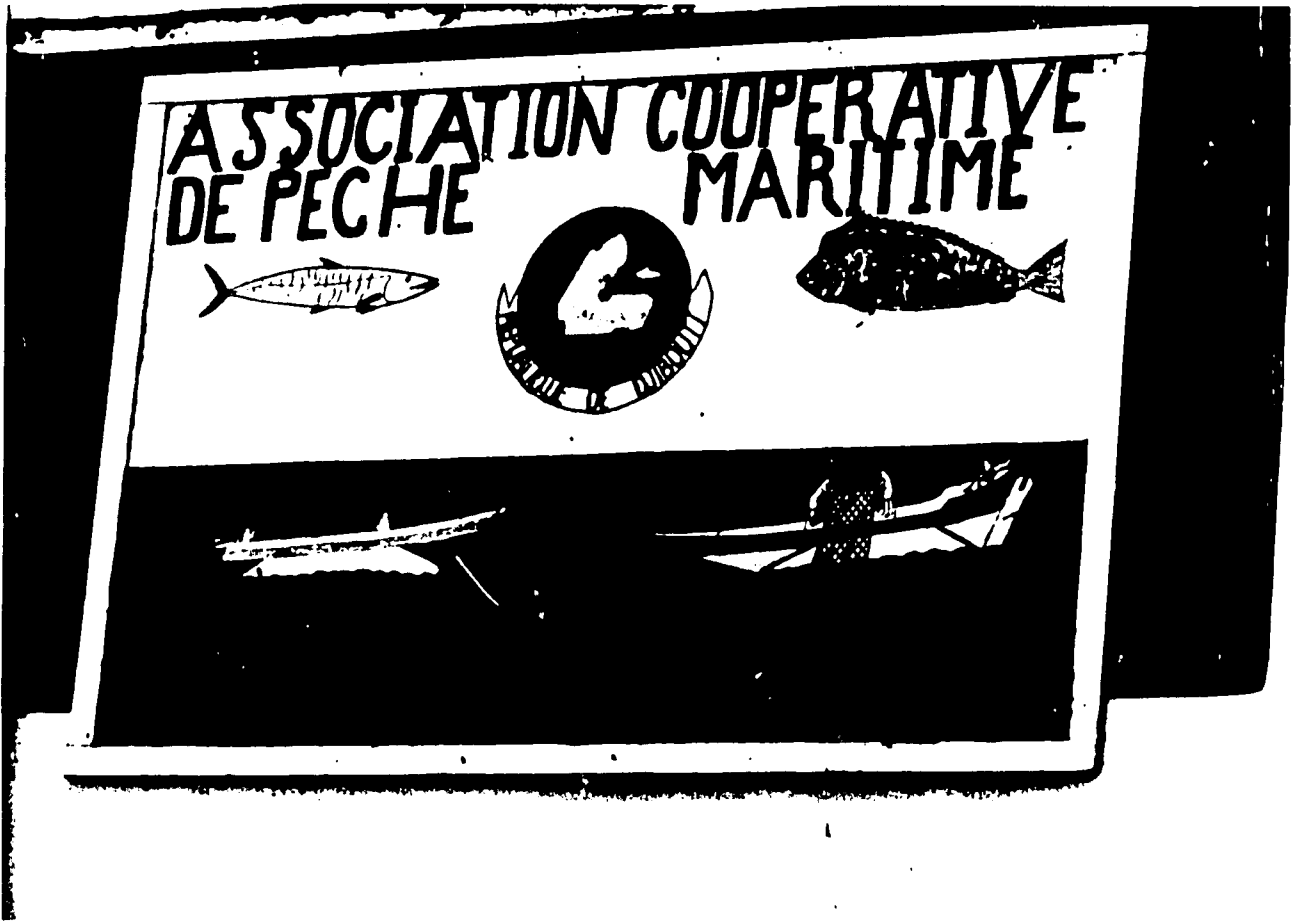


PHOTO - FISHERMAN'S COOPERATIVE - CITY OF DJIBOUTI LA PECHEURIE



PHOTO - GOVERNMENT FACILITIES - BEHIND THE COOPERATIVE

consisted of two flake ice machines rated at 1.4 tons/day and a 6-ton refrigerated storage silo (-18 degrees C). A site was prepared to house the machinery. The electrical requirements of the ice machinery necessitated the installation of a special transformer. In January of 1981, the ice machine became operational. Ice was made available free to fisherman as well as to the entrepreneur for storage. It became readily acceptable by both and a definite improvement was noted in the quality of fish. Before-hand, there was little or no ice even though it was encouraged by the Fisheries Service. Block ice was available locally at a prohibitive price of 20 DF/kg.

The Djibouti Fisheries Cooperative (ACPM) established in May 1980, (Photos 34 and 35) took over fish commercialization in March of 1981. The entrepreneur had taken ill and died the month before. The Cooperative decided to set new prerogatives. The decision was made to purchase fish in excess of previous levels as an encouragement to fishermen. This coincided with an increased marketing effort aimed at institutions and restaurants.

An assessment of storage capacity was made. Approximately 500 kg/M³ of chilled iced fish can be stored in standard size fish boxes (50 kg of fish per 100 liters). The 40m³ cold store has a useable area of approximately 50 percent (30 percent vertical loss and 20 percent loss for access aisles). This gives a capacity for 10,000 kilograms of chilled fish, (40m³ x 500 kg/m³ x .5) or a turnover rate (based on 5 days storage) of 2 tons per day. This was adequate for the actual sales levels.

Approximately 400 kg/m³ of frozen fish can be stored in fish boxes or plastic sacks. The density of frozen fish is lighter than fresh. The 30m³ freezer has a useable area of again at least 50 percent. In addition this

unit had to freeze the fish before storage resulting in an additional 50 percent loss. This calculates into a storage capacity of 3000 tons ($30\text{m}^3 \times 400 \text{ kg/m}^3 \times .5 \times .5$) or a turnover rate, one month being reasonable for frozen storage, of 100 kilograms/day.

The total for frozen storage was insufficient. Seasonal variance in production dictated at least one month's total production was needed in storage to meet the demands of institutional clients. An average month's production was 24 tons or a frozen storage turnover rate of 800 kg/day.

The Fisheries Service (SEP) was able to finance, through its annual budget, the construction of 90m^3 freezer store (-20 degrees C) and the purchase of a 20m^3 prefabricated blast freezer (-40 degrees C). These units became operational in August of 1982. With this additional capacity, 18,000 kilograms of whole weight fish could be stored frozen ($90\text{m}^3 \times 400 \text{ kg/m}^3 \times .5$). Combined with the 6,000 kilograms from the other freezer, total capacity equaled 24,000 kilograms of whole weight fish (equal to one month's production).

In 1984, the final year of their project, IFAD envisioned the need for additional storage capacity. In May of 1984, this unit, 50m^3 (-20 ° C), became operational. The storage capacity ($50\text{m}^3 \times 400\text{kg/m}^3 \times .5$) equaled 10,000 kilograms. The total freezer storage capacity of 34,000 kilograms of whole weight fish is more than adequate to meet projected needs.

The next essential element assessed was ice making capabilities. Normal ice production requirements are calculated on the basis of a 2:1 ratio (two tons of ice needed for every ton of fish produced). The two tons of ice is broken down to one ton used on vessel and one ton for storage. The ice requirements for Djibouti are closer to 3:1 due to higher temperatures (1.5 tons on vessel and 1.5 tons for storage for each ton of fish produced).

The current ice making equipment consists of identical make and model ice making units used with different size storage silos. The units are factory rated at 1.4 ton/day. Actual production is lower due to equipment maintenance, repair, power shortages and the generally high yearly temperatures. Average daily production is closer to one ton per day.

The first ice machine, consisting of two ice making units mounted on a 6-ton silo, is capable of producing an average of 2 tons of ice per day. This machine became operational in January of 1981. Using the 3:1 ice to fish ratio the Fisheries Cooperative had adequate ice supplies (2 tons) to produce and store about 600 kg of fish/day, inadequate for current production levels.

An ice machine consisting of one ice making unit was purchased by USAID in March of 1982 for installation at Obock. This machine could produce one ton of ice per day. If total ice production was at 3 tons, this would allow for a total of one ton of fish/day to be produced. It was unfortunate that delays in construction at the Obock facility prevented this machine from becoming operational.

Ice making capability needed to meet minimum and future requirements came from the newly installed unit (May 1984) at the Pecherie. It was originally to go to Tadjoura but was later changed by GROD to Djibouti. This machine, with its 3 ice making units can produce 3 tons of ice/day. The total functional ice making capability is then equal to 5 tons or adequate to produce and store 1.6 tons of fish. When Obock becomes functional this will bring the final total to 6 tons of ice and 2 tons of fish. Figure 25 summarizes Fish Storage and Ice Making facilities in Djibouti. Photo 36 shows examples of refrigeration equipment.

The receiving and processing areas inherited by the Cooperative needed improvement. Figure 26 refers to the following locations being discussed. The first upgrade occurred soon after the Cooperatives began commercialization activities. The Cold Complex area where the ice machine is located was integrated into the old adjacent receiving area. This provided additional space allowing for better handling of incoming fish. During the latter part of 1982, the wall separating the sales/processing area from the administrative offices was removed. This allowed for greater supervision of Cooperative sales/processing staff. A problem now encountered was that the sales/processing and receiving areas were too exposed. It became difficult to control the crowds of people (fisherman, clients) resulting in a disruption of overall service. Metal screening was erected in both areas during the early part of 1982.

Eventually, when the new receiving area adjacent to the new ice machines is completed, the old receiving area will serve for sorting, packing, and dispatching of fish. The ice machine adjacent to the old receiving area will be used exclusively for cold storage and retail operations.

Major improvements are needed in the sales/processing area. Recommendations to improve this area are covered in detail in Section 3.2.6.

FIGURE 25 FISH STORAGE AND ICE MAKING FACILITIES

<u>Location</u>	<u>Site</u>	<u>Date</u>	<u>Facility</u>
Djibouti	Pecherie	Before 1978	Cold Store +2 deg. c 40m ³
Djibouti	Pecherie	Before 1978	Cold Store -18 deg. C 30m ³
Djibouti	Pecherie	August 1982	Cold Store -20 deg. C 90m ³
Djibouti	Pecherie	April 1984	Cold Store -20 deg. C 50m ³
Djibouti	Pecherie	August 1982	Blast Frezer -40 deg. C 20m ³
Djibouti	Pecherie	January 1981	Ice Machine 2 units 2 tons/day 6 ton storage
Djibouti	Pecherie	May 1984	Ice Machine 3 units 3 tons/day 10 ton storage
Djibouti	Port of Djibouti	April 1984	<u>1.</u> Fresh and Frozen storage
Obock	Obock District	August 1980	Cold Store +2 deg. c to - 15 deg. C 50m ³
Obock	Port of Obock	1985	Cold Store +2 deg. C to - 15 deg. C 50m ³
Obock	Port of Obock	1985	Ice Machine 1 unit 2 ton/day 3 ton storage

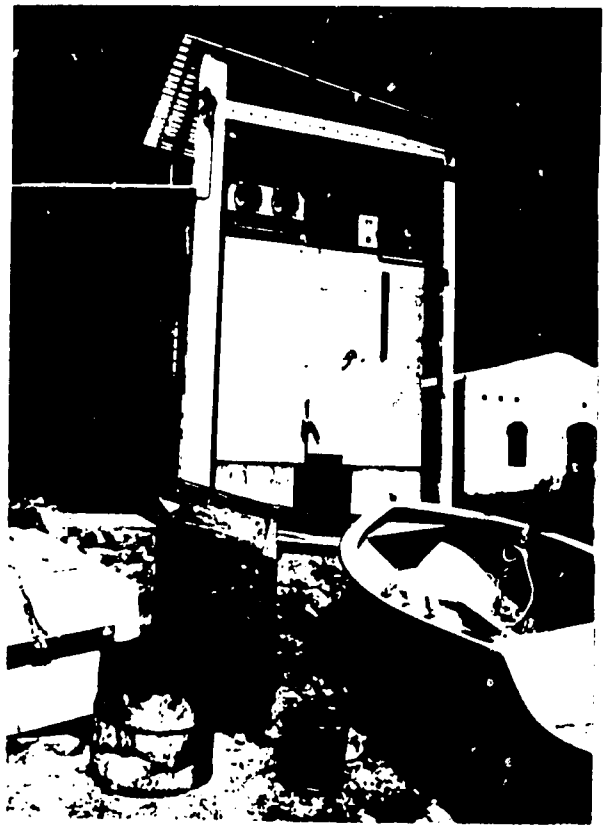
<u>Location</u>	<u>Site</u>	<u>Date</u>	<u>Facility</u>
Tadjoura	Tadjoura Fish	Summer	Cold Storage
	Retail Outlet	1984	+2 deg. C to -15 deg. C 15m3
Ali Sabieh	Ali Sabieh	Summer	Cold Store
	Fish Retail Outlet	1984	+2 deg. C to -15 deg. C 15m3
Dikil	Dikil Fish	Summer	Cold Storage
	Retail Outlet	1984	+2 deg. C to -15 deg. C 15m3

1. Cold Storage facilities at the

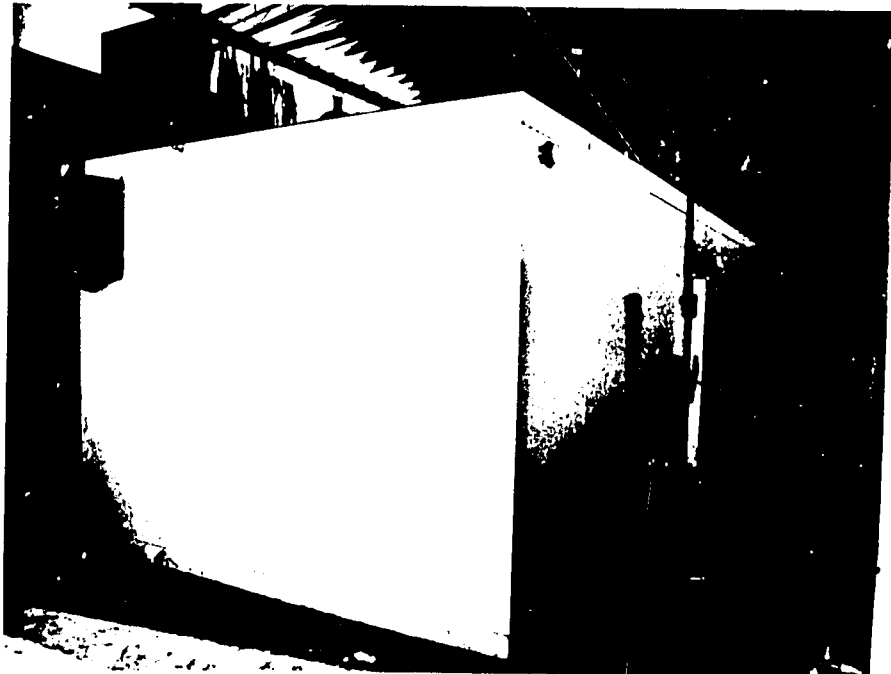
Port of Djibouti were opened in April of 1984. These units are available for fresh and frozen storage. Space can be rented at the rate of 400DF/m3.



Ice Machine:
Two 1.5 ton/day, ice makers, 6 ton silo



Ice Machine:
Three 1.5 ton/day ice makers, 10 ton silo



Prefabricated 15-ton Cold Store

PHOTO 36 COLD EQUIPMENT

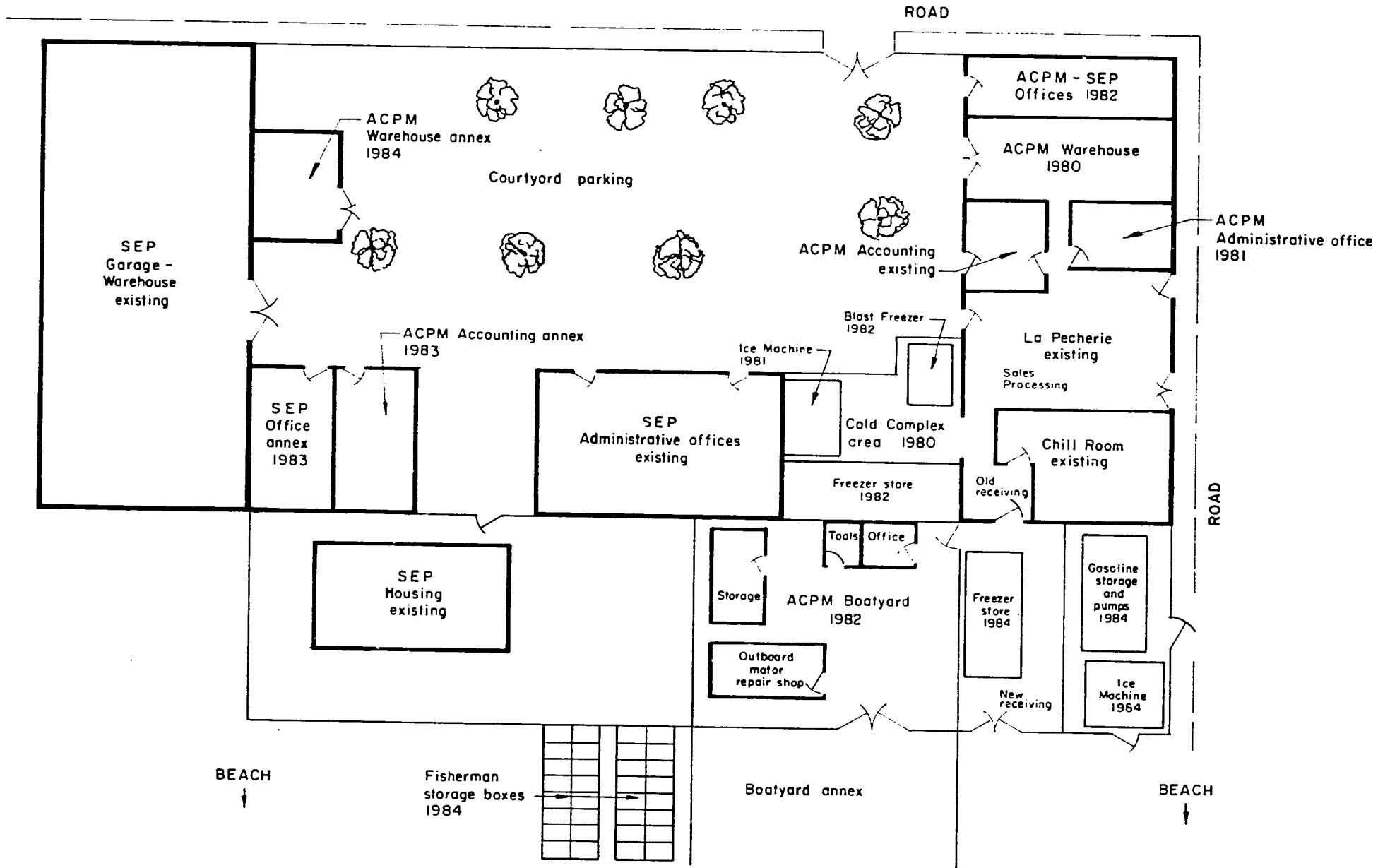


Figure: 26 SEP - ACPM, FACILITIES COMPLEX

3.2.2 Upgrade of Methods

Methodology upgrade in handling, storage and processing has been a continuing ongoing endeavor by the RDA Technical Assistance Team. Initial observations made in 1980 showed no on-vessel use of ice, no evisceration and bleeding of fish, rough handling of fish in receiving and fish stored in the chill room without ice. It was apparent that improvements were needed. The private entrepreneur running the fisheries operation had little concern to improve quality being satisfied with his present sales volume. It was only after the Cooperative took control of commercialization that methodology could be improved.

In the progression of fish from the water to the consumer, there are practices in handling, storage and processing that insure good quality and saleability. The following will discuss RDA Technical Assistant input and progress made.

3.2.2.1 On-Vessel

It is essential that good preservation practices begin at sea. Fish should be immediately gutted and bled. A good sea water wash before storage, especially in the cut cavity, will remove digestive enzymes and material that is readily metabolized by spoilage bacteria found on fish. The use of ice to lower the fish temperature is the next step. The gut cavity should be packed with ice and the fish packed with additional ice perpendicular (not flat) to the container surface. This allows for a faster chilling rate (fish are thickest near the gut cavity) and for the drainage of melt water from the gut cavity. Melt water from the storage container should be allowed to drain thus providing a continued washing of the fish surfaces. These practices have been demonstrated to the fisherman by the RDA Technical Assistance Team. Also, they are standard practices used aboard the Yamaha project boat.

Progress to date has been varied. The Cooperative has helped in that they buy only gutted fish, though more often than not, fish are gutted on the beach just before arrival. All the fishermen use ice. The average fisherman takes 3-4 sacks of ice (30 KG/sack) so that the fish coming in are well iced (photo 37). On board practices vary from fisherman to fisherman (photo 38). While there are those that consistently have excellent quality, they are in the minority. The fixed price structure of the Cooperative cannot reward those who practice better procedures. The project has addressed the problem of the lack of insulated storage boxes with the design and construction of these boxes using C-Flex and fiberglass.

3.2.2.2 RECEIVING

The time of exposure from on-vessel storage to the cold room should be minimized as much as possible. An average daily production (of 800-1,000 KG) does not cause any problems. Long production runs (occurring April, May, October, and November) with upwards of 2,000 KG of fish per day coming in usually result in a system breakdown (photo 39). This is mainly due to lack of space. The opening of the new receiving station will solve this problem.

The RDA Technical Assistance Team has encouraged Cooperative personnel in the use of plastic boxes for unloading vessels so that the dumping and rough handling of fish is avoided.

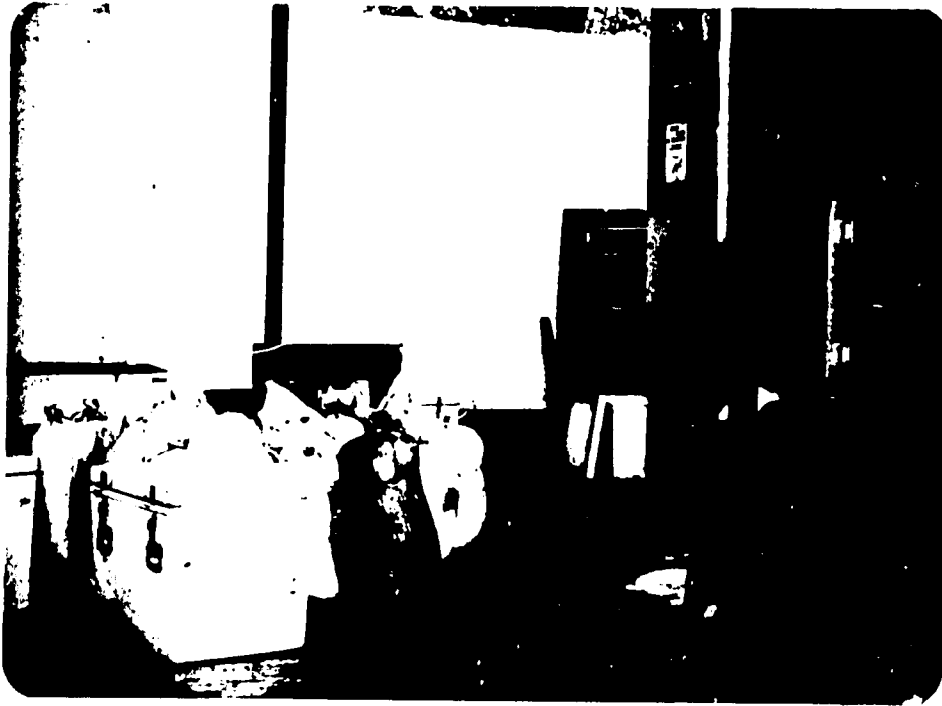


PHOTO 37 40 KG SACS OF FLAKE-ICE



PHOTO 38 GUTTED ICED FISH
AT THE RECEIVING
AREA

3.2.2.3 Chilled Storage

After the fish have been sorted and weighed, they should be re-iced and packed in boxes. The re-icing should be done when the fish are being sorted by size and species. The boxes should be stacked in the cold room where the oldest fish are the most accessible (First In First Out or FIFO).

Prior to the arrival of the RDA Technical Assistance Team, the FAC Technical Advisor had ordered plastic fish boxes varying from 20 liters to 100 liters in capacity. The 75 liter box was ordered in the greatest quantity (150). The larger size fish are too big for the 75 liter box. The 100 liter box is better but only 30 were ordered. Cooperative personnel were shown how to use them in a proper storage operation (photo 40). Problems occur when great quantities of large fish arrive. The system breaks down and the larger fish end up being stored on the floor of the cold room. This can be easily alleviated by purchasing more of the 100 liter size boxes.

3.2.2.4 Processing

The processing area at the ACPM is chaotic and is inadequate if a significant increase in production is realized.

A study of yield by the RDA Technical Assistance Team was conducted over an 8 month period in 1983. Results indicated an average of 44% yield or 56% loss. This was for all fish filleted from May, 1983 to December, 1983. The conditions in the processing area will only improve when the area is enlarged to allow for better work flow (Section 3.2.6 Recommendations for Future).



PHOTO 39 IMPROPERLY HANDLED FISH BEING GUTTED AT RECEIVING AREA



PHOTO40 PROPERLY HANDLED FISH WAITING TO BE PLACED IN PLASTIC FISH BOXES WITH ICE FOR STORAGE

3.2.2.5 FREEZING

The Cooperative has been freezing substantial quantities of frozen fish, fillets and fish steaks since the freezer store, and blast freezer came into operation after August of 1982. Cooperative personnel were trained in proper handling and packing techniques. A flow of fish from dispatching to processing, blast freezer, and frozen storage was set up. If delays occurred before blast freezing, they were instructed to ice down the fish or fillet. Whole fish were washed before going into the blast freezer. After blast freezing, the product was put into plastic sacks and the sack placed into a 75 liter plastic box. A tag was placed on each box indicating product name and date stored. The boxes were then stacked in the freezer room. Large fish caused problems and were kept just in plastic sacks.

Instructions in the glazing of fish fillets were given. A very quick and easy method to do this was implemented. A 75 liter plastic box is filled with one-half water and one-half flake ice. Then a 30 liter perforated plastic box is filled with frozen fillet and dunked into the 75 liter box. A glaze quickly forms on the frozen fillet. The operation was conducted in the freezer room. About 15 KG of fillet can be glazed at a time.

Even though freezing greatly decreases the rate of deterioration, it should be noted that there are differences in this rate depending on species. Cooperative personnel were trained to recognize that certain fatty species (jacks) deteriorate more rapidly. The principle of first in first out, as they were taught in chilled storage, became related to species as well as in frozen storage.

3.2.2.6 Sanitary Conditions

Cleaning practices are very important in a fisheries sales operation. It was first noted at the beginning of the project that while it looked like an effort was being made to keep the facility clean (wash down every day), the presence of strong odors indicated a build up of waste materials. The counters in the sales area became immediately suspect. The counters are made of poured concrete with a covering of tile. With the constant pounding from cutting fish, many tiles were cracked and waste built up in the grout. The situation was remedied by removing the old tile, covering the concrete with plywood and then sheathing it with C-Flex and fiberglass. This provided a durable smooth surface that was easily cleaned.

A steam cleaner was purchased (IFAD) in October of 1983. It is used every day to clean the sales/processing and receiving areas. In addition, it is used to clean the plastic storage boxes. The cleaner does an excellent job and since its introduction the before mentioned strong odors have disappeared.

The Cooperative generates a great deal of waste during its daily operations. Because of the lack of space, there is no clear separation of offal from the fillets and the uncut fish. This will be addressed when the present processing area is renovated.

3.2.3 FISH SPOILAGE, LOSS AND INVENTORY CONTROL

Fish spoilage is an inherent problem of a warm water fishery. Care must be taken at every step in the cold chain to insure against spoilage. General loss can occur in many forms: dehydration, product transformation, inaccurate weighing and recording, and pilferage. This then necessitates some sort of inventory control that can account for every kilogram of fish bought, sold or kept in storage.

The mid-project USAID evaluation, December, 1981, contains several references to unacceptably high levels of fish spoilage and missing stock at the Pecherie. A breakdown in the cold chain system in 1981 (down time on the ice machines) was a causative factor. Spoilage rates become lower (under 1%) when the ice machines were fully functional.

Missing stock can be explained by the lack of inventory control and an accounting of general losses. This led to the formulation of the "Fisheries Inventory Control Statement". The basic premise of the statement is, starting with a known weight of fish purchased plus opening stock on hand, to come back to that weight from the total of sales plus closing stock. The totals, except for fish purchased, are net weights (all product becomes net weight after being weighed in receiving). They can be converted back to gross weight by multiplying by an appropriate coefficient. The two "sides" of the statement are composed. A positive number (sales, closing stock, greater than purchases, opening stock) indicates an unaccounted for surplus. A negative number (sales, closing stock and spoilage less than purchases, opening stock) indicates an unaccounted for loss. As improvements occur, coefficients in the balance statement can be altered. The system then provides a check as to whether the improvements did occur. For example, if it is observed that storage methods are improved, that specific coefficient might be lowered. If the balance comes out a negative compared to previous totals, that improvement may not have occurred. Conversely if the total came out positive the coefficient may not have been lowered enough. Of course there are other factors that affect the balance but indications or trends can be established.

The March-December, 1981 fish inventory statement (see Figure 27) was an attempt to rectify the problem of missing stock. The following loss

percentages had been determined through tests and consultations with experts.

<u>Description</u>	<u>Coefficient</u>
Fresh fish, lobster, lobster crab	= 1.05
Estimated 5% loss in cold storage through dehydration	
Fillets, fresh	= 2.05
Estimated 50% in filleting and 5% dehydration	
Fish steaks	= 1.3
Estimated 25% in steaking and 5% dehydration	
Frozen storage for any of the above	= add .05 to any coefficient, except fillet add .1
Estimated 5% in dehydration	

In the March-December, 1981 statement, evisceration was incorporated as an 8 percent loss. Even though the Cooperative has a rule of not purchasing uneviscerated fish, control was minimal at best. It is to be noted that evisceration is not used after December, 1981.

Losses at the retail sales level were observed and documented through spot-checks in late December and early January. Fish weighed and sold were reweighed on a more precise scale. Fish sold as 1 kilo actually weighed much higher. This is because the simple balance at the counter, Photo 41, could weigh only to the nearest quarter kilogram. After numerous spot-checks, it was shown that an average of 125 grams per kilo were weighed in favor of the customer.

After all these factors are considered, the level of missing stock (or unaccounted for loss) from March to December period is reduced to 7786 kilograms from the reported 35,000 kg in the USAID evaluation report. Any loss indicated a problem which lead the Cooperative to do a daily inventory

system. The daily system was devised and implemented by the RDA Technical Assistance Team and Cooperative personnel.

At the end of each day, a balance statement was made from the individual reports, receiving and dispatching stock and sales. The checks in the system reduced the chances for pilferage. For example, what was reported as dispatched to the sales area had to be accounted for in actual sales or returned stock. Totals reported as a closing stock were verified in unannounced inventory checks at least once a week.

The results after the implementation of the daily system (beginning July, 1982) were good (Figure 28). The level of unaccounted for losses in 1982 (10271.3 KG) while higher than the 1981 total (7787 KG) is misleading. Of the 10271.3 KG total, 9952.7 KG occurred from January to June. It should be noted also that the 1981 statement was done at the end of the year and relied a great deal on conversion factors that were dropped in 1982. From January to June, 1982 statements were compiled on a monthly basis. While starting out well, the system broke down beginning in March. Unacceptably high figures continued for the next 4 months and only stopped after the daily system began in July. The 1983 results (Figure 29) show and unaccounted for loss of only 777.6 kg.

The RDA Technical Assistance Team has implemented procedures that have helped eliminate losses. An electronic digital scale (photo 42) was purchased and installed in April of 1983. This permitted greater accuracy in weighing than the older method. The scale loss factor was removed from the balance statement. The statement proved it did have an effect in that the ending balance (now without the extra kilograms included) was comparable to the months previous. It was calculated that an average of 505 KG per month was lost using the old system. At 400 DF/KG, this represents a savings of 200,000 DF per month.

A study of fillet yield from whole fish was conducted from May through December of 1983. It was felt that fillet yield of 50% as used in the balance statement, was too high. In months that a large amount of fillets were produced, it was noted that the ending balance was comparatively higher in unaccounted for loss. Total kilogram yields of fillets from whole fish were recorded during this period on a daily basis. The average yield came out to 44%. It was also noted that handling and storage techniques also improved. The loss factor in storage estimated at 5% was reduced to 2.5%. Beginning in January, 1984, a new set of coefficients were used. The new coefficients more accurately reflect what is happening (it was felt that increasing the fillet coefficient without decreasing a coefficient somewhere else might leave the statement showing an unaccounted for surplus). The following are the loss percentages and coefficients now employed:

<u>Description</u>		<u>Coefficient</u>
Fresh fish, lobster, squid	=	1.025
Estimated 2.5 loss in cold storage		
Fresh fillets	=	2.25
Based on yield rates show 56% average loss		
Fish steaks	=	1.275
Estimated 25% in staking plus 2.5% loss in cold storage		
Frozen storage any of the above	=	add .05% to any above

The balance statement for 1984 (Figure 30) indicates the new coefficients now employed to be acceptable. The results show an unaccounted for loss of 1092.8 kg.

Reduction in loss should improve in Phase II especially in frozen storage with the use of wax corrugated containers. This would lessen the

effect of dehydration. Any reduction in loss translates into having more of the product available for resale thus increasing profits.

Quarterly reports on sales/production and inventory control can be a very useful management tool. The RDA Project Manager began making these reports after mid-1983, with a final year-end report summarizing the previous quarters (Appendex F). The inventory control function was performed during the past 3 years by the RDA Project Manager. It was planned that this function would be given to the Fisheries Service Statistics Department. The transfer of this function was done at the end of the project.

ASSOCIATION COOPERATIVE
DE PECHE MARITIME

BALANCE DES ENTREES
ET DES SORTIES

FIGURE | 27

MARCH-DECEMBER 1981
FISH INVENTORY STATEMENT

VENTE DE DETAIL

- 1) Nous estimons qu'à chaque pesée une erreur de 120 g en moyenne est consentie à l'avantage du client, ce qui fait: 120 x 100 pesées en moyenne par jour x 30 jours x 10 mois = 3 600 Kilos.
- 2) 25% de la vente totales sont distribués sans passer par la chambre froide. Nous comptons sur cette quantité 5% de perte en eau et sang.
- 3) 75% de la vente totale passent en chambre positive, nous comptons pour cela une perte de 5% en eau et de 8% d'eviscération soit au total 13%.

VENTE COLLECTIVITE

- 1) 25% de la vente totale passent en chambre froide positive, nous comptons pour cela une perte de 5% en eau et sang et 8% d'eviscération soit au total 13%.
- 2) 75% de la vente totale passent en chambre froide positive puis en congélation soit une perte totale de 20%:

5% eau et sang
8% eviscération
<u>7% congélation</u>
20%

LANGOUSTE

50% de la vente totales passent en chambre froide positive et congélation; Nous comptons pour cela une perte totale de 17% décomposée comme suit: 10% eau pattes et antennes cassées, 7% congélation

ACHATS	259 806
VENTES	208 854
STOCK	1 962
PERTES	41 204
MANQUE	7 786

FIGURE 27 (cont'd)

MOIS	PERTES										Total	Achat	
	ENREGISTREES		NON ENREGISTREES										
	Avaries	Dons	Ava- ries	Dons Poiss. Appat	Vente Detail Pesee	Dir.	Ind. CF+	Vente Collec. Ind. CF+	Ind. CF-	Lang. Ind. CF-			
MARS	78											20 026	
AVRIL	297											30 206	
MAI	646											28 469	
JUIN	623											24 223	
JUILLET	114	17,85										19 065	
AOUT	64	3,50										20 255	
SEPTEMBRE	186	11,50										26 072	
OCTOBRE	332	40,35										30 908	
NOVEMBRE	117	70,05										33 831	
DECEMBRE	65	56,75			(1)	(2)	(3)	(4)	(5)	(6)		26 751	
TOTAL	2 451	200	3 000	400	2 000	3 600	1 427	11 137	2 982	13 765	242	41 204	249 806

FIGURE 27 (cont'd):

March - December 1981
Fish Inventory Statement

MOIS	VENTES				STOCK AU 31/12/81
	DETAIL	COLLECTIVE	LANGOUSTES	TOTAL	
Mars	13 208	565	-0-	13 373	
Avril	16 529	2 478	147	19 154	
Mai	13 669	10 315	328,40	24 312	
Juin	8 334	10 239	327,45	18 971	
Juillet	8 321	9 710	174,80	18 206	
Adut	7 945	10 544	428,75	18 917	
Septembre	11 188	5 968	951,25	18 107	
Octobre	11 662	13 352	361,35	25 375	
Novembre	12 014	12 181	16,50	24 213	
Decembre	11 361	16 418	47,50	27 826	
Total	114 231	91 771	2 853	208 854	1 962

FIGURE 27 (cont'd): March - December 1981
Fish Inventory Statement

BALANCE STATEMENT 1982

BALANCE	ENTREES						SORTIES																
	Entrees	300858.9	COEFFICIENT	ACHATS		STOCK AU		COLLECTIVITE		DETAIL		APPATS		BON		POISSON		DIVERS		STOCK AU			
Sorties				298579.6	Net	Brut	31-12-81	K	B	N	B	N	B	N	B	N	B	N	B	N	B	31-12-82	N
Difference -	10271.3																						
Poisson Entier Frais	1.05	294708.3			851	893.55	120733	126754.0	84798.7	89045.8			556.8	584.6	3508	3683.4	5274.9	5538.6					
Poisson Entier Congeler	1.10						8149.8	8964.8							1217	1338.7					17	18.7	
Poisson Tranche Frais	1.30						613	796.9															
Poisson Tranche Congeler	1.35																						
Filet Frais	2.05						9117.6	10691.1	4381.3	8981.6			14.4	29.5			302.4	619.9					
Filet Congeler	2.15				505	1085.75	8637.4	18570.4	115.2	247.7					445	956.7	5.7	12.3	44	94.6			
Appats Frais	1.05											1323	1389										
Appats Congeler	1.10											103.5	110.8										
Langouste Fraiches	1.05	3386.2					1659.4	1742.4	412.4	433			35.3	37.1									
Langouste Congeler	1.10						822.1	984.3	232.65	255.9			11.2	12.3	12.1	13.3							
Calamar Frais	1.05	777.1					140	147.5	146.4	153.7			1.6	1.7									
Calamar Congeler	1.10						212.75	234	43.6	48			3.9	4.3	40	44							
Crabe Frais	1.05																						
Crabe Congeler	1.10																						
Poisson Salce	2.05						74.6	152.9	1	2.1													
TOTAUX		298871.6				1979.3	176958.3	99167.8	1507.8	669.5			5992.1	6170.8	113.3								

VALEYR = 455240 F.D.

BALANCE STATEMENT - 1983

BALANCE		ENTREES				SORTIES								STOCK AU			
Entrees	282826.5	ACHATS		STOCK AU		COLLECTIVITE		DETAIL		BON		AVARIE		BALANCE		31-12-83	
Sorties	282048.9	Net	Brut	N	B	N	B	N	B	N	B	N	B	N	B	N	B
Difference	= 777.6																
Poisson Entier Frais	1.05		279230.1				122201.3		66287.6		162.6		1922.2		1334.3		
Poisson Entier Congeler	1.10			17	18.7		32169.6		12.5				143		0.5		1102 1157.1
Poisson Tranche Frais	1.30						123		417.9								534 587.3
Poisson Tranche Congeler	1.35																1929 2121.3
Filet Frais	2.05						20155.1		5914.3		22.5		418.5		62.1		
Filet Congeler	2.15			44	94.6		22977.3		267.3						6.9		
Langouste Fraiches	1.05		3094.05				1007.7		473.9		10.5		196.1				
Langouste Congeler	1.10						911.8		500.6		0.6						19 20.9
Calamar Frais	1.05		389.05				121.6		188.9		1.9						
Calamar Congeler	1.10						31.6		17.1								
Crabe Frais	1.05																
Crabe Congeler	1.10																
TOTAUX			282713.2		113.3		139779		74088.1		214.1		2675.8		1404.6		3887.5

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FIGURE 29

BALANCE STATEMENT - 1984

BALANCE		ENTREES				SORTIES				
Entrées	285218.55									
Sorties	284125.75									
Difference	-1092.80	COEF	ACHATS	STOCK AU	COLLECTIVITE	DETAIL	BON	AVARIE	DIVERS	STOCK AU
			Brut	1-01-84	B	B	INTERNES	B	B	31-12-84
				B	B	B	B	B	B	B
Poisson Entier Frais	1.025	278482.4	1129.6	114293.9	68019.6					328.0
Poisson Entier Congeler	1.075		574.0	33234.5	217.4					7970.1
Poisson Tranche Frais	1.275		2873.7	396.0	2580.4					
Poisson Tranche Frais	1.325									
Filet Frais	2.25			19428.5	4846.8					
Filet Congeler	2.30			16388.4	1024.0					13368.8
Langouste Fraiches	1.025	2788.95		419.6	247.1					
Langouste Congeler	1.075		28.4	1238.5	322.3					
Calamar Frais	1.025	317.5		46.2	181.0					
Calamar Congeler	1.075			2.95	61.8					
Appats	1.025			1187.9						
TOTAUX		28142.85	3797.7	186548.45	89620.4	444.1	1026.9	4819.9		21666.9

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FIGURE 30



PHOTO 41 FISH BEING WEIGHED ON A SIMPLE BALANCE SCALE

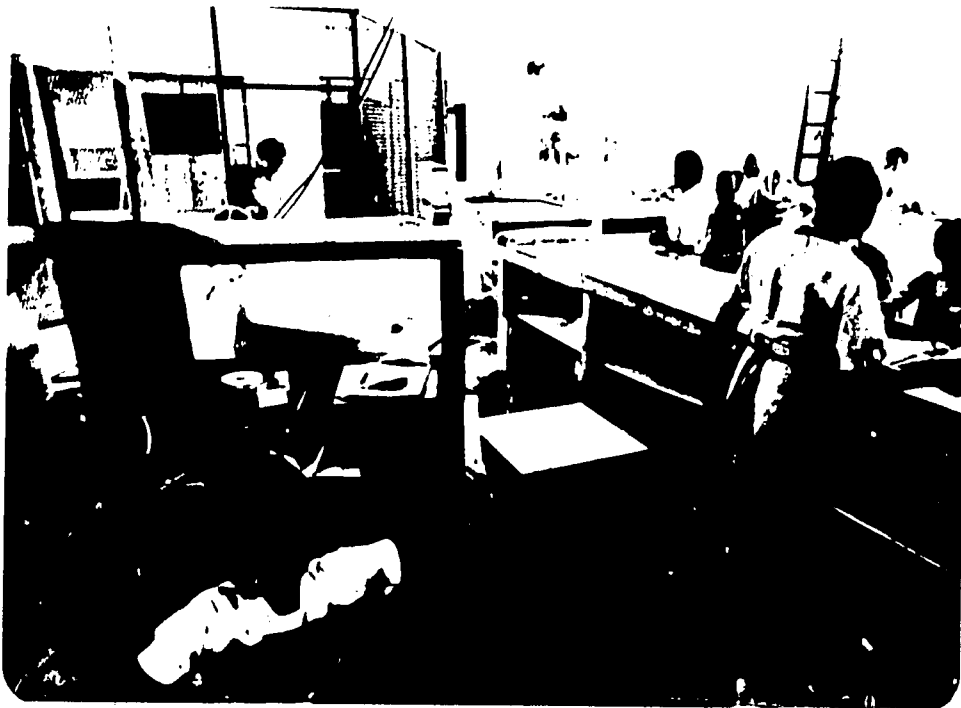


PHOTO 42 ELECTRONIC DIGITAL SCALE CURRENTLY IN USE

3.2.4 FISH DRYING AND SMOKING

As an alternative to cold or frozen storage, drying can be a useful method of fish preservation. Three years ago, Yemeni fishermen were coming to the northern coasts of the Obock region to catch the seasonal migrations of sardines. The sardines were caught with beach seines, dried on the beach, packed in jute sacks and then shipped to Yemen. GROD banned this activity in the hope that Obock fishermen would take it up. The Obock fishermen though lacked the equipment and organization so the sardine fishery has been virtually untouched.

In April, 1981, CRS, with RDA Technical Assistance, started an experimental pilot drying facility for sardines to determine the kinds of sardines to be dried, combinations of salting and drying procedures, and storage methods to best preserve the dried fish. CRS had hoped to introduce dried fish in its school lunch feeding programs in the northern regions. This mini-activity was funded for \$6,000 with the idea that other donor money would continue it in the future.

Although the experimental processing was successful (the dried/salted sardines were still edible four months later) they were unacceptable to consumers even when offered free. To help promote dried fish products, CRS has done promotions and demonstrations in the interior of the country. In its promotional pamphlet, Pour Votre Sante, there is a section on how to dry and salt fish. This pamphlet is used as a teaching aid in the home economics classes at the foyer social (school for young women aged 14-18).

Small family fish dryers were constructed and sent to the refugee camps. Instructions in salting and drying were given and several demonstrations runs performed. The CRS Food and Nutrition supervisor said the tests were quite successful. When fresh fish markets open in the interior of the country, the consumer has an alternative to refrigeration as a means of preservation.

Since June, 1981, CRS has been drying all wastes from the Pecherie. The plan is to use the dried wastes for fertilizer for the CRS projects in the interior of the country. The original drying site was located next to the Djibouti slaughterhouse (about 2 km from the Pecherie). Every day, about 100-200 kilograms of fish heads, racks, and offal were transported to the site by the Cooperative. Laborers hired by CRS would lay out the waste on screened drying racks. After about 2-3 days, the waste was collected and stored in burlap sacks.

The drying site was transferred to a site provided by the Ministry of Agriculture at its Palm Plantation in Ambouli with the idea that it would eventually take over the operation. In 1982, a fish grinder was purchased to grind the pieces of dried fish into finer particles for more effective use as fertilizer. It was installed at the MOA site. The observed utility for the fish fertilizer by the Djiboutian farmers has increased demand beyond what the facility could produce. The small fish grinder lacked the size to effectively grind the dried fish pieces. The facility was failing to keep pace with the amount of fish waste being provided to it.

CRS had allocated approximately \$12,000 to continue this activity (figure 31). Plans called for the construction of a prototype fish waste grinding unit, enlargement of the grinding area to accommodate the new grinder, purchase 600 sacks of fish fertilizer per year for two years from the MOA, purchase a donkey and cart for the transport of the dried waste to the grinding area (about 1.5 km distance).

FISH FERTILIZER PROJECT

BUDGET

A.	<u>CRS Contributions</u>	<u>US \$</u>
	a) Grinding machine	3,000
	b) Electrical cable	510
	c) 1 - 380 V. breaker	125
	d) Donkey & cart	500
	e) Constuction Material	1,000
	f) Purchase of fertilizer	
	1) first year:	
	50 sacks a month at	
	\$5.65 a sack	3,390
	2) Second year:	
	50 sacks a month at	
	\$5.93 a sack (5% increase)	<u>3,560</u>
		\$12,085
B.	<u>Government Contributions</u>	
	a) Land, storage, space, electricity	
	b) Labor for installation of grinder	
	and expansion of facility.	

FIGURE 31

Finally, RDA has looked into the possibilities of selling smoked refrigerated fish to its wholesale/retail customers. Smoked salmon imported from Norway sells in the Djibouti supermarkets at \$25.00 a pound! Tests with one fish smoker were conducted with tuna, mackerel, and snapper. The smoked fish was test marketed to Fisheries Cooperative clientele. They were very enthusiastic. Ten additional smokers arrived in February, 1982. Because of lack of space at the Pecherie, this activity was not started. Once the extension to the receiving area is opened additional space can be found. However, the RDA Technical Assistance Team recommends it be encouraged as a private sector activity. These units are available at the low cost of 50 dollars each. Each unit is capable of smoking 10 kg of fish. Mangrove trees (in abundance) can provide the fuel.

3.2.5 Remote Facilities

The planned facilities for Obock and Tadjoura are not only an important aspect in the development of improved infrastructure but are also important politically to show development in other areas of the country besides Djibouti City. The following sections discuss what has been accomplished by the end of Phase I in the development of remote facilities.

3.2.5.1 Obock

In the production scheme, it has been envisioned that Obock will play a major role (even more now that the Zelia fishing area is in dispute). The northern coast offers virtually an unexploited fishing ground in sardines, tunas and mackerel, shark, rockfish, snappers, and jacks. The problem has always been the distance between those grounds and the major consumption area, Djibouti. As remote as it is, Obock fishermen provide 25 percent of all fish sold. Currently, Obock fishermen bring their catch twice a week to the Pecherie. They have been limited in what they can

bring by the lack of storage and ice facilities at Obock. At present, Obock fishermen obtain ice at the Pecherie and bring it to Obock where it is then stored in coolers. In two days, they turn around with what is left of the ice and bring their catch to the Pecherie. Obock fishermen have the highest spoilage percentage of fish brought into the Pecherie. These two major constraining factors of time and distance have led logically to the idea of opening ice and storage facilities at Obock itself. If Obock fishermen had these facilities, they could use them as a base of operations for fishing the northern coasts with consequent increases in production.

The following is a year to year synopsis of events relating to the Obock facility.

1980

RDA holds preliminary discussion with SEP on site selection. A site is chosen (at the bottom of the roadstead next to the mosque). The District Governor of Obock agrees to bring fill to the site. SEP is conferring with IFAD for funding for the buildings (Fig. 32). USAID has agreed to supply the ice making equipment. As it appears IFAD will be delayed, USAID/RDA obtains funding from the Ambassador's Self-Help fund to provide financing for the renovation of an existing cold store at the Obock District garage.

1981

USAID orders ice machine equipment which arrives in March. The site next to the Mosque at the bottom of the roadstead is rejected. Two alternatives are proposed: 1) at the end of the roadstead next to the

Obock commercial port, or 2) the present location of the CRS drying facility. Alternative one was determined to be the best choice but it surpassed the funding that was available. Additional funding was secured by SEP in December.

1982

Public Works undertakes architectural studies on the site and building which are finalized in March. Bids are tendered for dock and breakwater construction in June and a firm is selected. Actual construction is started in November.

1983

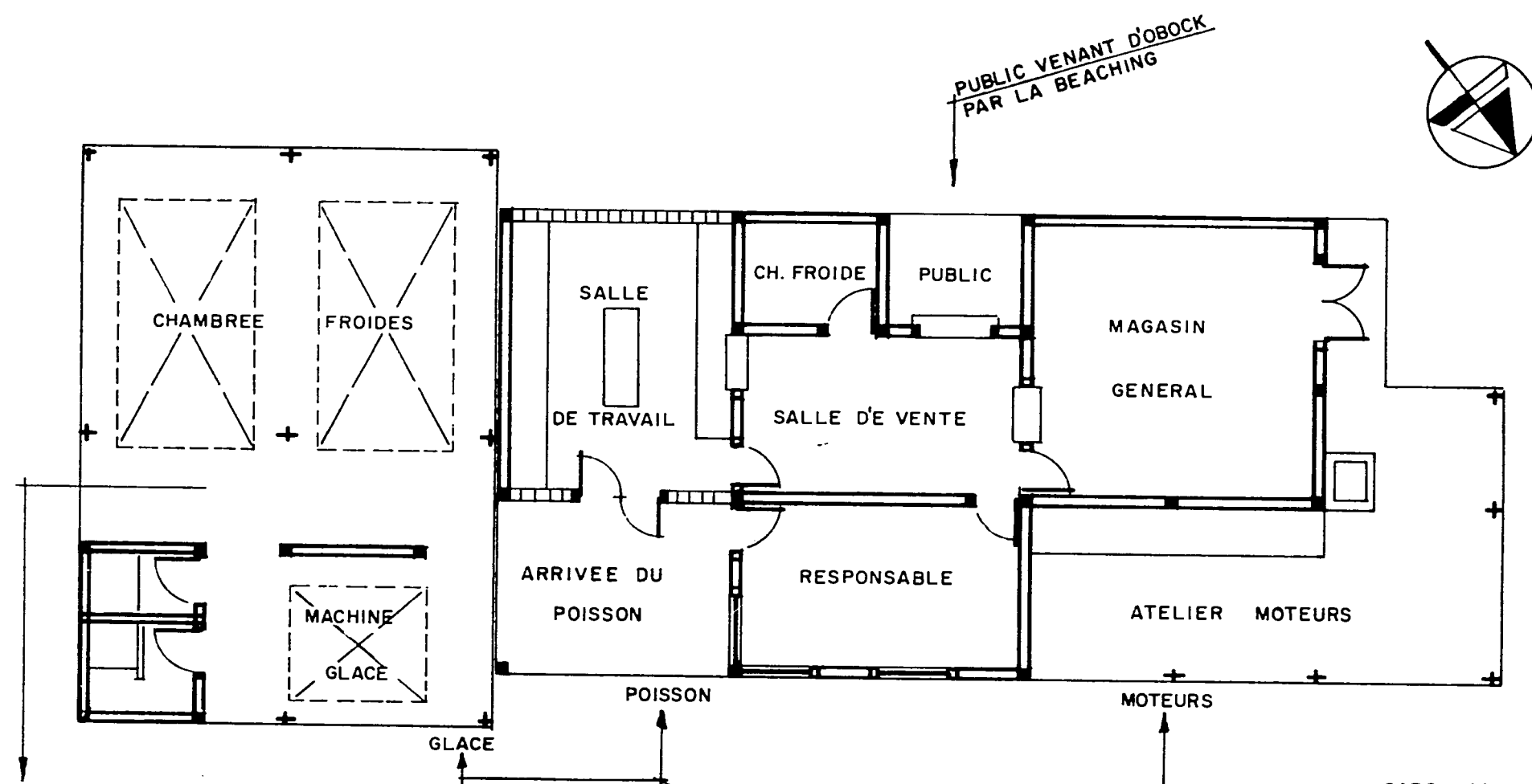
Beginning 1983, contractor complains of difficulty in getting materials from Djibouti to Obock (ferryboat not in operation) which will cause a delay in completion. Public Works suspends (stop work order) work in July. The contract is officially terminated in December.

1984

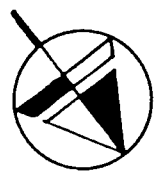
A new bid is tendered in January and a new firm is selected. Additional funding (5.5 million DF) is needed and found by the end of the month. Work is started in February with expected completion in June-July, 1984.

After the dock and breakwater are finished, it is expected that a bid will be tendered for the construction of the buildings. (Figure 32). It is expected that the Obock facility will become operational sometime in 1985.

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PUBLIC VENANT D'OBOCK
PAR LA BEACHING



DEPORT DU
POISSON VERS
DJIBOUTI (QUAI)

GLACE

POISSON

MOTEURS

CAROUVANTS

FIGURE 32

PECHERIE D'OBOCK

PÊCHEURS
ECHOUAGE DES HOURIS

3.2.5.2 Tadjoura

As part of the first project extension, an ice plant was to be installed in Tadjoura. The building infrastructure would be provided by GROD/IFAD. The question was raised, "Does the level of the fisheries activity in Tadjoura warrant the placement of an ice machine?". Tadjoura could serve as a base of operations for fishing along the northern coast and the Ghoubet area. This is considered secondary fishing grounds compared to the Obock-Musha Islands area.

Nevertheless, providing assistance to upgrade the fisheries at Tadjoura is a vital part of the total fisheries development scheme. The present fishery suffers from a lack of fishing gear, boats, outboard motors, and means of preservation of the catch, especially ice and a cold store. The project proposed to supply Tadjoura with a flake-ice machine similar to the one being provided at Obock. This would be a joint effort with IFAD who would contribute the infrastructure that would house a 15M3 cold store, a market sales outlet, gear supplies, a shore engine repair facility, and a fuel supply depot. The inclusion of a separate ice machine unit would complete the effectiveness of this unit. With flake-ice, the fishermen would be able to preserve the catch at sea, stay out longer, fish a greater area, and still be able to deliver fresh fish to the market/cold store in Tadjoura.

After an assessment of present and future ice making needs, RDA in consultation with SEP proposed to change the location to Djibouti. In a letter dated March 8, 1983, to USAID, it was explained that present ice making production at Djibouti was insufficient .

The Tadjoura facility without ice machinery was finished in January, 1984 and put into operation in March of 1985. It consists essentially of what is mentioned above. The RDA Project Manager has made contact with Tadjoura fishermen to ask them what their current needs are. Most recently, a Tadjoura fishermen's boat was sheathed at the Cooperative boatyard. It is important that contact be maintained in the future.

3.2.6 Recommendations for Future Handling, Storage and Processing

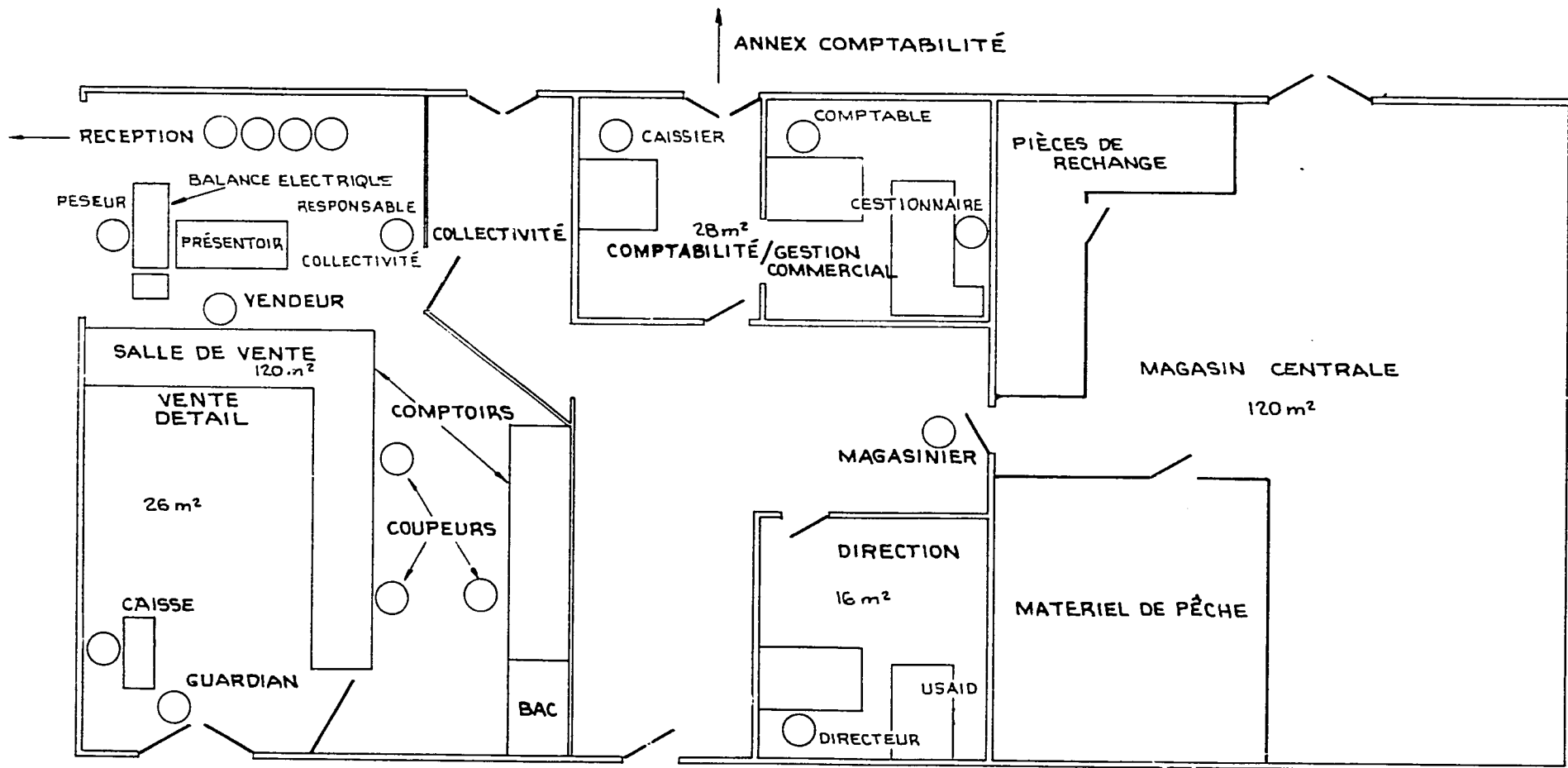
Cold storage and ice making facilities are adequate for increased production levels envisioned for Phase II. How well a storage room is organized will relate to its ability to operate at a maximum level. The small freezer room that adjoins the cold store is perhaps redundant in view of the two freezer units in existence. If the freezer room was converted, changing the thermostat settings and removing the wall separating the two rooms, one large room, which would provide adequate contingency on days of large production runs, would be the result.

Where immediate improvements are needed is in the sales processing area. In this regard, a study by the RDA Project Manager has been done and submitted to SEP (Appendix G). It was proposed to renovate the sales/processing area, administrative and accounting offices, and the AUM central warehouse. Two options were proposed. Option one calls for the creation of two separate sales areas, one for retail and one for wholesale. The new wholesale area would be effectively what is the entire old sales/processing area. This would greatly increase the processing area, providing four filleting/processing stations. The separate retail area would be located from where the current management office is continuing on into the Cooperative warehouse. The new retail area would effectively have double the space as the old. Also by creating two areas a future option could be to turn the retail area to the private sector.

The second option proposed using the same concept of organization that exists currently, one sales/processing area but greatly expanded. This new area would encompass that of the old sales/processing area plus the area currently occupied by the management and accounting offices. Having one area is a good concept if there is sufficient space. The new area would provide adequate separation between sales and processing and a separate

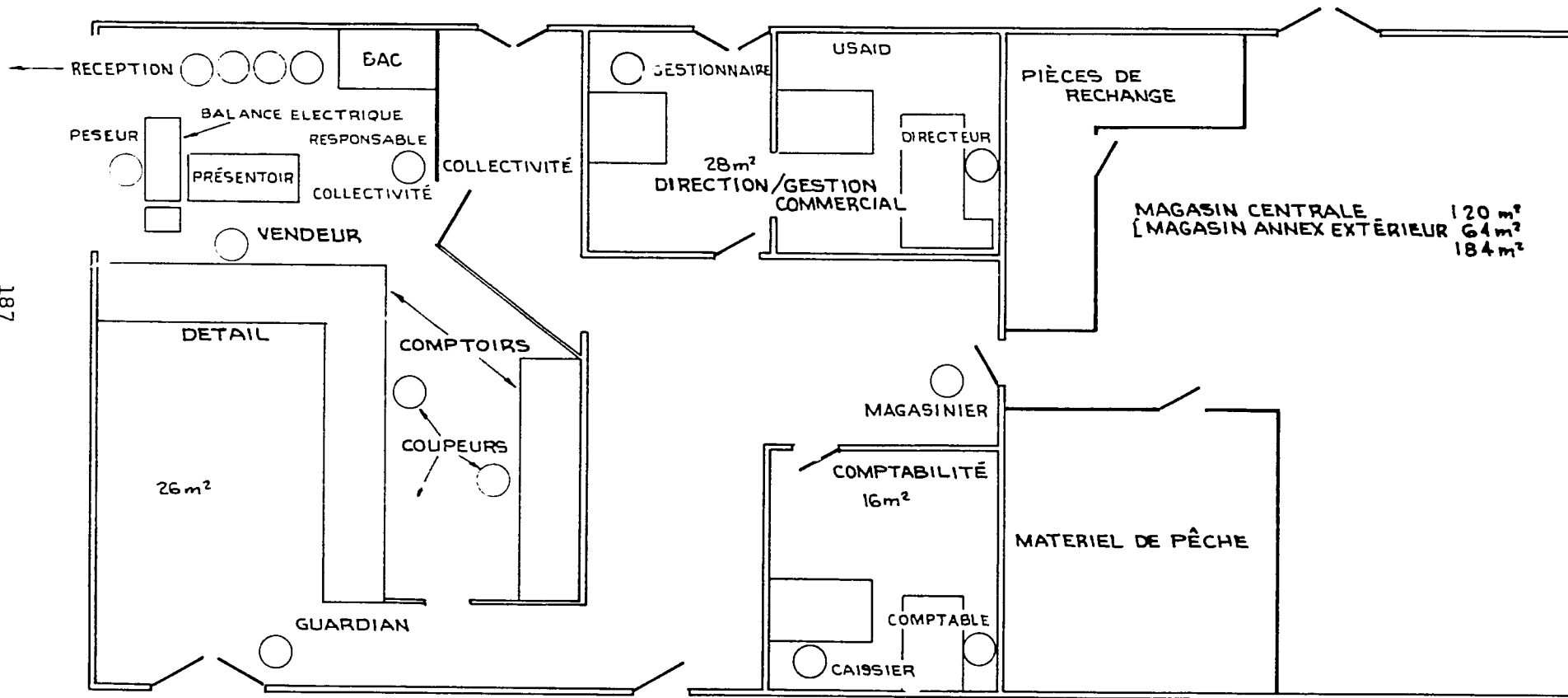
weighing station for wholesale sales. The Cooperative often employs the dual usage of personnel. Employees are moved between wholesale and retail as the need arises. This can be done very easily when everything is happening in one area.

The SEP decided to choose the first option. The first option permits future private sector involvement in retail sales. The RDA Project Manager worked with a local architect in finalizing the drawings and engineering specifications. The bid documents were put together and approved by USAID in February 1985. A firm was selected by competitive bid at the end of the project. The completion date is expected to be by mid-1985. Figures 33 through 37 illustrate the present layout, the two options and the actual Phase II renovation plan. Included is an intermediate phase while actual construction is taking place.



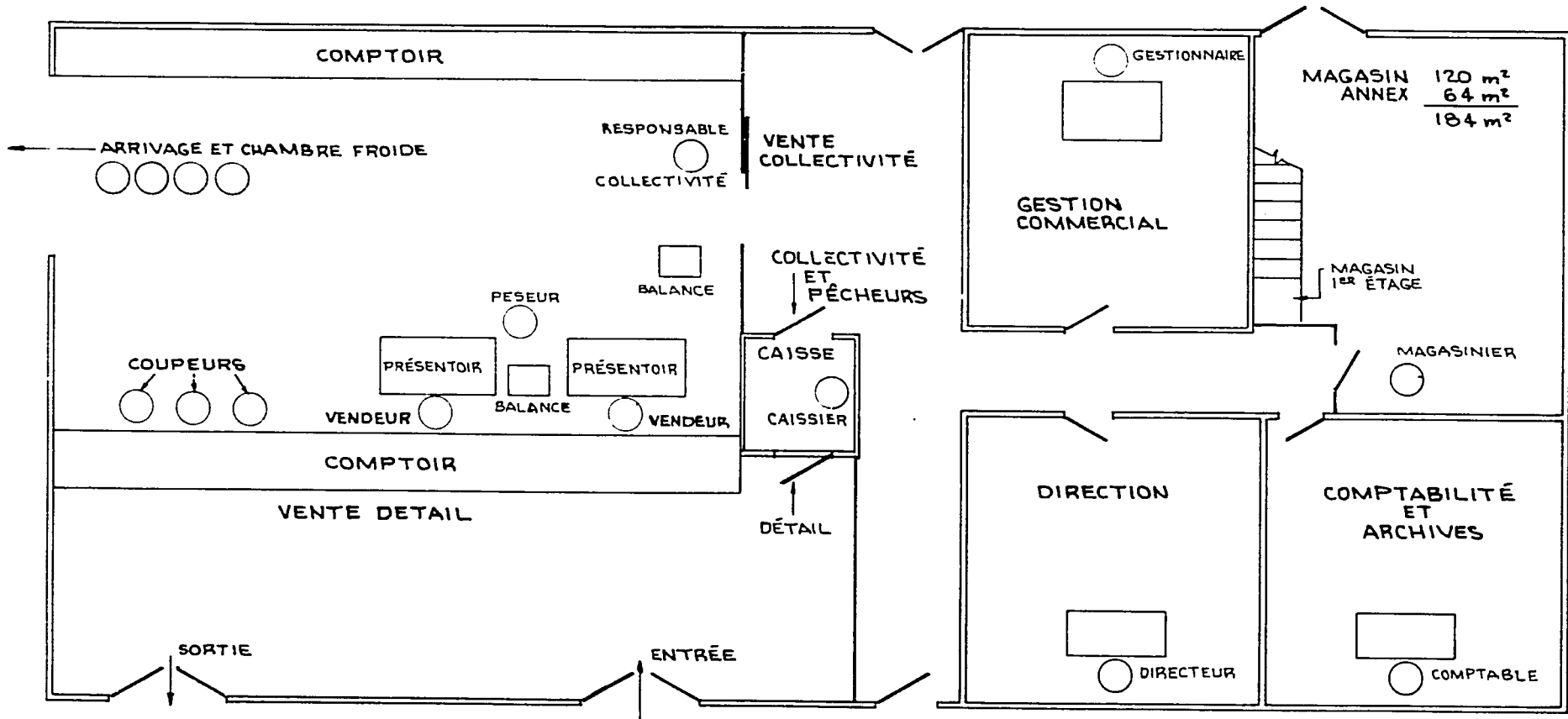
SITUATION AU PRESENT

Figure: 33 PRESENT LAYOUT AND PERSONNEL



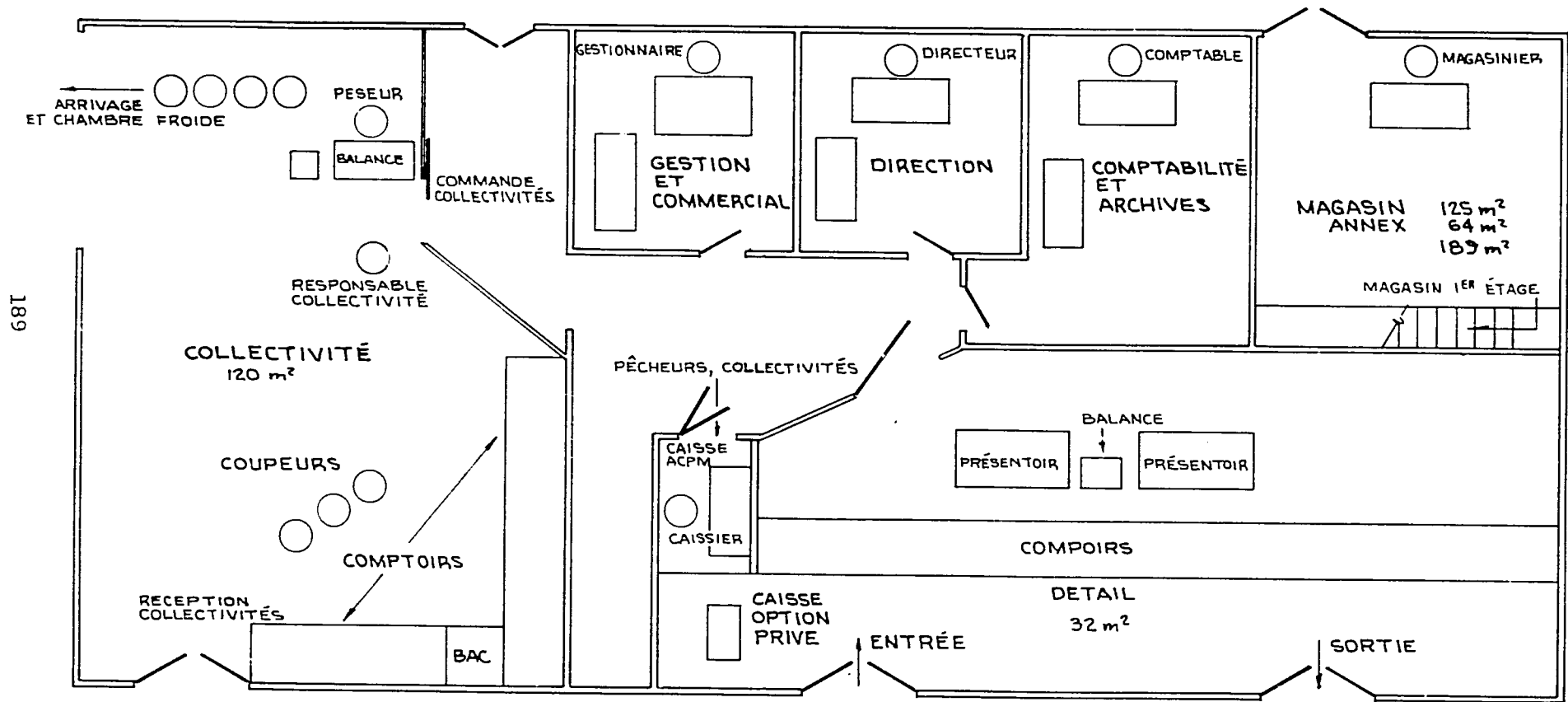
PHASE INTERMEDIATE

Figure: 34 INTERMEDIATE PHASE AND PERSONNEL



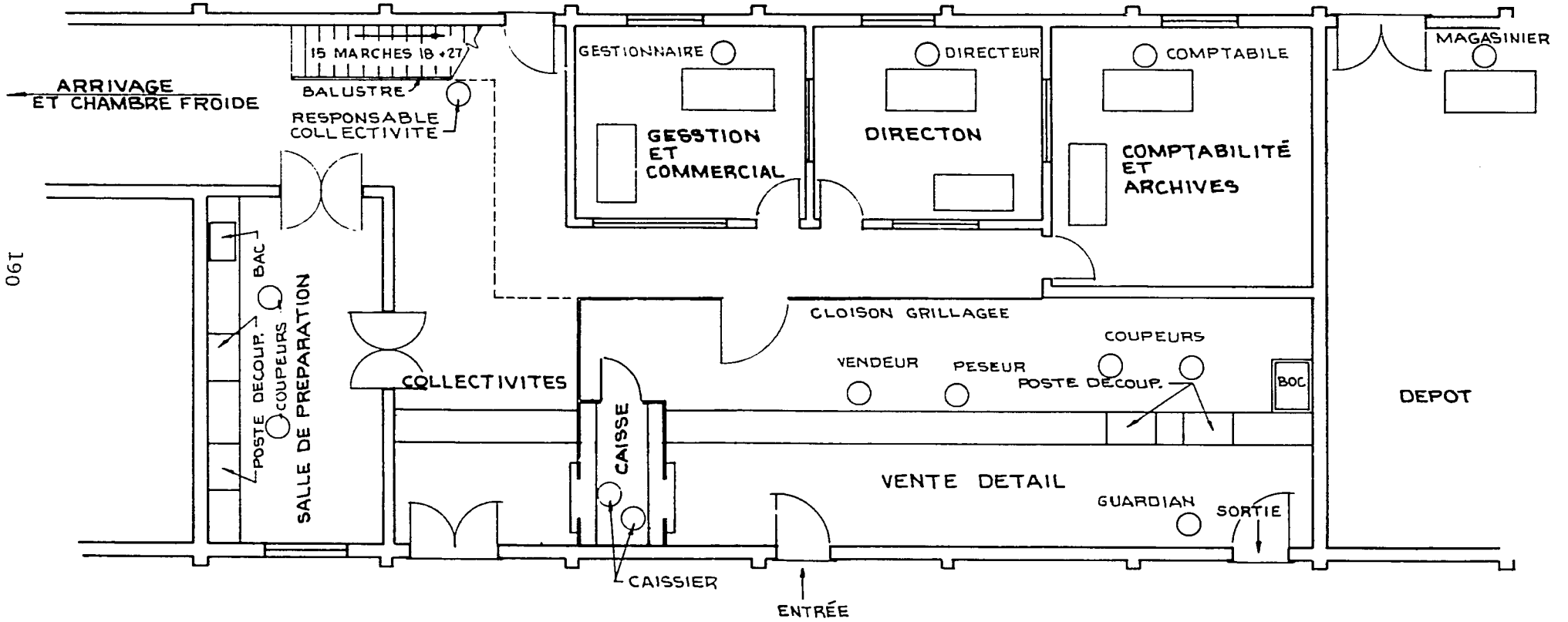
**PHASE RENOVATION
OPTION UN SALLE DE VENTE**

Figure: 35 OPTION 1 - RENOVATION WITH ONE SELLING HALL AND PERSONNEL



**PHASE RENOVATION AVEC
OPTION DETAIL PRIVE**

Figure: 36 OPTION 2 – RENOVATION WITH TWO SELLING HALLS AND PERSONNEL

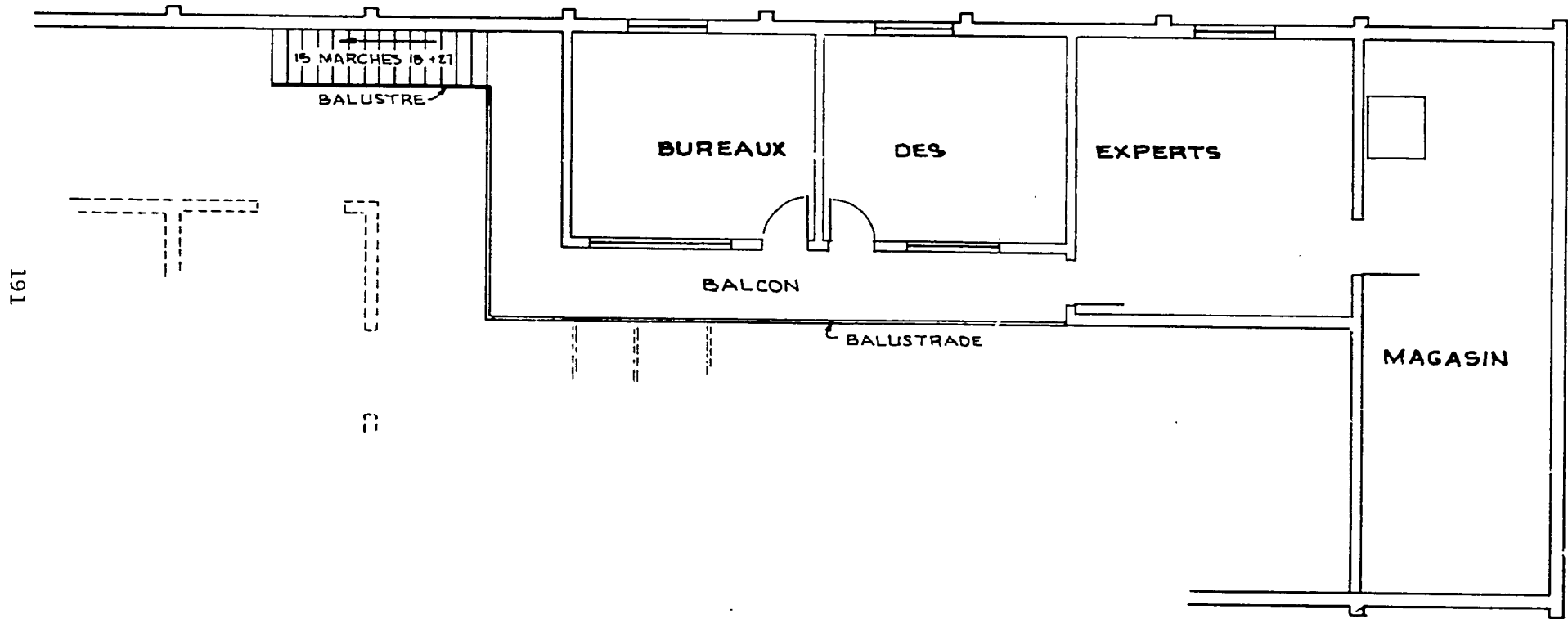


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PHASE RÉNOVATION ACTUELLE

PREMIER ÉTAGE
 ESCHELLE - 1:80
 FEUILLE 1 DE 2

Figure: 37 PLAN FOR PHASE II UPGRADE OF AC.P.M. FACILITIES (GROUND FLOOR)



PHASE RÉNOVATION ACTUELLE

DEUXIÈME ÉTAGE

ESCHELLE = 1:80

FEUILLE 2 DE 2

Figure: 37 PLAN FOR PHASE II UPGRADE OF A.C.P.M. FACILITIES
(SECOND FLOOR)

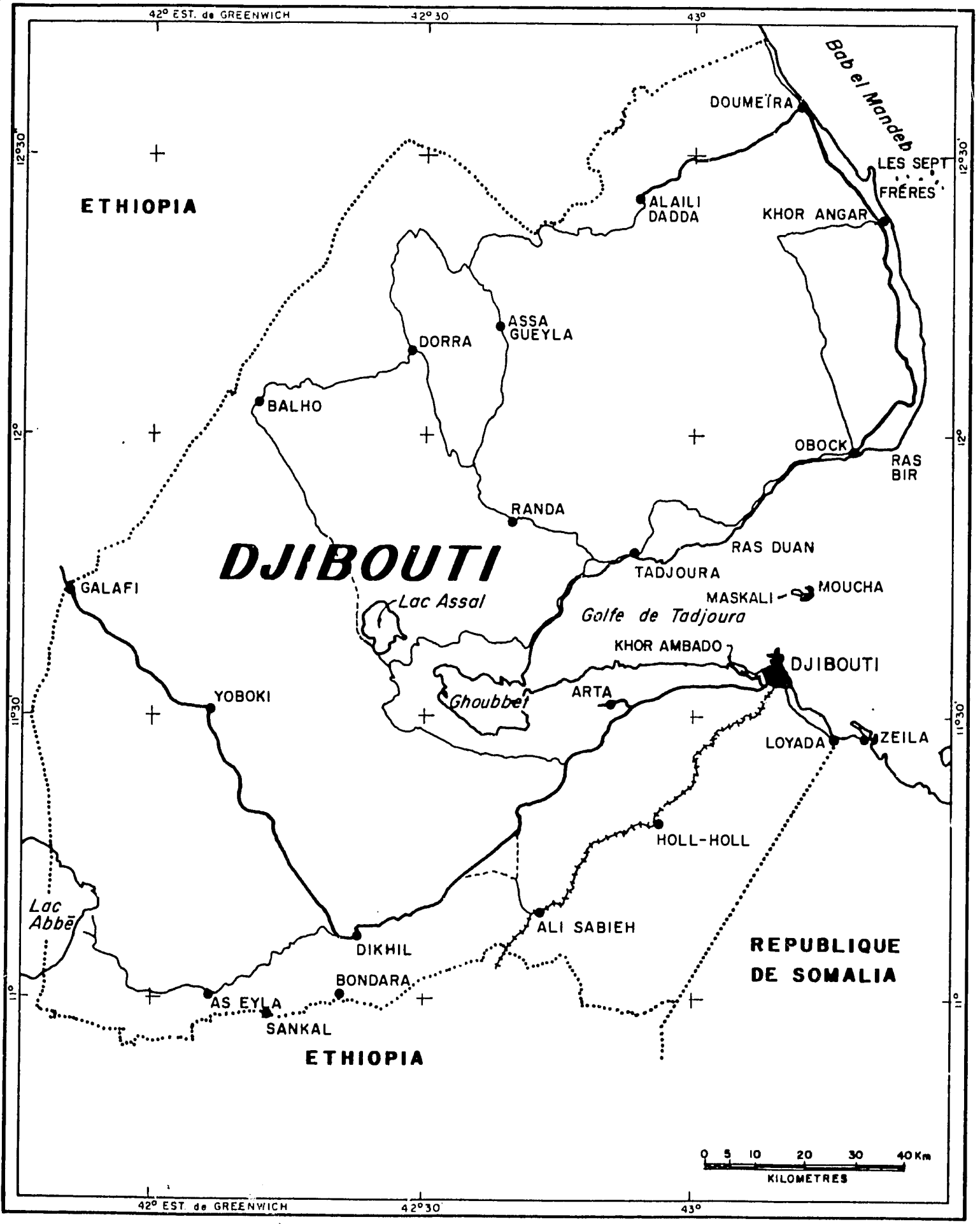
DEVELOPMENT OF FISHING AND FISHERIES
IN DJIBOUTI - PHASE I
VOLUME II

Final Report on
Resources Development Associates
Technical Assistance Contract
AID/AFR-C-1630
April, 1985

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Paul A. DeRito, Project Manager, contributed the majority of the information related to progress of the project to date, with special emphasis on cooperative development and administration, surveys of marketing and sales, production and harvesting, wholesale and retail distribution, fish handling and storage, and relationship to other donor activities. Mr. Dee W. McFadden prepared sections on fishing techniques, training, and boat building. Mr. Theodore McNeil prepared the section on administration and management. Mr. Keith W. Cox developed the oyster culture program. Mr. John Carnegie developed the graphs and figures. Mr. Robert W. Campbell provided background information, scheduling, and editing.

This project could not have progressed this far without the interest and assistance of several key persons and offices of the Government of Djibouti, foreign donors, and USAID. These persons include Mr. Mohamed Moussa Chehem (Chief of Service, Livestock and Fisheries Service, Ministry of Agriculture), Mr. E. A. Amundson (AID Representative, USAID/Djibouti, 1980-83), Mr. John Lundgren (AID Representative, USAID/Djibouti), Ernest Popp, (Project Officer, USAID/Djibouti), Mr. L. Bourassa (Catholic Relief Services, Djibouti), Mr. Ibrahim Dini (Director, ACPM), Mr. L. Pairel (Coordinator, IFAD), Mr. R. Tello (Technical Advisor, FAC), and Dr. M. Boulesteix (Chief Technical Advisor, Livestock and Fisheries Service, MOA).

ACRONYMS

The following acronyms and abbreviations are in common use throughout this report:

ACPM	- Association Cooperative de Peche Maritime - Fisheries Cooperative
CRS	- Catholic Relief Services
FAC	- Francais Assistance Cooperation
FAO	- Food and Agriculture Organization
FIDA	- Fonds International Pour le Development de L'Agriculture
GROD	- Government of the Republic of Djibouti
IFAD	- International Funds for Agricultural Development
ONARS	- Organizational National Pour L'Aide de Refugee et Sinistre
RDA	- Resources Development Associates
SEP	- Service Elevage et de la Peche, Fisheries and Livestock Service
SIDA/LWF	- Swedish International Development Agency/Lutheran World Federation
UNDP	- United Nations Development Programme
UNICEF	- United Nations International Children's Emergency Fund
USAID	- United States Agency for International Development
WFP	- World Food Program

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3.3 Marketing

From a historical prospective, marketing efforts have been hampered by the lack of a coherent work plan. The original contract asked RDA to conduct surveys of demand/consumption and existing marketing facilities. The project acquired two insulated trucks (0.5 and 2.0 MT capacity) to support the maximum extension of the cold chain system.

At the beginning of the project, the ACPM was a new entity. Fish sales were conducted at three sites only - Pecherie, Central Market and Ambouli Market.

It had been envisioned that the results of a marketing questionnaire would provide base-line data needed to justify the establishment of additional retail outlets. SEP decided, in fact, that this questionnaire need not be the sole basis for market selection, but rather provide information in determining fish preference and methods of preparation. The SEP selected the retail sites in response to population densities.

In March-April of 1982, the CRS Demonstrational/Promotional Team formulated, with the help of RDA Technical Assistance, a fish consumption questionnaire. In June, 1982, the questionnaire was given at the Balbala MCH center. The positive results of the questionnaire did not necessarily reflect reality.

In order to plan for future activities in fisheries sector, it was judged necessary to have sound base-line data concerning:

1. The current importance of fish purchases and preparation by institutions and individual households, in order to determine constraints on fish sales.
2. The actual state of the population involved in fishing, their families, etc. with particular emphasis on the willingness of descendants to enter fishing as a profession.

USAID provided funding for two FAO consultants to conduct a socio-economic study (April-May, 1983). The RDA Project Manager worked closely with the consultants in providing informational and logistical support.

The study was to provide data concerning if and to:

1. What degree the Djiboutian population is inclined to eat fish and if and to what extent sales could be increased by improving wholesale sales to institutional clients.
2. Demographic characteristics of artisanal fishermen and their families with particular emphasis on recruitment of young fishermen.
3. Data concerning the economic issues of expenditures and production of the fishermen.

The results of the socio-economic study were provided in two parts:

Marketing and the Socio-Economic Situation of Fishermen. Since this section concerns marketing only, the summary on marketing is provided here:

"The assumption that the Djiboutian population dislikes fish has been found to be invalid. The demand for fish exceeds the present supply. All increases in production, as far as public marketing is concerned, have been absorbed by consumers regardless of the increase in price of fish.

In Djibouti-town, there is only very limited access to fish. (Two selling points for local population - ACPM and Central Market - and three where expatriates buy their fish - 2 supermarkets and one private fish shop). All IFAD outlets to be opened, close to traditional buying centers, are expected to do well, provided they have regular and sufficient supplies of preferred species.

The management of retail-outlets should be responsible not only for sales but also for providing information and playing the important role of promoter. The role of the outlets must be seen as a long-term impetus to consumption. The impact of pilot outlets on surrounding clientele should be evaluated over a period of time. Conveniently located outlets should be able to sell c. 10 tons/annum in the first year after being opened.

The household survey shows that the present fish consumption (in the areas observed) is approximately one tenth of the meat consumption; 75% of the interviewees eat fish twice a month (month of survey=May, month with good availabilities). Fish consumption is reduced during Ramadan and periods of limited landings. The majority of fish consumers declared their intention to eat more fish, provided accessibility was improved. The majority of the population segment which, at present, does not purchase fish, has declared its willingness to eat fish if more easily accessible. Definite refusal of fish was only reported from 8% of interviewees due to general dislike. Effective sales will greatly depend on how the outlets function. Private consumption of fish increases significantly with higher level of income and particularly with higher level of education.

Changes in the present level of fish intake in Djibouti by private consumers will require a medium-term commitment of promotion. Short term increase in sales can be achieved by improving the relationship between ACPM and the organizational buyers. Promotional activities should be developed and all actual and potential institutional clients should be regularly supplied with information (e.g., on a monthly basis) on the availabilities of species and their prices and should be given efficient and hygienic service including prompt delivery.

Both the private consumers as well as institutional clients, prefer fresh fish and only a few species. Frozen fish is not yet well accepted. Private consumers prefer Dorades, Spanish mackerel and Tuna, account for c. 75% of their purchases. A promotion campaign must aim at widening the variety of fish accepted and increase the acceptability of frozen fish as a substitute to fresh merchandise."

In medium to long-terms, Djibouti has the potential to double or triple the present sales of fish. An evaluation of the socio-economic study was done by the USAID Phase II Design Team (August-September 1983).

Concerning marketing aspects (consumers), they stated "that the survey appeared biased to middle class consumers (given the large numbers who owned such items as T.V. sets and a higher than average level of education." Other than that, the design team was favorably impressed with the base-line data provided by the study.

An important element of the Cooperative marketing strategy are the retail outlets. Other than assisting in the design of the markets, RDA has not played a major role conferring that to IFAD.

The retail outlets, operational since September, 1983, are located in high density population centers. The outlets are located in close proximity to either existing markets (produce and beef) or MCH centers thus, they have access to women, comprising a major portion of the retail client base.

The performance of the outlets has been weak. From September to October, 12 tons of fish were sold. This represents an average of 3 tons per month, or 100 KG per day. The daily totals range from a high of 25 KG/day/outlet.

There are two reasons that could explain poor performance to date, fish preference and bad management. The Djiboutian preference to a few species, kingfish, small jacks and dorades, is a limiting factor. Since this group represents only 60T of the total catch, there is a great deal of demand for a limited source. Bad management is both the fault of the ACPM and the retail outlet managers. The ACPM is not doing enough follow-up surveillance. Some of the managers have not lived up to their contractual obligations (selling only fish at the outlet) having been observed selling produce and other items. The ACPM has changed management in only one outlet to date.

Even though there is no coherent marketing plan and the national per head consumption of 1.3 KG/capita year is not much for a population of 300,000 inhabitants, it is certainly a large amount to be handled by two outlets (Pecherie and Central Market). The new outlets still are not yet having an impact on sales.

Because of the seasonal variation in production, it has been the ACPM's strategy to store fish in frozen form to be made available during months when production is lower. The majority of this frozen fish was delivered to CRS and WFP for their refugee feeding programs. The results of the socio-economic study of institutional clients indicated that two-thirds of those interviewed would buy frozen fish (if fresh fish was not available).

Many consumers are not familiar with certain fish. Promotion is a method to create awareness among the consumer that can lead to the expansion of the market. Catholic Relief Services (CRS) has largely assumed contractor responsibilities for fish promotions including demonstrations, education, advertising and marketing. Since 1981, through their USAID Food and Nutrition Grant and UNICEF Project, CRS has extensively promoted fish in Djibouti City and all the districts. The RDA Project Manager has aided CRS in designing and implementing their fisheries project activities.

Marketing has been the single most neglected element in the Djibouti fisheries development program. USAID has recognized this fact and in its Phase II Project, has included 2 years worth of technical assistance for a marketing person. RDA strongly recommends that the marketing person formulate and implement a coordinated marketing plan.

3.3.1 Survey Of Prior Marketing Facilities

At the start of the project in March, 1980, fish were marketed at the Pecherie facility at Boulaos, the Central Market and Ambouli Market.

1. Pecherie Boulaos

The Pecherie is the largest retail and wholesale facility in terms of volume of fresh fish in Djibouti. The Pecherie's physical plant at the start of the project consisted of two cold stores, 40M³ and +2 C and 30M³ -18, and a sales area 120M². The government of Djibouti rented it for 50,000Df/month plus 15DF/KG fish storage fee.

It had been in the hands of private vendors until March 1981, when the facility was placed entirely within the operational control of the ACPM.

2. Central Market

The Central Market is the largest produce and meat market in Djibouti. Inside this market is a section with stalls reserved for fish sellers. The numbers vary, but at any one time, there may be 10-15 fish vendors there. In addition, there are about 5-10 sellers of shrimp who sell next to the stall area.

Some of the vendors have fishermen who work for them. Others fish and sell their catch themselves, while some buy fish from independent fishermen. The remaining buy their fish from the Pecherie. Since the ACPM took over retail operations at the Pecherie, it has been observed that the number of sellers that buy from the Pecherie had increased. This is perhaps due to the increased availability and species of fish the Pecherie has to offer.

The Central Market has no cold storage facilities. Most of the sellers have coolers in which they can keep their excess, if not all is sold the first day. Hygienically, the conditions are poor. The District of Djibouti City has plans for renovation of the Central Market. Included are provisions to provide a section for the selling of fish.

3. Ambouli Market

There was a stall at the Ambouli market operated by an independent fisherman. There were no cold storage facilities. Two new facilities were constructed for the Ambouli area under the IFAD project, and began operation in September, 1983.

3.3.2 Present Marketing Facilities

The present facilities used in the marketing and distribution of fish are the Pecherie (ACPM), 8 retail outlets of Djibouti City, a CRS sponsored retail outlet in Arta and the Central market in Djibouti City. These are, in addition, interior market facilities in Ali Sabieh, Dikil, Obock and Tadjoura constructed or under construction but as yet not operational.

3.3.2.1 Pecherie - ACPM

The "La Pecherie" marketing facility located in the ACPM complex is the largest fish retail, wholesale market in Djibouti City by volume.

Total sales varied negligibly from 1982 to 1984. The average daily sales has remained at a constant 700 -800 kilograms per day. There has been a decrease in retail volume but this was made up with a concomitant increase in wholesale volume. A detailed analysis of ACPM wholesale/retail sales follows in Section 3.3.3.

The physical layout consisted of a selling area of about 70m². An "L" shaped counter separates the 70m² retail clientele from the rest of the area. Wholesale clientele place their orders in the area adjacent to the

accounting office. Preparatory work, cleaning, filleting, etc. for both clientele was done on the counter.

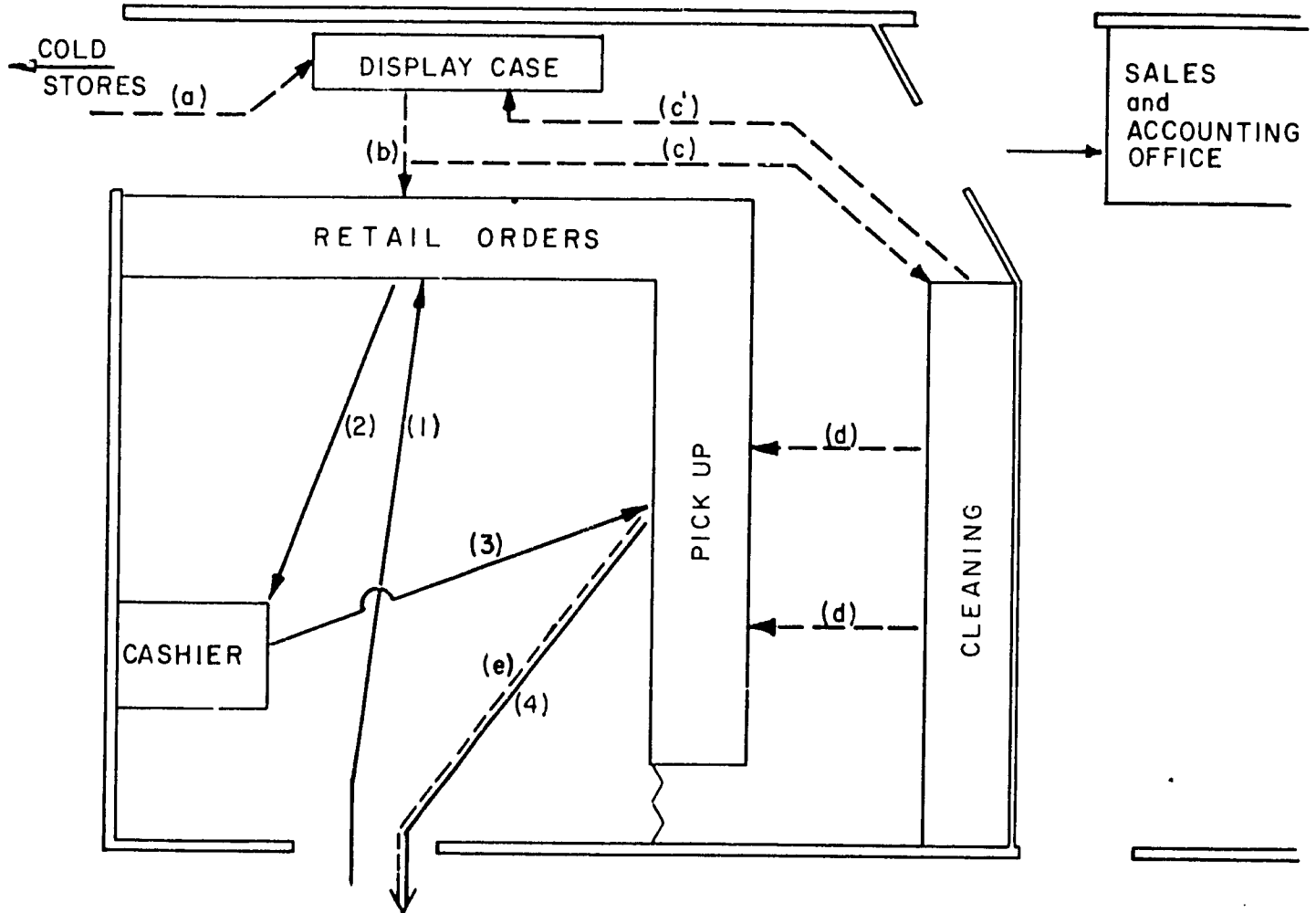
The RDA management team, given the situation, instituted procedures that organized work and product flow. Figures 38 and 39 show sequential representations of what would be ideal wholesale and retail transactions. These representations were practiced until the opening of the renovated wholesale/retail areas. It alleviated some of the congestion and was more manageable from a control standpoint (inventory, accounting).

3.3.2.2 Retail Outlets - Djibouti City

Giving the population of Djibouti City access to fish is viewed as a key element in the development of the fisheries sector. It is expected that increases in consumption and i.e., production, can only come about through retail sales to the local population.

The IFAD project financed the construction of eight retail outlets (the ninth outlet proposed for Baballa has been rescheduled for Phase II). It had been envisioned that the results of a socio-economic study would give indications as to the possible locations. GROD decided, in fact, that this survey need not be the sole basis for market selection, but rather provide information in determining fish preference and methods of preparation. The GROD selected the retail sites in response to population densities, and their proximity to existing market sites, or health-care centers.

FIGURE: ³⁸ SEQUENTIAL REPRESENTATION
OF AN IDEAL RETAIL TRANSACTION



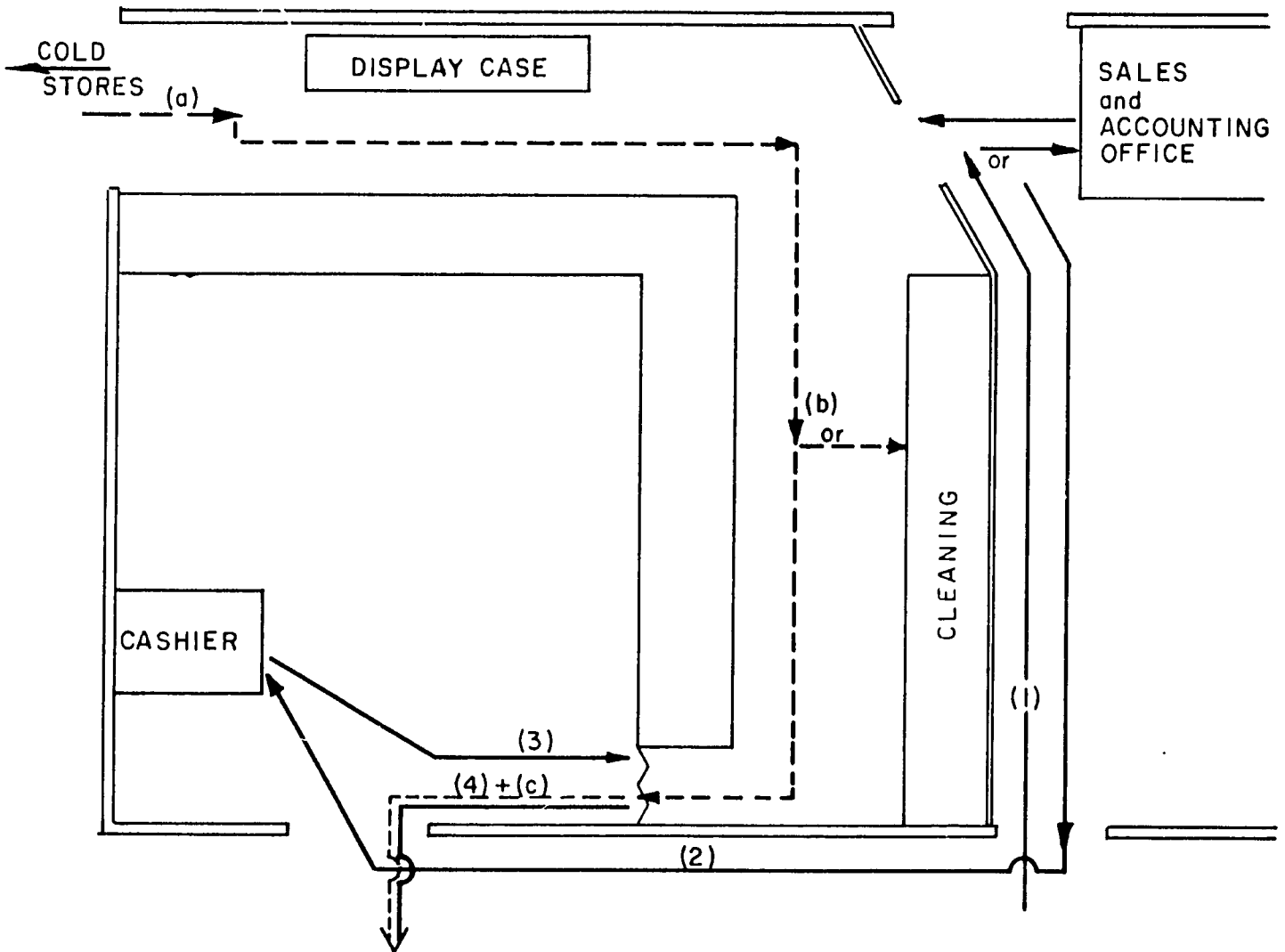
CUSTOMERS

1. Enters the retailing area and goes to place his/her order.
2. Has received a sales ticket and goes to pay.
3. Has a proof of payment and goes to pick up his/her fish.
- 4 + e The customer leaves the retailing area taking his/her fish.

FISH

- a. Comes from cold store and is stored in the display case.
- b. Is weighed to fill orders.
- c. Sent for cleaning and packaging.
- c' A critica suplus is returned to the display case.
- d. Read to go, fish is transferred to the pick-up area.

FIGURE: 39 SEQUENTIAL REPRESENTATION OF AN IDEAL WHOLESALE TRANSACTION



CUSTOMERS

1. Places order with wholesale sales manager or an order could have been placed in advance with sales office.
2. Has received sales ticket and goes to pay cashier or if institutional client has delivery order written representing credit transaction.
3. Has proof of cash payment (cash register receipt) or proof of credit transaction (signed delivery order) and goes to pickup fish.
- 4 + c. Leaves the area taking fish.

FISH

- a. Comes from cold store to be weighed.
- b. Sent to pickup area or to cleaning if required by customer.

Since women constitute the majority of the retail client base, having an outlet next to an existing market could be easily patronized in the course of daily shopping. Health centers also provide retail clients because they are frequented most often by women (mother-child health care centers). They can also be used as fish-promotion centers as demonstrated by CRS.

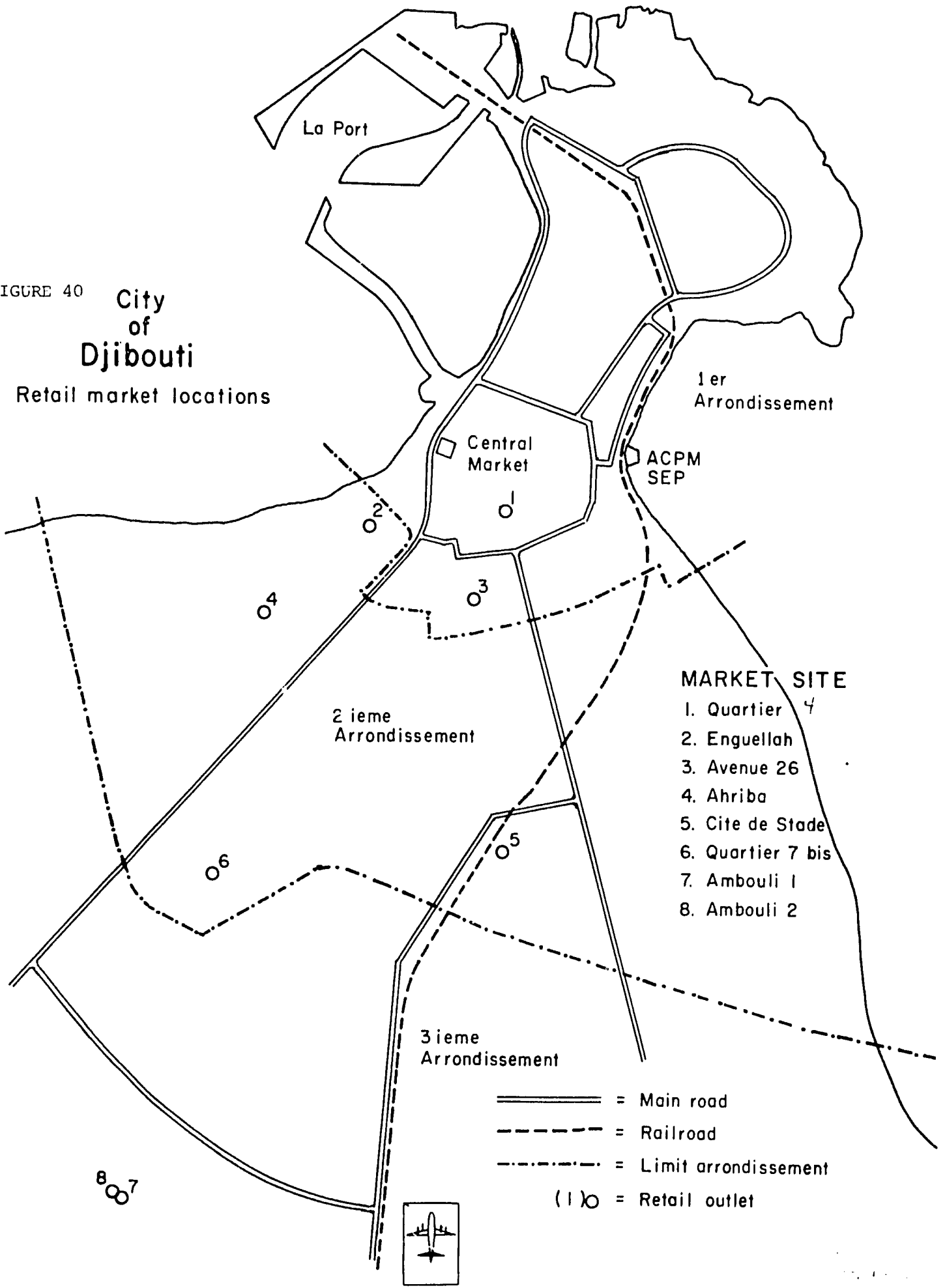
The following is a list of the Djibouti City retail outlets, (Map Figure 40) and adjacent markets or health centers:

<u>Outlet</u>	<u>Adjacent Center</u>
Quatier 4	Ave. 13 - (clothing, dry goods, vegetables)
Enguella	Enguella P.M.I. (mother-child health center)
Ave. 26	Ave. 26 market (meat, vegetables)
Ahriba	Ahriba P.M.I.
Cite de Stade	Cite de Stade market (meat, vegetables) and Farah-Had Dispensory
Quatier 7 bis	Quatier 7 bis market (meat, vegetables)
Ambouli 1 & 2	Ambouli Market (meat, vegetables) and Ambouli P.M.I.

FIGURE 40

City of Djibouti

Retail market locations



MARKET SITE

- 1. Quartier 4
- 2. Enguella
- 3. Avenue 26
- 4. Ahriba
- 5. Cite de Stade
- 6. Quartier 7 bis
- 7. Ambouli 1
- 8. Ambouli 2

- = Main road
- - - = Railroad
- · - · = Limit arrondissement
- () O = Retail outlet

Six out of the eight retail outlets began operations in September of 1983, the other two in October of 1983. They were rented to individuals following procedures set forth by Presidential Decree of the 16th of April, 1983 (Appendix H). Contracts were established between the GROD represented by the fisheries service and the individuals concerned (Appendix I).

The RDA management team has closely followed the retail outlets sales volume since their opening (Figures 41, 42 and 43). From September to December of 1983, the outlets were averaging sales of 404 kg per month, or 13 kg per day. The average decreased over the next period, January - June 1984, to 310 kg per month, or 10 kg per day. The average increased over the last 6 months to 447 kg per month or 14 kg per day.

Figure 44 shows graphically retail outlet total sales volume from September, 1983 to December, 1984. Sales volume peaked in December, 1983 (3,639.3 kg) and then descended to its lowest point in March, 1984 (2,019.2 kg). Volume increased over the next two-month period ending May, 1984 (2,763.35 kg) and fell off in June, 1984 (2616.95 kg). Volume increased over the last 6 months period surpassing 4,000 kg for July, August and September.

The performance of the retail outlets has not been impressive. Lack of monitoring is one of the main reasons for the poor performance. The Quatier 7 bis outlet, for example, went from January to the end of April without buying one kilogram of fish. The Enguella market started well (348kg/month) but gradually descended to 21 kg/month by the month of January. If an outlet is not selling fish or its purchases are falling

off, it should immediately be investigated. The ACPM has been designated by the Fisheries service to supervise the retail outlets, and it has been lapse in performing this function. Contracts can be cancelled for poor performance, as have been the case with Ariba twice and Enguella. it should be noted also that Quatier 7 bis is slated for a management change.

QUANTITY OF FISH PURCHASED BY THE RETAIL OUTLETS SEPT. - DEC. 1983

Retail Outlet	<u>1/</u> NDP	<u>2/</u> SEPT.	NDP	OCT.	NDP	NOV.	NDP	DEC.	TOTAL	MONTHLY AVERAGE	DAILY AVERAGE
Arta (Interior)	-	—	5	143,40	8	114,05	29	122,40	379,85	126,61	4,22
Stade	13	207,40	23	432,45	60	391,35	27	397,35	1.428,55	357,13	11,90
Avenue 26	13	495,30	28	597,05	23	582,75	27	756,65	2.431,75	607,93	20,26
Ambouli 1	22	700,40	25	834,65	21	625,55	26	889,90	3.050,50	762,62	25,42
Enguella	22	348,05	23	315,50	15	292,95	10	195,85	1.152,35	288,08	9,60
Quartier 7 bis	-	—	12	201,05	14	161,80	5	58,25	421,10	140,36	4,67
Ambouli 2	-	—	6	65	13	142,90	18	259,55	467,45	155,81	5,19
Arhiba	10	113,55	16	369,15	25	510,60	28	618,65	1.611,95	402,98	13,43
Quartier 4	26	357,10	28	268,75	23	213,95	24	341,30	1.181,10	295,27	9,84
TOTAL		2.221,00		3.227,00		3.035,90		3.639,90	12.124,60	404,15	13,47

1/ NDP - Number of daily purchases from the ACPM.

2/ Quantities in Kilograms.

QUANTITIES OF FISH PURCHASED BY THE RETAIL OUTLETS JAN. - JUNE 1984

Retail Outlet	1/ NDP	2/ JAN	NDP	FEB	NDP	MARCH	NDP	APRIL	NDP	MAY	NDP	JUNE	TOTAL	MONTHLY AVERAGE	DAILY AVERAGE
Arta	7	75,3	9	78,65	6	78,2	5	84,05	4	41,15	5	85,0	434,35	36,19	2,41
Stade	23	298,7	24	341,0	25	345,8	30	519,75	27	523,4	24	347,9	2.368,55	394,75	13,15
Avenue 26	25	616,6	27	422,0	25	565,05	28	699,5	31	804,0	25	591,55	3.698,2	616,36	28,54
Ambouli 1	25	787,75	28	736,1	24	648,95	26	673,45	30	789,0	20	377,55	3.874,8	645,8	21,52
Enguella	10	99,8	2	21,1		—		—	5	41,65	19	138,9	293,45	48,9	1,63
Quartier 7 bis		—		—		—		—	5	26,15	7	24,25	50,4	—	—
Ambouli 2	23	382,4	1	18,2	1	11,1	7	84,7	24	287,55	12	148,3	764,25	127,37	4,25
Arhiba	31	849,05	21	323,05	4	37,6		—	4	51,55	17	381,8	1.563,05	260,5	8,68
Quartier 4	24	393,95	24	246,35	27	348,5	28	431,8	24	278,9	15	154,7	1.854,2	389,83	18,3
TOTAL		3.335,05		2.178,45		2.819,2		2.443,25		2.763,35		2.161,95	14.981,25	318,44	10,3

1/ NDP - Number of daily purchases from the ADPM.

2/ Quantity in Kilograms.

FIGURE A2

QUANTITIES OF FISH PURCHASED BY THE RETAIL OUTLETS JULY - DECEMBER 1984

RETAIL OUTLET	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL	MONTHLY AVG	DAILY AVG
ARTA	181,0	121	62,55	89,8	-----	-----	454,35	113,5	3,9
STADE	670,0	496	492,9	482,4	381,4	394,8	25757,5	459,6	15,3
AVENUE 26	1385,0	1421,0	981,9	1000,5	760,7	774,25	6163,35	1027,2	34,2
AMBOULI 1	756,0	710,0	536,6	750,35	726,8	1024,7	4504,45	7507,7	24,8
ENQUELLAH	239,0	120,0	-----	-----	-----	-----	359,0	179,5	5,9
QUATIER 7 BIS	-----	-----	-----	-----	-----	-----	-----	-----	-----
AMBOULI 2	483,0	389,9	671,15	641,4	459,8	486,9	3852,15	500,7	17,0
AHRIBA	839,0	919,0	982,45	941,7	1035,25	1140,75	5578,15	929,7	31,0
QUATIER 4	273,0	44,0	118,2	118,4	251,0	284,6	1089,1	181,5	6,1
TOTAL	4666,0	4420,9	3685,75	3944,55	3534,95	4106,0	24158,15	447,4	14,9

FIGURE 43

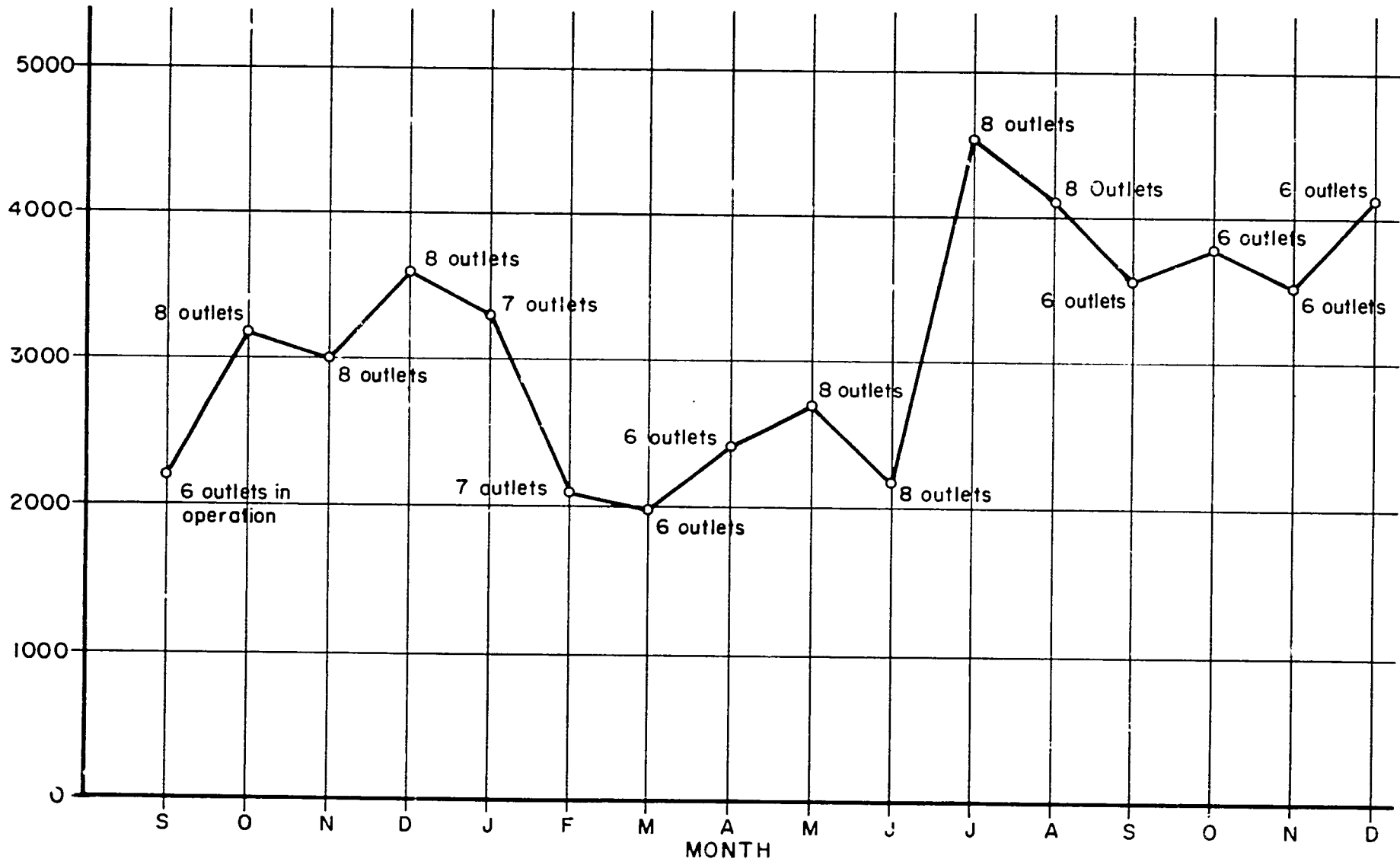


Figure: 44 SALES VOLUME VERSUS RETAIL OUTLETS IN OPERATION
SEPT. 83 - Dec. 84

Another reason for the reported poor performance is the unavailability of preferred species. Djiboutian retail clients have a preference for kingfish, jacks, tuna and small dorads. When they are not available, the outlet managers are hesitant to buy other species. The ACPM has given outlet managers first priority to those desired species.

Sometimes the reported sales volume is not indicative of the true performance of the outlet. For example, the Arhiba outlet bought 849 kg of fish for the month of January. In February, the total was 323 kg, and for March 37 kg. It was learned that the outlet manager was buying from other than Cooperative sources. This, of course, led to the contract being cancelled and new management installed.

The traditional way that fish is marketed may also be a contributing factor to poor performance. Except at the "Pecherie", most fish is sold by the piece equalling about 100 grams. It is sold for 100 francs, this equals 1,000 francs/kilogram. The Cooperative associated outlets are required to sell by weight and posted prices. It has been reported, though, that the outlets are selling by the piece also. Selling this way encourages low volume because of the high profit margin that is gained.

Because a great deal of emphasis is placed on the retail outlets as a conduit for consumption, i.e., production, their performance must improve. USAID, in its Phase II proposal, has the retail outlets each operating at the 20 ton/year level during the second year of the project.

Performance can be improved through strict monitoring to insure fish is purchased from the Cooperative and is sold by weight with posted prices. A performance clause could be included in their contracts that would set a minimum daily sales level starting, for example, at 10kg/day. Levels would then be raised periodically to a maximum obtainable volume for each outlet based on market location and population density. These levels would be

further revised as production increases. To insure that the outlets could meet their performance clause, the Cooperative would continue its policy of first priority for fish purchases to outlet managers. As a further incentive, the Cooperative might also establish special prices exclusively for the retail outlets.

Can an outlet manager expect to realize a reasonable profit from the sale of fish following established regulations, while at the same time not charging prices that discourage him from high volume purchases? The price of fish, according to the FAO socio-economic study, is not a major factor in whether someone will consume fish. But the consumer who buys by the piece will get a better bargain at 500 DF/kg than at 1000 DF/kg.

Figure 45 looks at retail outlet expenditures and expected net profit at varying levels of activity. These estimates assume that sales will be at 400DF/kg and purchases at 300 DF/kg, a 100 franc gross margin.

At 10kg/day (3 tons/year) with a 100 franc gross margin, the net yearly profit to the outlet manager comes to 114,000 DF (9500/month). This is well below the national minimum wage of DF 17000/month usually paid to domestics and laborers. Increasing the gross margin by an additional 100 francs adds 300,000 DF equalling a net profit of 414,000 DF (34,500/month). This is close to what a semi-skilled person would earn. As of the end of June, 1984, six retail outlets were operating at around 10 kg/day or less. Operating at these levels, the outlet has to charge 200-300 francs above purchase price to make a reasonable net profit.

RETAIL OUTLETS EXPENDITURE ESTIMATES

Assuming operations for 25 days per month, for 12 months, selling an average of 10 kg, 20 kg, 30 kg, 40 kg and 80 kg per day respectively at 400 DF/kg.

<u>Sales</u>	<u>1/</u> <u>3 Tons</u>	<u>6 Tons</u>	<u>9 Tons</u>	<u>12 Tons</u>	<u>24 Tons</u>
@ 400 DF/kg	1,200,000	2,400,000	3,600,000	4,800,000	9,600,000
 <u>Variable Costs</u>					
Purchase of fish 300 DF/kg	900,000	1,800,000	2,700,000	3,600,000	7,200,000
Ice 10 DF/kg	30,000	60,000	90,000	120,000	240,000
Sales Clerk required at levels 24 tons and above at minimum wage	-0-	-0-	-0-	-0-	210,000
Packing and cleaning materials	<u>10,000</u>	<u>20,000</u>	<u>30,000</u>	<u>40,000</u>	<u>80,000</u>
Total Variable Costs	940,000	1,880,000	2,820,000	3,760,000	7,730,000
Gross Profit	260,000	520,000	780,000	1,040,000	7,870,000
 <u>Fixed Costs</u>					
Rent-5000 DF p.m.	60,000	60,000	60,000	60,000	60,000
Electricity 2000 DF/month	24,000	24,000	24,000	24,000	24,000
Water 1000 DF/month	12,000	12,000	12,000	12,000	12,000
Equipment replacement, repainting interior	50,000	50,000	50,000	50,000	50,000
Total fixed costs	146,000	146,000	146,000	146,000	146,000
Net Profit to Outlet Manager	114,000	374,000	634,000	894,000	1,724,000

1/ Current monthly average ail retail outlets.

FIGURE 45

For an outlet to make a reasonable profit for its manager, and at the same time not charge excessively high prices to the consumer (respecting a 100 franc gross margin), its level of operation would have to be at 30 kg/day (9 tons/year). The outlet manager would net 634,000 DF/year, or 53,000 DF/month. There are two outlets that are close to the 30 kg/day average. Their gross margins are reported to be in the 100-150 franc range.

In the future, a set gross margin could be used as a guideline for retail outlet prices. If the Cooperative does away with its fixed purchase price and follows a policy based on supply and demand, the price offered to the retail outlets would vary week to week. But, respecting a fixed gross margin difference, whether it be 100 or 150 DF/kg, the outlet could be assured to gain a reasonable profit.

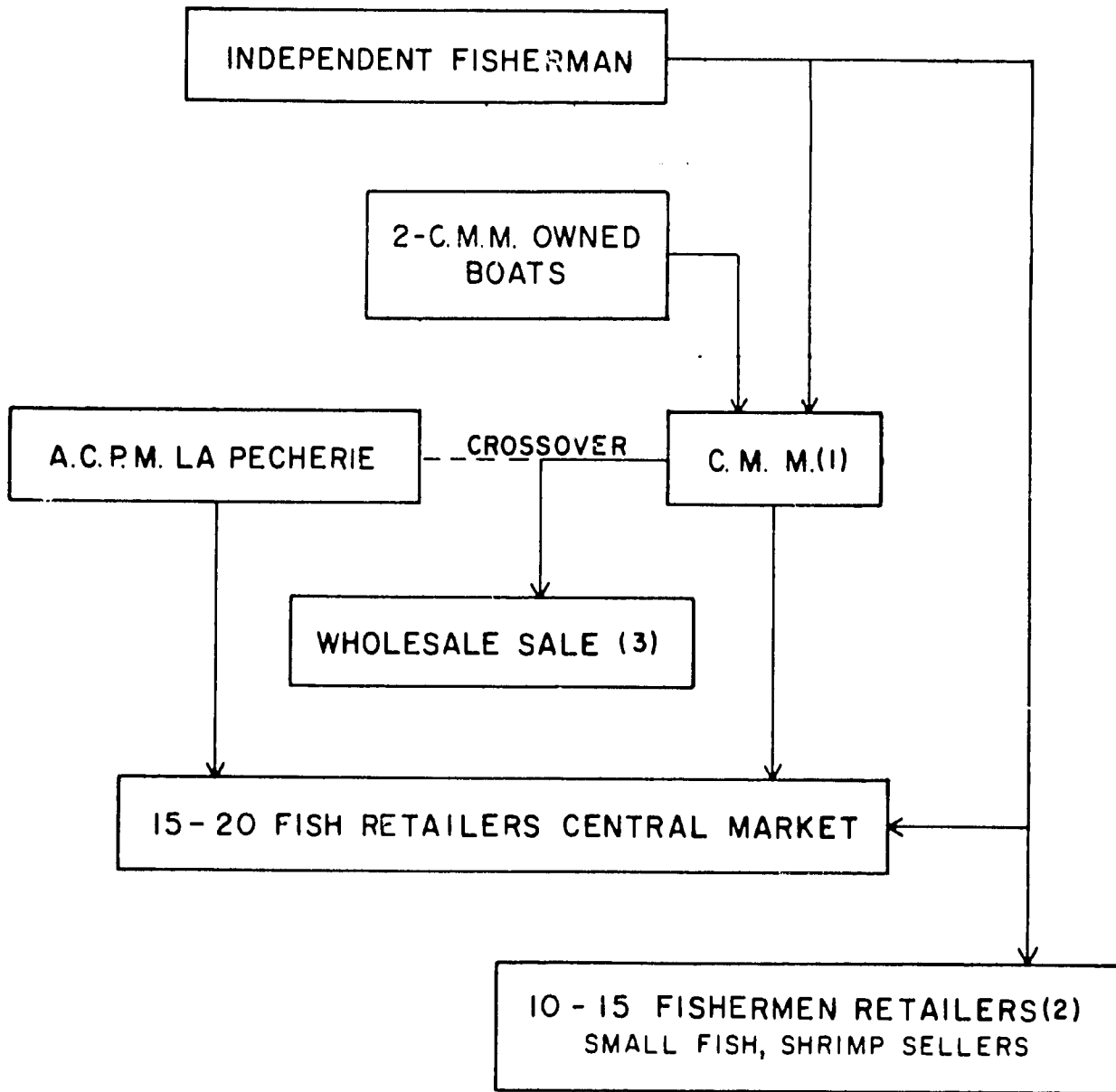
3.3.2.3 Central Market

The Central Market is the largest meat and produce market in Djibouti. A small section of the market comprising 10 stalls is used exclusively for the sale of fish.

Fish sales at the Central Market are loosely organized under one middleman (Figure 46). This middleman supplies fish on a regular basis to about one half the fish retailers at the Central Market. These fish have their origin from a group of independent fishermen, or from the 2 boats owned by the middleman himself. The other retailers buy their fish from either the middleman or the ACPM. The third source of supply comes from independent fishermen who sell directly to the fish retailers. This source is mostly occasional occurring if there is a critical surplus that the middleman cannot handle.

Figure: 46

CENTRAL MARKET FISH DISTRIBUTION BY ORIGIN AND SALES



1. Central Market Middleman
2. Independent fisherman who sell their own fish and other retailer's selling the same variety.
3. Wholesale sales to restaurants, military and institutions.

The independent fishermen themselves constitute the second group of retailers at the Central Market. This group consists of fishermen who capture small fish, mullet, mackerals, or shrimp and sell them in front of the Central Market or on the ground near the stalls. This group also sells door to door to restaurants and individuals.

There is no hard data available on the number of kilograms sold at the Central Market. Most of what is known is deduced from available data at the ACPM or from periodic observation. In summary, what is known or has been observed:

- 15 - 20 fish retailers have been observed at the Central Market selling fish other than mullet, mackerals or shrimp. There has been an increase of around 5 additional retailers over the past two years.
- 10 fish retailers from the Central Market buy from the ACPM on an irregular basis, the average purchase being about 10 kilograms.
- 10 - 15 retailers of small fish have been observed at the Central Market selling piles of fish estimated between 5 - 10 kilograms.

Assuming 300 days of operation per year (time not working due to fish unavailability, observance of religious holidays - estimated at 2 months), the following calculations can be made:

- 15 - 20 fish retailers selling on the average of 10 kg/day for 300 days of operation equals 60 tons.
- 10 - 15 retailers of small fish selling 5 kg/day for 300 days of operation equals 20 tons.

Total Central Market retail sales volume then can be estimated to be equal to 80 tons per year.

The presence of a middleman, establishing as his base the Central Market, is not a usual development. The present middleman has been operating at the Central Market for many years. It is only recently, during the last 3-4 years, that he has become exclusively a wholesaler.

Two developments have aided in allowing the middleman to overcome obstacles of regular supply and storage in the development of a wholesale market. Regular supply has always been a problem at the Central market. The independent fleet experiences more down time than the ACPM fleet because they have limited access to repair and maintenance facilities. In 1983, the middleman at the Central Market purchased a 9 meter diesel-powered fiberglass fishing boat (Neil Fernando-Sri Lanka). This vessel has helped him in assuring a regular supply of fish. In April of 1983, cold storage space became available at the Port of Djibouti. With storage, the middleman was able to offer wholesale clientel a more varied product line. This development has provided needed competition and stimulation to the ACPM.

3.3.2.4 Retail Markets - Interior

The Republic of Djibouti is divided into 5 administrative regions, Djibouti City, Ali sabieh, Dikihil, Tadjoura and Obock. While the outlying regions represent a minority of the population, the GROD considers it important that the development of its only natural resource, fisheries, benefit all the people.

IFAD providing funding for the construction of retail outlets in Ali Sabieh and Dikihil. Retail outlets were planned also as part of the larger facilities at Obock and Tadjoura. All the construction except for Obock had been completed by mid-1984. The three outlets are scheduled to become operational beginning in 1985.

CRS has played a major role in the development of interior markets. Since 1981, CRS had been successfully promoting fish. They considered retail market development as a means to supply the product they have been promoting. Knowing the IFAD outlets would not become operational right away, they decided to open their own in Ali Sabieh and Dikihil. In addition, two other outlets were opened in Wea and Arta. These markets were designed as simple store-front type operations from existing stores. CRS provided each outlet with a cold box and a refrigerator. They arranged for each outlet manager to have a short training course in fish processing, handling and bookkeeping at the ACPM.

From the experience they gained in fish retailing, the Ali Sabieh and Dikihil outlet managers were chosen to operate (as private concerns) the IFAD retail outlets. The Wea outlet closed operations in 1983 but the Arta outlet is still functioning.

3.3.2.5 Transportation

To further support maximum extension of the cold chain market system, USAID purchased two insulated trucks 10.5 and 2 metric ton capacity. These vehicles have proven to be crucial to expanding the availability, hence, ultimate consumption of fish. For example, in the middle of summer when temperatures reach as high as 120^o F, iced fish has been transported to Ali Sabieh, Dikihil and Mouloud.

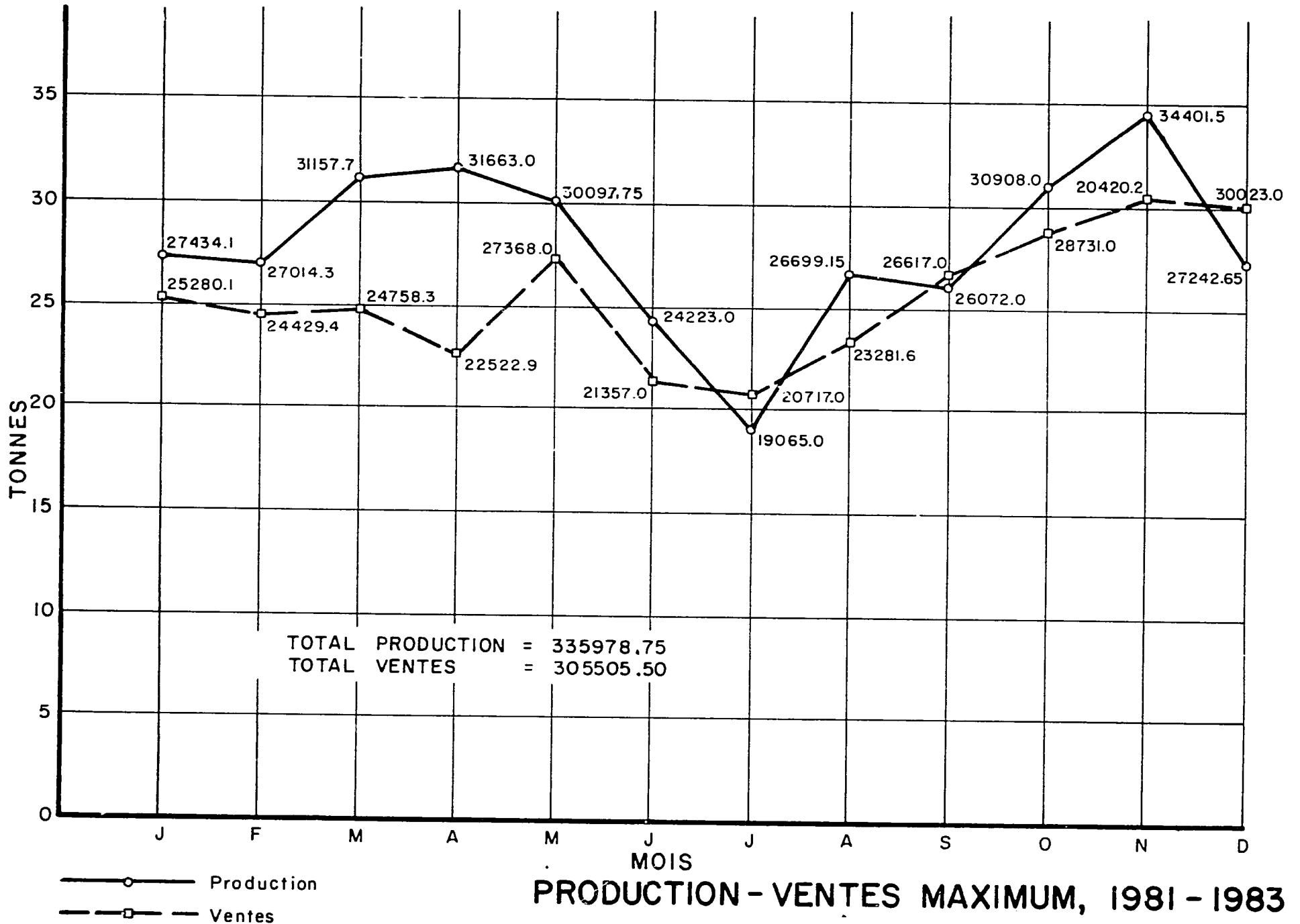
To address off-road towns which CRS was servicing in their drought/refugee feeding program, a four-wheel drive pick-up with an insulated carrier (0.5M+) was purchased. These inputs have satisfied transportation requirements for the first phase of the project. It is most likely they will need to be replaced at some point in Phase II.

3.3.3. ACPM Fish Sales

Prior to the start of USAID development efforts in Djibouti, there existed a sort of equilibrium between production and sales of fish in Djibouti. The individual fishermen sold all his catch almost immediately upon landing. Phase I development efforts disrupted this equilibrium by increasing production and by increasing long-term storage capacity. Efforts were made to increase sales (consumption) and these were very successful. However, the increases in sales lagged behind the increases in production. This resulted in a gradual filling of all available storage facilities at the Coop including the newly constructed cold stores/freezers. Figures 47 and 48 show a three and four year composite of highest monthly sales and production. The 1981-1984 composite increased the theoretical maximum production an additional 15 percent, while theoretical maximum sales increased only 2 percent.

Phase I marketing activities concentrated on establishment of wholesale and retail sales activities at the ACPM, including: solicitation of institutional customers, sales of fish to relief agency programs, various promotional activities, and generation of a sufficiently high quality product to attract customers. In addition, eight retail markets were established in Djibouti City to bring fish to the neighborhood markets and several retail outlets were established in the surrounding towns of Arta, Ali Sabieh, and Dikhil. These efforts were the product of cooperation between the various donors in Djibouti. At no time was there ever a single individual tasked with the responsibility of marketing the product.

In Phase II, this will change. It is expected that a full-time Marketing Manager will develop new markets at a rate to keep pace with the expected increases in production.



PRODUCTION - VENTES MAXIMUM, 1981 - 1983

Figure: 47 MAXIMUM PRODUCTION AND SALES

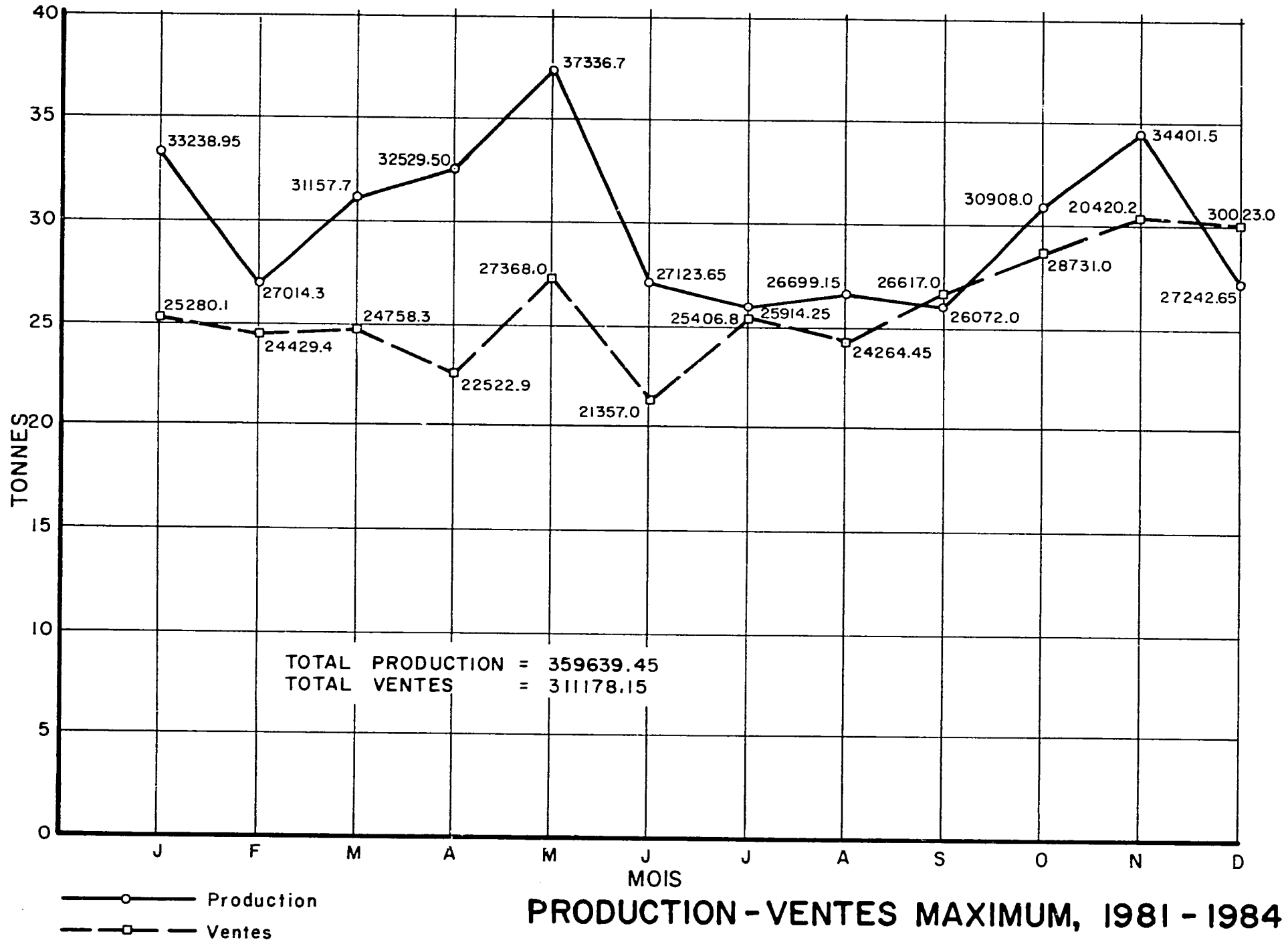
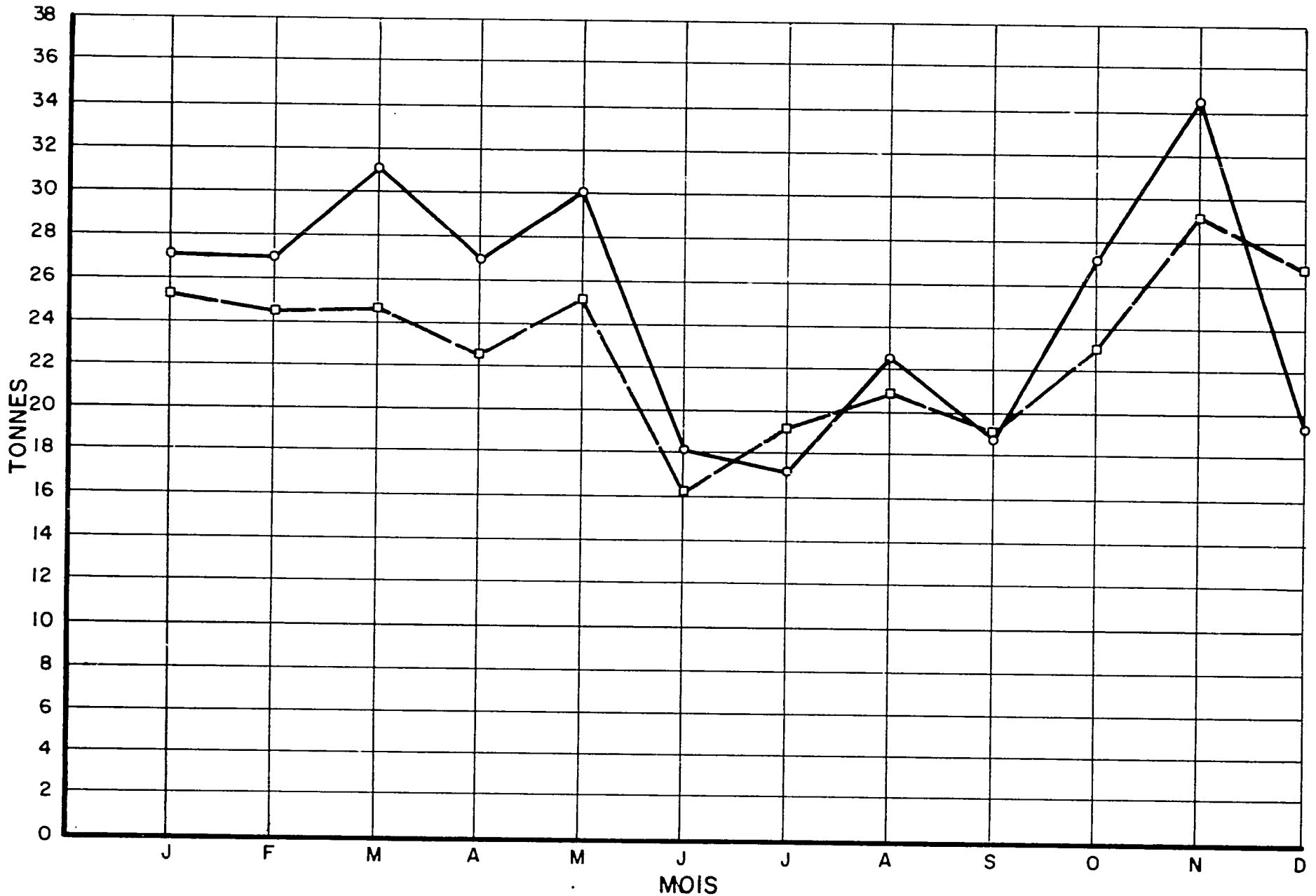


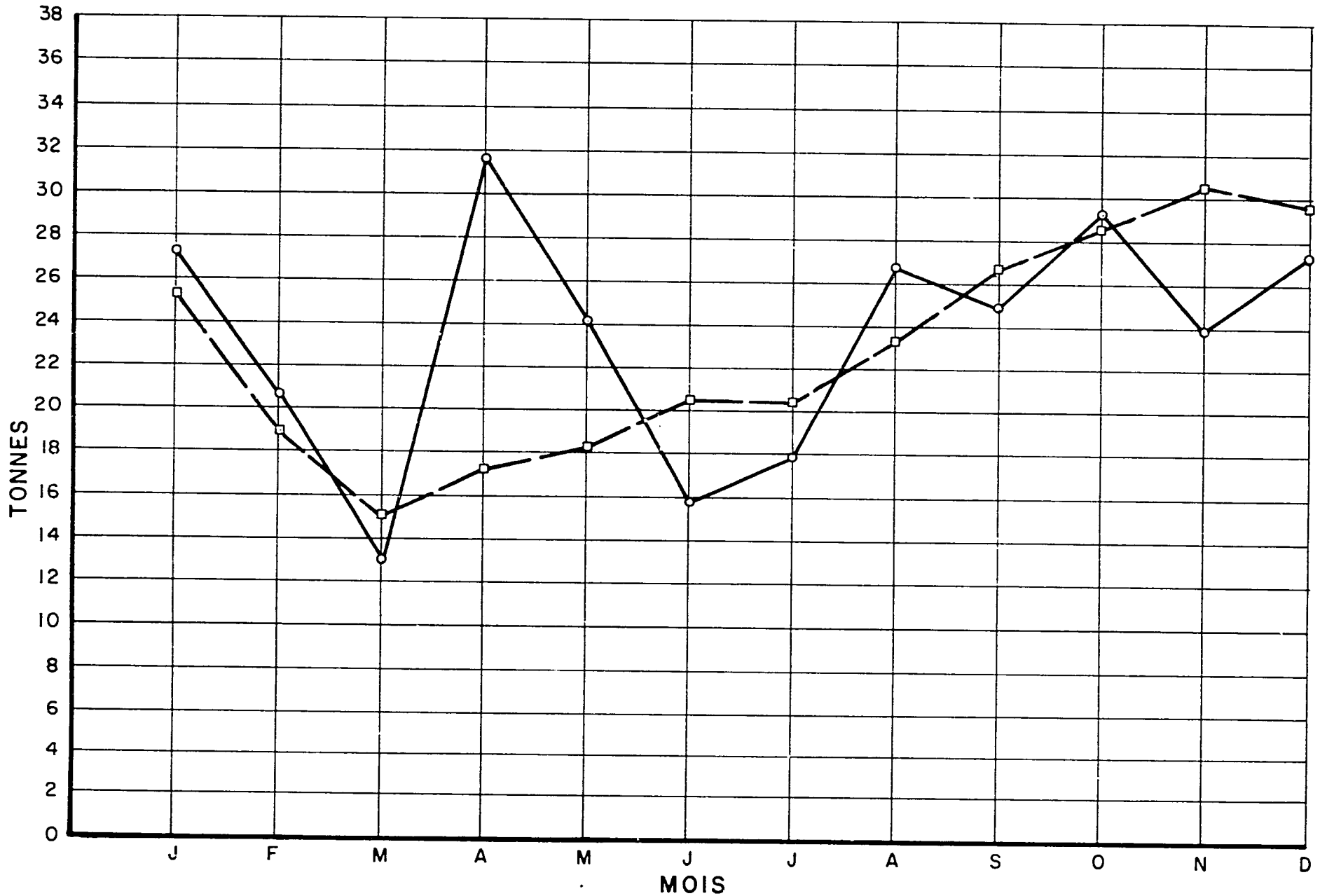
Figure: 48 MAXIMUM PRODUCTION AND SALES



—○— Production
- - □ - - Ventes

PRODUCTION - VENTES, Jan. - Dec. 82

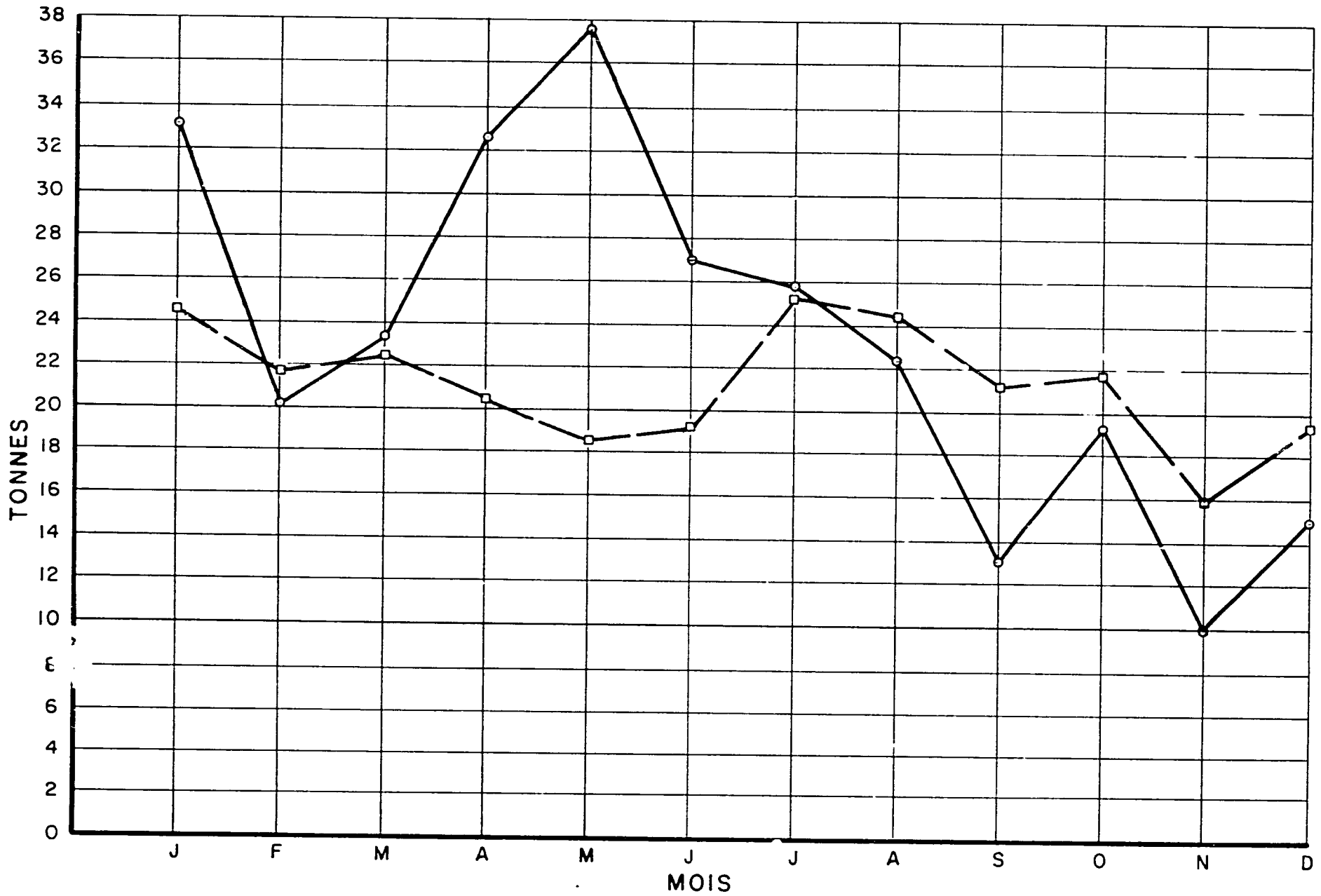
Figure: 49 PRODUCTION - SALES



—○— Production
 - -□- - Ventes

PRODUCTION - VENTES, Jan. - Dec. 83

Figure: 50 PRODUCTION - SALES



—○— Production
- -□- - Ventes

PRODUCTION - VENTES, Jan. - Dec. 84

Figure: 51 PRODUCTION - SALES

The remainder of this section presents an analysis of Cooperative sales from 1982-1984. The data presented here will be useful for the marketing effort in Phase II.

Figures 49 through 51 graphically illustrate the cyclical nature of sales in relation to production (1982-1984). The sales curve will in general follow the production curve. This occurs when supply and demand are in equilibrium. During two periods of the year supply and demand are in disequilibrium. In the beginning of summer, April-May, supply (production) is high, demand (sales) are low. In the beginning of winter, November-December, supply tends to be lower but demand tends to be higher. The sales curve has been greater than the production curve for only 13 months out of 36 from 1982-1984.

Figures 52 through 54 show a break-down of Fisheries Cooperative sales by product type and category. 1982 wholesale sales showed the general product type most sold to be fresh totaling 83.5 percent of all sales. Fresh wholefish with 71.5 percent represented the most specific product type sold. Frozen product was 16.5 percent of all wholesale sales specifically in the form of fillet (10.5 percent). Retail sales in 1982 were predominately fresh, 99.5 percent in the form of whole fish (90 percent).

1983 wholesale sales showed the general type most sold to be fresh, totaling 72 percent of all sales. Fresh whole fish with 61.5 percent represented the most specific product type sold. Frozen product sales increased in 1983. This was due to increase frozen storage capability. Institutional clients were supplied with more frozen product than fresh. Retail sales in 1982 were again predominately fresh, 99 percent in the form of whole fish (89.5 percent).

The 1984 total sales break-down closely resembles 1983. It should be noted the high degree of frozen product in stock resulted in lower overall sales. For the first time, total retail sales were not at the 99 percent fresh category, dropping to 97.4 percent. This was due to periodic unavailability of fresh fish the last 6 months of the year. Nevertheless, it showed retail customers' willingness to purchase frozen product rather than no product at all. This was not the case in 1983.

COOPERATIVE SALES BY PRODUCT TYPE AND CATEGORY

1982

PRODUCT TYPE	<u>WHOLE SALE SALES</u>		<u>RETAIL SALES</u>	
	QUANTITY (KG)	%	QUANTITY (KG)	%
Fresh whole fish	126754.00	71.5	89045.80	90
Fresh fish steaks	796.90	0.4	-0-	-0-
Fresh fillet	18681.10	10.6	8981.60	9.0
Fresh lobster	1742.40	1.0	433.00	0.4
Fresh squid	147.50	-0-	153.70	-0-
Sub Total Fresh	<u>1418131.90</u>	<u>83.5</u>	<u>98614.1</u>	<u>99.5</u>
Frozen whole fish	8964.80	5.0	-0-	-0-
Frozen fillet	18570.40	10.5	247.70	-0-
Frozen lobster	904.30	0.5	255.90	-0-
Frozen squid	234.00	-0-	48.00	-0-
Salted fish	152.90	-0-	2.10	-0-
Sub Total Frozen/ Salted	<u>28826.40</u>	<u>16.5</u>	<u>553.7</u>	<u>0.5</u>
	176958.3	100	99167.8	100

FIGURE 52

COOPERATIVE SALES BY PRODUCT TYPE AND CATEGORY

1983

PRODUCT TYPE	<u>WHOLE SALE SALES</u>		<u>RETAIL SALES</u>	
	QUANTITY (KG)	%	QUANTITY (KG)	%
Fresh whole fish	122201.30	61.50	66287.60	89.5
Fresh fish steaks	123.00	-0-	417.90	0.50
Fresh fillet	20155.10	10.0	5914.30	8.50
Fresh lobster	1087.70	0.50	473.90	0.50
Fresh squid	121.60	-0-	188.90	-0-
Sub Total Fresh	<u>143688.70</u>	<u>72.00</u>	<u>73282.60</u>	<u>99.00</u>
Frozen whole fish	32169.60	16.00	12.50	-0-
Frozen fillet	22977.30	11.5	267.30	-0-
Frozen lobster	911.80	0.50	508.60	0.50
Frozen squid	31.60	-0-	17.10	-0-
Sub Total Frozen/ Salted	<u>5090.30</u>	<u>28.00</u>	<u>705.50</u>	<u>1.00</u>
	199779.0	100	74088.10	100

FIGURE 53

COOPERATIVE SALES BY PRODUCT TYPE AND CATEGORY

1984

PRODUCT TYPE	<u>WHOLE SALE SALES</u>		<u>RETAIL SALES</u>	
	QUANTITY (KG)	%	QUANTITY (KG)	%
Fresh whole fish	114193.9	61.2	60019.6	86.3
Fresh fish steaks	396.00	0.2	2500.40	3.6
Fresh fillet	19428.50	10.4	4846.8	7.0
Fresh lobster	419.60	0.2	247.1	0.3
Fresh squid	46.20	-0-	181.0	0.2
Bait	1187.9	0.6	-0-	-0-
Sub Total Fresh	<u>135771.8</u>	<u>72.7</u>	<u>67794.9</u>	<u>97.4</u>
Frozen whole fish	33234.5	17.80	217.4	0.3
Frozen fillet	16308.4	8.7	1024.0	1.4
Frozen lobster	1230.5	0.6	1024.0	0.7
Frozen squid	2.95	-0-	61.80	0.1
Sub Total Frozen/ Salted	<u>50776.34</u>	<u>27.3</u>	<u>1825.5</u>	<u>2.6</u>
	186548.45	100	69620.40	100

FIGURE 54

3.3.4 Promotion

As part of the fight against malnutrition, CRS/Djibouti has cooperated with the Government of Djibouti's Ministry of Public Health and the Ministry of Education in sponsoring a food and nutrition program through the Ministry's "Protection Maternelle et Infantile" (PMI) centers and rural primary schools. The primary goal of the CRS program was to improve the food consumption of the young child, the most nutritionally-at-risk member of the family. Through the food and nutrition program, CRS had a "captive audience" to whom it promoted both the nutritional and economic value of fish.

Using fish as an educational tool, CRS/Djibouti and UNICEF/Djibouti cooperated in an intensive nutrition, education/fish promotion project. The project operated through the infrastructure already created within the Djiboutian PMI system of the CRS food and nutrition program. The Project's goal was to introduce fish - Djibouti's only domestic food source - into the diets of the Djiboutian family. A UNICEF-sponsored fish demonstration team carried out fish demonstration activities. Photo 43 shows a CRS/UNICEF cooking demonstration at a MCH center.

CRS and the RDA technical assistance team have collaborated in demonstrational programs in the interior of the country at Ali Sabieh, Dikhil and Wea. The project manager has given advice to the CRS team as to fish selection and storage techniques. CRS has designed a smiling fish logo (Photos 44 and 45) to promote the consumption of fish. CRS developed a fish booklet "Pour Votre Sante" and flip charts for use in their health education program (Appendix J and K).

Figure 55 shows the logo of the Cooperative. This logo was supplied in sticker form to be placed on vehicles and Coop boats. T-shirts and caps bearing this logo have been supplied to the Coop to be used as promotional items.

The remainder of this section discusses the CRS/UNICEF activities in fish promotion. This program was implemented by CRS with the RDA Project Manager providing technical assistance.

PHOTO 43 FISH PROMOTION AT MCH CENTERS



MOTHERS FEED THEIR CHILDREN THE FRESH FISH PREPARED BY THE UNICEF/CRS FISH PROMOTION TEAM IN ONE OF THE MANY FISH COOKING DEMONSTRATIONS HELD THROUGHOUT THE COUNTRY

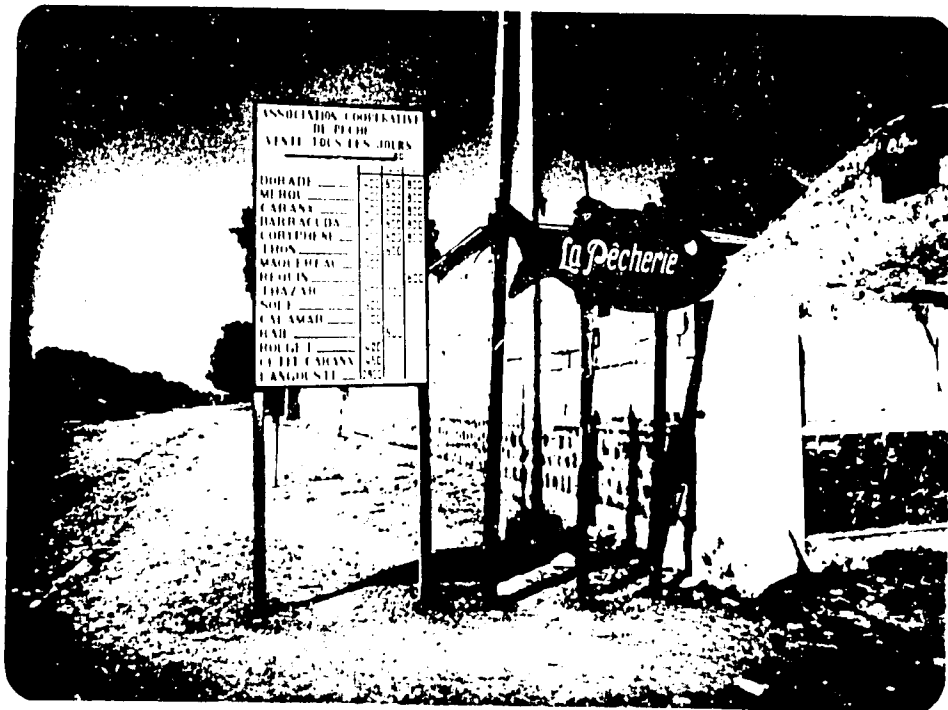


PHOTO 44 CRS-Sponsored promotional signs at Pecherie street entrance.

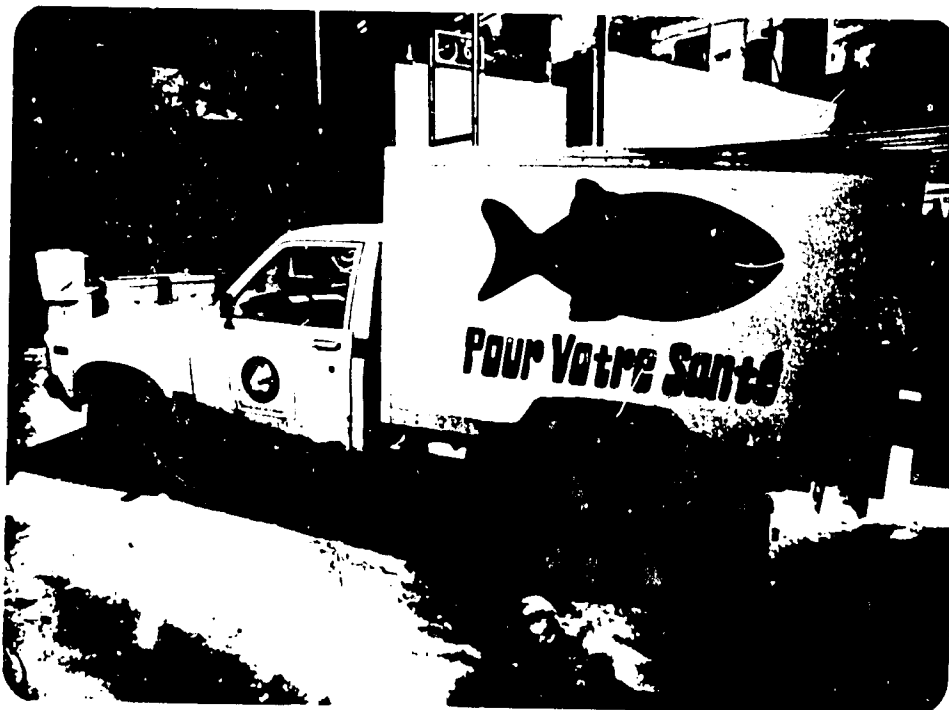


PHOTO 45 CRS-sponsored logo on insulated freezer truck.



FIGURE 55 - Official Cooperative Logo

3.3.4.1 Fish Cooking And Health Education

The introduction of fish cooking and health education demonstrations began in November 1983, based on the experience of two pilot classes held in May 1983.

In Djibouti when a young girl does not attend secondary school she has the option to follow a four year course in homemaking. Each district has one or more of these schools with the girls varying in age from 12 to 17. A three day curriculum (Figure 56) was developed which reinforced the school's instruction on child health and nutrition in the local language.

The classes began in January 1984 with Day 1 of the curriculum in three of the six schools in Djibouti. When all schools were covered, Day 2 was scheduled and then Day 3. The sessions were given at approximately 4 to 6 week intervals rather than in three consecutive days. This permitted follow-up by the instructors of the subjects covered and maintained the excitement of an outside presentation when the team visited the school. To date three of the six schools have completed the course covering the third and fourth year students in groups of fifteen per session for a total of 111 young women.

The UNICEF Health Education Coordinator met with the UNFD (Union Des Femmes) officials to plan a regular program of fish promotion and health education for the UNFD annexes which were also covered by the joint CRS/UNICEF Program. The women were consulted on topics of interest and a series of programs was planned to cover the following subjects: breast-feeding, malnutrition and it's prevention, fish cooking, causes and treatment of diarrhea, vaccination, and sanitation.

Each of the UNFD annexes was asked to arrange a time and invite the team to give the health presentations. The team began with Day 1 presentation as described in the curriculum for the girls' schools. After the initial presentation the annexes then scheduled times for the additional topics. Not all of the 18 annexes have responded, however a large percentage invited the team back for at least one additional session and the more active annexes have used the resource to full benefit. The team hopes to visit a greater number of annexes during the summer months when the schools are not in session and scheduling will be less difficult.

FIGURE 56

CRS/UNICEF

FISH COOKING AND HEALTH EDUCATION CURRICULUM

DAY 1: Preparation and Nutritional Value Fish

- | | |
|----------------------|--|
| Activities | <ol style="list-style-type: none">1. Identification of fish species in Djibouti2. Choosing a fresh fish at the market3. Cleaning a fresh fish4. Cooking fish in a sauce |
| Recipe | <ol style="list-style-type: none">1. Fish Stew |
| Discussion topics | <ol style="list-style-type: none">1. Nutritional value of fish2. Where to buy a fresh fish3. The cost of fresh fish |
| Audio-visual support | <ol style="list-style-type: none">1. Fish booklet2. Flip Chart3. Fish Badges |

DAY 2: Weaning of Infants and Breastfeeding

- | | |
|----------------------|---|
| Activities | <ol style="list-style-type: none">1. Preparation of fish for infants2. Preparation of vegetables3. Preparation of a weaning mixture |
| Recipe | <ol style="list-style-type: none">1. Weaning mix with fresh fish |
| Discussion topics | <ol style="list-style-type: none">1. Value of breast feeding2. When and how to give food supplements to infants3. Other weaning mixes which can be prepared |
| Audio-visual support | <ol style="list-style-type: none">1. Poster - "Les Trois Groupes D'Aliments" |

FIGURE 56

DAY 3: Diarrhea - Causes, Prevention, and Treatment by ORT (Oral Rehydration Technique)

Activities	<ol style="list-style-type: none">1. Preparation of a Baby cereal for diarrhea2. Preparation of oral rehydration fluid at home3. Preparation of UNICEF oral rehydration salt packets
Recipe	<ol style="list-style-type: none">1. Baby cereal for diarrhea2. Oral rehydration fluids
Discussion topics	<ol style="list-style-type: none">1. Cause of diarrhea2. Prevention of diarrhea3. How to use ORT4. How to use Baby cereal for diarrhea5. Dangers of bottle feeding6. Vaccination for infants
Audio-visual support	<ol style="list-style-type: none">1. Poster - Breastfeeding2. Poster - ORT

FIGURE 56, Continued

The interest in good nutrition and health has also carried over to the work which CRS does in the rural primary schools of Djibouti. In 1983 during the annual seminar presented to the primary schools to introduce the CRS School Feeding Program, the school directors requested additional information on nutrition to plan school lunch menus. In response to this request a second seminar was held in January and February 1984, in each district. The directors participated in a presentation on the three food groups which was accompanied by a poster provided by the UNICEF/CRS project. Fish posters were provided for each classroom for all of the 28 primary schools in the rural areas and for the two orphanages which also participate in the school lunch program. The colorful posters made a bright addition to the schoolrooms and were said to be very useful tools for the promotion of good nutrition within the classes.

3.3.4.2 World Food Day

The Ministry of Agriculture has made the FAO initiated World Food Day an annual event in Djibouti since 1982. World Food Day celebrated on October 16 was created by FAO as a means for countries to promote what they are doing in developing food resources.

In 1982, World Food Day was celebrated by cooking demonstrations at the IFAD-funded fish retail outlets. The program was capped by a speech by the Minister of Agriculture at the Enguella fish retail market officially inaugurating all the retail outlets.

The UNICEF/CRS Fish Promotion Project in cooperation with the Ministry of Agriculture took advantage of World Food Day 1983, to promote both fish and agriculture. The project provided banners decorated with fish and

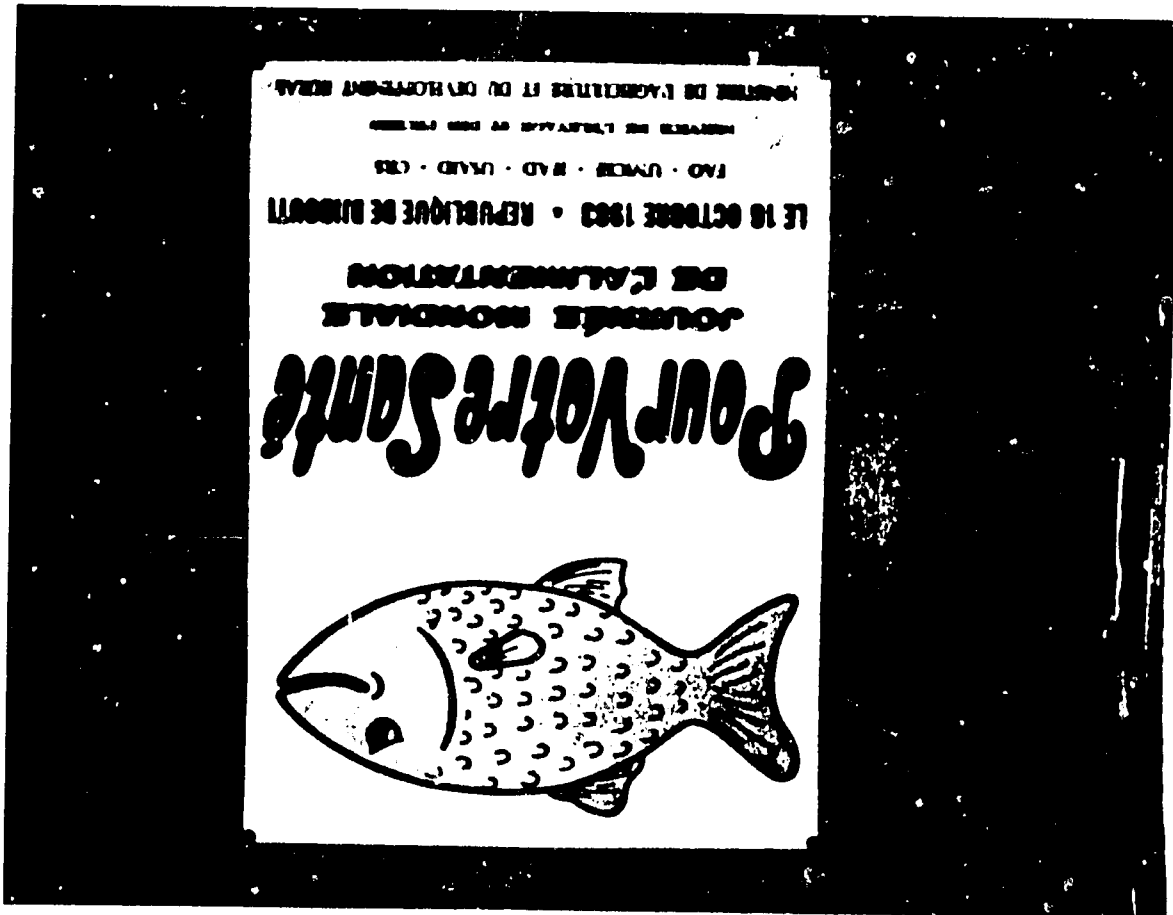
announcing October 16 as "Le jour mondial d'Alimentation". These were placed in strategic locations in Djibouti City. Fish posters were distributed throughout the town and to each of the five districts for display (Photo 46). Five thousand buttons showing the smiling fish logo and "Pour votre Sante" were distributed at the MCH centers, the fish retail outlets, and the agricultural show with great success.

PHOTO BY WORLD FOOD DAY, OCTOBER 16, 1963

DISTRIBUTED BY THE FAO AND CERS
THE MINISTER OF AGRICULTURE ADDRESSES THE FARMERS AND FISHERMEN AT
AGRICULTURAL SHOW ON WORLD FOOD DAY WEARING A FISH PROMOTION BUTTON



POSTERS WERE DISTRIBUTED IN DJIBOUTI AND THE FOUR EXTERIOR DISTRICTS
IN PROMOTION OF WORLD FOOD DAY



3.3.4.3 Radio And Television Promotion

With the assistance of the Radio-Television Diffusion (RTD), the UNICEF/CRS project has been able to make several broadcasts on the Djiboutian radio system in both local languages. The health education coordinator met with the RTD Director to describe the programs and receive assistance in their planning. The RTD has been most helpful in these efforts and is very interested in sponsoring future programs.

The first emission was made on the occasion of World Food Day on October 16, 1983 (Figure 57). This was done through the Ministry of Agriculture as a part of the collaborative effort for the promotion of fish. The Minister's address was also heard over the radio.

For World Food Day 1984, RTD produced a television documentary on fishing activities in the Republic of Djibouti. This documentary was shown every evening prior to World Food Day. On the actual day, the IFAD-funded vessel "Khor Angar" was officially inaugurated. For World Food Day 1985, the RDA/USAID vessel "Khor Ambado" was inaugurated.

RADIO SCRIPT, WORLD FOOD DAY 1983

(Translated From Local Languages)

"October 16 has been proclaimed World Food Day and countries in every corder of the earth celebrate the value of food and it's production locally."

"Let us take the opportunity on this occasion to talk about Djibouti's richest local food source -- fish."

"Fish is one of the most nutritious foods in the world and it is found in great quantity in the Bay of Tadjourah. It is rich in protein and phosphorous, elements necessary for the body's growth and the development of brain cells."

"Fish tastes good. Fish is easy to digest, and fish is not expensive."

"On the occasion of World Food Day, The Ministry of Agriculture and Development Rural urges (councils) you to take advantage of this valuable Djiboutian food."

"Eat fish and be healthy."

FIGURE 57

3.3.5 Recommendations For Future - Marketing

The most important recommendation that RDA can make would be to present a marketing plan to be used as a guide in Phase II. Specific aspects of this plan follow:

Market Definition

1. Generate a profile of all current customers, wholesale and retail: volume, type and timing of purchases.
2. Generate a profile of potential customers not now being served: Restaurants, Hotels, Hospitals, Schools, Military, Supermarkets.
3. Develop a list of potential new customers - estimate potential volume.
 - a. Contact new potential customers
 - b. Sell new customers
 - c. Determine their needs
4. Contact current customers, determine their expected volumes, encourage more sales.
5. Make a 3-year sales projection.
 - a. By markets; wholesale/retail
 - b. Project seasonal variance
 - c. Coordinate project with production trends

Product Improvement

1. Develop quality control procedures
2. Develop sanitary handling procedures
3. Improve handling/packaging of Frozen product
 - a. Glaze and rerap fillets
 - b. Standard cardboard packing box
 - c. FIFO inventory control
4. Improve handling/packing of fresh product
 - a. Better handling; more ice
 - b. Better packing; ice poly bags or plastic tubs

Organize Sales Procedures

1. Appoint Sales Manager
2. Establish controls to deal with customers and potential customers
3. Develop price list and product list
4. Make contact with customers
5. Make contact with new potential customers
6. Develop Incentive Program for market managers

Analyze Pricing Policies and Costs

1. Determine accurate costs of products taking into account all direct and indirect costs
2. Investigate desirability of product improvement
 - a. Pre-wrapped
 - b. Standard portion
 - c. Specialty cuts

Determine Limiting Factors in Product Flow

1. Production - average and variations
2. Storage capacity
3. Processing capacity
4. Ice capacity
5. Delivery capacity
6. Sales capacity
7. Develop alternate markets during high production:
 - a. Sales incentives
 - b. Promotional prices
 - c. Outline other markets, sales contingencies
 - d. Match high production months with sales

Collect Production/Sales Data

1. Monthly production by species
2. Monthly sales by species

3. Monthly inventory by species
4. Develop allocation plans for servicing all customers during shortages

Retail Markets

1. Develop plan to open 7 new markets
2. Select sites; acquire funding for stores
3. Develop basic training for retail outlet operations: buying, storing, inventory, record keeping, promotion/selling, ordering
4. Develop sales promotional materials
5. Select good managers
 - a. Teach to aggressively sell
 - b. Require they build volumes to assigned quotas and revise quotas
6. Develop incentive program based on quotas

Develop Operating Procedures, Contingency Plans

1. Develop contingency plans
 - a. Peak production; where to sell
 - b. Shortage, how to allocate
 - c. What to do in case of emergency, for equipment breakdown, bad weather, etc.
2. Develop marketing policy with regard to: delivery schedule, payment terms (credit?), minimum order for discounts, and distribution of point of sale materials

Promotional Materials

1. Flyers, publicity and education materials to consumers and schools
2. Design national industry promotion and recognition i.e., Djibouti Seafood Month
3. Train Market Managers
4. Conduct demonstrations
5. Distribute samples
6. Conduct incentive programs/contests

3.4 Administration and Management

At the beginning of the project, it was the contractor's task to assess the potential for Cooperative development. The Government of Djibouti, prior to the contractor's arrival, had formulated a set of Cooperative bylaws (See Appendix L). These were approved and signed into law by the President of the Republic in May 1980. The Cooperative, as envisioned, would be one that made available fishing gear and materials to the fishermen. There was nothing in the bylaws that mentioned that the Cooperative would be involved in the buying and selling of fish.

Today, however, the Cooperative has extended its function to fish procurement and sales, thus permitting it to utilize profit therefrom, to reinvest in materials for the revolving credit fund, and eventual purchase by Cooperative members.

The bylaws of the Cooperative will be changed to include its new activities. Currently, membership in the Cooperative is open to both fishermen and fish vendors. It is found that both factions are often at odds with each other and decision-making is often difficult. The GROD has decided that Cooperative membership, in the future, will be opened only to certified fishermen.

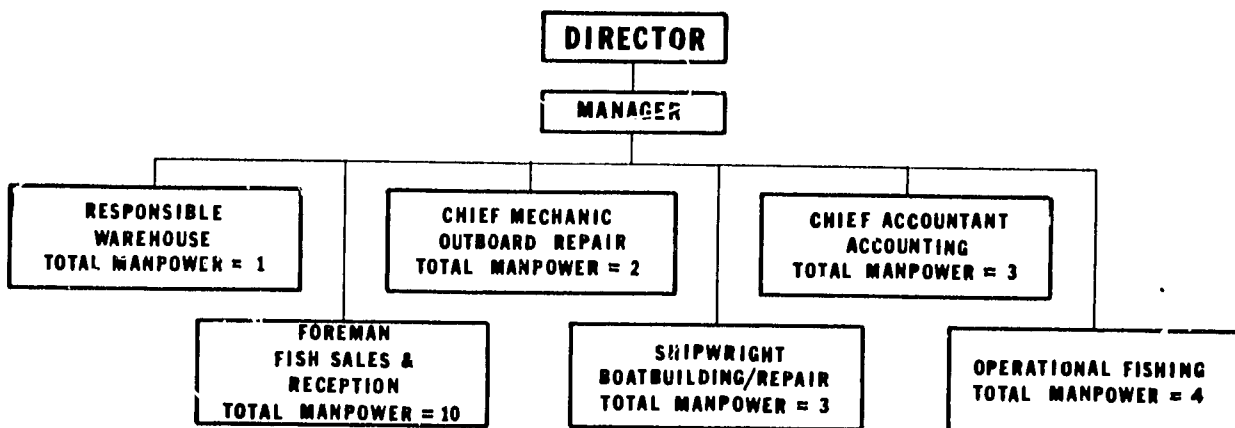
A revolving credit fund was established in October, 1980. As envisioned in the project paper, the fund would be an extension of the Fisheries Service, managed jointly by the RDA Project Manager and the Chief of Service for Fisheries. With the creation of the Cooperative, the contractor urged the government to extend its functions to include the revolving credit in hopes of further reinforcing the Cooperative through capitalization. Appendix M contains a copy of the bylaws establishing the revolving credit fund.

The administrative and management tasks at this point were handled easily by the RDA Project Manager and the Cooperative Director. With the Cooperative extending its function to fish procurement and sales in March of 1981 administrative and management burdens immediately became apparent. The Cooperative, local management and expatriate staff were not ready to perform this new role. Long-range plans did include extension of Cooperative activities into fish sales but this was 1-2 years in the future. With the death of the private entrepreneur at the Pecherie, in February of 1981, it was reluctantly decided, in lieu of letting another fish merchant establish his base at the Pecherie, it would be easier to take full control now, than later.

The second extension to the project in May of 1983 had as a major priority the strengthening of the financial management capabilities of the Cooperative. The remainder of this section discusses results and progress to date.

3.4.1 GENERAL ADMINISTRATION

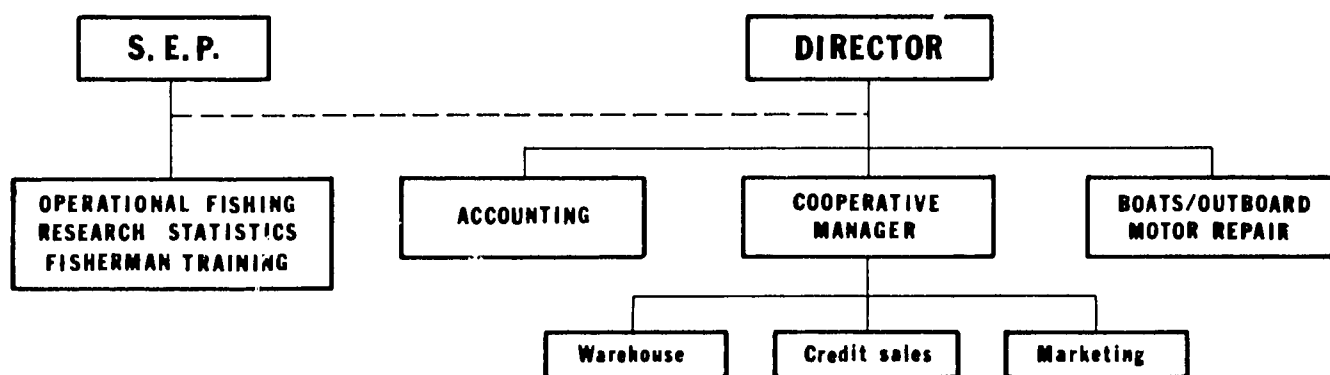
The organizational scheme including manpower needs formulated after the Cooperative began selling fish looked as follows:



The Director of the Cooperative made the main decisions relative to finance and personnel (hiring and firing).

The role and responsibilities of the manager in this structure are ill-defined. It became apparent that the organizational structure of the Cooperative needed better definition. Also the Cooperative was involved in too many sub-activities, e.g. operational fishing.

A reorganization scheme has been proposed, envisioned as follows:



This scheme defines the Cooperative Manager's role. On a day to day basis, he is handling all matters concerning marketing (the old fish sales and reception block from the first scheme) plus the revolving credit fund. The SEP is responsible for the management of the IFAD and USAID fishing vessels, the research program, the statistics department, and the fishermen training program. Manpower needs are the same as in the old scheme excepting a greater increase in manpower for the SEP managed functions.

3.4.2 Financial Management

During the year 1982, it became increasingly obvious that the ACPM, a rapidly growing organization which was broadening its activities into new and diverse fields, was in need of assistance in the field of fiscal analysis and financial management. As mentioned previously, USAID sponsored a short-term specialist to look at this problem and recommend courses of action. This specialist, Mr. Ray Tshibanda, recommended implementation of several actions, among them the provision of a fulltime Financial Manager by RDA and the reorganization of the ACPM's books and accounting system to more effectively match the standards of the French system. In addition, Mr. Tshibanda set up a model system appropriate to the needs of the ACPM.

During this time, the ACPM finances were being overseen by a certified French accountant who was assisting on a part-time basis. It was decided that RDA, in its second extension, would provide a Fiscal Manager to implement and maintain the accounting system established by Mr. Tshibanda. The Fiscal Manager would establish stock inventory procedures, develop the bookkeeping system and maintain the accounting system. Together with the French accountant, he would assist in preparing timely financial analyses. RDA proposed Mr. Jack McMahon as Fiscal Manager in the spring of 1983. He was accepted by SEP and began as Fiscal Manager in May, 1983. (Mr. McMahon succeeded in maintaining the bookkeeping and accounting systems and began training of several individuals to staff the bookkeeping section.)

In the fall of 1983, the French accountant withdrew his services from the ACPM. Mr. McMahon was asked to assume the full responsibility for the entire accounting and analysis function. In essence, he was asked to perform as a CPA. It soon became apparent that Mr. McMahon could not satisfy the management of SEP regarding these increased responsibilities

and SEP requested RDA, through USAID, to replace Mr. McMahon with an individual with formal credentials as an accountant. RDA reluctantly agreed that this was necessary and replaced Mr. McMahon with Mr. Ted McNeill, an accountant with extensive experience.

The new Fiscal Manager moved toward implementation of the recommended accounting system. This system was designed to:

- a. allow a continuous and accurate recording of all receipts and expenditures (date, origin, justification), and help determine both the cash flow requirements;
- b. produce information needed to keep the management always informed on the size and the conditions of the Cooperative indebtedness;
- c. formalize the invoicing process and prescribe an accounts receivable monitoring system so as to improve the Cooperative performance in collecting its dues;
- d. introduce an a priori audit to help control expenditures, and a better stock management system to help reduce fish losses;
- e. discriminate between the three main activity areas the Cooperative is involved in (Fish Catching and Marketing: FCM; Boat Building and Repair: BBR; Revolving Credit Fund: RCF), and so facilitate the monitoring and comparison of their respective performance;
- f. properly prepare and timely release the financial statements needed to guide management decisions.

The specific characteristics of the system at the ACPM include:

- a. double entry and accrual basis;
- b. a schedule of accounts, balance sheet, and income statement accounts, i.e., "class 1 to 7" accounts of the French "Plan Comptable General Revise" (numbering system not adopted);

- c. segmentation of operations and consequently departmentalization of accounting and reporting (three "profit centers": FCM, BBR, and RCF);
- d. recourse to a centralizing recording system using several subsidiary journals and ledgers as the basis for entries in the general journal and ledger; versus the traditional recording system centered around a single book of original entry;
- e. the introduction of bank reconciliation and balances;
- f. separation of responsibility for related operations such as placing an order, receiving merchandise and signing the check;
- g. mandatory documentation of all financial transactions and interdiction to dispose of any documentary evidence without a written certification of the transaction by the receiving party;
- h. perpetual versus periodic inventory system, especially for fish;
- i. recognition of the continuing depreciation of assets;
- j. option for an accelerated depreciation method (either the declining-balance or the sum-of-the-years-digits method) versus the straightline one.

Assuming appropriate staffing, this system will allow outputting of the following operational and financial reports:

- a. sales, purchases and retail revenues reports (every day);
- b. fish and RCF merchandise inventory status reports (every week);
- c. accounts payable and accounts receivable status reports (bi-weekly);
- d. interim statements (quarterly financial statements);
- e. end-of-the-year financial statements (income statement and balance sheet) and supporting schedules (accounts receivable and accounts payable).

3.4.2.1 Staffing

The minimum financial staffing requirements for an operation the size of the Cooperative, with 1983 annual sales of DF 117,000,000 can be established at 4 persons. One manager-supervisor, one accountant, one account's clerk/cashier, and one additional cashier.

The previous manager-supervisor was on sick leave beginning February 1984, but his absence did not affect the organization. It could even be construed as a benefit. Being young with an engaging personality, his presence, however, was detrimental to the operation. Devoid of any interest in his responsibilities, his laziness, minimum and often faulty work performances coupled with frequent absences had created a resentment with his co-workers, which was a discordant factor in the organization. Finally, in February of 1985, he officially resigned.

The accountant and assistant, as well as cashier have only recently been appointed and are performing satisfactorily (see also 3.4.2.2.).

Additional administrative assistance is received from:

- a. Warehouse Clerk/Supervisor. He is responsible for the supervision of the inventory in the warehouse and prepares the material issuance - (invoices, material deliveries forms) as well as the material receipts documents. Changes in inventory are updated on the basis of these documents.
- b. Floor Supervisor. Prepares the fish acquisition documents (Bons d'Arrivages) and the updating of the inventory records.
- c. Weighing Clerk. Is responsible for the daily sales report based on the information from the weighing machine. This report is compared with the cashier's machine tape to verify the accuracy of the financial information.

3.4.2.2. Training

The employee market for qualified competent and reliable financial and administrative personnel is extremely limited. Even trained individuals with no formal background but with experience in these areas are hard to find due to the limited number of business enterprises in the Republic of Djibouti and consequent limited "training grounds". In order to have established positions filled, it is therefore suggested to select available and capable personnel from within the Cooperative and have the chosen individuals follow an "in-house" training period.

Additionally, the implementation of simplified procedures and systems is required. A concise accounting system, for instance, requiring a relative short training period will meet the most urgent job requirements and can eventually be extended into a more sophisticated training.

Such an approach will also prevent the present, all too prevalent, attitude that an employee is maintained in his position, despite a less than satisfactory performance, because hiring and training of a replacement can disrupt the existing operation for a long time to come.

Problems arising from nepotism and existing government rules prohibiting the release of non-performing personnel cannot, however, be avoided.

With this approach in mind, the following changes were made for the accounting, clerk/assistant and cashier function as of January 1984.

On January 1, 1984, Wahib, the cashier for wholesale fish, parts and boat/motors, credit and cash sales, was released from his position in order to fill the accountant position. His accounting experience is limited having only worked one year as a cashier. He is a quiet, seemingly honest and bright individual with an interest in the accounting profession. Since his appointment, he has become thoroughly familiar with the newly designed

Cash/Bank and Sales Journals, which are daily updated and closed at the end of the month. He can prepare the required month's end journal entries and post the general ledger.

In addition to these responsibilities, he supervises the work and training of the accounting clerk through the control of the prenumbered sales slips, daily cash counts and the entries on the customer credit ledgers. He is able to prepare the monthly bank reconciliation at the end of each month. Weekly, random made checks by the RDA Financial Manager, indicate a good overall performance and justify expectations that he may be able to prepare the June 1985 financial statement by himself, though under supervision and assistance in regards to non-routine entries.

Factors which may delay or even disrupt his training and continuing stay in this position are:

1. The absence of the manager-supervisor which has forced him to assume some of the responsibilities of this function on a temporary basis until the new man arrives. This has cut into his training time.
2. When Wahib moved up to the accountant position, he lost his monthly "Prime de Confiance" Bonus (FDI5000) which is customarily assigned to Government employees in a cashiers position. It resulted in a very unhappy employee who suddenly got a twenty percent salary cut. He has requested, on more than one occasion, a return to his old position. Like most Djiboutians, he is willing to forego the potential of a more prominent position for more immediate money. A recent salary raise during the 1984 year may have temporarily changed his plans.

With Wahib moving up in the accounting position, Khaleb, the retail sales cashier (on the floor cashier), was put in the chief cashiers position. His responsibility involves the receipts and recording of wholesale cash and credit sales, along with payments of purchased fish from the fishermen, and the supervision of the "floor cashier". Instructed by Wahib, he has caught on fast and has performed exceptionally well. Khaleb has an elementary school education, but has the drive and determination to do a good job. Daily cash controls and review of invoices and fish delivery documents showed good progress.

The acquisition of a new cash register in March of 1984 resulted in a combination of the retail and wholesale cash function handled by the on the floor cashier. This relieved Khaleb from wholesale fish receipts function allowing him to be trained for the accounting clerk/chief cashier position. After Khaleb moved up to chief cashier the "on the floor" retail cashier position was initially filled by an employee of the sales section. A new cashier was hired in mid-1984.

3.4.2.3 Financial Reporting and Control Systems

The financial results of the activities of the Cooperative are reported quarterly with the issuance of a Financial Statement not later than 45 days after the end of the quarter.

The three months frequency custom has been established with the June 30, 1983 Financial Statement (issued in September) and seems to satisfy present management requirements.

The proposed issuance of a monthly Financial Statement, for instance, seems unnecessary and would require additional personnel for inventory and preparation of subsidiary financial information.

Additional financial information to management on the quarterly statement is:

1. The existing format of the Financial Statement was redesigned in March 84, to illustrate a comparison of the current financial information with the same of the previous year.
2. The Financial Statement also shows the status of creditors' outstanding balances to the Cooperative. This report is used by management to establish payments on outstanding loans from fish deliveries by Cooperative members and follow up for collection.

Plans to provide management with a Budget Comparison Report (comparison between budget amounts against actual amounts) were abandoned since the Cooperative management did not react on the proposed 1984 budget.

Establishing an effective overall control system is closely related to the existence of an organization with clearly define functions and responsibilities. Tshibanda's 1982 report (Appendix B) described the organizational problems and a description of the present organization would merely be a repeat of his findings. Despite this however, one can conclude that the developed controls in the sales and financial areas can be considered adequate to good.

Controls on sales and subsequent revenues, including the receipts of cash and the recovery of outstanding debts of clients and fishermen is intensive. The availability of the weighing machine and the new cash register have shown to be of considerable importance in achieving this level.

SALES OF FISH

Sales are controlled on weight and amount through the issuance of prenumbered delivery tickets (for retail), or invoice delivery tickets (for wholesale, indicating also the name) to which the sales sticker is

attached. The sales sticker is electronically prepared by the weighing machine and indicates kind of fish, weight, unit price and the amount value of the sales (figure 58). Cash Sales of the delivery tickets are recorded in the cash register in code by the "cashier on the floor" when payments are made. Code 1 indicates the cash retail sales while Code 2 is assigned to cash wholesale. Sales on credit, also initiated by the issuance of an invoice delivery ticket with attached weight sticker, are routed through the accounting clerk and not through the "cashier on the floor". He takes in the delivery ticket and prepares a client invoice from a prenumbered invoice book (figure 59). The original of this invoice is handed to the client after he has signed the original and two copies to confirm receipt of the merchandise. The accounting clerk next posts his copy of the invoice to the client's personal credit ledger and files the first copy of the invoice to the client's credit file, the second copy stays in the book. At the end of the day, the weighing machine is cleared and produces a listing of total daily retail and wholesale sales by fish choice, weight and amount (Fig 58).

The cash register is also cleared daily and issues a tape indicating the sales by code and amount, total daily sales amount and total cash received during the day (Fig 58).

The on-the-floor cashier's receipts are counted daily and compared with total daily sales figure on the cash register tape (Fig 60). Differences are recorded and usually turn out to be for negligible amounts. Next, the cashiers prenumbered delivery tickets, handed over by the clients after payment are collected and one invoice recording all these deliveries is prepared. This invoice represents the total wholesale cash sales for the day. The total amount of this invoice is compared with the Code 2

(wholesale sales) figure of the cash register tape and the amounts should be equal. Differences may occur due to the use of the wrong code (code 1 instead of 2). A check of the prenumbered delivery tickets will show if all tickets have been recorded. The totals of daily cash retail and wholesale cash and credit sales are next compared with the same information for the same day produced by the weighing machine (figure 61). The comparable amounts should be equal.

Sales of Parts

Sales of spare parts are initiated in the warehouse where the warehouse clerk prepares a prenumbered invoice for the required part. The client takes the invoice to the account clerk who, depending on whether it is a cash or credit sale, accepts cash and issues a receipt or takes the first copy of the invoice with client's signature for credit posting.

The warehouse clerk prepares a month's end list of his issuances during the month, which is compared with the daily sales posting for these commodities in the sales journal of the same month. All issuances have to be covered by a recorded invoice.

Sales Outboard Engines and Boats

Sales of the above items are usually on a credit basis. A prenumbered sales contract is prepared in conjunction with an invoice, in the Director's office. These documents are routed to the accounting clerk who returns only the original of the invoice to the client while the contracts are kept in the accounting office. The blue copy of the invoice is used for recording on the daily ledger and filing in the credit file. In case of a down payment, the accounting clerk will also issue a receipt. The contract document itself is filed in the accountant's office.

Fish Acquisitions and Other Expenses

Fish are acquired from the fishermen who deliver their catch on the floor of the Cooperative. The floor manager weighs the incoming fish and records the kind of fish, weight and amount on a list from which he later prepares a prenumbered fisherman's invoice (Bon d'Arrivage, Figure 62) in triplicate. The original and one copy (one copy stays in the book) are then routed to the Director or his assistant who decide, if so required, the amount which has to be deducted from the gross amount for an installment payment on an outstanding contract. This is often done in consultation with the fisherman. The number of contract for which payment is made is indicated on the invoice.

The invoice is next presented to the accounting clerk who prepares a receipt for the amount deducted, and has the vendor confirm the stated amounts by signature or thumb print. The original of invoice and a prepared receipt are returned to the fisherman. The invoice copy and receipt copy are used for recording gross amount and payment in the Daily Ledger Sheet. The receipt is also used for updating the client credit file sheet.

Cash payments of all other expenses are based on vendor invoices with signed receipt of material, or signed proof of payment. Both are numbered and kept in a sequentially numbered file. At the end of the day, the accounting clerk checks if all receipts and payment documents prepared and recorded that day are recorded in the Daily Ledger Sheet, including the receipts from the cashier on the floor. In this daily ledger he records:

CREDITS: All payments ne received from sales and deductions made from fish acquisitions including the total of retail cash sales and wholesale cash sales.

DEBIT: The gross amount of payments made for fish acquisitions and all other incidental expenses.

The final balance (credit or debit) is compared with the daily cash count sheet and should be equal. All differences are researched. At the end of the month, the total outstanding balance of the individual credit file sheets are compared with the general ledger. They should be equal.

3.4.2.3.1 Accounting System

The accounting system follows the generally accepted requirements as outlined and suggested in Tshibanda's report, with some modifications and sophistications. The following journals are kept:

A. Journals

1. The Sales Journal, updated daily, records all registered cash and credit sales during one day. It is spread or distributed into retail and wholesale (for fish) and parts, outboard engines, and boats, etc. It is based on all the daily sales documents prepared during that day verified by the Daily Ledger Sheet.
2. The Cash/Bank Journal, updated daily, records all funds received in cash and checks for cash sales and payments for outstanding fisherman debts. Daily cash retail and wholesale sales are compared with the sales register and should be equal. All documents, being prenumbered, are checked in sequence.
3. The General Journal is used to record all recurring expenses and the monthly journal entries prepared from both earlier mentioned cash/bank and sales journals after month end closing.

4. The General Ledger with Subsidiary Ledgers are used to record, accounts receivable, employees individual (advance) accounts, fixed asset accounts and an activity ledger for the SEP's boats, the "Yamaha Project Boat" and the IFAD vessel the "Khor Angor".

3.4.2.3.2 Inventory Control

Fixed assets are controlled with a semiannual physical inventory count. No losses in assets have been reported except in the case of plastic fish boxes. A cash register has been written off the quarterly physical inventory. The spare parts and materials inventory (Fig 63) is also checked with the monthly issue delivery report. It is the intent to initiate a perpetual inventory control system in the future.

3.4.2.3.3 Revolving Credit

The heart of the Cooperative system is the Revolving Credit Fund. Its extensive use requires constant attention and monitoring. Credits have and are issued to the fishermen Coop members for acquisitions of outboard engines, boats, C-flex boat repairs and engine repairs.

Collection has become a matter of prime importance and has improved considerably since January 1, 1984.

A review on March 31, 1984 of the credit sales of boats and engines indicates the following:

YEAR	NO. OF CREDIT SALES	ITEM	ORIGINAL CREDIT ISSUED	NO. OF OUTSTANDING CONTRACTS 31/3/84	OUTSTANDING BALANCE 31/3/84
1981	34	o.b. engines	FD 6,395,000	4	380,000
1982	13	o.b. engines	FD 2,493,500	13	1,007,285
1983	15	o.b. engines	FD 2,540,000	15	1,980,740
1984	9	o.b. engines and boats	FD 4,861,500	9	3,470,175

Normally, except for some stragglers, the payments were made regularly and there were no serious collection problems.

3.4.2.3.4 Cost/Pricing Analysis of Fish

The RDA project manager was tasked by the SEP to examine the Cooperative pricing policy and determine what products could be lowered in price. It was reasoned that a drop in prices would encourage consumption and therefore relieve the Cooperative of its high stocks of fish. A second objective was to keep the same average gross margin so the Cooperative would not lose money.

A study of current prices showed an average gross margin for all species sold of 112 DF/kg. In order not to lower gross margin a three tier price system was proposed (figure 64). The current sales breakdown showed 70% of all sales were to wholesale clients and 30% to retail clients. Of the 70%, about 40% are fish retailers and 30% are institutional clients. To attain an equilibrium whole sale prices for institutional clients were raised and inversely were lowered for fish retailers. The result of these changes showed an average gross margin for all species sold of 95 FD/kg (Fig 65). This is a 17 franc difference from the current system but it was hoped that the lower price to the fish retailer would stimulate increased activity and thus a greater sales volume for the Cooperative. Before the three tier system was put into effect a test of new prices was conducted in mid-1984. A different approach was used. Prices to the fishermen were lowered (in response to a greater supply) and the exact difference was passed on to the consumer (Fig 66). Thus there was no difference in gross margin from old to new. Before the prices were put into effect, the RDA Technical Assistance Team conducted a comparison of old prices to new by

randomly selecting dates from the previous month and plugging in the new prices (Appendix N). The results showed that if anything the Cooperative would gain 1-2% in gross margin from this price decrease.

The three tier system at the end of Phase I was still under discussion and maybe implemented in Phase II.

VENTE DETAIL

20 MAR '84

KILOGRAMME	ASSOCIATION COOPERATIVE DE PECHE MARITIME	MONTANT	CLIENTS															
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P	CARRIQUE	450FD/KG																
REPUBLICQUE DE	[REDACTED]	DJIBOUTI		MERCI														

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 ...3 Z...59,644 NT
 ...3A Z...59,644 NT
B Z...000 NT
D Z...000 NT
E Z...000 NT
 ...2 Z...21,109 CT — CHIFFRE D'AFFAIR
 ...2A Z...21,109 CT — COMPTANT
B Z...000 CT
D Z...000 CT
E Z...000 CT
 ...1 Z...38,535 CH — VENTE CREDIT
 ...1 Z...15,000 RA — AVANCE CAISSE
 Z...000 PO — SORTIES CAISSE
 Z...36,109 C/D — ETAT REEL DE TIROR
 W...000 *
 ...A X...000 *

VENTE COLLECTIVITE CREDIT

ASSOCIATION COOPERATIVE DE PECHE MARITIME

EMBALLAYER	A VENDRE PAR	PRIX PAR KG	TOTAL KG	TOTAL DF
59	W=00000128.45KG	C=0000038535	T=0009	
DIVERS	300FD/KG			
REPUBLICQUE DE	[REDACTED]	DJIBOUTI		MERCI

VENTE COLLECTIVITE COMPTANT

ASSOCIATION COOPERATIVE DE PECHE MARITIME

EMBALLAYER	A VENDRE PAR	PRIX PAR KG	TOTAL KG	TOTAL DF
61	W=00000001.20KG	C=0000000840	T=0001	
FILET	DORADE	700FD/KG		
REPUBLICQUE DE	[REDACTED]	DJIBOUTI		MERCI

DECOMPTE CAISSE ENREGISTREE

DECOMPTE BALANCE ELECTRIQUE

B. P. 297

ASSOCIATION COOPERATIVE
DE PECHE MARITIME

TÉL: 35-09-25

FACTURE No

DJIBOUTI, LE

à Monsieur

Date	Nature de la Commande	Quantité	Prix Unitaire	Montant
ARRÊTE LA PRÉSENTE FACTURE A LA SOMME DE :			TOTAL	

FIGURE 59 ACPM INVOICE

Djibouti, le

PROCEDURE DE CAISSE

BILLETS DE 10 000 FD X =

BILLETS DE 5 000 FD X =

BILLETS DE 1 000 FD X =

BILLETS DE 500 FD X =

PIECES DE 100 FD X =

PIECES DE 50 FD X =

PIECES DE 20 FD X =

PIECES DE 10 FD X =

PIECES DE 5 FD X =

CHEQUES

.....

.....

TOTAL GENERAL =

AVANCE =

TOTAL

FACT. CLIENTS DIVERS =

VENTE JOURNALIERE AU COMPTOIR =

CAISSIER

COMPTABLE

FIGURE 60 CASH TALLEY SHEET

La Direction

La Direction

BALANCE	kg	POISSONS	FILETS	LANGOUSTES	CALAMARS	DIVERS
DETAIL						
MONTANT						
TOTAL MONTANT						

BALANCE	kg	POISSONS	FILETS	LANGOUSTES	CALAMARS	DIVERS
COLLECTIVITE						
MONTANT						
TOTAL MONTANT						

VERIFICATION

DETAIL MONTANT BALANCE

COLLECTIVITES MONTANT BALANCE

RANDE DE CONTROLE CLIENTS DIVERS

MONTANT CLIENTS DIVERS + BONS DE LIVRAISON

BON D'ARRIVAGE No _____

DATE

Nom du Patron

Nombre d'Equipage

Nom et N* du Bateau

Lieu de Pêche

Type de Pêche

Météo

OBSERVATIONS

CAPTURE					<i>Pour Acquit</i> Le..... <i>Signature de l'Intéressée</i>	
Poids Unitaire						
POIDS TOTAL						
Prix Unitaire						
					Avance	_____
					Appats	_____
					Divers	_____
					NET	_____

FIGURE 62 FISHERMAN'S PAYMENT RECEIPT

ESPECES	PRIX D'ACHAT ACPM AUX PECHEURS	PRIX DE VENTE ACPM AUX COLLECTIVES	MARGE ACPM A-B	PRIX DE VENTE ACPM AUX PUBLIQUE	MARGE ACPM A-C	ACIENS TARIF
		70%		30%		
Petite Carangue	400	500	100	550	150	
Petite Dorade	270	350	80	400	130	
Thazar	400	500	100	550	150	10 especes poisson
Thon	100	200	100	350	170	marge brut moyen = 112FD/kg
Mullet	270	400	130	400	130	
Baracuda	180	280	100	350	170	
Carangue Gross	180	300	100	350	170	
Dorade Gross	180	280	100	350	170	
Merou	180	280	100	350	170	
Divers	180	280	100	350	170	
Calamar	1000	1250	250	1250	250	
Langouste	2200	2400	200	2500	300	
Filet	—	650	—	750	—	
			101 MOYEN		158 MOYEN	

ESPECES	PRIX D'ACHAT ACPM AUX PECHEURS	PRIX DE VENTE ACPM AUX REVENDEURS	MARGE ACPM A-B	PRIX DE VENTE AUX COLLECTIVITES	MARGE ACPM A-C	PRIX DE VENTE AUX PUBLIQUE	MARGE ACPM A-D	MARGE REVENDEURS B-D	NOUVEAU TARIF
		48%		38%		38%			
Petite Carangue	400	440	40	480	80	490	90	50	
Petite Dorade	270	320	50	350	80	380	110	60	
Thazar	400	440	40	480	80	490	90	50	10 ESPECES
Thon	180	260	80	290	110	310	130	50	MARGE BRUT MOYEN = 95 FD
Mullet	270	—	—	400	130	450	180	—	
Baracuda	180	260	80	320	140	330	150	70	
Carangue Gross	180	240	60	280	100	290	110	50	
Dorade Gross	180	270	90	320	140	330	150	60	
Merou	180	270	90	320	140	330	150	60	
Divers	180	240	60	290	110	300	120	60	
Calamar	1000	—	—	1250	250	1250	250	—	
Langouste	2200	—	—	2700	500	2700	500	—	
Filet	—	—	—	650	—	750	—	—	
			69 MOYEN		114 MOYEN		131 MOYEN		

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NOM	VENTE				ACHAT					
	ACHAT	DETAIL	MARGE	ENGRASS	MARGE	ACHAT	DETAIL	MARGE	ENGRASS	MARGE
THAZER	250	400	150	350	100	300	500	200	400	100
P. CARANQUE	250	400	150	350	100	300	450	150	400	100
P. DORADE	180	350	170	300	120	300	400	100	350	50
MULLET	250	400	150	300	50	250	400	150	330	80
P. CARACUDA	180	350	170	280	100	300	400	100	350	50
GROSS DORADE	180	350	170	280	100	220	400	180	300	80
GROSS CARANQUE	180	350	170	280	100	220	430	180	300	80
BARACUDA	180	350	170	280	100	220	400	180	300	80
MEROU	180	350	170	280	100	220	400	180	300	80
THON	180	350	170	280	100	220	400	180	300	80
LANGOUSTE	2000	2500	500	2400	400	2200	2900	700	2800	500
CALAMAR	1200	1500	300	1400	200	1200	1500	300	1400	200
1. FILET										
POISSON	X	750	345	650	245	X	800	385	700	265
2. TRANCHES										
THAZAR	X	550	235	500	181	X	600	218	550	168
3. TRANCHES										
DIVERS	X	500	270	450	220	X	550	269	500	219
4. FILET										
SPECIAL	X	X	X	600	195	X	X	X	600	105

3.4.2.4 Financial Viability of an Independent Cooperative

There is no doubt that the Cooperative provides a worthwhile and needed service for the Djibouti population. If this service can be maintained without financial assistance in which form whatsoever, is however debatable.

Comparison of the 1984 and 1983 Financial Statements (Appendix M) shows that the 1984 annual operational loss is double the 1983, with decline in production and subsequent sales being the main reason.

Additionally, the operational expenditures increased with approximately FD 3 million mainly attributable to items from previous years, for example accrued vacation pay (FD 1,680,241) and doubtful accounts (FD 756,660). But even without these examples, the annual loss would still be the highest recorded since conception.

Additional expenditures not recorded in the Financial Statement were the following:

1. Depreciation on assets

The value of the fixed assets in 1983 and 1984 has been near FD 10 million. Reserve for depreciation on a straight 5 year basis, would have been around FD 2 million annually. This expenditure and subsequent additional loss has not been recorded.

Uncertainty regarding the Djibouti Government depreciation rules were quoted, when these charges were omitted at the request of the Director of the SEP.

2. Social Security Expenditures

Djibouti employers are required by law to contribute 15 percent of an employees salary per month to a social security fund. The Cooperative received a special immunity for 1981 - 1983.

Indications are that the cooperative will have to pay some part of 1984's contribution and become a regular subscriber in 1985. Based on an 1984 annual payroll of 13 million FD this will add 1.9 million FD to overhead annually.

Against the possible total increase of the above two items are two items which could be removed as expenses:

1. The Cooperative pays no utility costs for the operation of cold storage rooms and ice making equipment. Instead it pays a monthly fee to the government for the use of this equipment. The utilities expenditure has been added to the statement for the effect of showing what all known actual costs are for the Cooperative to function. The costs for energy in Djibouti are one of the highest in the world (25 cents/kwh). The cost of energy could not be absorbed as an expense until sales reached levels 3 to 4 times greater than present sales. For this reason this item can be treated as a subsidy and not an expenditure
2. A similar approach could be applied to the government's salaried employees seconded to the Cooperative eliminating an additional FD 11 million annually.

The final result of these above additional considerations is a net minus change of annual overhead expenses of 19.1 million FD.

Additions:	1	2 million FD
	2	1.9 million FD
Total Addition:		+3.9 million FD
Deletions:	1	12 million FD
	2	11 million FD
Total Deletions:		-23.0 million FD
Annual Net Change		19.1 million FD

Application of the above over the years 1983 and 1984 would completely eliminate both losses. The combined 1983 - 84 loss of 34.8 million FD would be offset by 38.2 million FD gain from energy costs and salaries.

Whatever philosophy may be followed to ascertain the viability of the Cooperative, the prime factors to improve the total picture still will be the increase of sales and subsequent increase in production along with keeping the direct and indirect expenditures at the present level.

A review of the indirect overhead/expenses for the years 1983 and 1984 indicates that these costs have settled down at around 47 million FD annually.

A similar review of the sales components shows diminishing sales for outboard motors and boats as well as repairs. This decrease has to be compensated with increased sales of fish which indeed actually happened in both years. The share of sales of fish as a percentage of total sales increased from 86.0 percent in 1983 to 93 percent in 1984.

Given these above mentioned findings, a future annual break even operation can be calculated within reasonable limits. The sales figure is established at hundred percent sales of fish leaving all other sales activities (boats, motors, gasoline and ice) as additional profit.

To reach a break even, or independent operation under the present conditions, the indirect (overhead) costs, which were established at FD 47 million, should be covered by an equal amount of gross profit margin.

The 1983 and 1984 financial reports further show that the direct cost for sales of fish averages 73 percent of the sales, leaving a gross profit margin of 27 percent. In this example the 27 percent gross profit margin is therefore equal to 47 million FD.

Direct costs calculated at 73 percent are therefore equal to 127 million FD. Total sales then would be 127 million FD plus 47 million FD or 174 million FD. If the average selling price for a kilo of fish is 340 FD, the 174 million in sales would be equal to 512 tons of fish.

	FD 1983	%	FD 1984	%	FD Breakeven	%
Sales	117.3	-	93.4	-	174.0	-
Direct Cost	<u><81.7></u>	69.6	<u><69.2></u>	74.0	<u><127.0></u>	73.0
Gross Profit	35.6	30.4	24.2	26.0	47.0	27.0
Indirect Cost (Overhead)	<u><47.4></u>	40.4	<u><47.3></u>	50.6	<u><47.0></u>	27.0
Profit/Loss	<11.8>	10.0	<23.1>	24.6	-0-	-0-

3.4.3 Recommendations for Future

Aside from earlier stated recommendations for increased sales, one can point at different areas where recommendations can considerably improve the total performance of the Cooperative. Many of these recommendations have been suggested earlier in writing (Tshibanda's 1982 report) and in meetings to the Chef de SEP and have resulted in a few changes. The majority, however, have been ignored or put on the back burner. Prodded by Tshibanda in February, 1984, the Chef de SEP promised to act on written recommendations in his follow up report. Subsequent recommended changes in regards to work areas will be part of the general Cooperative renovations starting at the beginning of Phase II.

3.5 Research

Although the Fisheries Development Project is not a research effort per se, it has encompassed several subactivities which may in part be considered applied research. These activities have included an oyster culture experiment and the design and initiation of a stock assessment program.

The oyster culture experiment was designed to test the technical and institutional viability of growing high quality oysters from cultured seed produced in the U.S. Successful mariculture of this type could provide high returns from a modest initial investment. The experiment was a qualified technical success. The oysters survived transshipment and grew rapidly to a size approaching marketability. However, from an institutional standpoint, the experiment was a total failure. The oysters required a level of maintenance which the Djiboutians seemed not willing to provide and security which was unavailable. The oyster rafts were repeatedly vandalized and were finally cut loose and the oysters stolen. Thus, the experiment was not able to reach its conclusion and the effort was discontinued.

The stock assessment program was designed to establish initial baseline data on the fish stocks in Djiboutian waters with an eventual goal of determining optimum sustained yield of the species now being exploited or likely to be exploited in the future. Design and set up of the program will be carried as a major activity of Phase II. A 40-foot multipurpose fishing vessel has been procured for use in the program. The vessel has been rigged for various types of fishing including bottom fishing, long-lining, gillnetting, trolling and trawling. The stock assessment program will concentrate on standardized sampling of bottom fish within the 100

Fathom curve and on longlining for shark. Additional data for the program will be provided by the IFAD 14M boat.

3.5.1 Oyster Culture Experiment

Although oysters are found growing naturally in Djiboutian waters, they are seldom eaten by the local inhabitants, and no attempts have been made to culture them. Tentatively identified as Crassostria cuculata, this oyster is not commonly recognized on the world market as valuable, although it is utilized in many countries. Occasionally, this oyster is sold in the local market, but only in small amounts - having been gathered from the tidal zone rocks, usually from heavily-polluted waters. Djiboutians, culturally and traditionally, do not eat shellfish.

The European population, mostly French, imports fresh oysters from France as do many of the restaurants. The oyster imported from France is the Japanese oyster, Crassostria gigas. The European oyster, Ostrea edulus, was formerly grown in France and Europe for many years but has disappeared due to disease which spread rapidly through the oyster beds of France, destroying almost the entire industry. To preserve the industry, the Japanese oyster was introduced and has since taken the place of the European oyster. It is this oyster that was introduced into Djibouti.

The Japanese oyster was selected for introduction and culture in Djibouti waters for the following reasons:

- There is presently a local market for oysters. This market has possibilities for expansion and possible export.
- This oyster is already being imported from France into the local supermarkets. A local French market has reported sales of over 25,000 kilograms over Christmas alone.

- . French oysters are a high value product. Retail prices in Djibouti approach \$1/each for 3"-4" oysters.
- . The technique for rearing this oyster is well-established.
- . The cost to establish a pilot project was not expensive.
- . The maintenance and operation required no extensive training.
- . The oyster would present no threat to the local species of oysters or other shellfish.

The fact that a local market for oysters already exists was most important in deciding whether it is feasible to set up a culture program. While aquaculture has made considerable progress in the last decade, the main questions that must be asked are: (1) can the product be successfully raised in the new environment; and (2) is there a market for the product.

In reply to the first question, there was little doubt that this species of oysters could be grown in Djibouti. The environmental requirements are evidently satisfactory for growing oysters as evidenced by the presence of the local species. Whether they would reproduce and maintain themselves was a question. However, as will be explained later, this was not a significant item, as there are other methods for obtaining young seed oysters than depending on the local adults.

The second question, regarding market, is already answered. Not only is there a market, but it is for the same species of oyster. It is doubtful if the customers realize demand is not large and is confined to the European population, the possibility of producing for export could certainly be well worth pursuing at a later date.

The techniques for rearing this oyster are well developed, simple, inexpensive, and employ the latest advances in oyster culture; that of importing hatchery-produced, young free (unattached) seed oysters. This

free oyster seed (the young are approximately 2-3 mm in length) is placed directly into trays which are suspended from floating rafts, and the young oysters continue to grow until they reach market size.

The most recent and important advance in oyster culture has been the development of "clutch-free" seed oysters on a large scale, commercial basis by a hatchery in California. The most significant feature of the process is that the young seed oysters are prevented during their development, from attaching to a substrate. During larvae development, young oysters undergo a swimming stage which usually lasts about two weeks, and nearing the end of this phase, settle down on a solid object, become attached and remain there for the rest of their life. However, if the young oyster is prevented from becoming attached during this period (which lasts but a short time), it never will. In nature, the young unattached oyster usually sinks to the bottom and dies in the mud. In the hatchery, however, the young oysters do not become permanently attached to a substrate but continue to grow and develop as "free" oysters. At this stage, they are complete miniature oysters about the size of a grain of wheat. They can be shipped conveniently and inexpensively by air in large numbers and transplanted in suitable areas.

This simplified but effective method of oyster culture has a number of advantages:

- (a) The initial cost of the seed oyster is small and large numbers can be shipped via air at low cost. Total cost for the initial shipment of 16,000 oysters, including air freight, was approximately \$200.00.
- (b) Growers are not dependent upon the uncertainties of natural spawning of the local adult.

- (c) The most suitable species of oyster for local growing and market conditions can be obtained.
- (d) The necessity of setting out spat collectors is eliminated.
- (e) Hatchery-produced oyster seed can be obtained at any time throughout the year and growers can regulate marketing conditions.
- (f) Growers, by importing seed oysters over an extended period, can adjust their production so that harvesting of marketable size oysters can be obtained on a year-round basis.
- (g) Mortalities are practically eliminated as the greatest losses occur during the free-swimming larvae stage - enabling the grower to harvest up to 95% of the original seed oyster shipment.
- (h) The method allows small-scale industries or Cooperatives to engage in large-scale oyster culture with a low investment and high return.
- (i) Operation and maintenance are simplified and can be performed by unskilled labor with only minimal supervision.

Since the Japanese oyster (C. gigas) is a "cold" water oyster, it was not expected that it would reproduce to any extent in the constantly warm waters and high salinities of Djibouti. It would be necessary to import additional seed for each annual crop. However, as already mentioned, seed can be obtained in whatever amounts required - and at any time of the year at minimal cost.

3.5.1.1 Initial Plans

Seed oysters may be imported from several hatcheries in the USA via air to Djibouti. They are cooled and shipped in "blue ice."

Upon arrival, seed oysters are placed in the specially-constructed containers or trays (approximately 5,000 per tray), which are then suspended from rafts. Trays containing oysters should be monitored daily for the first two weeks, three times per week for the following two weeks, twice per week for the next two weeks, and once per week thereafter (or whatever interval is found necessary).

Trays must be checked to see that:

- (a) Seed oysters are not being eaten by pests such as snails, starfish, crabs, eels, etc.
- (b) Algal growths are kept at a minimum. This requires periodic cleaning of the containers. The cleaning of the trays is very important and must be faithfully performed.
- (c) Rafts, containers and trays are not broken or damaged by adverse weather or sea conditions.
- (d) Precautions and vigilance are maintained against loss by theft and poaching.

Within one or two months, the size of the seed oysters should have doubled and would require transfer to additional trays. Double the number of trays are generally required for each transplant. It was anticipated that three to five additional transfers would be necessary and that growth would be relatively fast. These oysters could reach a marketable size (3 - 3-1/2") (76 - 89 mm) in 10-15 months. In California waters, which are considerably cooler than those of Djibouti, this species reaches 3 inches (76 mm) in approximately 18 months when grown in the bottom of bays and estuaries; in Japan the usual period is three to four years. After several transfers in trays, the oysters can be transferred to lantern or butterfly nets for final grow-out. These nets are exceptionally inexpensive compared to using trays throughout.

When ready for market the oysters could be sold and, from the returns, cost estimates could be calculated. From the resulting cost analysis, a feasibility report could be issued and a project evaluation made.

3.5.1.2 Experiment Design

Prior to initiation of the oyster culture experiment, an environmental assessment of the experiment was performed by Dr. John Gaudet, Regional Environmental Officer of REDSO/REA. The assessment explored any possible adverse effects which the experiment might present to the natural marine environment in Djibouti. In essence, the experiment was found to have a negative impact as long as several conditions were met. Chief among these were certification of health of the imported species, location of project outside of active fishing areas, location far from known sources of pollution, and active observation for any developing adverse effects. These conditions were met.

Immediately upon signature of the RDA contract amendment (first extension), the RDA team initiated work on the oyster experiment. The RDA Fishing Advisor, Mr. De. W. McFadden, constructed the oyster culture rafts at the Fisheries Cooperative. Twenty oyster culture racks were donated to the project. Possible locations for the experimental raft were investigated and a site selected.

The raft, constructed from wooden beams approximately 4" x 4" in size, was approximately 12 feet on a side and separated into 36 (6 x 6) sections each approximately 2 ft. x 2 ft. (See Photo 47). Flotation was provided by four 55-gallon oil drums, one on each corner. Each drum took up the space of 2 sections, thus leaving 28 sections from which trays could be suspended. The raft was anchored by an engine block. As soon as government approval was received for the raft location in the vicinity of Mascali Island, the raft was towed to the site and anchored in about 75 feet of water.

In the latter part of January, 1982, the oysters were ordered. Shortly after ordering, the RDA Djibouti Project Manager was informed by the FAC advisor that the oyster raft was missing. Immediately, a team was dispatched to the islands to investigate. A scuba diver was unable to find any evidence of the raft or its mooring. Visibility was poor, and because of the depth (75 ft.), an extensive subsurface search was inadvisable. It is unknown whether the raft was stolen, sunk, or ripped from its moorings. Consensus favors the latter, as there was heavy weather during January and the raft was in an exposed position during several violent storms.

A different design was employed for the second raft. Rather than a square design, the raft was rectangular, constructed of 125 mm diameter PVC pipe and was self-floating. (See Photos 48 & 49.) It was the width of a single tray (slightly over 2 ft.) and was approximately 12 feet long, comprised of two separate 6-foot sections. Each 6-ft. long section supported in excess of 200 pounds. This design was selected for several reasons. Being rectangular and anchored at only one end, it will present a small surface to the waves and should encounter little resistance. Being jointed between each section, it will be wave-following and should encounter little internal stresses. In addition, the one-tray width design facilitated maintenance.

The raft was completed and placed in an area which was closer to shore and more protected than the original location. Water depth at the new site was 27 ft.

The oyster shipment arrived on the day following the raft completion. Total transit time from the U.S. was approximately 60 hours. The oysters arrived intact and in apparent good health. Mortality was nil. By late afternoon on 11 February 1982, the oysters were in the racks at sea.

Two species were provided. Approximately 15,000 Crassostrea gigas, the Japanese oyster, and 400 Ostrea edulus, the European oyster, were sent. The C. gigas were approximately 4-5 mm in length and the edulus varied from 1 - 2-1/2 cm. Photos 50 through 53 show the oysters as they were placed in the water.

The oysters were placed in trays at various depths, i.e., 1, 2, 4, 6 and 10 feet, in order to determine optimum depth for best growth. The raft performed well and periodic measurements of size and water temperature were taken.

The most critical factor in air shipment of oysters is time in transit. Maximum transit time must not exceed approximately 600 hours. Between 60 and 70 hours, mortality increases dramatically with 100% mortality expected for transits 70 hours or longer. The availability of flights into Djibouti is limited. When a shipment must change flights or carriers, the second carrier commonly requires a turnaround time in excess of 12 and sometimes up to 24 hours. The originating carrier will not accept a shipment until it has received cabled confirmation which may take 4-7 days. Thus, in order to accommodate all of these factors, a request for shipment should be made approximately two weeks before desired delivery. On RDA's shipment, the procedure worked well and the oysters arrived 11 days after the order was placed. Mortality was nil and is not expected to present problems for future orders.



PHOTO 47 Original Oyster Raft



PHOTO 48 PVC Raft enroute to Mascali in Yamaha Boat

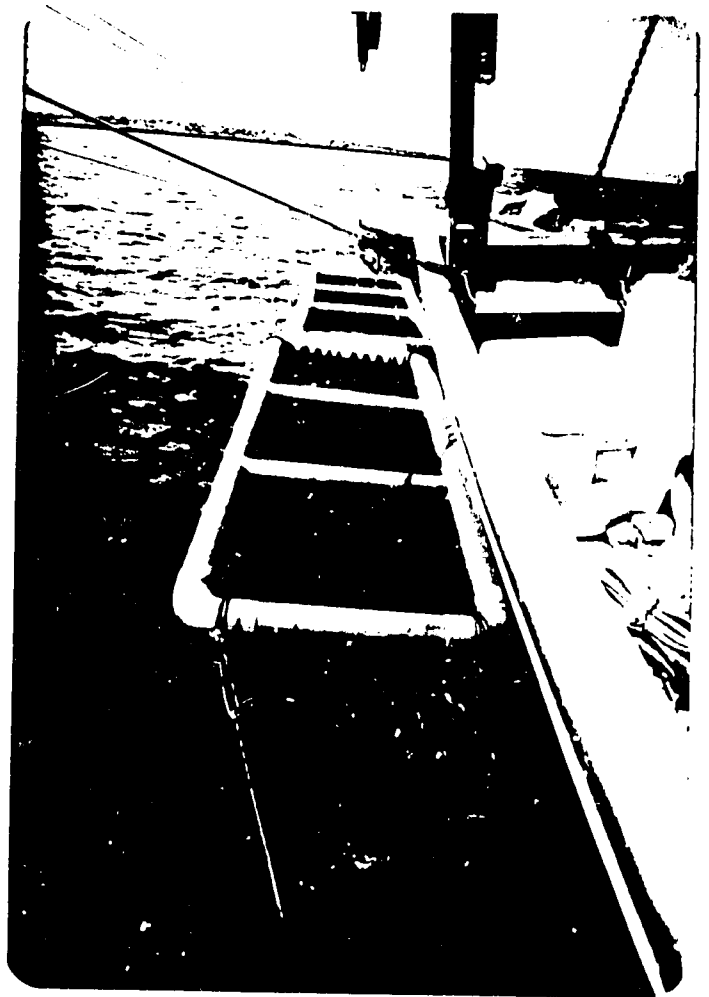


PHOTO 49 PVC raft in water



PHOTO 51 *Ostrea edulus*

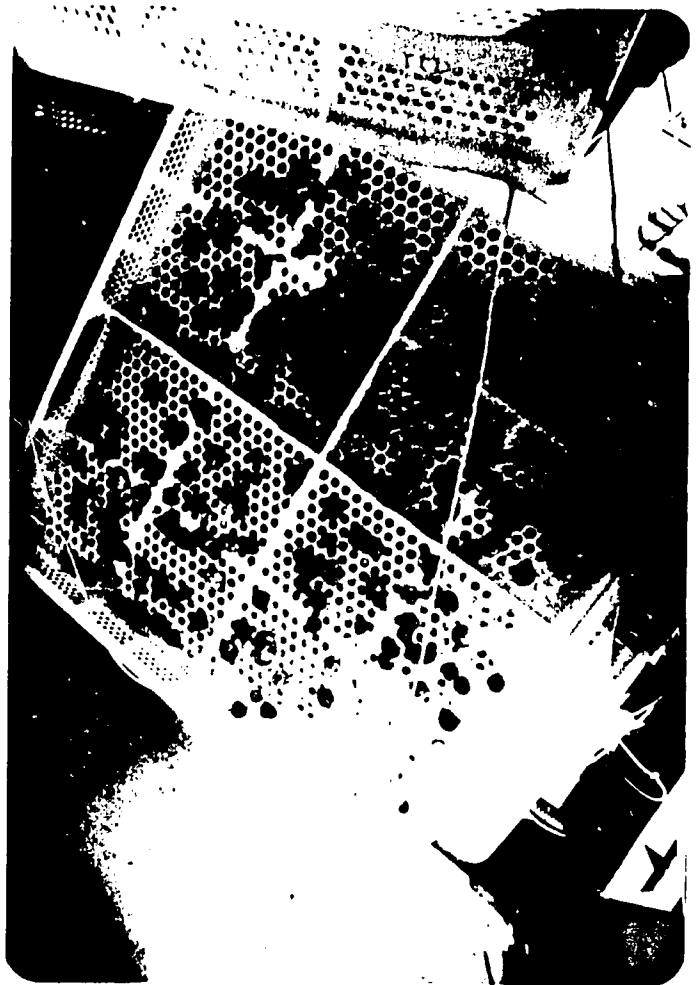


PHOTO 53 *Edulus* in plastic oyster tray



PHOTO 50 *Crassostrea gigas*



PHOTO 52 *Gigas* in Fiberglass net bag

3.5.1.3 Results

The oyster culture project had some early encouraging results. While there have been mortalities, this is not unexpected considering the circumstances and characteristics of the new environment. The shipment of O. edulus did not survive. While it is not possible to determine the direct cause of death, it has been suggested that they were too large (old) to adapt to Djiboutian waters, having reached a physiological condition that made them incapable of adjusting to the new environment.

Survival rates for the C. gigas were excellent. Most loss was due to vandalism. The area where the oysters were kept receives a lot of pleasure boat traffic and it appears lines were cut and the trays fell into the ocean bed.

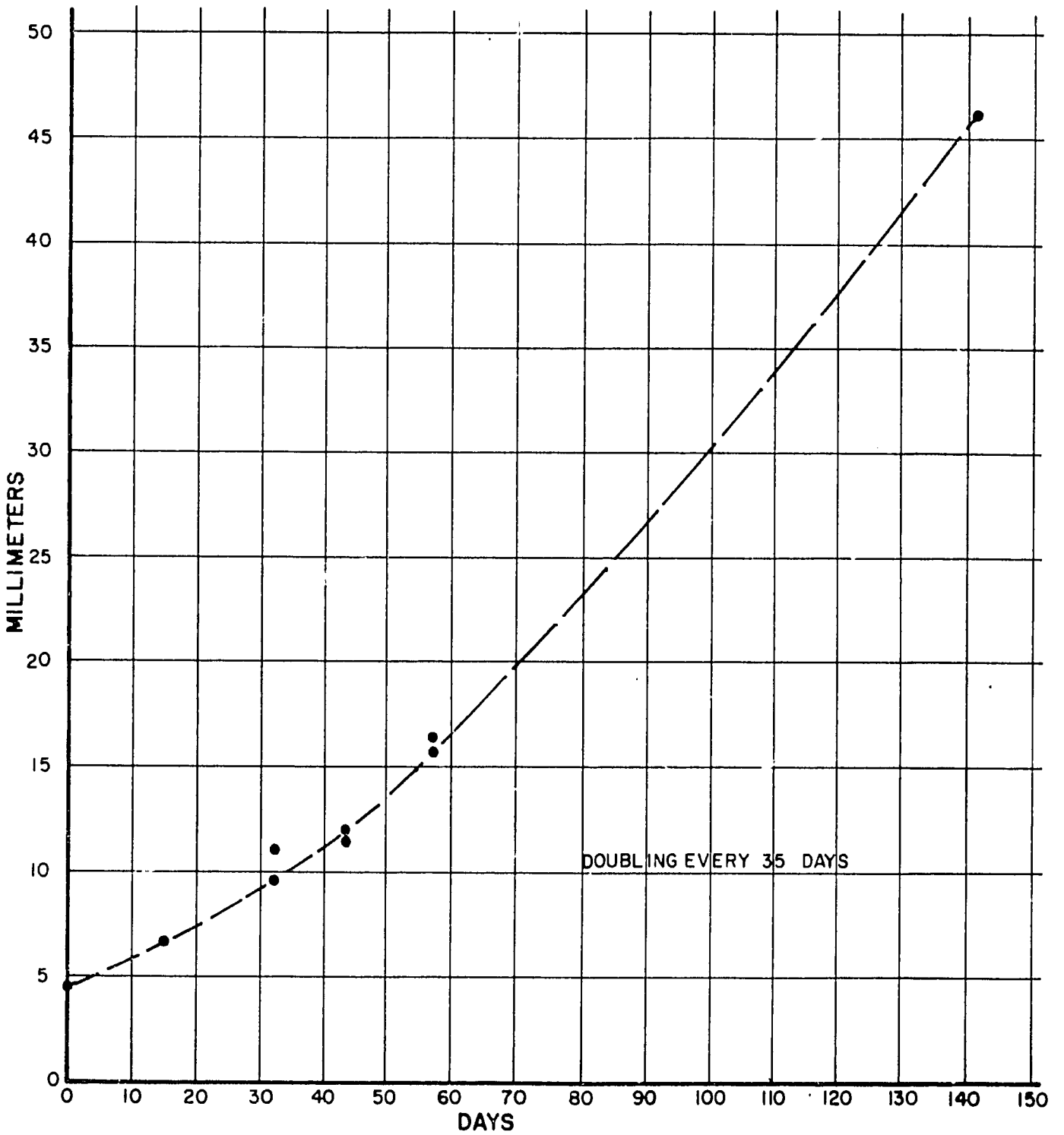
The growth rates for the C. gigas were phenomenal. The experimental results (Fig. 67 and 68) from February to July indicated that the C. gigas were doubling in size every 35 days. It would not be unreasonable to assume that edible oysters could have been harvested in one years time.

In July, the raft line was cut and the whole raft, plus oysters, drifted away. Thus, this sub-activity came to an abrupt end. If it is ever decided to try this activity again, it is strongly recommended that an area be chosen where it can be surveyed easily.

GIGAS DATA

<u>DATE</u>	<u>AVERAGE SIZE(mm)</u>	<u>STANDARD DEVIATION</u>	<u>MORTALITY</u>
11 February	4.0 - 5.0	-----	-0-
26 February	6.5 - 7.0	-----	3
14 March	-----	-----	23
15 March	Station (4) 9.61	2.69	-0-
	Station (2) 11.13	2.52	-0-
26 March	Station (4) 11.98	4.13	-0-
	Station (3) 11.48	1.73	-0-
9 April	Station (3) 16.41	5.32	25
	Station (4) 15.78	5.33	-0-
2 July	All Stations 46.10	-----	1000 (Total Lost)

FIGURE 67



GIGAS GROWTH CURVE

Figure 68

3.5.2 Stock Assessment Program

Although this current project has succeeded in more than doubling production since its inception, production levels within the waters of Djibouti are still quite low. No current large-scale commercial exploitation is underway and the GROD is reticent about approval of various proposals set forth by foreign commercial interests. Fishing remains an artisanal activity, although one that is slowly growing in size and efficiency. There is no concern about short term pressures on the fish populations, but there is moderate concern about long-term consequences of expansion of the fleet and potential individualization of the activity. Certain species-specific fishing methods could, in particular, bring undue pressure upon these stocks.

As a consequence of this concern, it was decided that the Phase II project would have, as a major activity, a stock assessment program to sample, over its 3-year life, population densities and biologic data. This program was to be conducted by a multipurpose fishing vessel. IFAD, in the meantime, had ordered and delivered to Djibouti, in July of 1983, a vessel (for production and training) prior to signature of RDA's second extension. GROD deemed it critical that the proposed USAID vessel have similar specifications to the IFAD vessel in relation to power train, hydraulic and electrical equipment. Appendix P shows those specific items which were to be common between the two vessels.

Prior to amendment of the RDA contract for the second extension, RDA established contact with Lindsey Boatworks, recently renamed Commercial Work Boats, and obtained up-to-date price estimates. It still appeared that this vessel met most effectively the needs of Djibouti. With the contract amendment providing for the second extension, RDA was tasked with procurement of the USAID vessel.

3.5.2.1 Multi-Purpose Vessel Specifications

In accordance with requirements of the RDA contract and following good business practices, RDA compiled detailed specifications for the vessel. In general, the vessel was to be a 40' wheelhouse forward boat with a hold, auxiliary power, accommodations for four, and fully equipped with electronics, navigational equipment, deck equipment, fishing gear, and safety equipment. The general types of fishing for which the vessel was designed include bottom fishing, trap fishing, gillnetting, long-lining, and small-scale trawling. Technical specifications for the vessel follow:

Item 1 - Basic Vessel

The vessel shall be constructed from fiberglass with appropriate cores in-house, deck, bulkheads and other necessary areas. All deck surfaces will be coated with non-skid material. The approximate dimensions of the vessel will be:

Length overall	40'
Length at waterline	36'
Draft	3'
Beam	15'
Freeboard forward	6'
Freeboard aft	5'
Minimum fuel capacity	500 U.S. gallons
Fresh water capacity	200/300 U.S. gallons

The vessel will be designed to have the wheelhouse forward with a minimum afterdeck work area of 275 square feet. The vessel will be equipped with a flying bridge with complete engine instrumentation, and controls, one compass (see Item 11), ladder, rails and helmseat.

Item 2 - Interior Accomodations

The wheelhouse will be enclosed with appropriate doors and sliding windows and capable of being locked and secured. Crew accomodations will include:

- (1) Minimum of 4 bunks
- (2) Manual marine toilet
- (3) Shower
- (4) Galley with LPG gas stove, stainless steel sink, manual water system, ice box, formica countertops and cabinets.
- (5) Settee with table
- (6) Chart table (fold-down) in wheelhouse

Item 3 - Engine

The main engine will be a diesel Perkins naturally-aspirated V8.540 with Borg Warner 2.5:1 reduction gear box with full instrumentation and equipped with factory recommended fuel and lube oil filters. Full specifications for the engine are as follows:

Make:	PERKINS - V8 540 - 132 KW/177 H.P.
Bore/Stroke:	4.25 in. (108 mm) x 4.75 in. (120.7 mm)
No. of cylinders:	8 90 degree vee form
Cubic capacity:	539.1 in. 3 (8.83 liters)
Cycle:	4 aspiration : natural
Combustion System:	Direct injection
Rotation:	LH
Fuel pump:	CAV minimec in line
Governing:	Mechanical
Cooling:	Heat exchanger fresh water cooled with Borg Warner reduction Gearbox

Weight: 889 Kg. (1,957 lbs.)

Electrical: 24 V.

Power take off: Full engine torque from front and extension shaft

Installation angle: Max. static angle of 17 degrees allowing further 3 degree rise underway also 5 degree nose-down for vee-drive application.

Required Options: High output alternators; power take-off extension shaft; dry exhaust; dual station electrical instruments (wheelhouse and flying bridge); audible/visual alarm system for high water temperature/low oil pressure/low coolant level; tool kit; fuel pre-filter.

Two complete sets of spare filters shall be provided. Shaft will be stainless steel through bronze stuffing box and cutlass bearing. The engine compartment will be insulated for noise and heat.

Item 4 - Refrigerated Hold

The hold will contain a minimum of 400 cubic feet of usable area. The hold will be insulated with 3" of urethane foam (or approved equivalent). The trunk hatch will be able to be locked. An automatic electric sump pump, RULE or approved equal, with 1,700 gallon per hour capacity will be installed in the hold. Bin and bin boards will conform to standard marine practice.

The type of hold refrigeration system to be proposed is optional. The ability to either manufacture salt water flake ice or to chill fish using

in appropriate shipping containers and stored in the hold for transport.

Provision of appropriate packing crates is required.

- Item 7 (1) Furuno 502D paper depth recorder
- Item 8 (2) Furuno 600B paper depth recorder
- Item 9 (3) Furuno 2400 radar with radome
- Item 10 (4) ITT marine radio transceiver VHF, Model STR 12,
25 watt, 55 channel.
- Item 11 (5) 2 ea. magnetic compasses - Ritchie dn-46 or approved
equal. Both compasses will be compensated and a
compensation card will be furnished with each compass.
Both will be equipped with compass lights.

Items 12 through 21 - Deck Equipment and Fishing Gear

The hydraulic power system will consist of two (2) pumps, 24 GPM, GRESEN TC24 or approved equal. One pump will be driven from the main engine and one pump will be driven from the auxiliary generator engine. Each pump will be equipped with manual clutches. The system will be designed so that all hydraulic machinery can be operated from either pump. The system shall be installed with all appropriate tanks, oil coolers, filters, relief valves, control valves, crossover valves and located in accessible and workable positions. All hoses, plumbing and fittings must be approved for use in marine hydraulic systems.

All deck equipment and fishing gear should be fully installed and ready for use for acceptance testing. In the cases where gear is removable from fixed brackets, the gear shall be removed upon delivery and packed in shipping containers for storage in the hold during transport. Provision of appropriate shipping containers is required.

- Item 12 Wash down pump - hydraulically operated from integrated hydraulic system, approved equal to system on page 88 of Atlantic and Gulf Catalog. Alternate system could be crossover valves in bilge pump system to utilize bilge pumps for sea water.
- Item 13 2 manual snapper reels - Atlantic and Gulf Econo Model or approved equal.
- Item 14 2 hydraulic snapper reels - Atlantic and Gulf Tiger model or approved equal.
- Item 15 Each snapper reel will be furnished with 3,000' of 3/64 7 x 7 SS cable.
- Item 16 Hydraulic trap haulers: with 12" s/s sheaves, swinging davit, trap hauler table. Hydro-Slave or approved equal.
- Item 17 Combination long line/gill net reel with all necessary fairleads and working components, hydraulic driven, KEM 60" combination or approved equal.
- Item 18 Seine winch with two gypsy heads, hydraulic driven. Kolstrand Model #ON or approved equal.
- Item 19 Ground tackle: 2 anchors, Barnegat B-25HD or approved equal. 16 fathoms 5/16" galvanized chain 600 feet 3/4" strand standard lay nylon rope.
- Item 20 Galvanized mast and boom, 2 ton capacity with appropriate standing and running rigging.
- Item 21 Trolling poles with standing rigging - minimum length 30'.

Items 22 through 31 - Safety Equipment

All safety equipment should be fully installed and ready for use for acceptance testing. In the cases where gear is removable from fixed brackets, the gear shall be removed at delivery and packed in shipping containers for storage in the hold during transport. Provision of appropriate shipping containers for storage in the hold during transport. Provision of appropriate shipping containers is required. Safety equipment will include:

- Item 22 (1) 1 ea Coast Guard approved 6-man life raft
- Item 23 (2) 6 ea Coast Guard approved life jackets with 1 cell waterproof light.
- Item 24 (3) 4 ea Fire extinguishers Coast Guard approved types
- Item 25 (4) 1 ea smit-automatic Halon 1301 fire extinguisher in engine room with manual release cable in wheelhouse - must have sufficient capacity to flood engine room with gas.
- Item 26 (5) Medical Kit
- Item 27 (6) Emergency Tiller
- Item 28 (7) 1 ea Bilge pump 1500 - 1750 GPH driven from main engine
- Item 29 (8) 1 ea Bilge pump 1500 - 1750 GPH driven from auxiliary power (hydraulic, electric or PTO furnished standard with clutch)
- Item 30 (9) Search light, marine model with approximately 200,000 CP. All lights, horns, signals to conform with Coast Guard regulations.
- Item 31 Manual windshield wiper - Bosch HH.D. or approved equal
- Item 32 A minimum of three (3) copies each of an operator's manual and a repair/maintenance manual shall be provided for the vessel, the engine, and for each piece of

peripheral gear (electronics, deck gear, fishing gear).

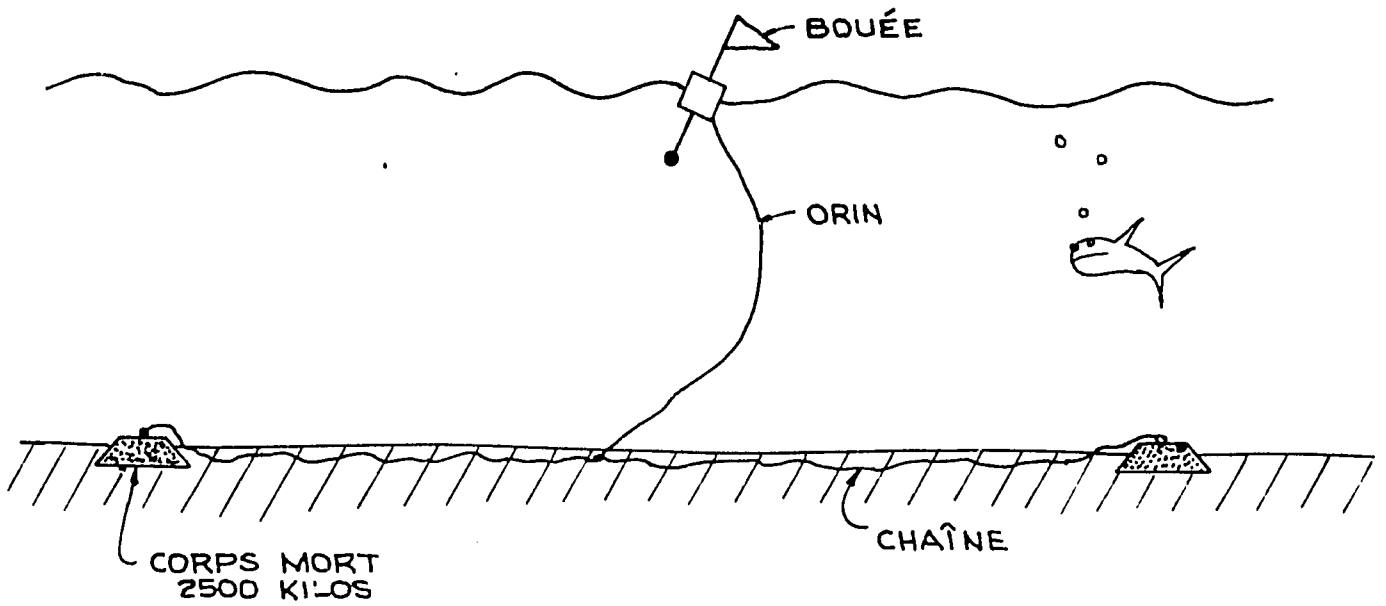
Where appropriate, detailed schematics, plans, and drawings should also be provided. In addition, the supplier shall provide a detailed list of recommended spare parts for the engine and for major pieces of gear. No procurement of major spares is anticipated at this time.

3.5.2.2 Dock Space

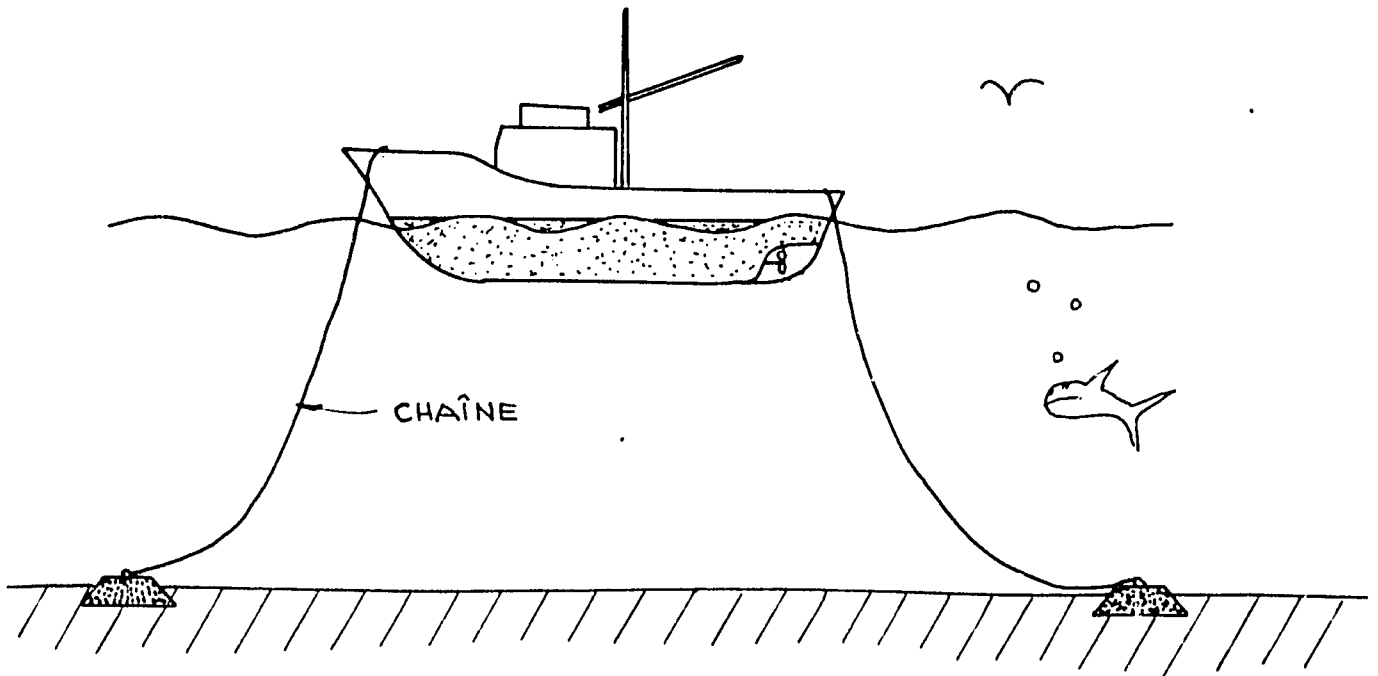
The dock space allocated for the use of the fishery vessels is located across for L'scale and at the inner end of the concrete wharf. The total length is about 30 meters, but this space is often infringed upon by ships unloading cargo. There is not enough room, in any case, for two boats to tie up end to end. Most of the time the harbor is tranquil, but for a few months each year, the wind blows into the harbor creating waves large enough to make tying a small boat to the wharf dangerous, and tying two or more boats abreast, disastrous. Six-one meter square concrete mooring blocks, weighing approximately 2-1/2 tons each, have been placed off the dock space. The mooring chains are made up so that each boat can tie up bow to stern (Fig. 69 and 70). Although this system is unhandy and inconvenient, it offers a safe mooring for the vessels during the period of bad weather.

There are no hoists for lifting heavy material and gear on and off the boats. It is possible to hire port equipment if necessary, but the cost is high and the problems dealing with the port authorities are formidable. There are very little problems bringing gear and materials into the port area, but to remove these items can, at times, be extremely difficult. These facilities are less than requested and less than was promised by GROD.

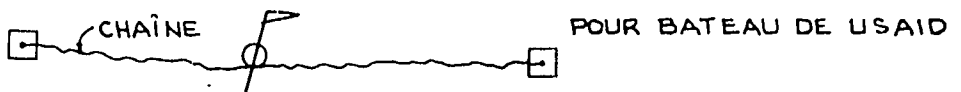
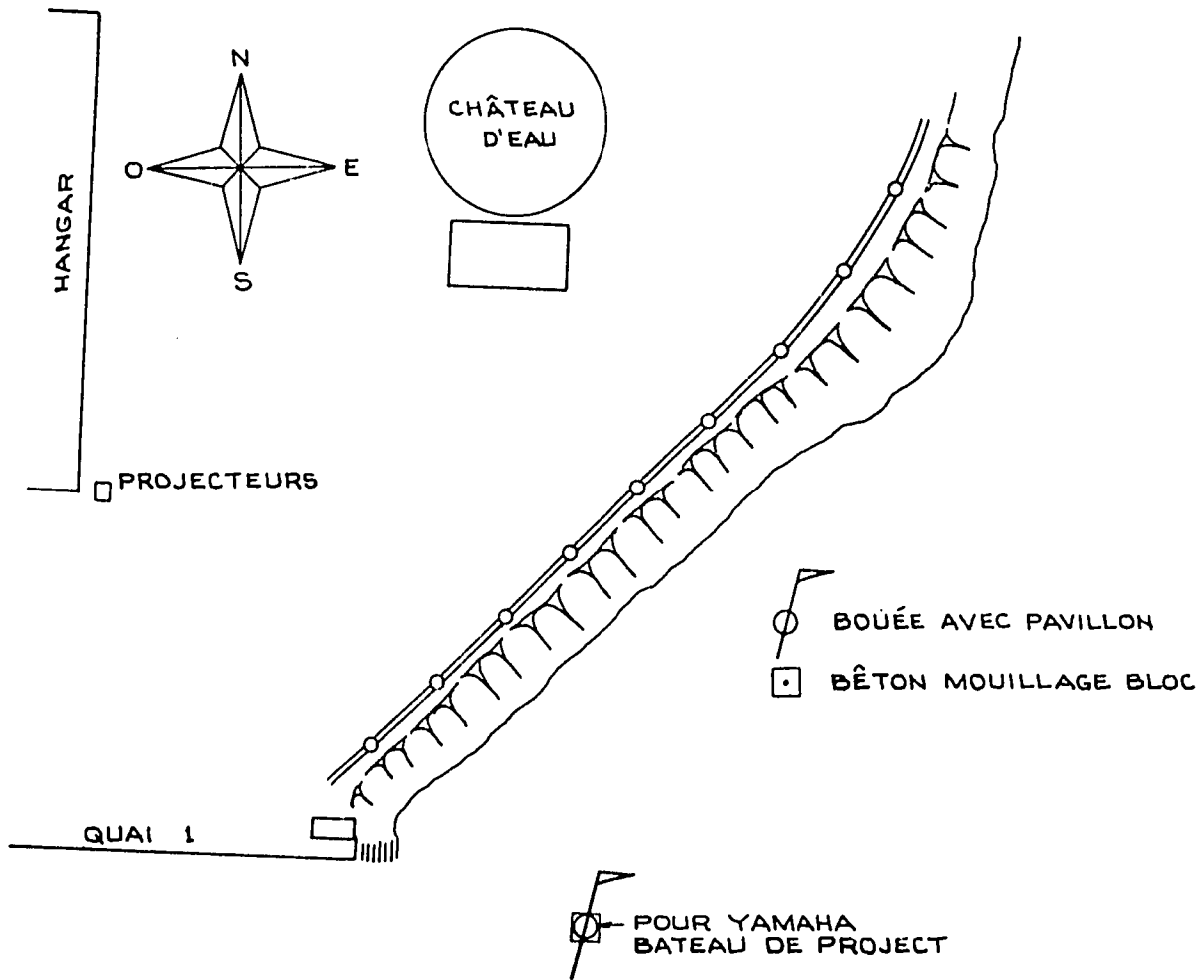
FIGURE 69 MOORING SYSTEM



AVANT MOUILLAGE



AU MOUILLAGE



ECHELLE $\frac{1}{500}$

Figure 70 Mooring Location

Recently a 20-foot shipping container was purchased by GROD and located on the dock area allotted to the fishery vessels. This is a secure storage building for gear from all the fishery vessels. It has sufficient capacity to fulfill all the foreseeable needs.

3.5.2.3 Implementation

A requirement of RDA contract was to procure the vessel through a competitive low-bid process. Prior to amendment of RDA's contract, USAID published notice in the Commerce Business Daily of intent to purchase the vessel and solicited expression of interest for prequalification to receive the Request for Proposal (RFP). See Appendix Q. RDA put together an RFP for procurement and on 12 May 1983, issued it to each of the respondents. By the proposal due date, RDA had received proposals from eleven companies, including: Eugeor, Inc.; General Resources, Inc.; International Equipment Sales, Inc.; Fairtrade International, Inc.; Fiberglass Fabricators, Inc.; Commercial Workboats; Vesta Import and Export Corp.; North America International, Inc.; California State Equipment Company; Joe Patti Seafoods; and Camden Corporation. These proposals were reviewed and marked for technical acceptability and for cost. Bids ranged from 86,000 to 288,000 dollars.

From this evaluation, PDA concluded that Commercial Work Boats of Miami, Florida offered the best combination of technical offer and cost. Figure 71 shows the deck plan for the vessel being offered. RDA requested permission from USAID to negotiate a Firm Fixed Price Control with Commercial Work Boats. RDA received concurrence from USAID and on June 15-17 1983, Mr. Dee McFadden, Masterfisherman, and Mr. Robert Campbell, Vice President, Operations, negotiated a sub-contract with C.W.B. Enterprises, Inc. In these initial negotiations, various technical changes were made to the initial offer

of C.W.B. These related mainly to specific design of the flying bridge, exhaust, hold refrigeration system, auxiliary power, and deck gear. Results of this negotiation were forwarded to USAID and to SEP for their concurrence prior to subcontract signature.

The Grant Agreement between USAID and GROD specified that two conditions must be met and attested to prior to entering into a contract to provide a vessel to GROD. These conditions included: 1) provision of dock space within the Port of Djibouti suitable for operation of the vessel, and 2) provision of operating funds for the vessel for one year. At the time that initial subcontract negotiations were concluded, neither of these conditions had been met.

In addition, GROD, upon inspection the technical specifications agreed to in the initial negotiation, exposed concern our differences between the USAID boat and the IFAD boat. These differences included some of the navigational gear, refrigeration system and fishing gear. See Appendix R. RDA documented the differences and the rationale behind the decision for them in a memo from RDA's Masterfisherman, Mr. Dee McFadden to USAID Acting Representative, Mr. W. E. Popp. This memo is found as Appendix S. It appeared to satisfy the questions of SEP.

Subsequently, SEP decided to require even greater commonality between the vessels than originally requested. This commonality was the subject of intense discussion and correspondence between USAID, SEP, and RDA for several months. It appeared to RDA that SEP required systems to be identical even though the missions of the two vessels were different. (Also, in some cases, it was felt that the systems aboard the IFAD vessel were inferior to those proposed for the USAID vessel and in fact might even be unworkable.) Eventually, various compromises were achieved and the RDA specs were again

revised. Telephone negotiation with C.W.B. resulted in the final specifications and revised costs as reflected in the final subcontract. See Appendix T. The major changes included make and model of transmission, generator, and hydraulic pumps, increase in spare parts, provision of previously unrequired safety equipment, and provision of fiberglass skiff.

Meanwhile, GROD finally was able to provide adequate dock space for the vessel and the RDA Masterfisherman attested its adequacy. However, GROD had not budgeted funds for operation of the vessel as required. The first availability of such funds would not occur until the beginning of the next fiscal year. SEP asked RDA to explore the feasibility of a self-financing vessel operation and did so. Appendix U summarizes the proposal as set forth to USAID. This approach was not acceptable to USAID as the vessel was justified as a research vessel not to be engaged as an operational commercial vessel. Eventually, GROD agreed to find financing and on September 14, 1983, committed funds of 6 million FD to cover operating costs. This paved the way for subcontract signature.

Finally, in December, 1983, RDA received permission from the Contracting Officer to enter into a subcontract with C.W.B. Enterprises, Inc. On December 29, 1983, the subcontract was officially signed. Delivery date for the vessel was set 29 April 1984 barring unforeseen delays.

Construction of the vessel was started in February, 1984. RDA was officially informed by C.W.B. Enterprises, that due to delays in receiving the main engine from Great Britain, the delivery date might slip. On March 20, 1984, RDA requested quotes from C.W.B. for changes and additions to be incorporated in a possible subcontract amendment. Appendix V outlines these changes.

It has been agreed that the proposed changes are highly desirable in order to expedite acceptance and licensing of the vessel by GROD for operation in Djiboutian waters. It was RDA's intent to try to avoid the licensing problems experienced by the IFAD which had been in Djibouti almost one year before it began operations.

3.5.2.4 Inspection And Delivery

The major delay that pushed the final delivery date many months ahead was the main engine. The engine had to be special-ordered from the Perkins Factory in Great Britain. It took seven months for the engine to reach Commercial Work Boats.

At the suggestion of the boatbuilder, a representative of Lloyds of London was contacted to provide a series of inspections so that the boat would meet the necessary standards for insurability. See Appendix W.

In August of 1984, a first preliminary inspection was made prior to the installation of the main engine. A number of recommendations were made. See Appendix X.

Finally, on February 5, 1985, a visit was made to monitor the acceptance trials (See Appendix Y). His conclusion was that U.S. Coast Guard Standards have been attained, the lifesaving and firefighting equipment is in excess of that required for a 40-foot vessel, and that upon completion of a few recommendations in Section 4 of his report, the vessel will be considered a sound insurance risk.

On February 7, 1985, the shipping agent accepted the vessel for delivery. The boat finally reached Djibouti in June of 1985. Photos 54-57 show the Khor Ambado and associated equipment just prior to shipment.

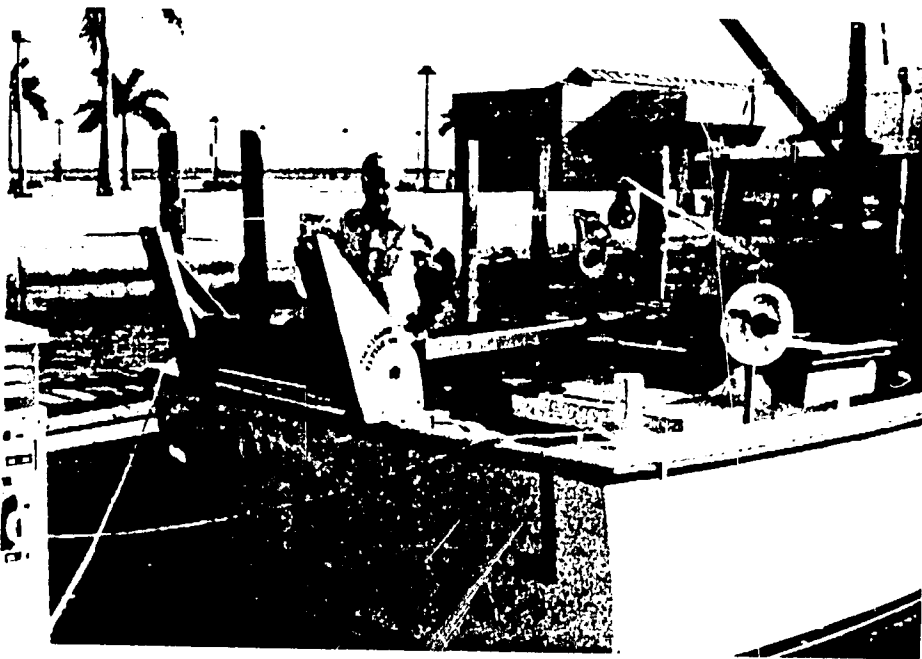
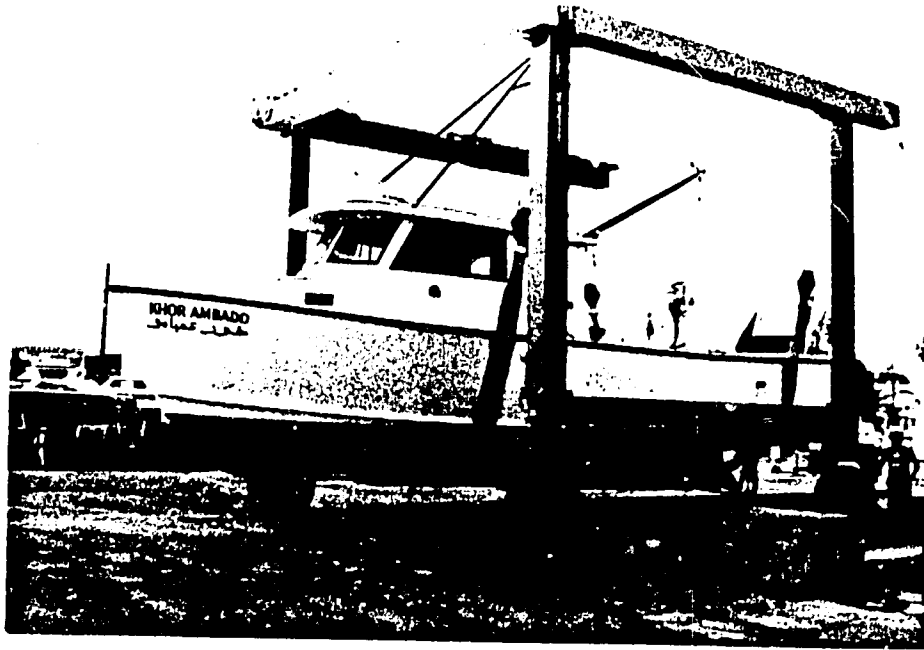
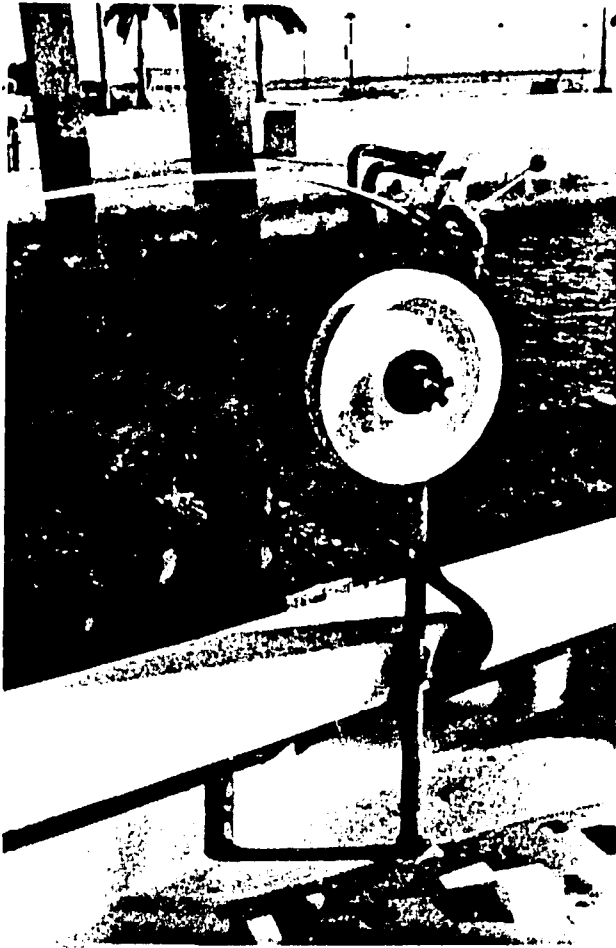
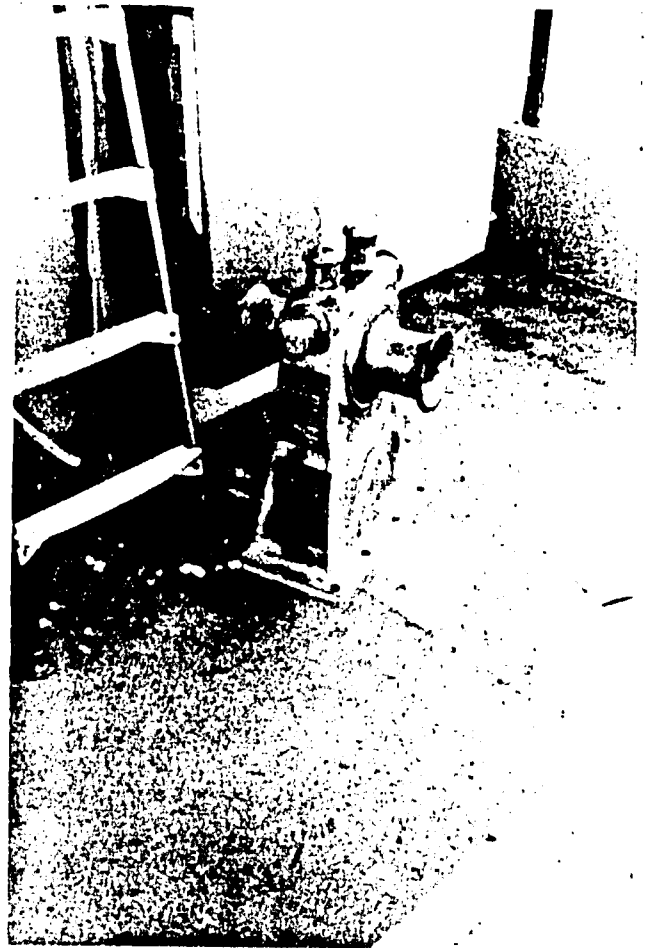


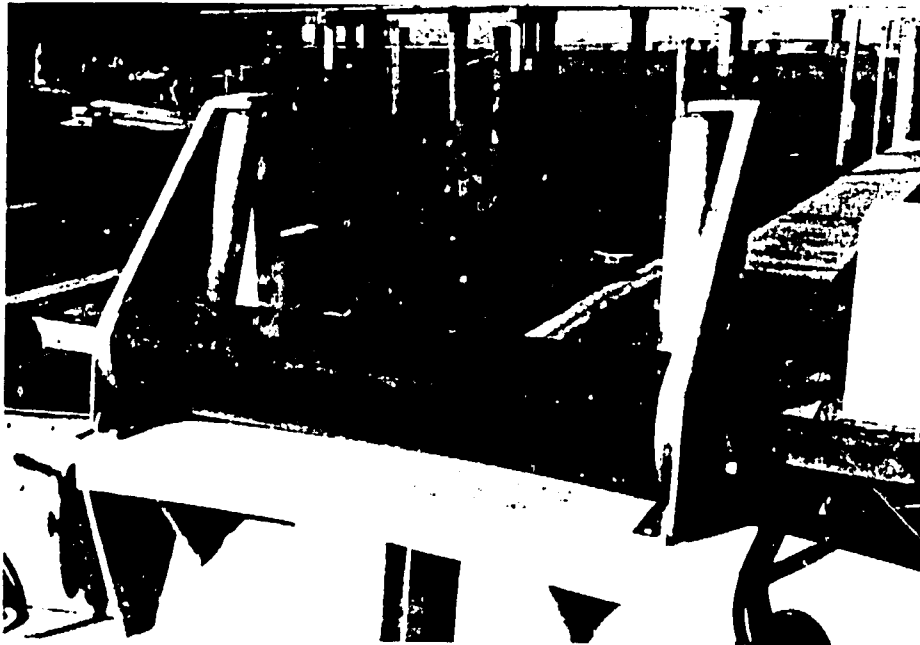
PHOTO 54 40 FOOT MULTIPURPOSE VESSEL THE "KHOR AMBADO"



HYDRALIC BOTTOM REEL



SEINE WINCH



NET ROLLER

PHOTO 55 KHOR AMBADO DECK EQUIPMENT

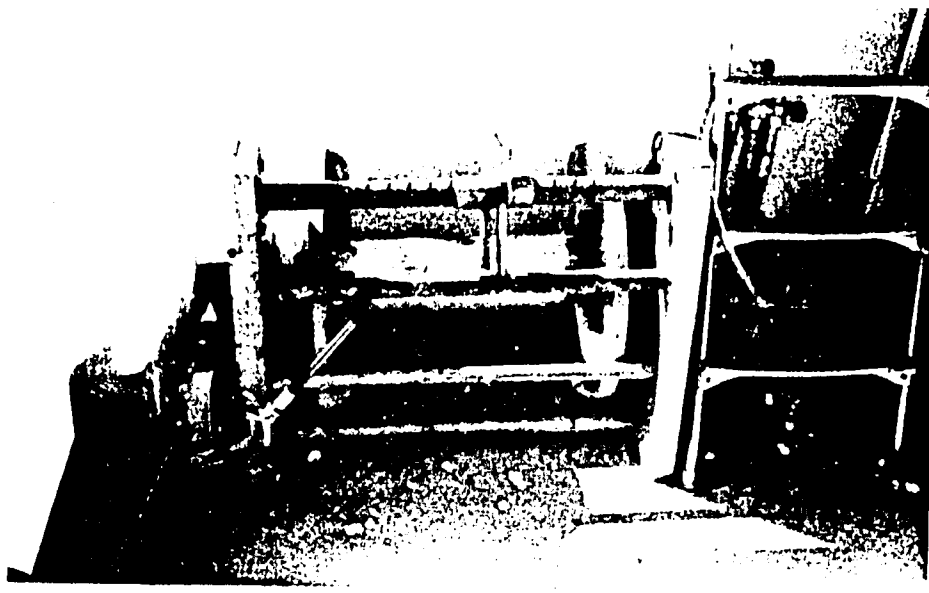


PHOTO 56 LONGLINE REEL

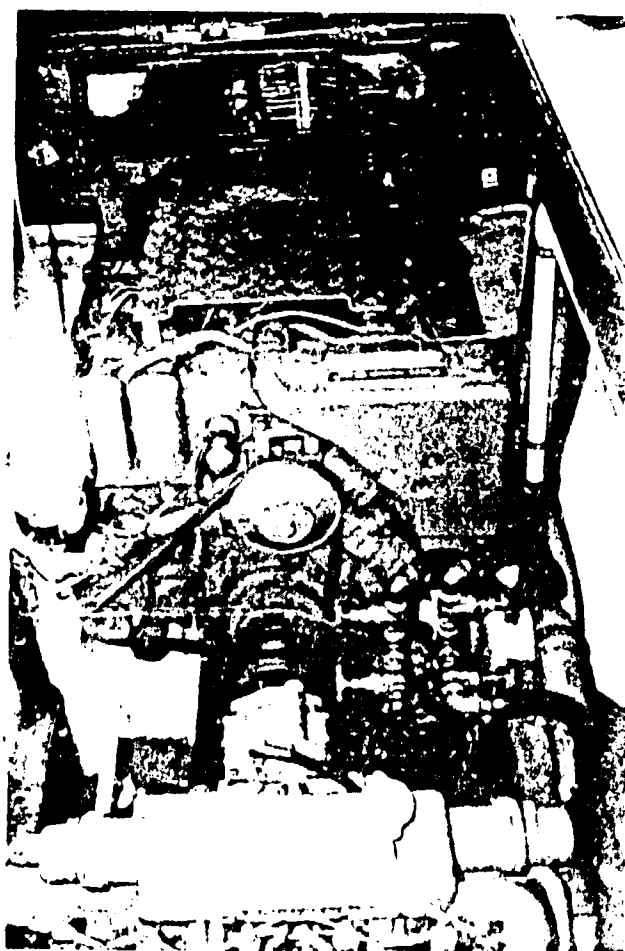


PHOTO 57 ENGINE COMPARTMENT

3.5.2.5 Crew

Two Djiboutian crew members have been selected to work on the USAID 40-foot boat. Both speak English fluently as a second or third language. One holds a mate's license and has recently completed fishery training in Tunisia. The other has just returned from England where he has completed extensive training in fishing gear technology. With these two knowledgeable people to assist in the operation of the USAID boat, work should progress at a satisfactory pace. With their assistance, the training of other people necessary to fill out the crew should present no problems. In order to maximize full use of the vessel, extra crew members will be needed to replace the regulars during sickness, vacations and other absences.

3.5.2.6 Stock Assessment Planning

The resident fish population is the most vulnerable to overfishing. These bottom dwelling fish should receive priority in any stock assessment program. Because of the successful results of the fish trap experiments, this type of gear has been selected to play a major role in the bottom fish stock assessment survey. Along with the traps, snapper reels and subsurface trolling gear will be the tools used in the bottom fish survey.

It will be necessary to fish the same gear in the same area at spaced intervals. The use of the gridded charts will simplify this procedure. A record of bottom temperatures should be kept as an integral part of the fishing information obtained during the course of the survey. A tentative selection of grids and depths have been selected for fishing, but experience in the field could cause modification to the plans.

3.5.2.7 Experimental Fishing Phase II

The fisheries gear discussed in Section 3.1.1 should be experimentally fished in areas of Djibouti where there are known concentrations of fish. It is important that gear is tested under actual fishing conditions to prove its effectiveness. RDA, in Phase I, has used an area along the North Coast of Djibouti near Ras Duan for its testing grounds. This area is called "Dalay" by the fishermen and has a rich variety of bottom fish throughout the years. Groupers, red snappers, and amberjacks, rainbow runners and other species of dorade are found there. In addition, pelagic fish, tuna, sardine and mackerel have been observed. "Dalay" is a perfect place to test all types of bottom gear (reels, long-lines and traps).

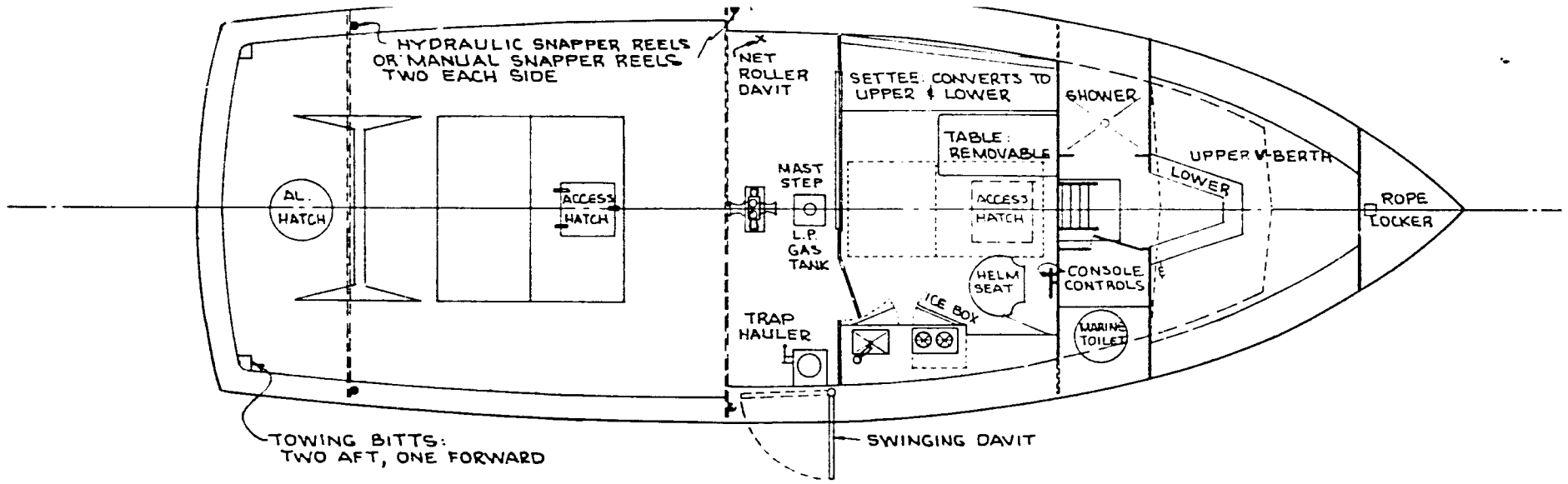
The remainder of this section discusses the use of the 40-foot vessel and Yamaha project boat in the experimental fishing effort as well as in resource evaluation.

3.5.2.8 Plan Of Performance, Multi-Purpose Vessel Phase II

The timing and duration of each of the tasks specific to the use of the multi-purpose fishing vessel are graphically illustrated in Figure 72 Plan of Performance, Multi-Purpose Vessel. The intent of this plan is to provide a guideline for the operational use of the vessel. It illustrates activities that can occur concurrently or must occur separately. The plan can be modified in response to operational realities.

The task of gear development is defined as the design and construction of fisheries gear and the outfitting on the vessel. A lot of the gear that will be used can be constructed using locally available materials (fish traps, fish sticks). In Phase I, RDA ordered fisheries gear that can be used in Phase II. This gear includes: trolling gear, gill nets of

various mesh sizes, monofilament and cotton, beach seine, shrimp trawls, bottom reels with snapper assemblies, and PCV fish sticks, hand girder with mid-water and bottom trawl assemblies and prefabricated lobster pots. There will be an additional quantity of gear to be ordered in Phase II. This gear should be tested, experimentally fished and demonstrated on the multi-purpose vessel and Yamaha Project Boat with the intent that the end-user will be the artisanal fisherman in his own Yamaha-like future artisanal fisheries vessel.

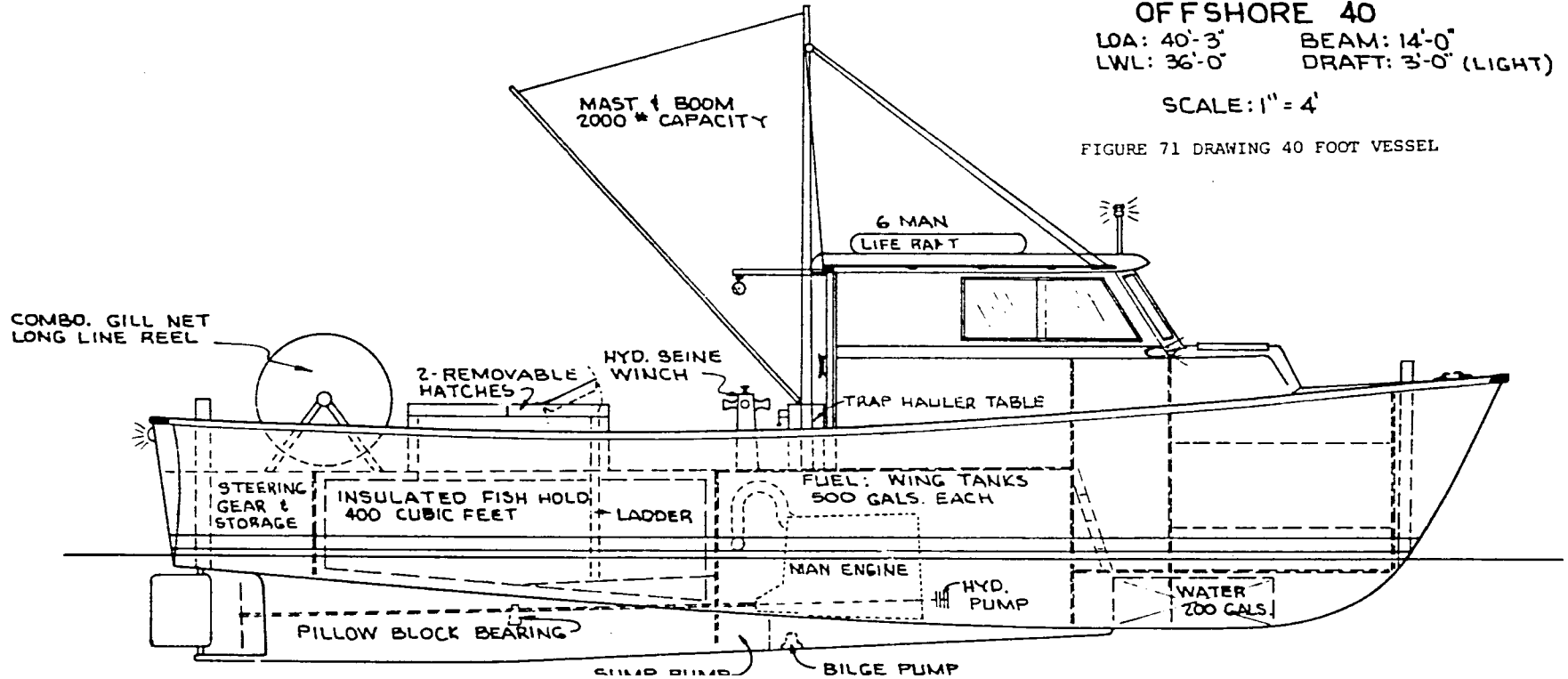


OFFSHORE 40

LOA: 40'-3" BEAM: 14'-0"
 LWL: 36'-0" DRAFT: 3'-0" (LIGHT)

SCALE: 1" = 4'

FIGURE 71 DRAWING 40 FOOT VESSEL



The time allotted for gear development over the 36-month life of the project is 4 months. An initial 3-month period at the beginning of the project will be to design and construct the bottom and trolling gear to be used in the operational phases of experimental fishing, exploratory fishing and stock assessment. One month of time will be needed in the second year to assemble the shark long-line currently in Djibouti.

If additional time for gear development is needed (most likely after the reception of the new commodity order) it can be picked up from downtime under the maintenance and repairs Subtask in the Plan of Performance. Planned periodic maintenance on the vessel will take at least one month per year. An additional month per year is scheduled for breakdowns and repairs. During downtime, whether scheduled or unscheduled, the Masterfisherman and crew can work on their gear.

Experimental fishing has 10 months of time allotted over the 36-month period. An experimental fishing period takes place after each session of gear development. This occurs for three months in year one and two months in year two. During each experimental fishing period, efforts will be to conduct operations on a commercial production basis when practical. This will help determine the effectiveness of the gear. The final experimental fishing period of five months comes at the end of the project. This will be a production fishing effort using the knowledge gained from exploratory fishing effort. Also, by this time, the gear utilized would have been refined and modified after almost two and one half years of operational fishing. This will give information on expected yields per type of gear used under production conditions.

Exploratory fishing will be conducted primarily in the winter months. Eight months of time is allotted totally for this effort. A transition period (summer to winter) of two months is covered the first year. During the second and third years, three month periods comprising the middle and the transition (winter to summer) period is covered.

Fishing activity is lowest in the winter months. Because fish are at deeper depths, hand-line fishing using traditional methods is not possible. The exploratory fishing program during these months will yield information as to the types of gear to use, fishing depths, diversity of species and expected yields. In addition, the exploratory fishing program will fish in areas least exploited currently.

The stock assessment program has eight months allotted to it divided into four two-month sections. This program will use the same gear as is used in experimental and exploratory fishing. It is the approach that differs in stock assessment. The basic premise of stock assessment is to sample fish in randomly selected areas over a period of time using the same gear. The four two-month sections include two, two-month winter periods and two two-month summer periods. It is expected that data collected from the stock assessment program can at least establish trends for expected yields.

Training occurs concurrent with the other activities over the life of the project. Training is broken down into three parts; crew training, fishing demonstrations for experienced fishermen, and training for new fishermen.

Training for the four permanent crew members (Captain, First Mate and two hands) will be ongoing over the three years of the project. The crew of the multi-purpose vessel will be exposed to all its fishing activities. It is expected that, by the end of the project, the Djiboutian crew will be able to undertake any fishing task given to them.

Fishing demonstrations for experienced fishermen will be held for a one-month period each year. These demonstrations will occur towards the end of each experimental fishing effort when it is expected that the "bugs" will have been worked out, and the fishermen can be shown a production type of fishing demonstrating the utility of the gear.

Training of new fishermen will be the primary responsibility of the IFAD vessel "Khor Angar" and the Yamaha Project Boat, although the "Khor Ambado" will also assist. This program while still as yet not defined, will include practical on-board training of fifteen new recruits every six months. Even though the multi-purpose vessel will not have the primary responsibility, time has been blocked out (twelve-months total) when new fishermen can be on-board to observe and participate in the vessel's fishing activities.

3.5.2.9 Yamaha Project Boat Phase II

RDA views the primary purpose of the Yamaha Project Boat as serving as a model of what the future Djibouti artisanal fisheries vessel would look like. There is no reason to conduct gear development, training and demonstration programs if there is no thought in changing the type of vessel currently used by the Djiboutian fishermen. The Yamaha Project Boat should be used to support two tasks, experimental/production fishing, and training. The timing and duration of these tasks are graphically illustrated in Figure 72, Plan of Performance, Yamaha Project Boat.

The plan of performance for the multi-purpose vessel and the Yamaha Project Boat takes into account the amount of time the Masterfisherman can spend on each. For example, when the multi-purpose vessel is in the exploratory fishing/stock assessment mode, the Yamaha Boat will be engaged in production fishing and training. The Masterfisherman can monitor and participate in the production fishing and training effort as well as aid the Fisheries Biologist/Researcher conduct the research evaluation effort.

The gear development phase for the Yamaha boat (three-months in year one) coincides with the same phase for the multi-purpose vessel. Most of the bottom fishing gear for both boats will be the same. The experimental fishing effort in year one, three-months, also coincides with the same effort for the multi-purpose vessel.

The Masterfisherman has two tasks during this period. The first is experimental fishing and training of the multi-purpose vessel crew before they go into the research evaluation mode. The second is experimental fishing and training of the Yamaha boat crew before they go into production fishing and training. The crew of the Yamaha boat should be comprised of two professional fishermen chosen from the ranks of the Cooperative Fishermen who have demonstrated initiative and the willingness to accept new ideas.

During the first month of the experimental fishing effort, the Yamaha boat crew will go out on the multi-purpose vessel. Once they have familiarized themselves with the gear they will take out the Yamaha boat and accompany the multi-purpose vessel to the experimental fishing grounds. During the second experimental fishing session (for shark long-line gear) two-months in year two, the Yamaha boat crew will go on the multi-purpose vessel because the Masterfisherman will have to devote most of his time in outfitting and testing of this gear. During the final experimental fishing

session of five-months at the end of the project, the Yamaha boat will accompany the multi-purpose vessel to new areas determined from the exploratory fishing effort to have fishing potential.

After the first experimental fishing effort, the Yamaha boat will go into production fishing for a total of sixteen months (two eight-month sessions). This will coincide with training periods for new fishermen (eight months) and demonstrations to experienced fishermen (eight-months). The crew of the Yamaha will be periodically complemented with new fishermen and experienced fishermen (maximum of three) during these training periods. There will be coordination with the IFAD boat which will also train the new fishermen in its production fishing training program.

It will not be necessary for the Masterfisherman to be on-board the Yamaha full-time. The crew who are experienced professional fishermen, having undergone eight-months of training in the use of the boat's gear, should be able to handle the task themselves. The Masterfisherman will go out with them periodically to observe their methods. The new fishermen would be serving as apprentices to the Yamaha crew learning the methodology of practical fishing from experienced professional Djiboutian fishermen. Experienced fishermen who also periodically join in the production fishing program learn from their fishermen counterparts the use of new gear and equipment they will some day be operating on a boat of their own.

3.5.2.10 Exploratory Fishing Phase II

In contrast to the experimental fishing effort which is designed to test the usefulness of new gear or the applicability of new gear to Djiboutian waters, the exploratory effort is designed to find new fishing

areas or to find stocks of fish not presently being exploited in Djibouti. Basically, an exploratory fishing program must investigate three major areas:

- 1) Where are the fish?
- 2) When are they in season? and,
- 3) With what gear, tackle, and techniques can they be successfully caught?

In Djibouti, as in most other areas, different species predominate in different time of the year. Fishing conditions vary throughout the year. At any one time of the year, there may be many species present which require totally different fishing methods. A comprehensive exploratory fishing program would require a continuous effort over many years, often by several different types of vessels.

One can never expect that this project, by itself, will conclude an exhaustive exploratory fishing program. Rather, it is the purpose of this part of the project to demonstrate the usefulness of exploratory fishing, to train crews in some of the techniques of exploratory fishing, and to pass on to the fishermen techniques found successful in the course of the training program.

Neither can one expect an exploratory fishing program to be carried on by the private sector in a developing country. As previously mentioned, these efforts are not only frustrating, but very seldom result in lucrative production. A fisherman will not give up "guaranteed" production for the off-chance that he might learn something. A country's exploratory fishing program must be conducted or subsidized by the government. Given this, it becomes the project's goal to train the government or its agents (i.e., the Cooperative) in the techniques and philosophies of exploratory fishing so that it can carry on the effort.

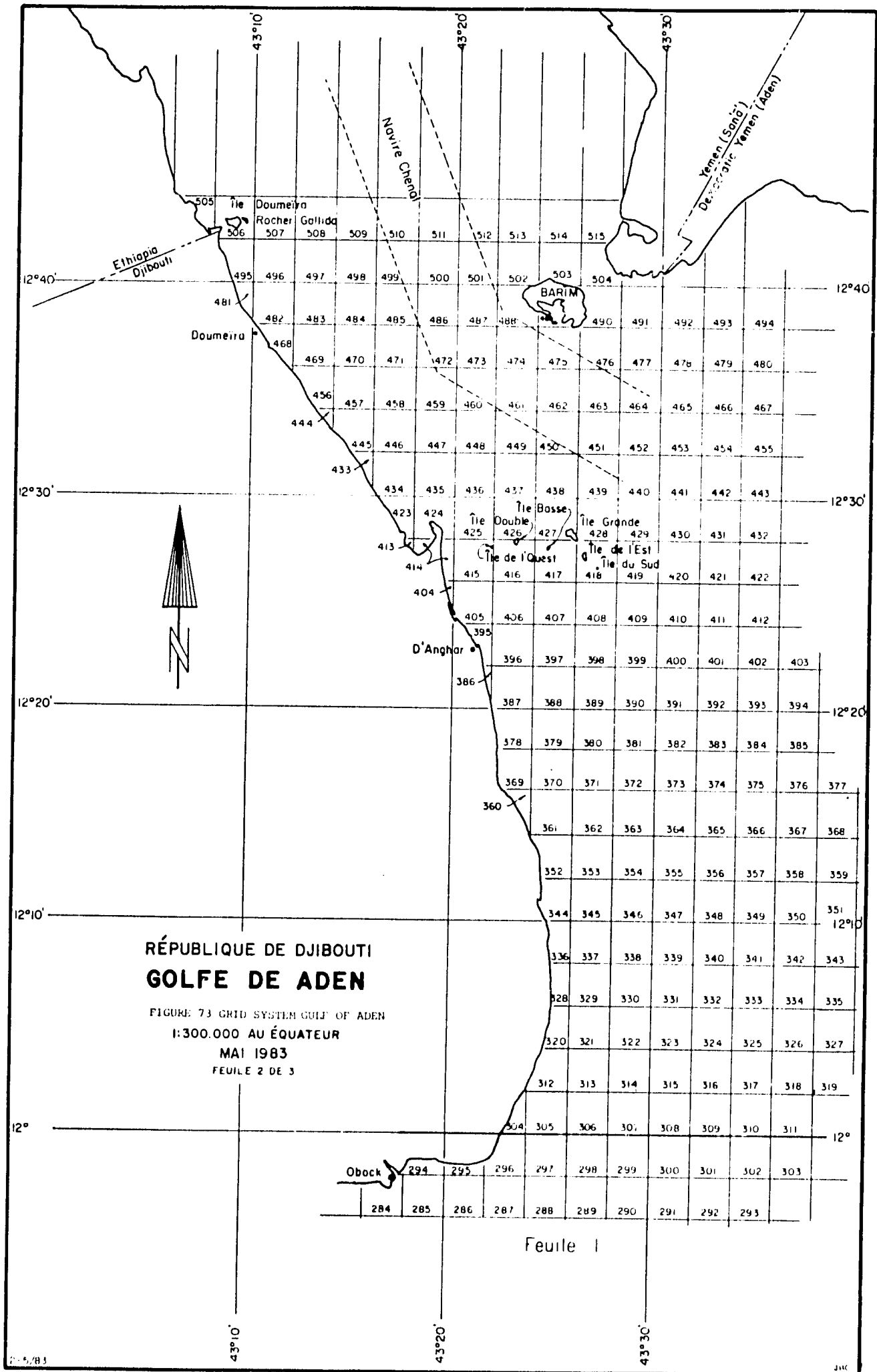
Utilizing methods and techniques known to be successful from the experimental fishing effort, the Masterfisherman will conduct exploratory fishing using the 40-foot multipurpose fishing vessel. The 40-footer is rigged such that it will be possible to execute an exploratory fishing program that will include the following principal activities:

1. Longline fishing for sharks, tuna and other benthic and pelagic fish.
2. Trap fishing for bottom fish, crabs, lobsters and shrimp.
3. Trawling for bottom and midwater fish.
4. Trolling for surface, midwater and bottom fish.
5. Surround-net fishing for sardine-like fish.
6. Beam trawling for bottom fish and shrimp.
7. Surface and bottom gill nets.

Three exploratory periods have been scheduled. They occur during the winter months, specifically, months 9 and 10 of the first year and the first four months of years two and three. During these times, the Masterfisherman will conduct two types of exploratory fishing. First, he will target the commercially popular species and will look for them in new areas. The prime target areas will be the Ghoubet and the north coast of Djibouti near the Seven Brothers Islands.

Second, the exploratory program will look into the presence and "catchability" of new species, predominantly shark and sardines. Included with the 40-footer are gear and equipment for this effort. The boat is equipped with a longline reel, heavy mast and boom, and a RSW hold so that shark can be caught, boarded and cooled immediately. Included is a one-mile longline with .85 mile of spare materials.

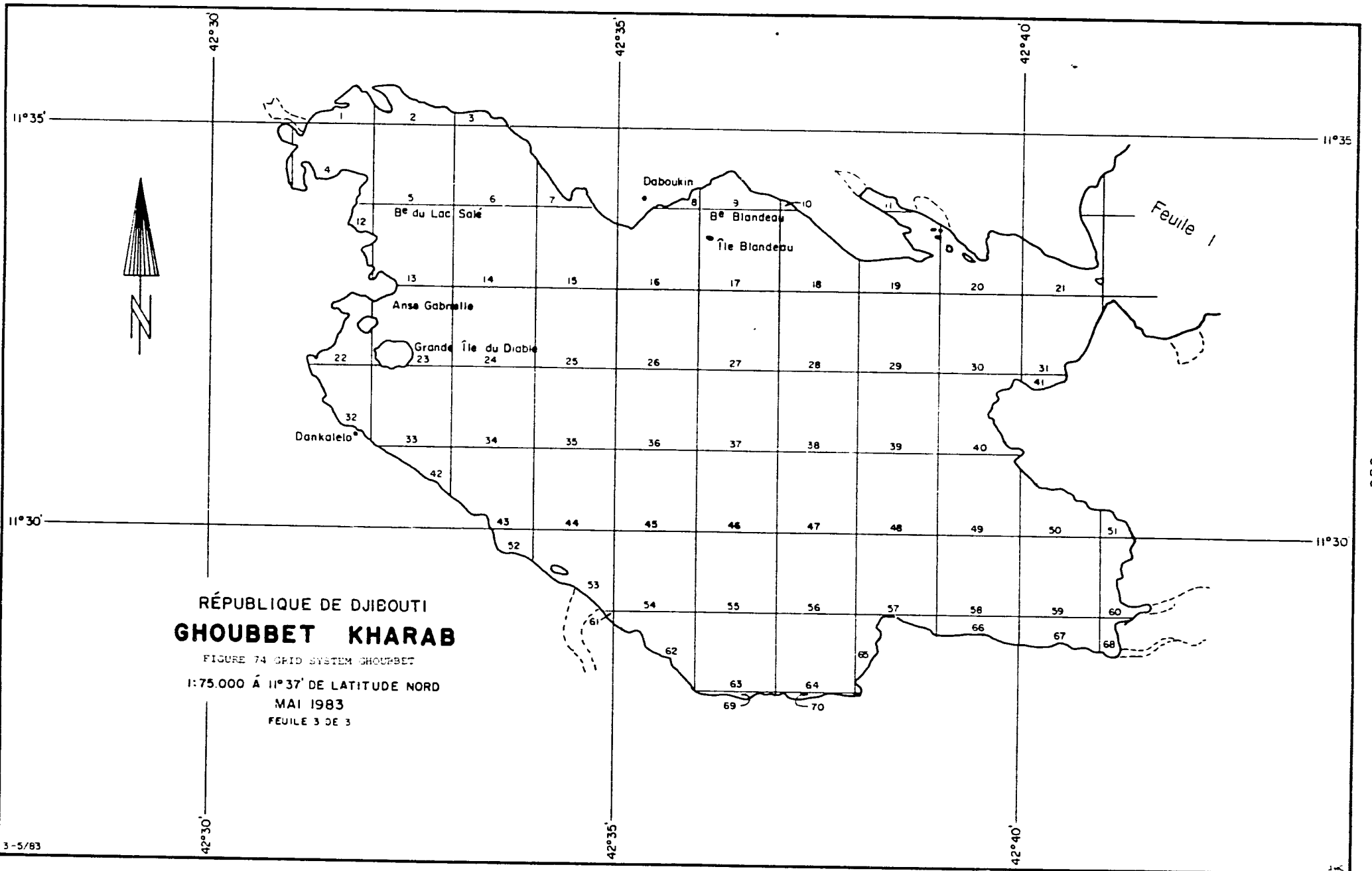
Fishing success will be documented in a detailed and precise manner so that data derived from this effort may be integrated into the stock assessment program. Each trip will be documented for duration, effort, gear type, location, species, and fish characteristics such as length and weight. The Fisheries Biologist will accompany the Masterfisherman on many of these trips and will be responsible for data collection. RDA has developed a grid system based on National Marine Fisheries Service procedures. This grid system will allow a simple quantification of location for the program. Figures 73 through 75 show grids developed for the stock assessment program but also applicable to this program.

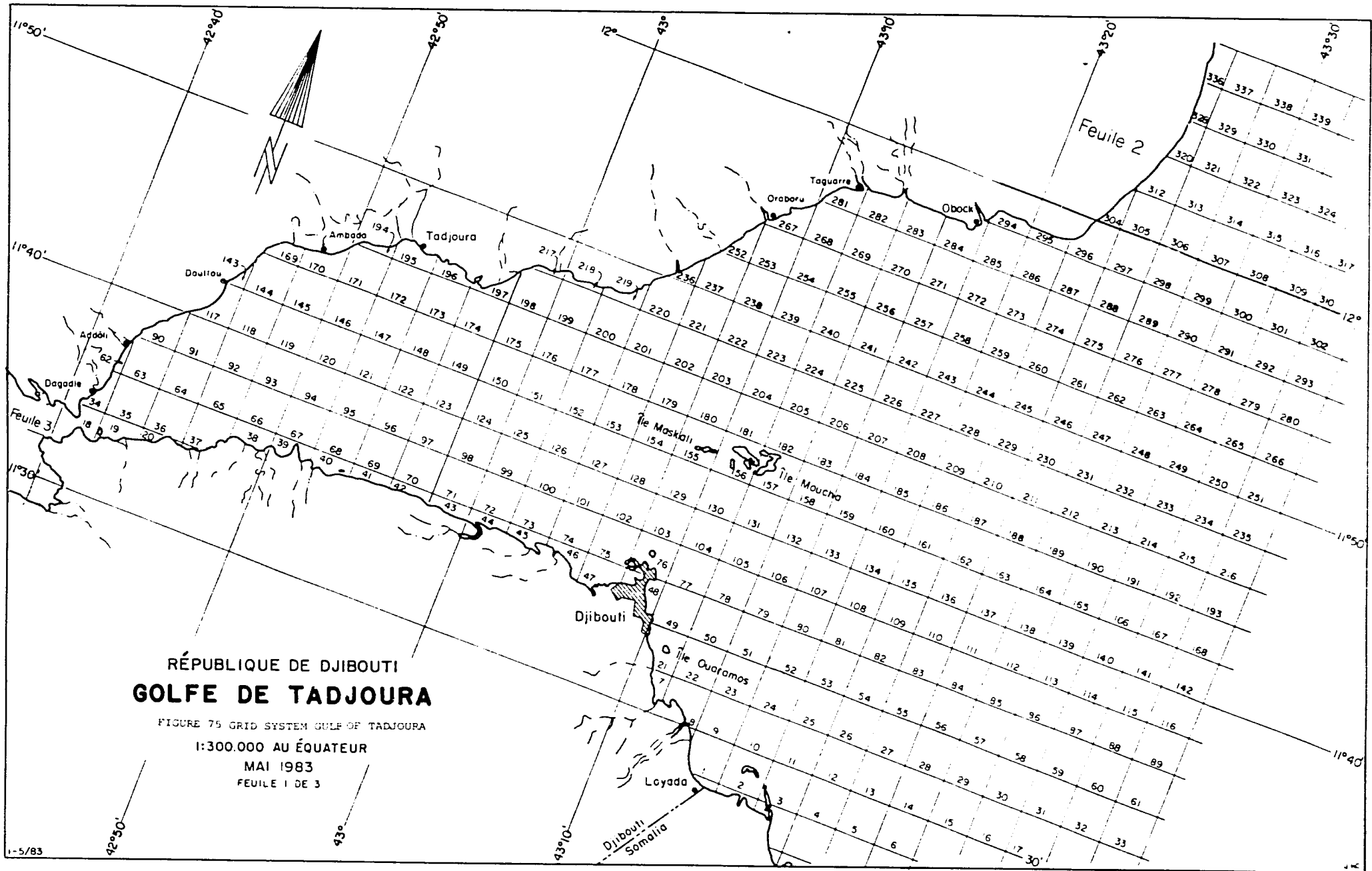


**RÉPUBLIQUE DE DJIBOUTI
GOLFE DE ADEN**

FIGURE 73 GRID SYSTEM GULF OF ADEN
1:300.000 AU ÉQUATEUR
MAI 1983
FEUILLE 2 DE 3

Feuille 1





RÉPUBLIQUE DE DJIBOUTI
GOLFE DE TADJOURA

FIGURE 75 GRID SYSTEM GULF OF TADJOURA
 1:300.000 AU ÉQUATEUR
 MAI 1983
 FEUILLE 1 DE 3

3.5.2.11 Stock Assessment Phase II

At the present time, Djibouti's only exploitable natural resource is its fisheries. Although the Phase I project has succeeded in more than doubling production since its inception, production levels within the waters of Djibouti are still quite low. The current annual yield is near 400 tons. The potential sustained yield of this resource has been estimated by various studies, including RDA's initial report and REDSO/EA's 1981 environmental impact study to be between 2,000 and 4,500 tons per year.

No current large-scale commercial exploitation is underway and the GROD is reticent about approval of various proposals set forth by foreign commercial interests. Fishing remains an artisanal activity, although one that is slowly growing in size and efficiency. There is no concern about short-term pressures on the fish populations, but there is moderate concern about long-term consequences of expansion of the fleet and potential industrialization of the activity. Certain species-specific fishing methods could, in particular, bring undue pressure upon these stocks. As a consequence of this concern, it was decided that the Phase II project would have, as a major activity, a stock assessment program to sample, over its 3-year life, population densities and biologic data.

The stock assessment program will attempt to determine the standing stocks and maximum sustainable yield of the commonly fished species in Djibouti. It will also attempt to do so for certain other species likely to be fished in the near future such as tuna, shark, and sardines. The main target species will include the commercially important bottom fish, i.e. the dorades, caranques, groupers, and the pelagics, i.e. the kingfish, barracuda, and tuna. The resident fish population, i.e. bottom fish, is

the most vulnerable to overfishing. These bottom dwelling fish should receive priority in any stock assessment program. Because of the successful results of the fish trap experiments, this type of gear has been selected to play a major role in the bottom fish stock assessment survey. Along with the traps, snapper reels and subsurface trolling gear will be the tools used in the bottom survey. If time permits, some attention will be given to some of the other lesser important commercial species, such as lobster, crab, squid, shrimp, etc.

At the start of the program, the Fisheries Biologist, perhaps with assistance from a short-term advisor will design the specifics of the survey. Standard recognized sampling procedures such as those followed by NMFS will be followed to ensure accurate and repeatable results that will, in most instances, permit estimates of stock sizes. Basic concepts which will be followed include the ideas of random selection of specific sites, multiple sampling of these sites, use of pre-planned and repeatable gear types, preset effort, and sampling with a seasonal variability. As has been seen in Figures 14 through 16, the entire waters of Djibouti have been gridded and each grid square has been uniquely identified. The initial sampling program will be concentrated within the 100-fathom line as there is no foreseeable exploitation of fish beyond this limit in the near future given the technology employed in Djibouti. Within the 100-fathom line, grid squares will be selected at random. These sites will then be visited and fished using the same type of gear known to be effective from the experimental and exploratory fishing programs. Each square will be fished for a certain preset length of time for each type of gear. For example, six traps may be set at random within the square at the beginning of the visit. The boat will then fish for one day using multiple hook fish

sticks at two hours per site for four randomly selected sites. The second day will consist of four hours of subsurface trolling on a random pattern within the square and four hours of surface trolling within the square. The third day would consist of retrieving the traps and moving to a new location where the same procedure would again be implemented.

All random sites will be visited and fished four times, twice in the winter season and twice in the summer season. It is expected that there will be a total of eight months of stock assessment fishing, two 2-month winter sessions and two 2-month summer sessions.

Data on fish catch will be collected by the Fisheries Biologist. On board the vessel, he will document length and weight for the entire catch by species. Figure 76 illustrates a sample form which might be used for such an exercise. He will also document location of catch, type of gear being used, time involved, soak time, bait used, time of day, and a record of water temperature at the depth of fishing. Once the fish have been delivered back to the Pecherie, they may be further sampled by the Biologist for physical data such as sex, eggs, age determination, etc. The present biologist trainees at the Coop are skilled in these determinations, having already been trained by the FAO Red Sea Regional Project biologist, Mr. Bouhlel. This data will be incorporated with other such data collected from the other fishing programs and from the Khor Angar.

4.0 RELATIONSHIP TO OTHER DONORS

The Djibouti fisheries project, as a measure of its success, has attracted a number of other donating agencies from the original FAC/USAID input. The project manager has spent considerable time working with these other agencies in helping with the design and implementation of projects. The following is a brief description of each donor's activity:

4.1 FAC

The French have provided assistance to the Djibouti fisheries in the past. The current FAC effort is directed at traditional fishing and will include the following inputs: a) technical assistance to the fisheries division, a continuing activity now in its sixth year; b) two flake ice machines for Djibouti City; and c) unspecified assistance, but possibly in the areas of designing fishery villages in the interior of the country.

4.2 IFAD

The two million dollar IFAD Loan/Grant was signed by the Government of Djibouti in December 1980, operational in 1981 and completed in December of 1984.

The IFAD program was scheduled to function for a period of four years and is summarized as follows:

- a) Increased fish consumption through establishment of adequate cold chain; i.e., by using ice and cold storage from the time the fish are caught until delivered to the customer. To obtain these objectives, boats will be equipped with insulated storage cases, ice will be produced, cold storage made available, transport provided to distribute fish to retail outlets to be established. Retail markets will be provided with appropriate cold storage facilities.

- b) Increase landings by: supplying small-scale fishing gear, providing additional hours (boats), establishing technical training facilities for fleet operations, and providing personnel and materials, strengthening the fishermen's cooperatives, implementing and experimental fisheries training program.
- c) Assist in the distribution of boats, outboards and fishing gear to those with no other financial sources, in joint collaboration with MOA, USAID/RDA and agents of the Banque Nationale de Djibouti (BND); i.e., to reinforce the revolving credit fund operation.

To achieve the above objectives, IFAD provided the following facilities and implemented the proposed organizational measures:

- a) Twenty-one (21) outboard motors and spare parts, tools, and bench supplies for repair/maintenance.
- b) Depots for sale of duty-free fuel/oils to fishermen.
- c) 14m fishing vessel, equipped for exploratory/experimental commercial fishing with master fisherman (captain) and mechanic.
- d) Miscellaneous fishing gear, insulated storage cases (ice boxes) for fishing boats.
- e) Buildings at Obock and Tadjoura to house fish sales outlets, gear supplies, etc.
- f) Plastic heat shrink sealer for packaging dried fish.
- g) Ten (10) public retail outlets - each 4.0m x 3.5m were built and located as follows:
 - Djibouti City (8),
 - Dikihil (1), and
 - Ali Sabieh (1).
- h) Mechanical workshop at La Pecherie for repair of outboard motors.

- i) Technical assistance (10 man-years)
 - (a) Project Coordinator
 - (b) Master Fisherman
 - (c) Mechanical Engineer
- j) On-the-job training for technical personnel, with supervisory or executive duties; plus 18 man-months scholarships for training abroad.

In May of 1984 a team of experts from FAO arrived at the bequest of IFAD to develop a Phase II Proposal. Since the USAID Phase II project stressed technical assistance, the FAO team felt the IFAD Phase II proposal should compliment the USAID effort with more commodity support than technical assistance.

4.3 Catholic Relief Services - CRS)

CRS has been involved with the Djibouti fisheries Development Project since March 1981. CRS regarded the development of Djibouti's fisheries as a vital step in improving local dietary habits - the main objective of CRS activities in Djibouti. Increased availability of fresh and dried fish would assure a more balanced high protein diet. The Project Manager aided CRS in designing and implementing their fisheries projects activities. Conversely, CRS largely assumed contractor responsibilities for fish promotion including demonstrations, advertising and marketing. A budget summary of fisheries activities, from 1981 - 1983, follows this section.

- 1) Fresh Fish Purchases - From May of 1981 to December 1982, CRS and briefly, ONARS/German Bread for Development, made purchases of fresh fish for distribution to vulnerable groups and refugees. The level of purchases were at a rate of about one ton per week.

This provided a needed stimulus to production consumption that greatly aided the cooperative at its beginning period. Photos 58 through 60 document the first refugee fish distribution at Mouloud.

- 2) Fish Waste Drying - Since June 1981, CRS has been drying all the fish wastes from the Pecherie. The dried fish wastes will eventually be used in CRS agriculture projects in the interior. In addition, CRS has ordered a fish grinder, which will ensure more effective packing and storage of the dried waste. The ground waste also has potential in the proposed SEP animal food production plant.
- 3) Fish Drying Facility - Obock - An initial pilot drying project was started in Obock in April, 1981. Results were encouraging in the terms of fish dried and shelf life of the product. The project would like to extend to shark drying, pending funding availability.
- 4) SIDA/LWF Artisinal Fisheries - Coop Support - The Swedish government, through Lutheran World Federation and CRS, provided the Djibouti Cooperative with three fiberglass boats in 1981. For 1982, this activity complimented the USAID/RDA boatbuilding activity. An order of \$33,000 worth of C-Flex fiberglass materials allowed for 15 or more old wooden boats to be sheathed, and an additional 4-5 newer boats to be produced. In addition, the SIDA Grant has provided power tools and a workshed.
- 5) Fish Promotion - CRS has produced fish posters and flyers. Also, new signs were made for the Pecherie. Newspaper ads were taken out in August - September, 1981. Radio announcements were made in 1982 - 1984.

- 6) Fish/Nutrition Promotion - A UNICEF-funded, CRS-administered fish nutrition project began in January 1982 to September 1984. UNICEF provided funding to hire a project coordinator, vehicle, cooking demonstrational aids and promotional items.

4.4 Red Sea Regional Project

The nations of the Red Sea, in 1978, signed an agreement with the UNDP for a regional fisheries project to be executed by the Food and Agricultural Organization of the United Nations. The countries involved included Egypt, Jordan, South Yemen, North Yemen, Sudan, and Saudi Arabia. The Republic of Djibouti became a signatory two years later. The basic aim of the project is to develop all sectors of the marine fisheries of the participating countries to a level of efficiency which will allow them effectively and rationally to exploit and utilize marine resources of the Red Sea and Gulf of Aden.

In March 1981, a Red Sea Regional project-funded research vessel visited Djibouti and did some exploratory fishing for three days. They pointed out some densities of pelagic fish found in Djibouti territorial waters.

In November 1981, the Red Sea Regional Project Manager visited Djibouti to identify what Djibouti needs and areas in which they could benefit from the project. The GROD explained that most areas in fisheries development were covered by IFAD, FAC, and USAID. But, there was one area in which they could help - that is, in the establishment of a fisheries research bureau within the Fisheries Service. The GROD stressed training needs for a biologist, plus aides, and a statistician. The Red Sea Project sent the team biologist to Djibouti in June of 1982. The biologist set-up

a sampling program to assess the five most commercially important (in terms of production) species of fish. In addition a fisheries library and laboratory was established. The project also donated ten outboard motors plus spare parts. The project was concluded in February 1984.

4.5 World Food Program

The World Food Program (WFP) became involved in the Djibouti Fisheries Project in 1983. WFP had been provided tinned sardines as part of their food distribution program. When CRS ended its fish distribution for refugee and drought feeding WFP was encouraged by GROD, CRS, USAID and UNDP to pick up this activity.

The World Food Program that year signed a contract with the Fisheries Cooperative to purchase 60 ton of fish (fresh or frozen) for its food distribution program. The program ran for 18 months ending in September of 1984.

CRS BUDGET SUMMARY

FISHERIES DEVELOPMENT 1981 - 83

<u>Agency</u>	<u>Input</u>	<u>81/amt</u>	<u>82/amt</u>	<u>83/amt</u>	<u>TOTAL</u>
USAID	Fresh fish purchase for vulnerable groups and refugees	70,988	105,500		176,488
CRS	Fresh fish purchase for vulnerable groups and refugees (pilot)	24,000			24,000
CRS	Fish waste drying facility (fertilizer)	5,000	Pending	Pending	5,000
CRS	Fish promotion	6,000			6,000
CRS	Fish drying facility and shark processing plant (Obock)	10,000	70,900 (proposed)		80,900
Bread for Dev. (German)	Fresh fish purchase for vulnerable groups and refugees	31,000			31,000
SIDA/LWF	Artisinal Fisheries' Cooperative Support	125,000	(81-82)		125,000
Total funding, to date:		271,988	176,400		448,388
UNICEF	Fish & Nutrition Promotion		76,500	30,000	106,500
Other Agency (Pending)	Fish delivery vehicle		20,000		20,000
TOTAL:					<u>574,888</u>



PHOTO 57 Cooperative insulated truck at Mouloud



PHOTO 59 Food Distribution Center with iced fish - Mouloud



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5.0 SUMMARY AND CONCLUSIONS

In January of 1985, RDA procured the services of an outside consultant to review the state of fisheries development planning in Djibouti with particular reference to cooperation between USAID and IFAD. This expert was eventually hired to fill the position of Fisheries Planner in Phase II. His conclusions and recommendations are endorsed by RDA. The following is the Executive Summary from his report.

5.1 General

In general the USAID and proposed IFAD project appear to dovetail well, AID mainly providing technical assistance (US\$1,266,000), some capital investment (US\$160,000) and training support, short-term consultancies and contingencies (770,000 US\$), while IFAD provides funds for training, credit, production, marketing and technical assistance. The Islamic Development Bank is funding a new fishing port complex at a cost of US\$ 5 million. The status of other proposed projects remain unclear. These are the proposed shark processing project and the construction of a fishing village.

The Government of Djibouti should recognize that despite optimistic and positive conclusions of the IFAD and USAID reviews of Phase I, the first phase did not produce the fish tonnage projected and the investments made did not result in the financial returns envisaged. The IFAD (1980) appraisal was a realistic approach to fisheries development in Djibouti. The project was effectively implemented by the government and consultants, but the results did not meet the expectations.

Setting aside the costs of technical assistance and capital costs, the ACPM may break even given a higher (500 MT approx.) throughput. The only part of the development programme which presently appears capable of paying its way is the credit scheme.

Project programming for a marginal fisheries sector such as that of Djibouti should preferably be done over a longer time scale, e.g. 5 years, and if possible the project's loan funding confined to components which clearly generate income, e.g. fish plant, credit scheme, project boats, workshops, etc.

The main problem facing the project is that of training new fishermen, as production increases are based mainly on additional production units. As described (IFAD, 1984/USAID, 1983) the training scheme does not appear capable of producing the required fishermen. The technical assistance personnel to be obtained through IFAD could include a training officer (master fisherman qualification) and two volunteers, one a boatbuilder and the other a marine mechanic with knowledge of refrigeration. Counterpart training must be far more vigorously implemented than in Phase I.

In evaluating projects and designing new projects, USAID should endeavour to engage personnel with local language capabilities and experience of third world conditions.

5.2 Policies and Plans

The Conference des Donneurs documents provide the basic policy framework for the development of fisheries (la politique de la peche; Article 49; Project No. 17; Ch. II. Geopolitique; Article 87).

The main problems foreseen in implementing such policies are in the following areas:

- 1) Lack of a comprehensive cheap food policy and programme.
- 2) Lack of international agreements regulating fishing.
- 3) Grant financing of fisheries projects.

5.3 Resources

While estimates of resources have been made, a high percentage of the species are pelagic and migratory. Consequently, resource monitoring should ideally be part of an international programme.

5.4

The limited number of skilled fishermen is a major constraint to production. Whether the motivation exists for fishermen to fish more often, or invest in larger boats is also open to question and requires further examination. The projected production increases are queried, particularly as the previous IFAD project projections were not met.

5.5 Infrastructure

The proposed fishing port at the main harbour is a considerable distance from the existing fish plant (la Pecherie). Large vessels cannot unload at la Pecherie. Ideally, the fish plant should be relocated to the main harbour as already envisaged under the quai de peche proposal. An experienced fish plant designer should be consulted to provide designs and assist with tenders if the scheme proceeds. The fishing port development is unlikely to increase fish production.

5.6 Fishing Boats

There does not appear to be a clear consensus regarding the optimum size and design of fishing boat(s) to be promoted. The pitch of the out-board propellers used is designed for speed rather than power and should be changed. Long tail diesel engines could be considered for the boutres. There is no planned approach to the boat development and experimental fishing programme which seems to proceed on an ad hoc basis. Mixing experimental fishing and training may not be the best approach.

5.7 Credit

The existing credit programme appears satisfactory and has a high rate of repayment. IFAD's recommendations are supported in part.

The term of the loans as proposed by IFAD (outboards - 2 years; boats 7-10 years) is too long. The present system of deduction of repayments from fish sales to ACPM should be retained in the absence of other tried and tested repayment methods.

5.8 Marketing

Incentives are needed for proprietors of the fish retail outlets to increase the volume of sales rather than rely on high markups for profit. Mobile fish vendors selling cooked brochettes, etc., could be encouraged. Lectures, talks or video films encouraging fish consumption among womens groups could be further promoted. Fish import restrictions could be introduced linking quantities imported to quantities of fish purchased from ACPM. Packaging and presentation of frozen fish needs improvement.

5.9 Shark Processing

The project evaluated by Moharram and Awadallah (1983) appears over optimistic in its production assumptions and a similar pilot project on a much smaller scale could be considered prior to such major investment. Such a pilot project could be incorporated into the IFAD proposal.

5.10 Grant Assistance

In line with government policy and the problems outlined by the World Bank, grant assistance for fisheries development should be sought wherever possible. Grant assistance could be sought from other donors, e.g. Japan.

In addition, grant funds from IFAD could be sought for the IFAD-funded technical assistance, particularly for training.

5.11 Project Organization and Management

The relationships between SEP and ACPM appear unclear. A formal agreement between the Stats/SEP and ACPM could be of assistance. The functions of ACPM and those of SEP would thus be clarified. Quarterly project review meetings should be held with representatives from SEP, ACPM, the donors and the planning and finance ministries of the Djibouti Government.

5.12 Credit, Marketing and Fish Price

ACPM must recognize that in the long term a system of outside fish buyers will absorb more and more of the fish landings. This will impact on the credit repayment method, which will have to slowly change to accommodate this development. The ACPM would eventually become the buyer of last resort for the fishermen.

5.13 Production Assumptions And Project Rate Of Return

It is clear that the production increases assumed (IFAD, 1980) were unrealistic and that, consequently, the Phase I project had a poor rate of return. IFAD (1983) has pointed out the uncertainties facing the Phase II project and the incremental production projection remains below that projected for Phase I. The recurring focus of attention again becomes training of new fishermen and upgrading of the older fishermen's technology.

DEVELOPMENT OF FISHING AND FISHERIES

IN DJIBOUTI - PHASE I

**VOLUME III
APPENDICES A - D**

**Final Report on
Resources Development Associates
Technical Assistance Contract
AID/AFF-C-1630
April, 1985**

Prepared by:

**Paul A. DeRito
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APPENDICES

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APPENDIX C	FAO SOCIO-ECONOMIC STUDY
APPENDIX D	YEARLY FISHERY ACTIVITY STATEMENTS
APPENDIX E	AN ANALYSIS OF FISHERIES EFFORT AND ENVIRONMENTAL ASSESSMENT
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APPENDIX A

USAID MID-PROJECT REPORT

PROJECT INFORMATION SUMMARY (PIS) - PART I

1. PROJECT TITLE DJIBOUTI FISHERIES DEVELOPMENT PROJECT			2. PROJECT NUMBER 603-0003	3. MISSION/AID/W OFFICE DJIBOUTI
4. EVALUATION INSTRUMENT: (Enter the number corresponding to the reporting form, Country or AID/W Administrative Code, Fiscal Year, Serial No., beginning with No. 1 each PIS) 603-82-004			<input checked="" type="checkbox"/> REGULAR EVALUATION <input type="checkbox"/> SPECIAL EVALUATION	
5. KEY PROJECT IMPLEMENTATION DATES		6. ESTIMATED PROJECT FUNDING		7. PERIOD COVERED BY EVALUATION
A. Pro-Ag or Equivalent FY-80	B. Final Obligation Expires FY-81	C. Final Input Delivery FY-83	A. Total \$ 978,000	From (month/yr.) March, 1980
			B. U.S. \$ 978,000	To (month/yr.) December, 1981
Date of Evaluation Review				

8. ACTION DECISIONS APPROVED BY MISSIO/J OR AID/W OFFICE DIRECTOR

(1) Description and/or unresolved issues; also those items needing further study. (If this Mission includes which anticipates AID/W or regional office action should be taken, type of agreement, etc. system, S.M.B., P.I.O. which will present detailed request.)	B. NAME OF OFFICER RESPONSIBLE FOR ACTION	C. DATE ACTION TO BE COMPLETED
1. Continue to monitor contractor progress towards completion of assistance goals as stated in the Pro-Ag.	AAO/Djibouti	
2. Coordinate with other donors to insure non-duplication of effort in assisting the Fisheries Dept. and Fisheries Cooperative.	AAO/Djibouti	
3. Investigate the possibility of assisting in the establishment of an appropriate accounting system and assistance in the procurement of a vessel used for fish transport and exploratory/production fishing.	AAO/Djibouti	4/82

9. INVENTORY OF DOCUMENTS TO BE REVIEWED FOR ABOVE DECISIONS

<input type="checkbox"/> Project Paper	<input type="checkbox"/> Implementation Plan eg. CPI Network	<input type="checkbox"/> Other (Specify)
<input type="checkbox"/> Financial Plan	<input type="checkbox"/> P.I.O/T	_____
<input type="checkbox"/> Logical Framework	<input type="checkbox"/> P.I.O/C	<input type="checkbox"/> Other (Specify)
<input type="checkbox"/> Project Agreement	<input type="checkbox"/> P.I.O/S	_____

10. ALTERNATIVE DECISIONS ON FUTURE OF PROJECT

A. Continue Project Without Change

B. Change Project Design and/or

Change Implementation Plan

C. Discontinue Project

11. NAME OF OFFICER AND OFFICE/AGENCY OR OTHER RANKING PARTICIPANTS TO PARTICIPATE (Name and Title)

Timm A. Harris - Project Design Officer
REDSO/EA

[Handwritten Signature]

12. MISSION/AID/W OFFICE DIRECTOR APPROVAL

[Handwritten Signature]

E. Amundson, AAO/Djibouti

12 December, 1981

13. SUMMARY

The USAID/Djibouti Fisheries Development Project (603-0003), assisting the Association Cooperative de Peche Maritime (ACPM), is roughly at the mid-term point, with completion planned for August, 1983. The assistance being given consists of technical expertise in specialized areas, management advice, some training of staff and fishermen and the supply of certain commodities, with the overall objectives of improving fishing methods and equipment, expanding the fishing industry as a whole, assess demand and increase consumption of marine products and help create self-sustaining public and private institutional capabilities.

Major progress has been made in the area of institutional development, commodities have been supplied and steps have been made to improve the fishing industry as a whole. Yet a well-defined training program has yet to be established and certain specialized assistance is still evolving (boat building, oyster culturing and other un-tapped marine product development). The project has played a significant role in the growth of the Cooperative Association, through direct intervention and management. Now the focus will have to shift to assistance in creating internal capabilities for managerial and financial self-sufficiency. This is possible, yet additional USAID assistance would enhance this effort. The help of USAID in improving internal control systems and transport/production capabilities would be a valuable additional input into the ACPM (see ACPM Assessment).

14. EVALUATION METHODOLOGY

This mid-term evaluation was done to point out progress and highlight assistance still to be made to the Cooperative and fisheries industry. This measurement of progress to date (some twenty-one calendar months of assistance to date) was carried out by reviewing the pertinent documents available (AID internal documents, co-op financial and statistical reports), by site visits in Djibouti and Obock, through interviews with key individuals (Government officials, fishermen, cooperative staff, other donor representatives and selected clients) and through group discussions with contract personnel, cooperative staff, other donors and certain Government officials.

15. EXTERNAL FACTORS

No major changes have occurred that influence the Project, although the Government of the Republic of Djibouti (GROD) has expanded the budgetary allowance to the "Fisheries Department" of the service of Livestock and Fishing nearly two-fold, to expand staff and facilities. This enhanced capacity of the Fisheries Department demonstrates the importance the GROD places on the industry and on the Cooperative and will help to strengthen this business sector and assist in its growth.

16. INPUTS

The major project inputs are : technical services, commodities, management advice and training. All commodities are either supplied or "in the pipeline". The management advice and technical services are being given and shall continue over the life of the Project. The training, in formal programs here in Djibouti or elsewhere, have not yet been planned or programmed.

17. OUTPUTS

Fish production and sales has increased, through the Djibouti facility, by an estimated 15%-20% over the 1980 average. Whether or not this increase is caused by improved fishing, increased numbers of fishermen or both is not yet known.

Self sufficiency and internal management capabilities have not yet been achieved and will take some years to be fully realized. Some progress has been made, yet training of staff and hiring additional staff are required, as well as the installation of various management control systems and additional infrastructure (see the assessment report on the ACPM).

18 and 19. GOAL AND PURPOSE

These were stated in the Summary and progress has been made towards their achievement. As over twenty months still remain under the Project, there is time to continue to strive towards the Project goals. Most important elements still required towards the strengthening of the Djibouti fisheries industry are training (for staff and fishermen), detailed marketing study (at locations for new retail outlets) and increased infrastructure (facilitation by the Project as the input).

20. BENEFICIARIES

These have not yet been measured, in terms of fishermen or customers (clients). It is somewhat premature to spend a significant amount of time in data collection, as there are higher priorities to be addressed firstly. It can be stated, although not qualified, that fish consumption has increased and the number of consumers has as well. Fish distribution projects in the interior (through Catholic Relief Services), new major buyers (the Army, some schools and hospitals) and the numbers of apparent retail customers bears this out, although these observations have not yet been quantified.

21. LESSONS LEARNED

With the Project only partially completed, many lessons are still being learned. Some though, which can be stated in fairly general terms are :

- a. Close liason between oil donors to a given institution or activity is essential in order to avoid duplication of efforts and avoid counter-productive, opposing inputs.
- b. Commitments of resources should not be made nor even intimations about their availability be made until there is a fair degree of certainty that certain services or inputs can be provided.
- c. Given a dynamic situation, the ability to change budget line items and make amendments to agreements is essential in order to respond rapidly to changing needs.

ASSOCIATION COOPERATIVE
DE PECHE MARITIME (DJIBOUTI) :
AN ASSESSMENT OF CURRENT OPERATIONS

BY

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USAID, REDSO/EA

for

AID/DJIBOUTI

DECEMBER, 1981

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ASSOCIATION COOPERATIVE DE PECHE MARITIME (DJIBOUTI)

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I. INTRODUCTION

The purpose of this report is to make a brief overall assessment of the Association Cooperative de Peche Maritime (Fishing Cooperative or ACPM) and to make general recommendations on possible solutions in certain problem areas or areas of weakness. It is seen as important to view the ACPM as a whole, rather than isolate a given component (such as the USAID project), as the success or failure of the Society is not determined solely by the success or failure of an individual project or component.

It should be recognized that the ACPM itself is not an independent entity, but is largely controlled, subsidized and facilitated by the Government of the Republic of Djibouti (GROD), through the Ministry of Agriculture, Chief of Fisheries Service. As the fishing industry in this newly independent nation is still in the formative stages, it is expected that GROD participation and assistance in the management and operations of the ACPM will necessarily remain heavy for some time to come. The ACPM has and is receiving assistance from the French Economic Assistance Mission (FAC), as well as USAID and the FAO.

Given the limited amount of time available for this evaluation, there is more emphasis placed on general problem areas or points of weakness, rather than an in-depth analysis of specific problems and solutions. As the ACPM is still evolving (selling operations have only been done by the Cooperative since March, 1981) and many new procedures and plans are being installed, an in-depth analysis would be premature. It would be appropriate though, in a period of about one year to eighteen months, when all management and operational systems should be in place.

II. PRESENT STATUS

For this assessment it is not necessary to give a lengthy historical perspective on the Association Cooperation de Peche Maritime (ACPM). In most functional respects the ACPM has been operational since March of this year, and in existence for less than five years. For an historical perspective the Project Paper can serve as a major source of information. This section of the report has been divided into the following sub-sections : Production, Infrastructure, Management, Finance and the USAID Fisheries Development Project.

A. Production

In March, 1981, the ACPM assumed the function of selling marine products for the fishermen/members, both wholesale and retail, through the factory outlet in Djibouti (city). Almost immediately a dramatic increase in the volume of purchases was seen. From an average estimated monthly production of 21 tonnes in 1979, 26 tonnes in 1980, the monthly average has increased to 30.5 tonnes during the year. This assumes that roughly 30% of production is not sold through the factory, but through direct sales to clients or middlemen. This estimate can be considered fairly conservative.

This increase in production by the fishermen is attributable to a number of factors, those considered most important are : access to additional equipment and supplies, prompt payment for fish purchased by ACPM, fair/generous prices paid to fishermen, the enhanced image and improved operations of the cooperative itself and the cooperative's willingness to purchase all fresh fish (not only certain types).

Correspondingly sales have also improved, although exact sales levels prior to March are not known. Many new customers have been located and at least one-half of sales are now done on a wholesale basis. Major new customers include hospitals, army units, schools and the Catholic Relief Services (CRS). This trend towards a more permanent, stable clientele is beneficial to the fishermen and society, as sales are consistent and more cost effective.

Yet some problems have also arisen. It should be understood that the new operations still have not been learned fully and that improvements are still being made. Two major problems were noted (there may well be others) and they are the high level of fish spoilage and apparent level of missing stock. In months of peak production (April, May, June) spoilage losses were near 3%. This is on stock that should turn over (be sold) within one to three days and should not spoil. Spoilage can occur for three primary reasons, that the fish are "bad" or marginal when purchased, that older stock is not sold or processed first and thirdly that the fish is not properly refrigerated. Preliminary investigations indicate that all these reasons have probably contributed to the rate of spoilage.

The ACPM has not performed a physical inventory check of fish products since March, when the cooperative took over the fish factory. Calculations based on purchases and sales figures (see Appendix E, note 5) show that the stock in September should have been in excess of thirty-five

metric tonnes. Yet the physical stock was probably in the region of some ten tonnes. Although these figures are estimates, they are probably correct within #25% and do indicate large amounts of missing stock.

B. Infrastructure

The ACPM has dramatically improved its ability to assist its members and other fishermen by the assumption of control of the factory and ancillary facilities. In addition to the storage and sales facilities, the cooperative operates lorries, sells fishing equipment and supplies and provides credit to the members for the procurement of equipment and supplies. This integrated approach to assistance, greatly helped by CROD support (with personnel, operating expense payment, facilities use, etc...), has greatly increased the ACPM's ability to help its members and strengthen the fishing industry. Further improvements in the physical and functional infrastructure are being made, as pointed out in Section III of this report.

Some areas of need, not specifically addressed to date, should also be looked at. The ACPM is highly dependent on an ice machine that has not always been reliable. The cooperative will also be faced with increasing demands on its limited transport, assuming expansion plans are carried out. Storage facilities are limited and may become a problem at some time in the future. These potential problems will be looked at again in Section IV.

C. Management

The recent staff increases made, based upon the secondment of Fisheries Staff (Service de Elevage et Peche - SEP), have assisted the ACPM financially and operationally. The total seven staff (of a total of twenty) are seconded from SEP and work basically full-time for the cooperative. Yet the ACPM still appears under-staffed, as there are only three "senior" staff personnel (Director, Chief Cashier and Head Salesman). This does not include expatriate personnel, who are either advisory in capacity or specific to a given project.

The senior management of the ACPM is weak and lacks capabilities in many areas. There are not enough staff at present and there is an apparent lack of supervision, management systems, spans of control and responsibility. The work flow appeared disorganized at times and little apparent supervision of it. Many

staff were inactive at times, even though there was work that needed to be done. The lack of management systems in some areas is apparent when attempts are made to obtain some statistical and/or financial information as well as a clear organizational chart or framework which delineates duties and authorities. The frequent absence of the Director and heavy reliance on the USAID Project Advisor is another manifestation of this weakness in management.

D. Finance

The ACPM should currently be in a fairly strong financial position, as indicated by a lack of debts, the level of donor assistance, the support by the GROD and the price structure.

It is difficult to assess the current status and prognosis of the ACPM though, as the financial records are incomplete. Only a cash flow is done regularly and no balance sheets or income and expenditure statements are available. Improvements have been made, yet the cooperative needs to have a complete set of books of account and monthly financial statements.

Although the price structure for buying and selling products is fairly rigid, thorough cost analyses should be done on the assumption that the cooperative is not being subsidized, even though the subsidies may continue for some years to come. It is difficult to do such analyses of price structures without proper financial records, but efforts should be made to do so.

At the present the ACPM is dependent on donor and GROD assistance and equipment. This dependence weakens the cooperative's ability to respond to members' needs and to meet any contingencies that may arise. This can be lessened over time, to the benefit of the ACPM and the Government as well.

E. USAID Project

A major component of the ACPM program is the USAID/Djibouti Fisheries Development Project. Under the Project and Extension/Amendment, the contractor (Resources Development Associates - RDA) provides technical assistance (both long and short-term) and certain sub-project equipment and supplies. A number of commodities have already been supplied (project boat, ice machine, outboard motors, etc...), as shown in Appendix F.

In summary terms, the contractor (through long and short-term personnel) is to perform the following tasks as shown in the Project Paper and Amendment. The contractor has agreed to :

1. Develop certain base-line data.
2. Assess existing fishing methods, introduce improved fishing gear and techniques and provide on-the-job training to fishermen.
3. Upgrade handling and storage of fish by providing ice-making facilities, storage containers and by experimenting with drying of fish.
4. Improve the marketing system by developing promotion and education demonstrations and by assisting and advising with the establishment and transport to new and old retail outlets.
5. Assess the potential for development of fisheries cooperatives and assist in establishment.
6. Establish and manage a revolving credit fund and train personnel in its operation.
7. Ascertain special training needs of GROD Fisheries personnel, fishermen and possibly merchants and set up programs to meet these needs.
8. Provide recommendations for the future development of the fishing sector, such as :
 - (a) boat building and repair
 - (b) oyster culturing
 - (c) exploratory fishing
 - (d) fish drying

The present status of these various assignments is somewhat different for each one. It should be remembered that even though the Project started in March, 1980, it has an extended completion date through August, 1983. Therefore the Project still has over 1½ years to continue and the contractor still has time to complete the assignments. Following the summary of tasks shown above, the accomplishments to date are:

1. base-line data - Statistics are kept on fish purchases and fish-sales, but no data has yet been collected on local dietary habits, demand/supply factors or surveys of existing markets. An overall marketing study has yet to be done. Although it would be most difficult for the contractor to do such a study, one could be designed and the Fisheries Service personnel could possibly perform the study itself.

2. Training for fishermen - Previous short-term visits by the contracted Master fisherman were used to determine needs and assess local fishing techniques. It is now expected that the Master Fisherman (he has been here about one month) will set up a formal education program and schedule and will begin the "on-the-job" training program.
3. Upgrade the handling and storage of fish - There have been significant problems encountered in this regard. USAID and the contractor have had to wait for other donors and the GROD to perform certain tasks. These tasks include storage facility site selections, building construction and documentation. As a consequence, there have been and will be significant delays in the establishment of storage facilities in Obock, Tadjoura and retail outlets in Djibouti. USAID has secured the ice-maker as agreed. CRS and USAID may jointly fund an architect to design and prepare needed documents and this will undoubtedly speed up the process. Yet final construction and completion may not take place before project (AID) completion.

Very little has been done by the contractor to improve the storage and handling of fish in the existing facility in Djibouti. Fish are placed haphazardly, stored without ice and not kept properly chilled. Space is wasted and spoilage occurs.

The fish drying experiment has not progressed beyond the construction of sardine drying racks. Shark processing experiments have not been done and both these efforts (in Obock) will hopefully be addressed soon.

4. Marketing System - Promotion and education demonstrations have been initiated by Catholic Relief Services (CRS). CRS, with guidance from RDA, has conducted fish preparation/cooking demonstrations in refugee camps and at some retail outlets. Advertisements have been made through the press and radio. A thorough study is needed though, especially at the proposed locations of new retail outlets, in order to prepare an education and promotion campaign.

The enhancement of supply has been achieved with the assistance of RDA, through the expansion of the ACPM and the new role as retail/wholesale marketer of members' produce. This is discussed

in Section IIA. The assistance rendered by the Project Manager to the establishment of the Cooperative as a buyer/seller has been essential to the progress made to date. This assistance is perhaps the greatest contribution made so far by the contractor. This also answers No. 5, the development and establishment of a fisheries cooperative. The contractor's contribution has been highly significant; the contractor's input has been essential to the on-going operation of the Djibouti facility. The role has been one of active management and decision-making, playing a crucial role in the daily operations to date.

6. Revolving Credit Fund - Through the assistance of the USAID Grant, ACPM and the Contractor (RDA) established last year a loan fund, used mainly for the purchase by members of outboard motors. The project has been very successful. Under the revolving credit fund over twenty fishermen have bought outboard motors and some fishing gear. Nearly half have repaid their loans and the funds have been relented to others.

There have been some problems. Certain rules of eligibility have been laid out, yet certain members have tried to circumvent them and to receive special privileges. The loan committee at times has not been as strict as it might. Yet overall the revolving credit fund has worked well. The USAID/RDA Project Manager maintains the accounts, which he designed, as well as the rules of operation. It should however be noted that these have been duly publicized for the membership.

7. Training needs and Programs - As mentioned in No. 2 (Training for Fishermen), the contracted Master Fisherman has identified members' training needs and should be soon carrying out a program of education. He has not set up a formal program or schedule, but should be doing so very soon.

In terms of staff training, it appears that very little has been done. The USAID staff has accepted responsibility for arranging in-country "training/exposure to co-op modalities" and to arrange that the Director of Fisheries Service attend a series of observational work shops in the USA.

These training programs can be helpful, but they are not sufficient to enable the ACPM staff to be self-sufficient in two years. Staff lack many basic skills, both technical and managerial. Recommendations will be made later for their rectification.

8. Future Development of the Fishing Industry - The Contractor has initiated a number of projects designed to test and possibly expand the local fishing industry. Two such projects are now being worked on, oyster culturing and boat building. The oyster culturing is to be tested (started) this month and the beds have been constructed. This project will take at least one year to be tested, following at least one growth cycle. The boat construction project is just starting and a "model" for moulding purposes has been selected and is being renovated. The materials (C-Flex, fiberglas, resin, tools, etc...) are on order and are expected in-country any day. This project also will take some time before it reaches fruition.

In terms of exploratory fishing and fish drying, little has been done by the contractor to date. CRS (Catholic Relief Services) has expressed a willingness to assist with developing fish drying, but little, if any, progress has been made to date. It is expected that some exploratory fishing will be done in conjunction with the on-the-job training program of fishing techniques and gear education to be done by the Master Fisherman.

III. EXPANSION PLANS

Although programs have been mentioned pointing out some new directions to be made by the cooperative, most have been either extensions of current activities or have been exploratory in nature. Yet there are major expansion plans in various stages of development and they should be mentioned. These plans are divided under three major headings : facilities and products, personnel and technical assistance.

A. Facilities and Products

Already mentioned are the projects to explore expanded fish drying and oyster culture as new products that might be marketed by the ACPM on behalf of its members. Testing is also contemplated which will explore the exploitation of certain "new" fish species, principally the sardinella (sardines) and expanded catches of current products through the use of more advanced equipment and techniques.

Drying racks for sardines have been constructed in Obock, but have not yet been tested. Oyster culturing should be initiated in this month (December, 1981), with the results available within one year.

These efforts at expanding both the amounts and types of marine products are being made on the assumption that there will be an expanded market for the products. This assumption is not predicated on thorough testing and research, but on observations only and the planned construction of new facilities. There are fairly concrete plans, which may actually be finalized within one or two years,

for the construction of eleven (11) retail outlets for selling marine products. Nine are to be constructed in the city of Djibouti and one in Dikhil and in Ali-Sabieh.

These retail outlets are to be supplied from the main facility in Djibouti. In turn this facility is to have supplies (increased amounts) brought from Tadjoura and Obock, where it is planned that cold stores and ice-machines are to be constructed/installed.

Both the retail outlet construction and the cold stores and ice-machines are funded and are still in the planning stage, yet should be completed within one to two years. A number of problems are envisioned though, with these expansion plans, as there are apparent gaps in the required inputs. Once again, a thorough marketing study (at least in those locations of the new retail outlets) should be done and used for an education/promotion program. There has been little testing or investigation on the marketability of new products. Also important is the lack of a transport infrastructure to support this new growth. An insulated and/or refrigerated boat will be needed to transport the product from Tadjoura and Obock to Djibouti. At least one additional lorry will probably be required to distribute the products from the main facility to the retail outlets. A boat will also be needed to test the availability of the new products being contemplated for marketing. In other words, the overall planning needed for the expansion plans has not yet been done, but must be in the near term.

B. Personnel

The changes to be made all involve a requirement for additional staff. At this time the ACPM has twenty full-time employees. With two people to run each new retail shop (if they are to be owned by the cooperative, a decision which has not yet been made) and at least one supervisor of operations and one accounts clerk, there will be a need for some 24 new employees. For the transport requirements (boat and lorry), perhaps six more staff will be needed. To operate the cold room/ice-maker facilities at Tadjoura and Obock, perhaps four or five additional staff each will be needed. Therefore it is conceivable that some forty (40) new staff could be required.

These staff will need to be selected and be given appropriate training. No program or plan for recruitment and training has yet been drafted. There is still some time, though, as the facilities expansion may not take place until one or two years have passed.

C. Technical Assistance

At the present the ACPM is receiving technical assistance and donor support from the Government of France ~~UNICEF~~ (FAC), IFAD and USAID. USAID will continue assistance at least until March, 1983. Under the current program this assistance will consist of the provision of technicians and management advisors. The assistance of

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the French, under the programs mentioned will continue. The IFAD program, providing personnel and funding for store construction, should continue for at least two years.

CRS, FAO and the Japanese Aid organization have all expressed an interest in providing some form of assistance to the Fisheries Department and the ACPM. It is not known what form such assistance will take, but shows an active concern by the donor community.

IV. CONCLUSIONS AND RECOMMENDATIONS

From the observations made over the last several days, discussions and review of the documents, a number of general conclusions and recommendations were arrived at. It is hoped that these judgements can serve as a guideline for areas of discussion and investigation by Fisheries Department staff and the ACPM. The recommendations are not meant to be definitive, but as possible approaches to solving some of the problems seen through this evaluation exercise.

A. Production

The dramatic production improvements seen over the last year were somewhat offset by the high level of spoilage in the product and an apparent loss of stock.

The spoilage, as mentioned, can be caused by purchasing "bad" fish, not using the first in-first out approach (of selling the oldest fish first) and by improper storage/refrigeration. Training and upgraded organization can help alleviate these problems. This may involve bringing in technicians from outside or using the experts available in country. Organizationally, the cold room and freezer room should be organized so that the fish is kept properly cold (don't store near the door, store fish on ice in the cold room). Also the fish should be kept separately (by the day purchased) in separate bins or baskets and the oldest fish should be brought out and sold first. If all fish (or a good portion) for sale on a given day is removed from the cold room with ice at once, there will be less traffic, less time wasted and the cold room will be colder and run more efficiently. Hopefully the Master Fishermen and others can help the cooperative to solve these problems.

The apparent loss of stock (Appendix E shows roughly 40 tonnes of fish in stock, where the total is about 10 tonnes) should be investigated thoroughly. Such an investigation will entail a study and check of all statistical information to determine

the theoretical stock level. Then a physical inventory check must be made (all fish weighed). If major discrepancies are found, remedial action should be carried out. In the future the cooperative should perform a physical inventory check at the end of each month and this should be reconciled with the theoretical stock level.

B. Infrastructure

The takeover by the ACPM of the fish processing and marketing facilities at Djibouti was an excellent step in improving the organization's ability to serve its members and all fishermen.

In order to continue to improve services, it is recommended that the ACPM improve those facilities or at least investigate the possibility of further improving services. Reserve funds should be accumulated for the day when the cooperative will wish to purchase an ice-machine, cold room, freezing room, transport equipment and all other facilities it is now renting. Also the need for back-stopping/guaranteeing essential infrastructure should be looked into. The cost to the ACPM and its membership for an ice-machine breakdown or a lorry failure may make it cost effective to consider an additional lorry, a larger ice-machine and improved storage facilities or other protective measures.

The expansion program envisioned by the ACPM and Fisheries Department, as well as donors, includes the opening up of new markets and introducing new products. It implies large staff increases, a need for additional storage and greatly increased transport requirements. All these consequences of expansion must be studied and dealt with thoroughly, and in the near term. For example, the ACPM is possibly to fish for new products and will definitely need to carry fish from the storage centers in Obock and Tadjoura to Djibouti. With the assistance of donors and their own resources, the ACPM should investigate and initiate the procurement of such a craft in the near term (incidentally, the USAID contractor has identified and recommended a boat and equipment appropriate for transport and exploratory/production fishing).

C. Management

The recent GROD secondments of staff from the Service de Elevage et Peche (SEP) has greatly helped the cooperative with some manpower problems. Yet the ACPM is still understaffed on the management level, as exhibited by the lack of management systems and consistent supervision. It is recommended that the cooperative consider securing the services of an Accounts Clerk, a Deputy Director, a Retail Head Sales Clerk, Chief Materials Officer and perhaps Financial Manager/Internal Auditor.

In addition, training programs in the areas of cooperatives, fish enterprise management and marketing should be investigated and appropriate staff be given the opportunity to increase their knowledge and improve their skills.

D. Finance

Although the ACPM appears to be in a fairly strong financial position, this could be lost overnight. The cooperative, it is recommended, must install appropriate accounting/reporting systems into the overall operations as soon as possible.

Once this is done, cost analyses should be done on all products sold. Proper price structures should be instituted, ones which reflect an independent stance of the ACPM and allow a fair return to the members, without lessening demand from the customers.

As mentioned before, the cooperative should start creating a reserve fund to purchase new equipment to replace existing equipment and to purchase new items which may be required with expansion and/or increased independence. Profits should be put in such a fund, not for bonuses or dividends, but as a source of capital for future growth and stability.

E. USAID Project

The USAID Project and assistance given by the contractor to the ACPM has been essential to the success that has been enjoyed thus far. Without the timely efforts and self-sacrifices made, it is unlikely that the cooperative would be the viable entity it is today. The essential, crucial input provided to-date has been managerial and monetary control to-date. Other assistance has been given, but in the area of daily management and monetary responsibility the help has been the saving grace to-date.

The USAID assistance has gone beyond daily management of personnel and the ACPM cash. Other assistance was mentioned in Section II.E and Appendix F. Assistance under the Project has been provided for through August, 1983, and many types of technical assistance are still in the formative stage (boat building, oyster culturing, etc...).

The major areas (that must be addressed, plans formulated and actions carried out) which have yet to be planned in any detail are the marketing study, training programs and marketing promotion and education. The contractor, as mandated in the Project Agreement and Amendment, must begin to plan the programs needed to accomplish these tasks.

The contractor should be encouraged to help the ACPM to upgrade its handling and storage of fish, as well as record-keeping, in order to help lessen spoilage and losses of stock.

Overall, contract performance has been strong in some areas and weak in others. The strengths of the managerial assistance far outweigh any weaknesses, yet the contractor should be encouraged to improve all levels of assistance as agreed in the agreement.

It is recommended that USAID continue to support the SEP and the ICPM as it has been. It is also suggested that USAID study the possibility of further assistance in crucial, essential areas. Two such areas are : the need for appropriate accounting to be installed and improved transport/exploration capabilities. In terms of accounting, AID might consider funding an organization (under a short-term contract) to design and install an accounting system. It is suggested that the firm contracted would train local staff in its operation and would monitor operations for a period of time. In terms of transport, AID might reconsider assistance to the ACPM in procuring a vessel to be used for fresh fish transport and for exploratory/production fishing as well.

APPENDICES

- A. FISH PRICES
- B. SALES FIGURES
- C. PRODUCTION LEVELS
- D. PURCHASES
- E. INCOME AND EXPENDITURE
- F. USAID BUDGET SUMMARY

APPENDIX A

WHOLE FISH PRICES (CURRENT)

<u>PRODUCT</u>	<u>PURCHASE (Kg.)</u>	<u>RETAIL SALE</u>	<u>WHOLESALE</u>
TUNA	220 DF	400	300
KINGFISH	300	500	400
ROCKFISH (LARGE)	220	400	300
ROCKFISH (SMALL)	300	450	400
MULLET	220	400	300
BARRACUDA	220	400	300
LOBSTER	2,450	2,900	2,800
SQUID	1,200	1,500	1,400
RAY	350	550	450
JACK	220	400	300
SNAPPER	220	400	300
SHARK	150	400	300

FILLETS FISH PRICES (CURRENT)

ROCKFISH	(55% Loss)	490	800	700
TUNA	(50% Loss)	440	800	700
JACK	(50% Loss)	440	800	700
SNAPPER	(45% Loss)	400	800	700
SHARK	(45% Loss)	273	800	700

APPENDIX B

SALES

BAIT

RETAIL

WHOLESALE

1981	CASH	KGS	CASH	KGS	CASH	KGS
AR.			6,399,080	13,019		
APR.			7,460,910	74,534	1,377,400	2,035 kgs 580 Fillet 158 Lobster
MAY	138,500	554	5,594,460	11,989.4	4,172,725	8,912
JUNE	226,250	905	4,144,595	7,150.2	4,327,280	10,489.5
JULY	137,750	551	3,323,530	6,945.7	3,574,550	9,139.7 828 Fillet 175 Lang.
AUG.			3,538,910	7,598.7 166 Lobster 510 Fillet	4,174,660	9,949.3 1,210 Fillet 276 Lobster
SEPT.			5,224,560	10,477.5 771 Fillet 332.4 Lobster	4,188,560	7,997 1,319 Fillet 558 Lobster
OCT.						
NOV.			5,228,170		3,835,330	

APPENDIX C

PRODUCTION LEVELS
(Kilos metric)

	<u>FISH</u>	<u>LOBSTER</u>	<u>SQUID</u>	<u>CRAB</u>	<u>TOTAL</u>
MARCH '79	20,121	-	-	-	20,121
APRIL	17,991	208	46	-	18,245
MAY	16,957	293	65	-	17,315
JUNE	12,445	416	66	-	12,927
JULY	13,312	389	21	-	13,722
AUG.	16,167	177	32	102	16,478
SEPT.	16,525	228	45	-	16,798
OCT.	16,414	270	26	50	16,826
NOV.	16,934	150	5	43	17,152
DEC.	15,330	20	-	35	15,385
<hr/>					
	+30% 231,708	+30% 3,072	+40% 510	+98% 11,500	251,090
<hr/>					
JAN. 1980	14,790	-	-	-	14,790
FEB.	14,686	123	10	20	14,839
MAR.	19,196	209	-	154	19,509
APR.	22,536	517	149	-	23,202
MAY	22,544	713	-	-	23,257
JUNE	15,700	457	-	-	16,157
JULY	16,109	400	-	-	16,509
AUG.	17,653	688	-	-	18,341
SEPT.	15,604	-	-	-	15,604
OCT.	17,448	-	-	-	17,448
NOV.	17,267	82	-	-	17,349
DEC.	12,071	-	-	-	12,071
<hr/>					
	+30% 293,648	+30% 4,555	+40% 265	+98% 8,700	312,568 kgs
<hr/>					
JAN. 1981	16,289	125	5	-	16,419
FEB. 1981	18,973	188	7	-	19,168

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PURCHASES

	<u>FISH</u>	<u>SQUID</u>	<u>LOBSTER</u>	<u>TOTAL</u>
March Kgs	20,667	9.3	251	20,927
Cash	5,449,200	11,160	652,860	6,113,220
Price per Kg	263.5	1,200	2,600	
Apr. Kgs	30,515	94.5	570.5	31,180
Cash	7,249,830	113,340	1,483,430	8,846,600
Price per Kg	237.6	1,200	2,600	
May Kgs	28,131	175.2	527.3	28,833.5
Cash	6,867,910	210,240	1,367,990	8,446,140
Price per Kg	244.1	1,200	2,600	
June Kgs.	23,169	84.75	914.9	24,168.7
Cash	5,600,100	101,700	2,267,315	7,975,115
Price per Kg	241.9	1,200	2,480	
July Kgs	18,138	-	285	18,423
Cash	4,122,540	-	699,315	4,821,855
Price per Kg	227.3	-	2,450	
Aug. Kg	19,584	-	668	20,253
Cash	4,397,270	-	1,638,105	6,035,375
Price per Kg	224	-	2,450	
Sept. Kgs	25,579	-	1,074	26,653
Cash	5,933,930	-	2,634,490	8,568,420
Price per Kg	2,321	-	2,450	
Oct. Kgs	30,267	11	55	30,333
Cash	7,334,340	13,200	143,000	7,490,540
Price per Kg	242	1,200	2,600	

NOT

E AND EXPENDITURE

1.-4. These figures were taken directly from the records maintained by the Project Manager (from 3/81 - 9/81) and by the newly hired accounts clerk (11/81) and only show fish sales. These should only serve as a rough guide until they are complete and audited.

5. These figures were estimated from the known opening stock on 3/2/81), actual purchases and actual sales. No inventory check has been done.

Estimated opening stock (Mar. 1, 1981)	0
Purchases (20,667 kgs @ DF263.5)	5,449,200
Sales (13,019 kgs @ DF263.5 + 78 kg spoilage (28,515))	3,459,021
Closing stock (Mar. 31) - 7,553 kgs	<u>1,990,179</u>
Purchases (30,515 @ DF237.6)	7,249,830
Sales (16,941 @ DF237.6) + 297 kg spoilage (70,390)	4,095,572
Closing (April 30)	<u>5,144,437</u>
Purchases (28,131 @ DF244.1)	6,867,910
Sales (21,455 @ 244) + 646 kg spoilage (157,625)	5,392,645
Closing (May 31)	<u>6,619,702</u>
Purchases (23,169 @ DF242.0)	5,606,100
Sales (18,544 @ DF242) + 632 kg spoilage (157,145)	4,644,793
Closing (June 30)	<u>7,581,009</u>
Purchases (18,138 @ DF227.3)	4,122,540
Sales (17,290 @ DF227.3) + 114 kgs spoilage (25,580)	4,098,796
Closing (July 31)	<u>7,604,753</u>
Purchases (19,584 @ DF224.0)	4,397,270
Sales (18,826 @ DF224) + 58 kgs spoilage (12,992)	4,230,016
Closing (Aug. 31)	<u>7,772,007</u>
Purchases (25,579 @ DF232)	5,933,930
Sales (19,564 @ DF232) + spoilage	4,538,848
Closing (Sept. 30)	<u>9,167,089</u>
Purchases (30,267 @ DF242)	7,334,340
Sales (@ DF242) + spoilage	
Closing (Oct. 31)	<u> </u>

APPENDIX B

ASSOCIATION COOPERATIVE DE PECHE MARITIME

INCOME AND EXPENDITURE 3/81 - 11/81

	MARCH '81	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	MONTHLY AVERAGE
SALES										
1. Retail Fish	6,399,080	7,460,910	5,732,960	4,370,845	3,461,280	3,538,910	5,224,560	N/A	5,228,170	5,177,000
2. Wholesale Fish	-	1,377,400	4,172,725	4,327,280	3,574,550	4,174,660	4,188,560	"	3,835,330	3,664,000
3. Hardware	N/A	"	"	"	"	"	"	"	258,470	258,000
4. Others	N/A	"	"	"	"	"	"	"	10,000	10,000
Total	6,399,080	8,838,310	9,905,685	8,698,125	7,035,830	7,713,570	9,413,120	"	9,331,970	9,109,000
EXPENDITURE										
5. Cost of Fish Sold	3,459,021	4,095,572	5,392,645	4,644,793	4,098,796	4,230,016	4,538,848	7,334,340	N/A	4,724,000
6. Cost of Other Marine Foods	664,020	1,596,770	1,578,230	2,369,015	699,315	1,638,105	2,634,490	156,200	"	1,417,000
7. Salaries & Wages	775,100	740,900	778,400	882,450	723,400	759,000	770,300	N/A	934,485	795,000
8. Supplies & Office Equipment	86,165	108,775	26,400	118,570	45,325	70,850	99,060	289,285*	159,495	111,000
9. Rents & Storage	176,600	-	-	-	-	763,670	-	-	-	153,000
0. Telephone & Post	-	-	-	-	39,795	-	-	-	-	5,000
Total - NET RELIABLE ; SO NET SHOWN					39,795					7,205,000

* Est. 200,000 spent on capital items.

5. These figures represent fish only as it is assumed that there is 100% turnover of squid, crabs and lobster (shown as part of totals) and that there was no spoilage of these products. The sales figures, using the same average price as purchases, doubling the weight of fillets and reducing by the weight of other marine products (crabs, squid and lobster), should only be considered estimates. Therefore the cost of goods sold is equal to the sales plus spoilage figure. Yet we know this is none too accurate, as it is improbable that closing stock in 30/9/81 was nearly 40 metric tonnes as shown.
6. These are shown at the level of purchases (see other table) at the cost price.
- 7.-10. These figures were taken from a ledger maintained by the project coordinator and were not verified. Until November no substantial breakdown was given.

These rough figures reflect a somewhat disorganized accounting set-up. Normal books are not kept, (there is no journal, cash book, fixed asset register) and monthly accounts are not done. An accounting system should be designed and implemented at the first possible opportunity.

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USAID BUDGET SUMMARY

FISHERIES DEVELOPMENT PROJECT (603-0003)

	<u>Obligated</u>	<u>Expenditures</u>	<u>Pipeline</u>	<u>Total</u>
<u>TECH. SERVICES</u>				
PIO/T 9007	299,000	299,000	-	299,000
PIO/T 10002	352,543	20,000	332,543	332,000
	(651,543)	(319,000)	(332,543)	(651,543)
<u>COMMODITIES</u>				
PIO/C 90008 (fish nets)	8,993	8,993	-	8,993
PIO/C 90009 (vehicle)	10,000	9,997	3	10,000
PIO/C 90010 (Insulated trucks (20))	29,750	29,747	3	29,747
PIO/C 90011 (ice-machine)	45,000	45,000	-	45,000
PIO/C 90012 (Outboard Motors)	15,500	15,452	48	15,452
PIO/C 90014 (Project boat)	25,000	25,000	-	25,000
	(134,243)	(134,189)	(54)	(134,243)
<u>OTHER COSTS</u>				
PIL-00008 (housing rental, mtncs, miscellaneous)	35,000	31,000	4,000	35,000*
PIL-00016 (house rental 81)	12,276	12,276	-	12,276
	(47,276)	(43,276)	(4,000)	(47,276)
TOTAL	833,062	496,465	336,597	833,062
Contingency			134,938*	978,000

* \$10,000 reserved for training
 \$70,000 ice-machine/generators
 \$40,000 other costs - Housing
 \$7,007 deobligated from PIO/C90008/available - C Flex boat building mats.
 \$7,931 available

APPENDIX B

FISCAL MANAGEMENT SYSTEM

IMPROVING MANAGEMENT AT
THE DJIBOUTI FISHERIES COOPERATIVE ASSOCIATION:
A FISCAL MANAGEMENT SYSTEM

by

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A PRODUCT OF THE COOPERATIVE AGREEMENT

NATIONAL ASSOCIATION OF
SCHOOL OF PUBLIC AFFAIRS
AND ADMINISTRATION

BETWEEN

UNITED STATES AGENCY
FOR INTERNATIONAL
DEVELOPMENT

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I. EXECUTIVE SUMMARY

1.1 ASSIGNMENT

At the request of the USAID, and through a contract arrangement with the National Association of Schools of Public Affairs and Administration (NASPAA), Mr. Ray N'Tungamulongo Tshibanda, Training and Management Consultant, visited Djibouti from May 27, 1982 to June 20, 1982. His assignment was primarily to assist the Djibouti Fisheries Cooperative Association to develop an improved accounting system, and time permitting, to help assess the management capabilities and future manpower requirements of the Government of Djibouti Fisheries and Livestock Service.

Of his three week stay in Djibouti, he spent the first one reading documents, reviewing files, interviewing people, and observing them at work, trying to get best acquainted with the structure and the functioning of the Cooperative, the fishery project, and the Fisheries and Livestock Service.

This informative process completed, he devoted the second week to organizing his findings, analyzing them with all involved parties (*), discussing with the latter the different ways of addressing the identified problems, and designing an accounting system. The last week was a time for implementation. Having checked with the parties both the rightness of his understanding of their management problems and the appropriateness of his recommendations as to how better deal with the latter, he used this last part of his stay in Djibouti to start doing the immediately feasible, that is, to install the designed accounting system, and to initiate the cooperative staff to its utilization. (See Accounting System in Appendices)

(*) In addition to the Djibouti Government, the Fishery Project involves, as cooperating institutions: USAID, the French Cooperation Agency, F.A.C. (Fonds d'Aide et de Cooperation), the International Fund for Agriculture Development (IFAD) and FAO.

1.2 FINDINGS

The analysis of the situation of the Fisheries Cooperative Association in Djibouti offers more reasons for optimism and forward action than for despondency and disengagement:

1.2.1 - The fishing industry is potentially the principal resource in Djibouti. It is the most readily available, and at the same time the less expensive to exploit. Both the Government and the donor agencies are increasingly aware of how critical to the development of the country a more dynamic and productive fishing industry could be, and they are moving from this awareness to concrete actions, backing the latter with adequate funding and support. (*)

1.2.2 - The Fisheries and Livestock Service is undoubtedly one of the best run compartments of the Djiboutian administration. The vision, competency and leadership provided by the Chief of Service combines remarkably well with, on the one hand, an unusual willingness of the different donor agencies involved to complement each others' efforts and avoid duplications, and on the other hand the day-to-day drive, by these agencies' representatives, to cooperate and work together almost as a single project team.

1.2.3 - AID's contribution to the fishery development effort in Djibouti - be it financial or technical - is very much appreciated and held critical by the Government. Particularly worth mentioning are the planning and management expertise brought to the effort by the AAO, as well as the achievements of the USAID project contractor whose

(*) More than US \$ 1,900 millions are made available by the Government, AID, FAC and IFAD to finance the Djibouti Artisanal Fishery Development Project.

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technical skills, honesty, sense of initiative and dedication have gained the confidence, and the respect of both the fishermen, the Fishing and Livestock Service, and all the other partners in the project.

1.2.4 - The Cooperative has completed more than a year in business. It has succeeded in establishing itself, and in increasing fish production and sales. It also has established a revolving credit fund and it is currently in the process of developing new potentially successful activities such as: oyster culture, boat building and repair, and retail outlets building.

1.2.5 - This fairly good performance is somewhat misleading for it is mostly due to Government subventions and to the high personal and professional qualities of key members of the cooperative and services leadership. It does not have any structural groundings, nor does it attest to the existence of reliable and well-thought through management policies and systems. To the contrary, the cooperative appears to be in an urgent need of such policies and systems, the present relative vacuum representing a factor of uncertainty as to the future of the Cooperative as a viable and self-sustaining enterprise. More specifically, the management deficiencies mortgaging the cooperative future may be summarized as follows:

1.2.5.1 - although designed as a private concern, the Cooperative is currently managed as a quasi - "parastatal" or public enterprise, entirely dependent upon the Fishery and Livestock Service for both equipment and policy orientation;

1.2.5.2 - the cooperative has no organization chart differentiating functions, nor job descriptions setting work standards to properly guide integration, coordination, staffing, responsibility allocation, and serve as a means for improved accountability, and a basis for objective performance evaluation;

1.2.5.3 - although all technically well qualified, and exceptionally dedicated to their work, the cooperative as well as the Fisheries and Livestock Service leadership members present severe limitations management-wise, which explains that: (1) no cost accounting has ever been made and that fish is sold below its cost price; (2) no accounting system exists beyond the mere recording of cash transactions and thus the actual financial health of the enterprise is unknown; (3) no plans are made to take advantage of the facilities currently enjoyed (thanks to Government subventions) to start building strong foundations that could ensure that the Cooperative survives the eventual government and donor agencies support withdrawal (asset acquisition; amortization and depreciation plans,); (4) not enough creativity and aggressiveness has been shown in trying to increase local fish consumption, a rather necessary condition for the Cooperative development.

1.3 CONCLUSIONS AND RECOMMENDATIONS

The Djibouti Fisheries Cooperative Association constitutes a typical example of a development project that merits to be supported: it has a viable national resource base (sea fish); it corresponds to a government priority and enjoys government political and financial support; it addresses real social and economic needs (animal protein deficiency and income generation) and has a good potential for resolving them (fairly good returns); it is headed by technically competent and remarkably conscientious nationals; it enjoys the confidence and support of major donor agencies which work in an orderly and coordinated manner; it is a private institution striving to provide an answer to public concerns; it is viewed as a model and could have lasting positive demonstration effects. However, the Cooperative has problems, mainly management problems, and it needs help in that direction.

The first step in that direction has been completed with the design and installation of an accounting system at the Cooperative (See Appendices). But more has still to be done. The Cooperative needs more than an accounting system; it needs: (1) that a full-fledged management system encompassing all information, personnel, financial (planning, budgeting, accounting, reporting), marketing, ... aspects be designed, installed and regularly evaluated; (2) that accompanying sound policies be articulated in all those management areas; and (3) that the Cooperative be staffed with skilled people and provided with the required management expertise to implement those systems and policies.

More specifically, and as an urgent need to be answered, recommendations are made so that:

- (1) a follow-up to this assignment be carried out within a period of no less than three and no more than six months to assess the efforts deployed in implementing and using the accounting system, to evaluate the latter and eventually adjust it, and to help prepare the first annual financial statements since the Cooperative establishment;
- (2) a fiscal manager and clerk accountant be hired in addition to the accountant secretary already in place to properly staff the financial services of the Cooperative. The fiscal manager, whose recruitment should be done as soon as possible, should at the very least meet the following requirements: strong background in general, financial and cost accounting, good knowledge of planning, budgeting and performance evaluation techniques, fair understanding of marketing requirements, good command of the french language and some work experience in developing countries, especially Africa;

- (3) the personnel statute and salary schedule be uniformized to improve internal control as well as the accountability of all employees towards the Cooperative management;
 - (4) an organization chart with clear job descriptions be prepared allowing for an effective coordination of all various management functions and requiring that no decisions with financial implications be ever taken without the prior consultation with the fiscal manager;
 - (5) a customarily-tailored management training program aimed at enhancing the overall understanding of sound management requirements be designed and given to all Cooperative employees having supervisory and critical support functions.
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2. REPORT

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2.1 SCOPE OF WORK AND METHODOLOGY

As spelled out in the USAID - Djibouti cables and adequately sum up in the contractual instrument exchanged between NASPAA and the consultant, the latter was expected to perform the following tasks: (1) assess, recommend and install improved fiscal management system at the Djibouti Fisheries Cooperative Association; (2) introduce the Cooperative staff, more specifically the USAID project contractor and the Association's Accountant and Secretary to the new system; (3) familiarize with the organizational structure of the Fisheries and Livestock Service, as to gather information that could help enhance the University of Pittsburgh's management seminar scheduled for October in Djibouti.

The consultant's first task upon arrival in Djibouti on May 27, 1982 was to hold a meeting with the AAO and his assistant to obtain a live explanation of their expectations, and a further specification of the assignment's terms of reference. The overall consensus at the end of that meeting was two-fold: as to the scope of the study, it was decided that priority be given to the first and second points above, and that the treatment of the last one be subjected to time availability; methodology-wise, it was agreed that the consultant projected approach which summarizes in the following steps be followed in carrying out the assignment:

- * Week one, feeding period devoted to the consultant's self documentation on the existing situation. This was done through notably the review of relevant documents (by-laws, minutes of the Board of Directors' meetings, organization structure, membership development procedures, evaluation studies, management decisions, principles, guides and procedures, ...). It was also achieved through the interview of the cooperative director, the national in charge of marketing, wholesale and retailing area supervision and the experts working

in the project. Finally recourse was made to observation and reconstitution techniques to capture the actual information, financial and material flows at the time of other purchase, wholesale or retailing of fish, when extending or recovering credit, when handling cash, recording transactions, preparing to account, and actually accounting for money.

- * Week two, digestion and conception period, characterized by data analysis, design work, system idea marketing and consensus building. This effort culminated in a "all-involved-parties get together" held on June 12, 1982 and aimed at allowing that key people interferring with the running of the cooperative be exposed to the main characteristics of the at the time, still-in-gestation accounting system; at providing those people with a chance to react, question, criticize and enrich the design and become, through this process, almost as equally members of the design effort as the consultant himself.
- * Week three, trying-out and animation period. Time was mostly spared to install and test the system, that is: open books, make entries, start enforce dealing and recording procedures, implement some of the suggested reorganization, review basic accounting principles with concerned cooperative officers, ...

Thanks to everybody's collaboration, this approach was closely followed. The consultant interviewed with all levels of the hierarchy and spent hours getting acquainted with all available written materials pertaining to the past, the present and the foreseeable future of the cooperative (see appendices for complete list). He additionally devoted a lot of time to trying to determine the degree of fit between the formal and the actual functioning of the cooperative. The findings were numerous and diversified; all the interlocutors adhered to the consultants' conclusions, and endorsed his proposals for a better and improved management system.

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2.2 FINDINGS

In scrutinizing and analyzing the functioning of the Cooperative, one discovers both reasons for optimism and concerns. The consultants' findings summarize as follows:

2.2.1 - Reasons for Optimism

Thanks to contracts signed between the Djibouti Government and four donor agencies (the United States Agency for International Development, the French Fund for Aid and Cooperation, the International Fund for Agricultural Development and the United Nation's Food and Agriculture Organization), to design, finance, and carried out an artisanal fisheries development pilot project. The Djibouti Fisheries Cooperative Association created to be the vehicle for this project's activities, has been provided with technical assistance of a commandable quality. Four foreign experts are so attached to the cooperative to help support the development of fish catching, support the institutional reinforcement of the cooperative, improve cold storing techniques, increase Fisheries Division outreach, stimulate demand and consumption, and progressively transform the cooperative into a viable and growing private enterprise.

Since its establishment, the cooperative has substantially increased and diversified its activities. Initially confined in the sole production of fish by providing fishermen with technical assistance in fishing, it has also moved into the marketing business. It buys fish from the fishermen and resales it, wholesale and retailing volumes almost equally comparing at the moment. Membership-wise the roster enlists more than 150 members of which at least a third is remarkably active, averaging a weekly catch of \pm 150 kg of fish per week. The Cooperative has no outstanding debts and its banking account shows a balance of about 5 million Djibouti Francs.

The Government of Djibouti is really committed to fishery development, and it actively participates in the effort, mainly in kind, through personnel allocation. The fisheries and Livestock Service is headed by an equally committed chief who combines competency and consciousness, and the fishermen are increasingly enjoying the cooperative experience, particularly the support disponible through the revolving credit fund, the board repair capability and the marketing campaign and facilities.

Thus, to all key people in Djibouti, the Cooperative is a reasonably well engaged project, that is succeeding and should be pursued.

2.2.2 - Reasons for Concern

The very same reasons that justify the optimism also justify concern. The Fisheries Cooperative Association is so critical to the social and economic development of Djibouti and it has so many potentials for achieving the projected results that any malfunctioning creates concern and calls for all stumbling blocks to be searched and removed from the path of the success. Thus, the late investigation has identified the following:

2.2.2.1 - Structural and Organizational Problems

Although designed as a private concern, the Fishery Cooperative Association is currently managed as a quasi - "parastatal" or public enterprise. The directorship is held by the Chief of the Fishery Division who is not accountable to the fishermen but rather to his line supervisor in the public service, the Chief of Fishery and Livestock Services. Actually, the ultimate policy and decision making authority resides with the latter

who clears all decisions made by lower levels of hierarchy, including the supposedly - ruling Cooperative Board of Directors. Actually, this Board merely plays a figurative role. Mostly compounded of illiterates, it has made no decisions but to authorize that cash be drawn from the Cooperative bank account to buy their fish or to pay them for delivered but unpaid fish. The only two other issues they either took on or were asked to discuss ended up by being decided on by the Service: one was a decision the Board made, and got overridden by the Chief of Services, to grant money to the surviving family of a deceased person who was not even a member of the Cooperative. The second case related to a decision on the make and technical specifications of the out-board motors to buy. Unexplicably, the record shows two minutes for the same board meeting with two different decisions, making it hard to know which one was valid and leaving room for speculations as to who and when decided on that purchase order.

The Djiboutian authorities acknowledge that the situation should not be as described above. However, they claim that the control of the actual decision making process by public officers rather than the Cooperative members themselves is a case of absolute necessity given, on the one hand, the need for a careful management in this critical period of the Cooperative growing and on the other hand, the illiteracy of the majority of the Cooperative Board members. They expect to see change happening with the incorporation of younger and educated fishermen who could actively participate in the cooperative management.

One has to recognize that this reasoning is partly well-founded and that so far the Chief of the Fishery and Livestock Services and his

colleagues have used their authority solely in the best interest of the Cooperative. However, (1) this performance is more contingent on individual qualities than it is structurally and institutionally rooted; (2) no strategies nor concrete actions appear to be in the making to allow realistically envision a greater youth involvement in the cooperative life in a foreseeable future; (3) however conjuncturally justifiable the current situation could be, it remains that it constrains the development of a proprietorship sentiment and of a sense of responsibility among fishermen.

A second structural and organizational problem relates to the very commitment to pursuing the development of the fisheries through a cooperative experience. There is a dichotomy between the fishery development project and the Cooperative as such, and based on project papers and agreements, not only is it that all foreign aid aimed at helping develop the fisheries in Djibouti is made available to the project through the Government, and not to the Cooperative; but, furthermore, there is no provisions making sure that at least the major equipments provided to the government by the donor agencies and currently leased to the Cooperative would be kept at the latter's disposal for a relatively long period of time. Thus, there is on the one hand a project which enjoys the ownership of all resources made available to develop the fisheries but does not concretely live but through the cooperative activities; and on the other hand, a fishing cooperative which actually carries out fish production and marketing activities without even having a realistic basis to hope acquire the property of equipments critical to its functioning such as cold storages, trucks, ... That explains why despite all assistance provided under the project, the cooperative has no important

fixed assets. It also exemplifies another peculiar feature of this project which calls into question the commitment to use the cooperative as a means to achieve fishery development, and tends to increase the cooperative dependency over the government rather than help its growing towards more self-sustaining viability.

2.2.2.2 Policy and Management Problems

One of the striking management features of the Cooperative is the heavy reliability on verbal communication. The recording system is yet to be developed and basic management tools such as written guides and/or procedures are completely non-existent. There is no organization chart, no job descriptions, no responsibility delineation. Actually, the only management position explicitly mentioned in the by-laws is the directorship. But, even for this position, there is no clear specification as to what has to be done, when and how; nor is it said what profile the person chosen to fill the position should have.

These deficiencies, especially the non-differentiation of management functions, are potentially damaging to the cooperative growing for the more the increase in the volume of work, the more the complexity of managing it, and so the less appropriate an indifferenciated management structure. In this case, the concern is even aggravated given the existence of additional shortcomings in most specialized management areas, especially in personnel, stock, property, and finances.

2.2.2.2.1 - Personnel Management

The cooperative has two types of employees: those on its payroll whom it inherited from its predecessor in the fish

them are professionals of the fishing industry, all highly qualified in the various aspects of the latter but in management.

2.2.2.2.2 - Financial and Stock Management

This absence of a management capability within the cooperative is undoubtedly the most mortgaging factor for the future of the cooperative. It explains most of the deficiencies mentioned above as well as many others. The cooperative has no accounting, inventory or stock management systems; it has no credit, price or procurement policies; it does not have a marketing strategy, nor an invoicing routine. The cooperative accounting practice is limited to making entries in a cash book, and although, the latter is detailed enough to allow tracing all main cash transactions, it does not however abide by the generally accepted accounting principles, and does not provide for making informed judgements nor sound management decisions. Despite valuable efforts deployed by the AID contractor, de-facto manager of the Cooperative, the management has not been able to prepare any reliable financial statements which would give the true financial standing of the society, nor could an audit be performed to attest to the fairness and the reliability of both the transactions and their recording; no property inventory has ever been completed and no stock valuation has taken place to figure out the real situation of the revolving credit fund.

The Cooperative is managed without a budget, and so there is no way of relating expenditures to appropriations. No

cash flow requirement study has ever been made, and so the management never knows in advance how much cash it would need the next day, week or month. Actually, there are too many cash transactions and too many people handling cash: the Cooperative director (membership dues, sales receipts), the AID and FAC project contractors (weekend sales receipts), the association accountant-secretary, the retailing area cashier, ... On June 1, 1982 the invoicing was a month behind (early May deliveries were not billed yet), the last updating of outstanding payments on the revolving credit fund dated back to December 31, 1981, and there were 500,000 Djibouti Francs of outstanding payments on advances to fishermen and to the personnel. At the same time, the cooperative had almost 5,000,000 Djibouti Francs laying still in a checking account and so yielding no interest at all, whereas a well - advised financial management could have placed this money to at least partially offset the impact of inflation on the cooperative assets.

From another but related point of view, the cooperative sales prices had not been technically determined, and until recently no cost prices had been calculated. It is worth mentioning that a newly, completed study comes right on time to show before it is too late how such an absence of cost accounting could jeopardize the financial viability of the cooperative. It demonstrates that the latter's average sales price (300 FD) is 100 FD below the cost price (400 FD), a critical indication masked by the various government subventions, but that a good financial management would have brought to the decision makers' attention a long time ago.

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Other main problems in the neighborhood of the cost price one are the problems of how to reduce fish losses and increase sales. The record shows that a substantial progress has been made in these directions during the recent months. However, more has still to be done.

Fish losses are mainly of four sources: natural loss due to spoilage, fish disappearance in the cold store or at times of sale (both wholesale and retailing), weight loss due to freezing and subsequent dehydration of fish and weight adjustments due to discrepancies between the different scales used at different levels of the fish handling chain. None of these loss sources is entirely uncontrollable. To the contrary, most of the losses happen because of an inadequate stock management system which does not at all provide for effective control and accountability:

- (1) the fish receiving and cold storage inventory functions are performed by the same person; so there is no checking point between the moment when the fish is weighed and bought and the time it enters the cold store;
- (2) the person in charge of both the receiving and the storing of fish easily writes and reads only arabic; he thus relies on another person to record in french, and he has no way of checking the identity between what he asks his aid to write and what the latter actually writes;

- (3) the fish freely moves between the positive and negative cold stores, adding to the confusion and making it difficult for the volume of fish leaving the stores to match the volume that entered;
- (4) the fish leaving the cold store is not always weighed, especially when at the pick sale moment of the day it is taken to the retailing area to fill orders from a pressuring crowd of clients;
- (5) the unsold fish leaving the retailing area at the end of the day and going back to the cold store is not always weighed;
- (6) the fish inventory book is not detailed enough as to allow that not only the quantities of fish entering or leaving the cold store be checked, but also the species as well as the identity of the different employees involved;
- (7) the clients buying fish at the cooperative retailing counter get access to fish before even paying for it and so can easily leave the store without paying;
- (8) to many employees handling fish at the same time in the retailing store, and almost everyone of them is easily accessed to by clients, which makes it difficult to prevent fish loss;

- (9) fish to be retailed is prepared at the same table than fish to be delivered to wholesale clients while the retailing sale is going on, thus creating occasions of confusing the two stocks and complicating the process of accounting for either one;
- (10) the loading of delivery trucks is not properly supervised, nor is there any control points at the gate to make sure that every truck leaving the cooperative contains nothing but the fish enlisted on the bill of lading,...

Sales-wise, the cooperative heavily relies on the Catholic Relief Service to stimulate consumption through promotion/demonstration activities; it also expects a lot of improvement with the completion of retail outlet construction currently underway. Undoubtedly the cooperative management is well founded in doing that, for it cuts its operating costs and is likely that the closer the sale points will be to the consumer, the greater the consumption of fish. However, increasing fish sales is so vital for the Cooperative that the latter ought to make sure to control it. There are costless but sale boosting actions that the Cooperative could take. Suffice it to mention more concerns to keeping the retailing are at a high standard of cleanliness and keeping all delivery commitments.

2.3 ACTIONS AND RECOMMENDATIONS

The basic requirement of the consultant's assignment was to design and install an improved accounting system. The field work however revealed that the cooperative needed more than a mere accounting system. Following is a summary of both the actions taken by the consultant, and those he believes should be taken complementarily to his in order to improve the general management of the cooperative.

2.3.1 Actions Taken

During his stay in Djibouti, the consultant designed an accounting system for the cooperative, partially installed it, and explained to the interested staff members how to use it.

The design was done in such a way that it fully takes into account all features peculiar to Djibouti while still passing the test of "generally accepted accounting principles". The result is a simple but exhaustive, auditable and adjustable system, providing for an easy handling of the increasingly numerous transactions the cooperative is involved in, and constituting a good tool and framework for:

- * properly and continuously recording all cash receipts and disbursements;
- * keeping the management permanently informed on the various liabilities of the cooperative as well as their maturity structure;
- * maintaining clients accounts up to date, speeding up the invoicing process, and ensuring a quick recovery of financial claims;

- * conducting meaningful pre and post-audit;
- * developing an effective property inventory system;
- * preparing reliable financial statements, and easily determining the causes of whatever the result is, either profit or loss.

As designed, the system allows the cooperative management to at least produce the following information as regularly as it wishes: volume of sales and purchases; cash balance and overall financial position; amount of fish and other commodities in stock; names of creditors and debtors, amounts owed and maturity structure, accrued charges and/or interest receivable; operating expenses and revenues; ... It is a double entry, accrual based accounting system.

2.3.2 Suggested Complementary Actions

To increase the likelihood of the accounting system just installed making a difference and bringing about real improvement in the financial standing of the cooperative, additional actions will have to be taken. Urgently suggested are:

- * a follow-up to this assignment within the next six months, but not earlier than three months from now, to assess the efforts deployed in implementing the accounting system, to evaluate the latter and eventually adjust it, and to help prepare the year-end financial statements;
- * a personnel reinforcement through better staffing and statute uniformization. In fact, the implementation of the accounting

system, the design and carrying out of sound management policies will require more expertise than presently available at the cooperative, and so personnel hiring and reshuffling will have to take place. Particularly needed will be: (1) a fiscal manager with strong background in general, financial and cost accounting, good knowledge of planning, budgeting and performance evaluation techniques, fair understanding of marketing requirements, good command of the french language and some work experience in developing countries, especially Africa; (2) a clerk accountant with, as a minimum, a high school diploma in accounting. It would be additionally advisable that a new understanding be sought with the Government as to the latter's contribution to the fisheries development project, the objective being that the new arrangement provides for an improved control over and accountability of the cooperative personnel;

- * the development of a management training and systems design and implementation program, customarily tailored, and aimed at enhancing the management capability and performance of the cooperative.

The Djibouti Fisheries Cooperative Association is very well staffed technically-wise, and all technical functions such as fishing, boat building and repair, ... are satisfactorily handled. The same statement cannot be made as to the management side. The situation is fairly well under control as of now, but there is no guarantee that the staff in place and the systems presently used will be up to the job when the cooperative grows. Thus, the actions suggested above have to be taken and taken fast. The Government is more than willing to cooperate in achieving that. AID and the other donors will then have to do their share, and given the shortage of well trained financial managers in Djibouti, providing such a technical assistance should be a priority for AID to consider.

3.1. DEFINITION, PURPOSE AND REQUIREMENTS

1. An accounting system consists of a series of binding rules, principles and prescriptions as to how to record, classify, summarize and report financial transactions. It prescribes both what to do and how to do it, and thus generally comprises a listing of accounts (names, number,...) and a set of recording and reporting procedures (what to record and/or report, when, how, and by whom?...). It is an indispensable management tool designed to help evaluate the past, control the present and plan the future.

2. As a minimum requirement, an accounting system must be designed in such a way that:

- a. accounting records provide the information needed to adequately identify all receipts and expenditures of funds, and verify the compliance with budget categories and authorized amounts;
- b. all entries in the accounting records are based on and backed by appropriate source documents;
- c. accounting records are auditable and trustable, i.e., unalterable, overprint-less, and always up to date;
- d. an adequate internal control system is built in to help ensure the safeguard of assets, assure the accuracy of financial data, improve management performance, and facilitate the enforcement of rules, principles and policies.

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3. APPENDIX: THE COOPERATIVE ACCOUNTING SYSTEM

3. The ultimate aim of an accounting system is to help enhance management performance. At ACPM this aim more specifically breaks down in the following objectives:

- a. to allow a continuous and accurate recording of all receipts and expenditures (date, origin, justification), and help determine both the cash balance and the cash flow requirements.
- b. to produce information needed to keep the management always informed on the size and the conditions of the cooperative indebtedness;
- c. to formalize the invoicing process and prescribe an accounts receivable monitoring system so as to improve the cooperative performance in collecting its dues;
- d. to introduce an a-priori audit to help control expenditures, and a better stock management system to help reduce fish losses;
- e. to discriminate between the three main activity areas the cooperative is involved in (Fish Catching and Marketing: FCM; Boat Building and Repair: BBR; Revolving Credit Fund: RCF), and so facilitate the monitoring and comparison of their respective performance;
- f. to properly prepare and timely release the financial statements needed to guide management decisions.

3.2. ACPM SYSTEM: CHARACTERISTICS AND OUTPUTS

1. The ACPM accounting system depicted hereinafter embodies principles and presents characteristics that summarize as follows:

- a. double entry and accrual basis;
- b. a schedule of accounts only compounded of balance sheet and income statement accounts, i.e., "class 1 to 7" accounts of the French "Plan Comptable General Revise" (numbering system not adopted);
- c. segmentation of operations and consequently departmentalization of accounting and reporting (three "profit centers": FCM, BBR and RCF);
- d. recourse to a centralizing recording system using several subsidiary journals and ledgers as the basis for entries in the general journal and ledger; versus the traditional recording system centered around a single book of original entry;
- e. reduction of hard cash handling and introduction of bank reconciliation and balances;
- f. separation of responsibility for related operations such as placing an order, receiving merchandise and signing the check;
- g. mandatory documentation of all financial transactions and interdiction to dispose of any documentary evidence without a written certification of the transaction by the receiving party;
- h. periodic versus perpetual inventory system, especially for fish;

- i. recognition of the continuing depreciation of assets;
- j. option for an accelerated depreciation method (either the declining-balance or the sum-of-the-years-digits method) versus the straightline one.

2. Once the system is installed and tested, it should be possible to output any needed financial statements as regularly as every week or less. But, until a need for such regularity occurs and the cooperative is accordingly staffed, management information needs could be adequately met through alternative means. Thus, the ACPM system provides for the outputting of the following operational and financial reports:

- a. sales, purchases and retail revenues reports (every day);
- b. fish and RCF merchandise inventory status reports (every week);
- c. accounts payable and accounts receivable status reports (bi-weekly);
- d. interim statements (every month: at least a trial balance of the general ledger accounts);
- e. end-of-the-year financial statements (income statement and balance sheet) and supporting schedules (accounts receivable and accounts payable).

3.3. RECORDS, ACCOUNTS AND SOURCE DOCUMENTS

3.3.1. Records and Source Documents

1. The cooperative accounting records must represent its financial position as completely and accurately as possible. The basic books and records to be maintained are the following:

- a. A General Ledger containing controlling accounts (Accounts Receivable, Accounts Payable, Cash...);
- b. Subsidiary ledgers, grouping all similar accounts and supporting controlling accounts:
 - accounts or dues receivable ledger (individual accounts for every customer buying on credit)
 - accounts payable ledger (separate accounts for every vendor/supplier)
 - ...
- c. A general journal, maintained monthly and recording only a balance of subsidiary journals;
- d. Special journals, grouping transactions according to the needs for analysis and management, and recording them as they occur every day (samples in appendix, pp. 77, 78):
 - cash receipts and disbursement journal (cash transactions out of the cashier's desk)

- sales journal (all sales on account)
- purchases journal (all purchases on account)
- bank journal (cash transactions out of the bank account)
- miscellaneous journal.

2. All journal entries have to be documented. Main source documents are:

- bill of lading
- receiving report
- sales and purchases bills or invoices
- purchase order
- cash receipt
- bank statements
- sales tickets
- purchase requisitions
- ...

3.3.2. Chart of Accounts

1. This chart of accounts is designed to satisfy the accounting needs of the ACPM. The same categories should be used for budgeting and reporting too. The cooperative is yet to grow and may not be able to use

all the enlisted accounts right away. Inversely it may - and certainly will in the future - find it necessary to expand the chart with additional sub-accounts. The schedule is flexible and such an expansion could be easily done either by using the unassigned numbers within the numbering system, or by reforming the numbering system itself. (*)

Balance Sheet Accounts (codes 1-8)

1. Fixed Assets
 - 1.1. Machinery, Tools and Equipment
 - 1.1.1. FCM
 - 1.1.2. BBR
 - 1.2. Buildings and Fixtures
 - 1.2.1. FCM
 - 1.2.2. BBR
 - 1.3. Store/Office Equipment
 - 1.3.1. FCM
 - 1.3.2. BBR
 - 1.3.3. RCF
 - 1.4. Accumulated Depreciation
 - 1.4.1. Machinery, Tools and Equipment
 - 1.4.2. Buildings and Fixtures
 - 1.4.3. Store/Office Equipment
2. Current Assets I
 - 2.1. Merchandises
 - 2.1.1. FCM (Fish)
 - 2.1.2. BBR (Services)
 - 2.1.3. RCF

(*) Purposely this numbering system is neither the legal French system, nor the OCAMM's. However, it could be shifted towards either one without any troubles.

- 2.2. Finished Goods/BBR
- 2.3. In-Process/BBR
 - 2.3.1. Goods (boats being built)
 - 2.3.2. Services (boats being repaired)
- 2.4. Raw Materials/BBR
- 2.5. Various Supplies
 - 2.5.1.
 - 2.5.2. Office Supplies/ACPM
 - 2.5.3.
- 2.6. Allowance for depreciation
 - 2.6.1. Receivable (e.g., Doubtful Accounts)
 - 2.6.2. Inventories
- 3. Current Assets II (Receivables)
 - 3.1. Accounts Receivables
 - 3.1.1. FCM/Wholesale
 - 3.1.2. BBR
 - 3.1.2.1. Finished Goods
 - 3.1.2.2. Services
 - 3.1.3. RCF
 - 3.2. Notes Receivables
 - 3.2.1. FCM
 - 3.2.2. BBR
 - 3.2.3. RCF
 - 3.3. Other Debtors
 - 3.3.1. Loans to Personnel
 - 3.3.2. Loans to Fishermen
- 4. Current Assets III (Cash)
 - 4.1. Bank Deposits
 - 4.2. Cashier (Currencies)

- 5. Capital
 - 5.1. Net worth
 - 5.2. Net Profit/loss
- 6. Allowances for loans
- 7. Long-term liabilities
(more than one year)
- 8. Current Liabilities (within a year)
 - 8.1. Accounts Payable
 - 8.1.1. FCM
 - 8.1.1.1. Fishermen
 - 8.1.1.2. Other Suppliers
 - 8.1.2. BBR
 - 8.1.2.1. Raw Materials
 - 8.1.2.2. Maintenance Supplies
 - 8.1.3. RCF
 - 8.1.4. ACPM
 - 8.2. Notes Payable
 - 8.2.1. FCM
 - 8.2.2. BBR
 - 8.2.3. RCF
 - 8.2.4. ACPM
 - 8.3. Other Creditors
 - 8.3.1. Taxes Payable
 - 8.3.2. Wage/Salaries Payable
 - 8.3.3. Interest Payable

Income Statement Accounts (codes 9-0)

9. Operating Expenses

9.1. Purchases

9.1.1. Merchandises

9.1.1.1. FCM

9.1.1.2. RCF

9.1.2. Raw Materials/BBR

9.1.3. Various Supplies

9.1.3.1. Packaging Supplies/FCM

9.1.3.2. Office Supplies/ACPM

9.1.3.3. Maintenance Supplies/BBR

9.2. Inventories

9.2.1. Merchandises

9.2.1.1. FCM

9.2.1.2. RCF

9.2.2. Raw Materials/BBR

9.2.3. Various Supplies

9.2.3.1. Packaging Supplies/FCM

9.2.3.2. Office Supplies/ACPM

9.2.3.3. Maintenance Supplies/BBR

9.3. Wage and Salaries Expense/ACPM

9.3.1. Salaries Expenses

9.3.2. Fringe Benefit

9.4. Other Expenses/ACPM

9.4.1. Rent Expenses

9.4.2. Maintenance and Repairs

9.4.3. Insurance Expenses

9.4.4. Temporary Staff Expenses

9.4.5. Advertising Expenses

9.4.6. Transportation Expenses

9.4.7. Utilities Expenses

9.4.8. Commercial Fees

9.4.9. Travel and Entertainment

9.5. Depreciation Expenses

9.5.1. Depreciation Expenses - Assets

9.5.2. Allowance for Depreciation

9.5.2.1. Operation Expenses

9.5.2.2. Exceptional Expenses

9.6. Financial Charges

9.6.1. Interest Expense

9.6.2. Granted Discounts

9.7. Extraordinary Charges

9.7.1. Donations and Gifts Granted

9.7.2. Fines and Penalties

9.7.3. Various losses

0. Revenues

0.1. Sales

0.1.1. Merchandises

0.1.1.1. FCM

0.1.1.2. RCF

0.1.1.3. BBR

0.1.1.3.1. Finished Goods

0.1.1.3.2. Services

0.2. Other Revenues

0.3. Other Incomes (Financial origin)

0.3.1. Interest on short-term loans

0.3.2. Interest on long-term loans

0.3.3. Discount obtained

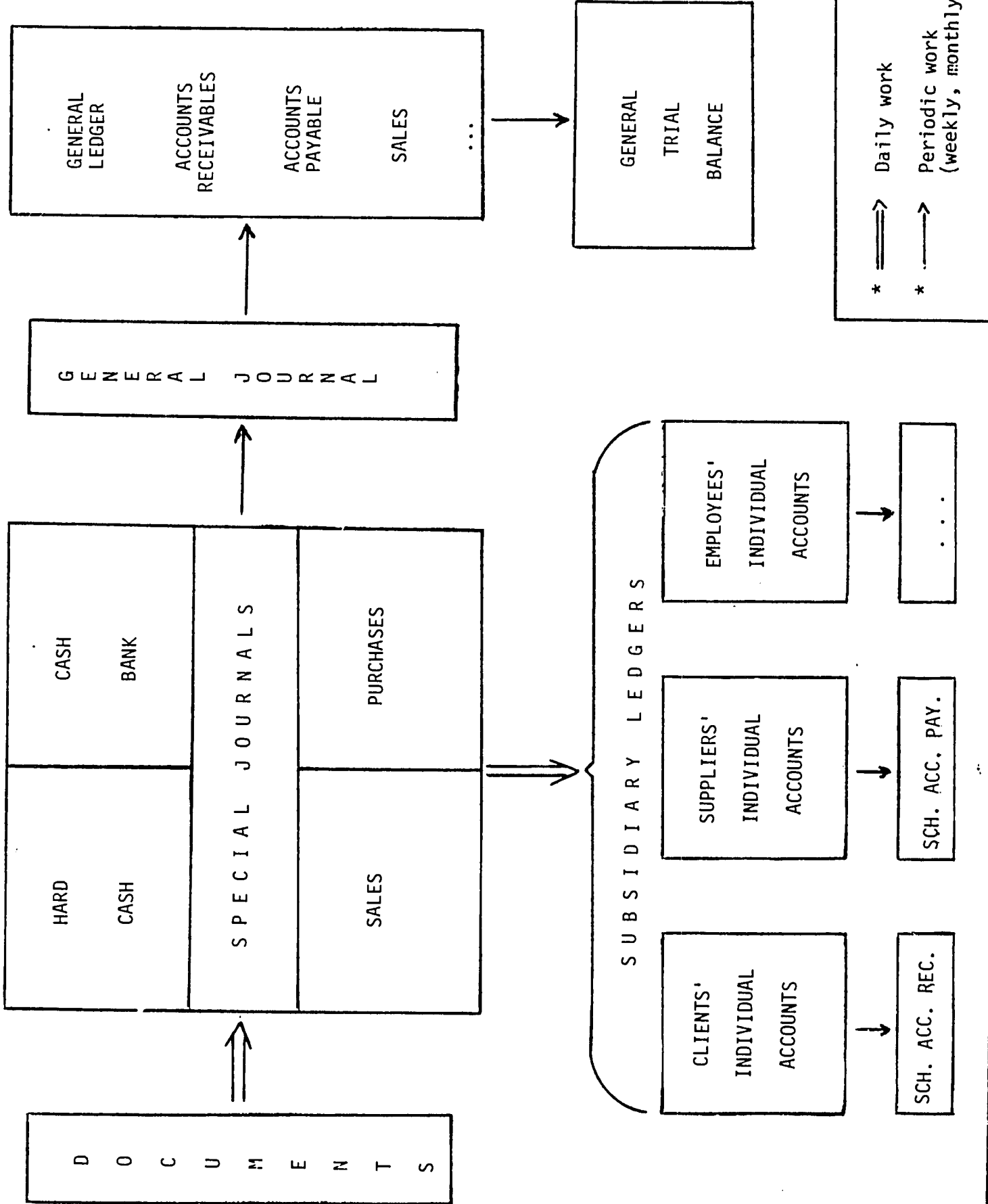
0.4. Extraordinary Income

0.4.1. Donations and Gifts Obtained

0.4.2. Disposal of Fixed Assets

3.4. DEALING AND RECORDING

3.4.1. Recording: Sequence and Regularity



3.4.2. Sales and Cash Receipts

3.4.2.1. Fish Retail (FCM)

Fish is retailed on a cash basis only, and the following procedures only stand for fish retailed through the cooperative-owned and/or directly managed outlets.

3.4.2.1.1. Sales Procedures

1. The retailing area is divided into four independent but complementary departments:
 - * the billing department,
 - * the cleaning department,
 - * the cashier department, and
 - * the pick-up department.
2. The head of the billing department is accountable for all the fish entering the retailing area; i.e., (1) he personally signs the cold store inventory book to acknowledge receiving fish for retail; (2) he maintains a direct control over all the yet to-be-retailed fish by keeping it stored in the icebox located right behind the weighing counter, and by releasing none of it but to fulfill clients' orders; (3) at the end of the day, he returns all unsold fish to the cold store in exchange of a duly signed receipt.
3. The billing department is in direct contact with the clients. It is in charge of taking orders, weighing fish, billing the customers, and so ultimately accounting for the quantity of fish daily made available to be retailed. The cleaning department plays a mere support role. It does not communicate at all with the public. It only deals with the billing department of

which it receives nothing but the quantity of fish to be cleaned, cut and packaged according to the different clients' orders, and with the pick-up department to which it remits the different fish packages to be ultimately handed out to ordering customers. If for any reasons the cleaning department receives more fish than the quantity of any corresponding order (e.g., case of fulfilling an order out of a bigger fish), it has to return the exceeding quantity to the icebox and the billing department has to see to it that this is done.

4. Upon his/her arrival in the retailing area, the customer goes to the billing department and places his/her order, specifying the desired quality and quantity of fish. Under the customer's witnessing, the appropriate selection is made and the fish weighed. Then, the sales agent writes a sales ticket figuring the following information: date, specy(ies) and quantity of fish, unit price(s), and total owed (sample in appendices). The sales ticket is torn out of a chronologically numbered series, printed on the Cooperative letterheads and always prepared in triplicate: the original is remitted to the customer and constitutes the bill that he takes to the cashier and pays; the first copy travels with the fish from the billing department to the pick-up department via the cleaning department. As for the third copy, it stays in the sales ticket pad, and at the end of the day, the sales agent (the head of the billing department) uses it as a source document to prepare his "Daily Retail Billing Report."

5. At the cashier's desk, the customer presents the original of the sales ticket. The cashier checks the arithmetics (total amount due = quantity x

unit price of the ordered kind of fish), and if need be makes corrections (by adding or subtracting the necessary amount and recalculating the total rather than writing over the original total). The customer pays the amount corresponding to the cashier's total, and to attest to the payment, the cashier staples the cash register ticket (cash receipt) to the original of the sales ticket.

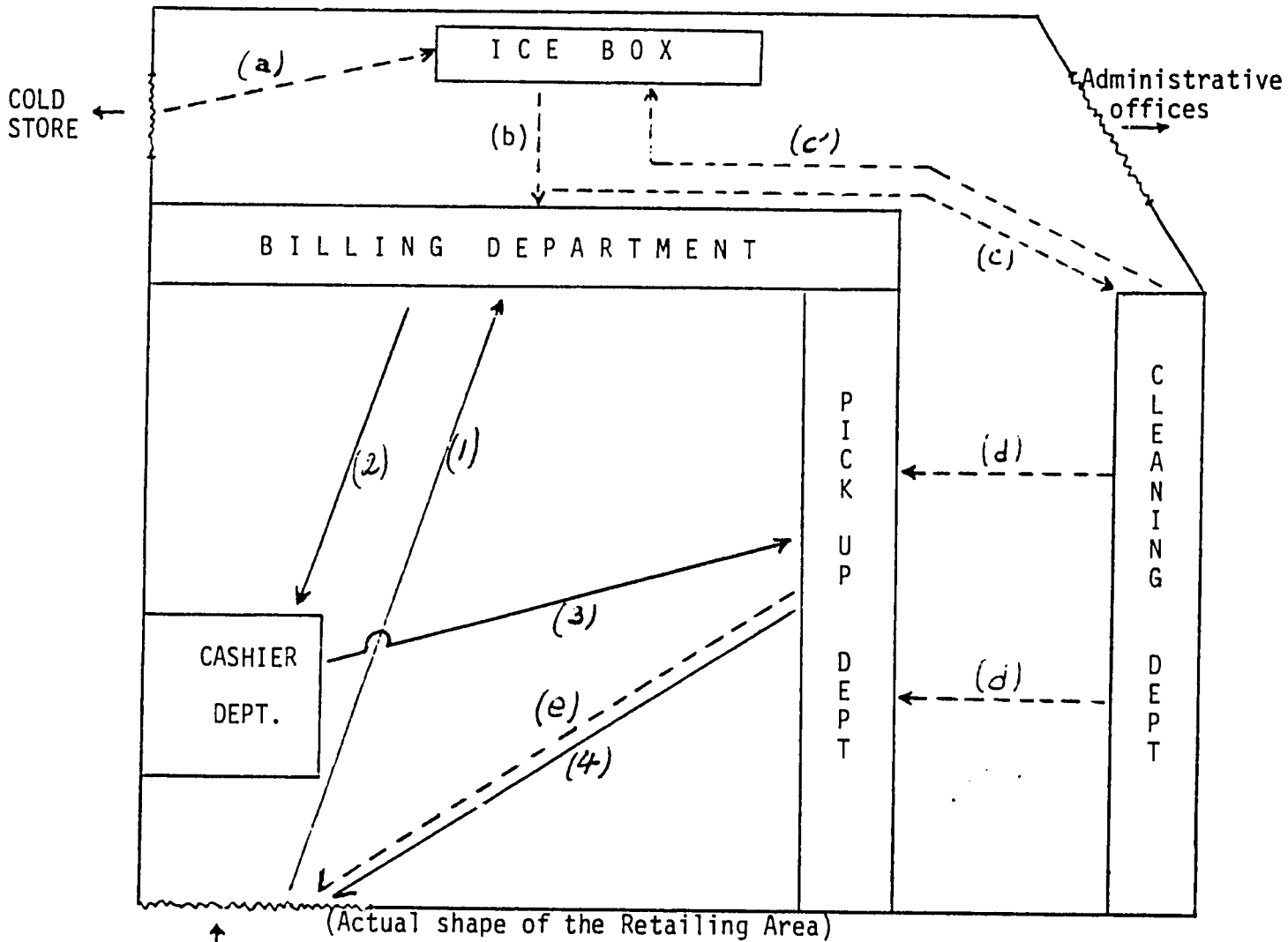
6. The customer takes the two tickets, proof of payment and bill, to the pick-up department. The head of this department makes sure that the two tickets are stapled together, that they figure the same amount and that they bear the current day's date. Then, he compares the information on the receipt and the bill with those on the copies of the sales tickets attached to the already prepared fish packages (sales ticket's no. and date; fish species) and quantity, unit price and total amount) in order to identify the customer's order. Once the matching is made, the proper package is handed out to the customer (with the attached copy of the sales ticket which becomes the customer's purchase receipt) and the latter may leave the store without further questioning or checking. In exchange, the pick-up department takes in the cash receipt and the original of the sales ticket which it uses as source documents when preparing the daily report on the delivery (i.e., the actual outflow) of fish through retailing.

3.4.2.1.2. Sales Reports (*)

1. At the close of every business day, the Marketing Division out-

(*) Samples in appendix , pp. 73, 74, 75

SEQUENTIAL REPRESENTATION OF AN IDEAL RETAIL TRANSACTION



Retailing Area
Front Door

Customers

Fish

- | | |
|--|--|
| (1) enters the retailing area and goes to place his/her order | (a) comes from the cold store and is stored in the ice box |
| (2) has received a sales ticket and goes to pay | (b) is weighed to fill orders |
| (3) has a proof of payment and goes to pick up his/her fish | (c) sent for cleaning and packaging |
| (4) + (e) the customer leaves the retailing area taking his/her fish | (c') a critical surplus is returned to the ice box |
| | (d) ready to go, fish is transferred to the pick-up area |

puts the "FCM Daily Retail Report." Parallely, the Cashier Department (out of the retailing area) produces the "Retail Cashier's Daily Report".

2. The "FCM Daily Retail Report" is used to prepare both the "FCM Daily Sales Report" (retail + wholesale) and the "FCM Monthly Retail Report". It is based on two main sources of data:

- * The "FCM Daily Retail Billing Report" prepared by the Billing Department; and
- * The "FCM Daily Retail Delivery Report" issued by the Pick-up Department.

3. The "Retail Cashier's Daily Report" is a memorandum (see sample in appendices) showing the total amount of cash in the retail cashier's cash drawer at the end of any business day and giving a breakdown of those receipts in the different bill and coin face-values. It is compared with the total automatically printed on the cash register tape. It is the basis for receipt entries in the cash receipts and disbursements journal. It also serves to double check the accuracy of the "FCM Daily Retail Billing Report", the "FCM Daily Retail Delivery Report", and the "FCM Daily Retail Report". The total value of sales showing on those three documents should correspond to both the total amount of receipts on the cashier's memorandum and the actual cash in the cash drawer, and any discrepancies should be noted for further control.

4. It is assumed that the difference between the cash record and the actual cash at hand is due to errors in making change, unless it is large enough

to shake the faith either in the personnel or in the financial system itself. In this case, corrective measures have to be taken.

3.4.2.1.3. Journalizing and Posting

1. The total of daily receipts is recorded as a debit in the cash journal, and as an explanation of the transaction, in the "FCM Sales" column of the same journal also.

2. The appropriate postings are made:

* the asset account named "cash" is debited (explanation: "fish retailing"; cross-posting account: "sales");

* the subsidiary revenue account labelled "fish sales" is credited.

3. The journalizing and posting of the fish retail transactions is based on the "FCM Daily Sales Report" and the "Retail Cashier's Daily Report". In case of a discrepancy between the amount on the cashier's memorandum and the actual cash in the cash drawer, the difference is recorded in the cash journal and posted to a special account.

4. The retail transactions are journalized daily; but they could be weekly posted.

3.4.2.2. RCF and BBR Sales

This section deals only with RCF and BBR sales made on a cash basis. Their sales on account are discussed in the wholesale section.

3.4.2.2.1. Sales Procedures

1. BBR is considered to be retailing when it maintains and repairs boats and engines (direct service to the customer, generally a fisherman, who is billed for). It also is when it sells boats it has produced.

2. In the case of maintenance and repair services, the sequence should be like this:

- * the fisherman request the service (orally);
- * BBR prepares a written cost estimate in triplicate and submits it to the customer (*); this is done by filling out the appropriate column on the "job order" form (sample in appendix).
- * the customer expressly authorizes that the estimated work be performed on his/her boat or engine by signing the estimate;
- * BBR does the work and fills out the relevant columns of the job order;
- * the job order (the original + the two copies) is sent to the Accounting Office which checks it (three things: whether the authorization to do the work has been requested and obtained; whether the work requested has been actually done, and whether the service has been properly costed), and signs it, transforming it into an invoice;

(*) imperative in case of major repairs and flexible for routine check-ups.

- * the customer is shown the invoice and pays;
- * the cashier acknowledges the payment by stamping "PAID" on both the original and the copies. He keeps the original (which becomes a cash receipt) as source document to support entries in the Cash Receipts and Disbursements Journal; he remits the first copy to the customer as proof of payment, and sends the second copy back to the BBR office.
- * the customer shows his proof of payment to the BBR personnel to collect his boat and/or engine. Upon satisfaction, he signs the second copy of the job order to acknowledge receiving his equipment.

3. The sale of a custom-made boat by BBR is handled in a similar manner. However, in this case, the customer has to place his order in writing.

4. An out-of-stock sale of a BBR-produced boat works exactly like an RCF sales; that is:

- * the customer inquires at the store/warehouse and makes his selection;
- * the salesman (actually the warehouseman) prepares a sales memorandum in triplicate;
- * the customer takes the memorandum to the Accounting Office and pays;

- * the cashier stamps "PAID" on the memorandum and keeps the original to document the corresponding entry in the Cash Receipts and Disbursements Journal;
- * the customer takes the stamped copies of the memorandum back to the warehouse. He keeps the first copy, signs the second and exchanges it against his merchandise.

3.4.2.2.2. Sales Reports

At the end of every month, the Marketing Division prepares BBR and RCF sales reports integrating data on retail and wholesale. The reports outline the nature, brand, make and quantity of the merchandise sold, the date of the transaction, and the conditions of payment. Copies are sent to the Accounting Division.

3.4.2.2.3. Journalizing and Posting

1. Payments for BBR and RCF merchandise are directly made at the Cashier's Department in the Accounting Division. The receipts they generate are chronologically entered as a debit in the Cash Journal, the explanation being either "RCB Sales" or "BBR Sales" (same journal).
2. Then the cash account is debited and RCB and BBR Sales accounts credited.
3. Both journalizing and posting of RCB and BBR retail transactions are done as often as they are in the case of fish retail transactions.

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3.4.2.3. Fish Wholesale

3.4.2.3.1. Sales Procedures

1. Wholesale is directly handled by ACPM Marketing Division. It is important that this type of transaction be kept totally distinct from retail activities, and that even personnel and facility-wise, efforts be made to avoid using the same employees and the same room (retailing area) at the same time to both serve walk-in customers and wrap fish for bulk orders.

2. The Chief of the Marketing Division is personally accountable for all fish leaving the cold store supposedly to fulfill on-account clients' orders. This responsibility starts as soon as the fish leave the cold store and it remains effective until the fish is received by the customer, regardless of who cleans it, wraps it and/or delivers it. So the Chief of the Marketing Division has to manage that the clients' instructions as to the type and quantity of fish desired, the preferred delivery date,... are carefully followed, and that fish is diligently delivered once taken out of the storeroom. He makes sure that the clients sign the bills of lading upon delivery to acknowledge receiving their shipment, and that in case a delivery is not made, the shipment is promptly returned to the cold store and a due receipt obtained from the storekeeper.

3. Orders have to be written, unless they come from reliable clients. Upon receiving an order, the Chief of the Marketing Division checks with the client to confirm his instructions (species and quantity of fish, delivery date,...). He then checks with the storekeeper to verify the availability of

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the desired fish before getting back to the client either to confirm that the delivery will be made according to his will, or to negotiate new delivery terms.

4. Once the order is confirmed, the Chief of the Marketing Division formally informs the cold store of when the bulk order would have to be filled, and he schedules a truck to do the delivery. On delivery day, he personally participates in weighing fish (conjointly with the storekeeper), takes out the desired quantity, supervises the loading of the truck, and makes sure that the latter is not unloaded until the truck arrives at the delivery point. He prepares a bill of lading in triplicate (no loaded truck should leave ACPM without a bill of lading!) and takes it with him.

5. After unloading the truck at the delivery point, the client is requested to sign the bill of lading to acknowledge receiving the merchandise he ordered. This signature, which is apposed after a contradictory verification of the shipment, is an acquittal discharging the Marketing Division of any more responsibilities concerning that specific order. It transforms the bill of lading into an important legal and accounting document, that is a debt substantiation as well as a justification of future collection efforts. The original of the bill is sent to the Accounting Division to serve as a basis for both invoicing and recording. The first copy is for the customer's, and the second goes back to the Marketing Division. It is filed under the heading "Wholesale/Deliveries Done", and is used as a source document in computing the volume of wholesale over the period of that transaction.

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6. No payments in hard cash is accepted at the time of delivery. The client should be required either to remit a check made payable to ACPM or to visit the Cooperative and personally pay at the main Cashier's Department.

3.4.2.3.2. Sales Reports

Every fifteen days, the Marketing Division prepares a "Wholesale Report" showing the volume of fish delivered. This report is completed by a report on invoicing and collection, prepared by the Accounting Division. This last report could just be a modified version of the Schedule of Accounts Receivable.

3.4.2.3.3. Journalizing and Posting

1. The main record involved at this level is the Sales Journal. All amounts invoiced are individually recorded as debits to the Accounts Receivables in the Sales Journal and the counterpart account is "Sales"; Posting is made as follows:

- * the total of the amounts invoiced is posted as a debit to the Accounts Receivable control account in the General Ledger, and the amounts on the different invoices are posted as debits to the clients' individual accounts in the subsidiary ledger.
- * the total of the amounts invoiced is posted as a credit to the General Ledger "Sales" Account (Profit Center "FCM").

2. When payment is made, the amount of the check received from the client is recorded in the Cash Receipts and Disbursement Journal (Debit), the counterpart account is "Accounts Receivable (Credit)". Then the check's amount is posted to the credit of the client's individual account in the subsidiary ledger.

3. At the time the check is deposited to the bank, "cash" is credited in the Cash Receipts and Disbursement Journal, counterpart account "Bank", explanation "deposit", and "cash" is debited in the Bank Journal, counterpart account "Cashier", explanation "deposit".

3.4.2.4. RCF and BBR Sales

This section covers all RCF and BBR sales on account.

3.4.2.4.1. Sales Procedures

1. Sales on account to fishermen should be considered only for durable goods and when they represent a fairly important expenditure that could impair the buyer's current financial position.

2. The procedure for conducting such a sale should be as follows:
 - * the fisherman who wants to buy an item on account fills out a credit authorization form (in triplicate), specifying the item he wants to buy;

 - * the Accounting Division reviews the application, and based on the applicant's credit and production records, it makes its recommendation to the Management;

- * the Management decides and the decision is printed in the appropriate box on the application form.
- * if the decision is negative, the applicant's copy of the application form (the 2nd copy) is sent back to him to inform him of the decision, and the original and the "action" copy (1st copy) are filed. If the decision is positive, then the two copies of the form are sent to the applicant and the latter is advised to go get a sales memorandum (at the warehouse); .
- * the applicant takes the memorandum and the copies of the credit authorization form to the Accounting office;
- * the cashier stamps "PAID" on the memorandum, and on the authorization form. He/she keeps the action copy of the credit authorization form and treats it as "cash" sales proceeds. He/she also keeps the original of the memorandum to document the entry in the Cash Receipts and Disbursements Journal.
- * the customer takes the stamped copies of the memorandum back to the warehouse. He keeps the first copy, signs the second and exchanges it against his merchandise.

3. The same procedure applies in case of repair bills. A credit authorization form has necessarily to be filled out, submitted to the Accounting

office for review and to the Management for decision. In case of approval, the customer gets a job order instead of a sales memorandum and he reports to the cashier, using the action copy of the credit authorization form as a means of payment.

3.4.2.4.2. Sales Reports

The sales reports are monthly prepared by the Marketing Division, which integrate data from both RCF and BBR retail and wholesale. The reports outline the nature, brand, make and quantity of the item sold or service performed, the date of the transaction, and the conditions of payment, including the references of the credit authorization. Copies of the reports are sent to the Accounting Division.

3.4.2.4.3. Journalizing and Posting

1. Payments for BBR and RCF merchandise sold on account are directly done to the main cashier in the Accounting Division. At the time of the first transaction, the customer may bring either some cash and the approved credit authorization form, or the form itself. In the former case, the Cash Journal is debited of the cash brought in, and the Sales Journal (column Accounts Receivables) is debited of the balance of the bill which corresponds to the amount of the credit authorization, while "sales" are credited. In the case of no actual cash payment at all, only the Sales Journal is involved.

2. Posting is made to the debit of the cash account for the amount paid in cash, if any; and to the debit of both the Accounts Receivables control account in the General Ledger, and the fisherman's account in the sub-

sidiary ledger for the part of the bill covered by the credit authorization. Then the total of the bill is posted as a credit to the General Ledger "Sales" Account (Profit Center "RCF" or "BBR").

3. When the sale relates to supplies, plant assets or other items acquired for use by the Cooperative, i.e., not as merchandise for resale, the Sales Journal is not used. Recourse is done to the Miscellaneous Journal and posting is made to Accounts Receivable (Debit) and to "Supplies" Account or to the specific account covering the item sold, i.e., furniture, office equipment, ... (Credit).

3.4.3. Purchases, Payroll and Cash Disbursements

3.4.3.1. General Purchases

3.4.3.1.1. Procedure

1. All purchases of merchandise other than fish, and of equipment supplies or other assets are handled through a formalized system of documents and filing procedures.

2. The initiating document necessary to set the purchasing process in motion is the "Purchase Requisition" (P.R.). It is prepared in triplicate, completely filled out (date desired, description of the item or service needed, department, office, division, ... requesting the item or the service, ...), and signed by the head of the requesting unit.

3. The PR is sent to the Accounting/Finance Office where a determination is made as to whether funds are allotted or available for the desired

purchase. The Accounting Office reviews the PR and checks the box corresponding to its determination, and depending upon the size of the projected expenditure (*), it transmits the documents either to the Purchasing Department to get a "Purchase Order" (PO) prepared (small amounts), or to the Management for additional clearance (large amounts).

4. Whenever the review of the PR is up, the original of the document is sent to the Purchasing Department; the first copy stays in the Accounting office and the second goes back to the requesting unit. On the basis of the original, the Purchasing Department prepares a "Purchase Order". The PO is a legal contract between the supplier and the Cooperative authorizing the former to supply the latter with ordered goods or services. It is prepared in triplicate, completely filled out (description of the item or service, quantity, price, delivery point, ...) and signed by the head of the Purchasing Department.

5. If the purchase is to be made on cash, (i.e., in case of an emergency when the payment is to be made from the petty cash fund, or when the purchase relates to a small and non expensive item, and so the payment has to be done upon delivery), the original and the second copy of the PO are forwarded to the Accounting office (while the first copy is kept on file in the Purchasing Department), a voucher is prepared and the cash or a check (made payable to the vendor) made available to the purchasing agent. The latter acknowledges receiving the money by signing a temporary cash receipt and takes the original of the PO and the means of payment (currency or check) to the vendor. Once the item is actually bought and brought back to the Coopera-

(*) A dividing line has to be decided upon by the Management.

tive, the official cash receipt issued by the vendor/supplier is remitted to the Accounting Department and substituted for the temporary receipt which is destroyed.

6. If the goods/services are to be paid on account, the original of the PO is forwarded to the vendor, the first copy is kept on file in the Purchasing Department, the second copy is sent to the Accounting office, and the process is temporarily suspended until the ordered goods/services are delivered. Upon receiving them, a Receiving Report (RR) certifying the receipt and attesting to the conformity (in quantity and quality) between the delivered goods/services and the original order is prepared in triplicate and signed by the warehouseman. The original of the RR is exchanged against the received merchandise/service; the first copy is kept on file at the warehouse, and the second is forwarded to the Purchasing Department and on to the Accounting office, where it is checked against the purchase order and the invoice from the supplier.

3.4.3.1.2. Payment and Recording

1. All payments are made by check (except in the rare cases mentioned above). No check is issued without a voucher or any other kind of authorization (setting forth the payee of the check, the description of the goods/services bought or received, the amount involved, and the budget category to be charged), is prepared and signed. And no voucher is established until it is determined that the invoice conforms to the PO, that the goods listed on the invoice have been actually received, and that the arithmetic details of the invoice are correct.

2. The check is prepared only for the amount to be paid out and it is submitted to the Management for signature. All support documents are imperatively attached to it: purchase order, receiving report, invoice and voucher/authorization.

3. In the case of payment on cash, the transaction is recorded once the official receipt from the vendor is received. Its amount is recorded in the Cash Receipts and Disbursements Journal as a Debit and the counterpart account (credit) is the account concerned by the purchase ("office supplies", "merchandise RCF", ...). Then posting is made to the individual accounts (as often as everyday if necessary) in the subsidiary ledger (the concerned account), and to the control account (weekly or monthly) in the General Ledger ("Cash" and ...).

4. If the payment is on account, the transaction is recorded in two phases. First, when the RR is received at the Accounting office and a voucher prepared. The amount of the voucher is recorded in the Purchases Journal as a debit, the counterpart account credited being "Accounts Payable". Posting is made to the individual accounts: the special account relevant to the purchase is debited and the account of the supplier concerned credited. The second recording phase appears whenever a check is issued to the supplier (be it immediately after the voucher or long after): the amount of the check is recorded as a credit in the Bank Journal, the counterpart account (debit) being "Accounts Payable". Posting is made to the individual account of the supplier (debit). At the end of the month, balances are calculated and posted to the control accounts (General Ledger): cash, accounts payable, and purchases.

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3.4.3.2. Fish Purchase

1. Fish purchase is a daily transaction. It involves large amounts of money and works on a cash basis. It unfolds according to the following steps:

- * the fishermen bring their daily production/catch to the receiving gate;
- * the fish is sorted by species and weighed by the receiving agent;
- * a "Receiving Report" (RR) is prepared in triplicate and conjointly signed by the receiver and the fisherman concerned. It specifies the name of the fisherman, the species and weight of the fish received, and the unit price and the total amount owed the fisherman.
- * the original of the RR is handed out to the fisherman to be used as a claim instrument in collecting his due. The first copy is filed in the fish purchase records, and the second copy transmitted to the Accounting office which checks the accuracy of the computations.
- * the Accounting office prepares a common voucher for all payments to be made to the fishermen and gets it approved by the Management;

* when the fisherman reports to the Cashier's Department with the original of the RR, the latter is used to locate his due on the common voucher; then the cash is paid out from the petty cash fund and directly to the fisherman who signs a receipt.

2. Although the payment is done almost right away (usually the same day), the recording is still done in two phases: right after the voucher to acknowledge the nascent liability, and after payment to account for the latter. Journalizing and posting are made as in the case of general purchases, payment on account.

3.4.3.3. Payroll

3.4.3.3.1. Documents and Procedure

1. Payroll records are the basis for an improvement personnel management system. They show how the cooperative personnel policies (salary schedules, hours of employment, pay periods, methods of payment, termination procedures, employee benefits, ...) are applied to the different employees and how the latter comply with all those regulations. They are mainly made of the following documents:

a.* "Employment Authorization Form" or "personnel requisition", which states the need to hire and asks for appropriate action. It is completed in triplicate by the head of the organizational unit where the new employee is to be working and approved by the Management. The original is

forwarded to the Personnel Department where a permanent file is open for each new employee. Of the two copies, one is sent to the Accounting/Finance Department, while the other is kept on file in the requesting unit.

- b.* "Employment Status Change Form" which records any changes to the original status of the employee, i.e., a transfer to position in another organizational unit or to a different position within the same unit, a promotion or a change in the pay status, ... The employment status change form is prepared in triplicate too, approved by the Management and kept in the employee's permanent file.
- c.* "Employment Termination Form" which is only used when an employee is terminated to tell the Accounting Division of the termination, its reasons, its terms, and the last date through which the employee should be paid. It is also completed in triplicate and it is actually the document completing and closing the permanent employee file.

2. Those documents are numbered consecutively for each employee. They provide the Accounting Division with constant information such as the authorized rates of pay. However, to calculate the actual pay, an additional piece of information is needed: the total of hours actually worked. That is why a fourth document is essential: the "Time-and-Attendance Report". Although, employees are paid on a monthly basis, it is still important to keep track of

their attendance for at the least two reasons: (1) such a record helps monitor every employee's attendance and identify and correct cases of abusive absenteeism; (2) work done over weekends and holidays is properly accounted for and paid without any confusion.

3. Payroll is prepared monthly on the basis of both the time worked (Time-and-Attendance Records) and the authorized rates of pay (Employment Status Change Forms), and although a formal Payroll Journal is not indispensable, (for the cooperative is still small, most employees are salaried, work standard hours, and receive standard amounts of pay for each period, the only computations required being a few deductions), the pay of each employee is still individually computed and recorded, indicating the total time worked (regular and overtime), the rates and the deductions applied.

4. At the end of every month, the "take home" pay is computed for everyone of the employees and all the computations are assembled and summarized in the "Payroll Register" (see example in appendix). The total of all "net pay" is computed and the Payroll Register submitted to the Management. Once it is approved and signed, it becomes a voucher. A check for the total amount to be paid out is prepared and cashed, bringing in the currencies needed to pay the employees.

5. Currency is still used as the medium of payment - and it likely will for some time to come. So, once the check is cashed, the money brought back to the Accounting Division, is inserted in individual payroll envelopes and when the latter are handed out, each employee signs a receipt to attest to the actual payment.

3.4.3.3.2. Journalizing and Posting

1. Once the voucher is ready (i.e., the payroll register is approved and signed), the total amount is recorded in the Miscellaneous Journal as a debit to Salaries Expenses and a Credit to Accounts Payable. When the check is cashed, the transaction is recorded in the Bank Journal as a credit to bank and a debit to petty cash. After the payment is made, the entries are made in the Cash Receipts and Disbursements Journal: Credit to cash, debit to Accounts Payable. Then posting of each net pay is made to the debit of the corresponding employees' individual account.

2. The recording of advances given to employees and their reimbursement is done as follows:

- * when an advance is approved and acted upon, it is recorded in the Cash Receipts and Disbursement Journal as a debit to Accounts Receivables and a credit to cash, and it is reported to the debit of the employee's individual account in the Subsidiary Ledger;
- * if the advance is reimbursed prior to the end of the month, the reimbursement is recorded in the Cash Receipts and Disbursements Journal as a debit to cash and a credit to Accounts Receivable, and the transaction is posted to the employee's individual account as a credit. Deduction of that advance will not be made at the end of the month anymore.

* if the reimbursement is not done by the time the pay is computed and the understanding is that the due amount is to be recuperated when comprising the net pay, the following entries are made:

- when the voucher is approved: the gross pay is debited to "Salaries Expenses" in the Miscellaneous Journal, and the net pay is credited to "Accounts Payable" and the amount of the advance to "Accounts Receivable" in the same journal.
- upon payment, the Cash Receipts and Disbursements Journal is used to record the net pay: debit to Accounts Payable and credit to Cash. Then posting is made to the debit of the employee's individual account.

3.4.4. Property Control and Inventories

1. Inventory determination plays an extremely important role in matching current-year costs and revenues and so is a critical variable in both the computation of the net income (income statement) and the determination of assets and capital (balance sheet) at year-end.

2. ACPM inventories comprise both merchandise held for sale (fish, RCF merchandise, ...), raw materials held to serve as inputs in the production process (BBR) and materials in the process of production (BBR). The most significant category is the merchandise inventory and the system to account for it is the periodic system of inventory.

3. The cost of inventories (purchase price + all additional acquisition costs) is determined using the retail inventory method. However, a physical inventory (counting, weighing and measuring) is taken at least once a year, (i.e., at the end of the year) to determine the actual productivity of each type of merchandise owned by the Cooperative. Its results are compared to the balance of the individual accounts opened as a part of a parallel perpetual inventory of which records are maintained in memorandum only (and especially in quantity), and not for accounting purposes.

4. The two focal points for keeping inventory records up-to-date are the cold store and the warehouse. No fish can enter or leave the cold store without having been weighed and the movement recorded. Even the transfer of fish between the freezer and the above-zero-cold store is recorded and a weekly report produced. The requirements are the same at the warehouse: a constant record of RCF merchandise in - and outflows is maintained, weekly synthesized and reported.

5. A property control system registers and monitors the "life" of all cooperative assets (other than merchandise) of a value equal or greater than 10,000 Djibouti Francs. Accordingly, all concerned properties are classified, using categories such as transportation equipment, office furniture and equipment, BBR shop tools, cold store equipment, ... Each property is assigned a Permanent Identification Number (PIN) consistent with the budgetary and accounting classification scheme.

This number is physically placed on each item or group of items being inventoried and it is consistently marked at the same place on similar

items. An inventory card is prepared for each item inventoried and an Inventory Register, sort of General Ledger, which organizes and treats the different assets as a series of accounts is opened. Each card (see sample in Appendix, p. 46) contains the name and description of the item, serial number, model, condition, date acquired and original cost (actual: acquisition, or estimated), P.O. number, physical location, ... The card and the register are first marked when an item enters the Cooperative. Then on, they are updated as regularly as it is necessary (but no less than once a year when the physical inventory is taken) in order to account for any changes in the quantity, the quality, the value, ... of the assets (following new acquisitions, transfers, sales, trade-ins, ...).

3.4.5. Summarization and Financial Statements

1. The preparation of the Cooperative Financial Statements requires that particular attention be paid to some special accounts. The latter are: sales, inventory of commodities (stock variation), purchases, sales discounts and purchase discounts. The former three record the following data:

D Purchases C		D Sales C		Inventory of D Commodities C	
Cash Purchases	Purchases	Sales	Cash Sales	Year-opening	Year-end
Purchases on Account	Returns	Returns	Sales on Account	Merchandise Inventory	Merchandise Inventory

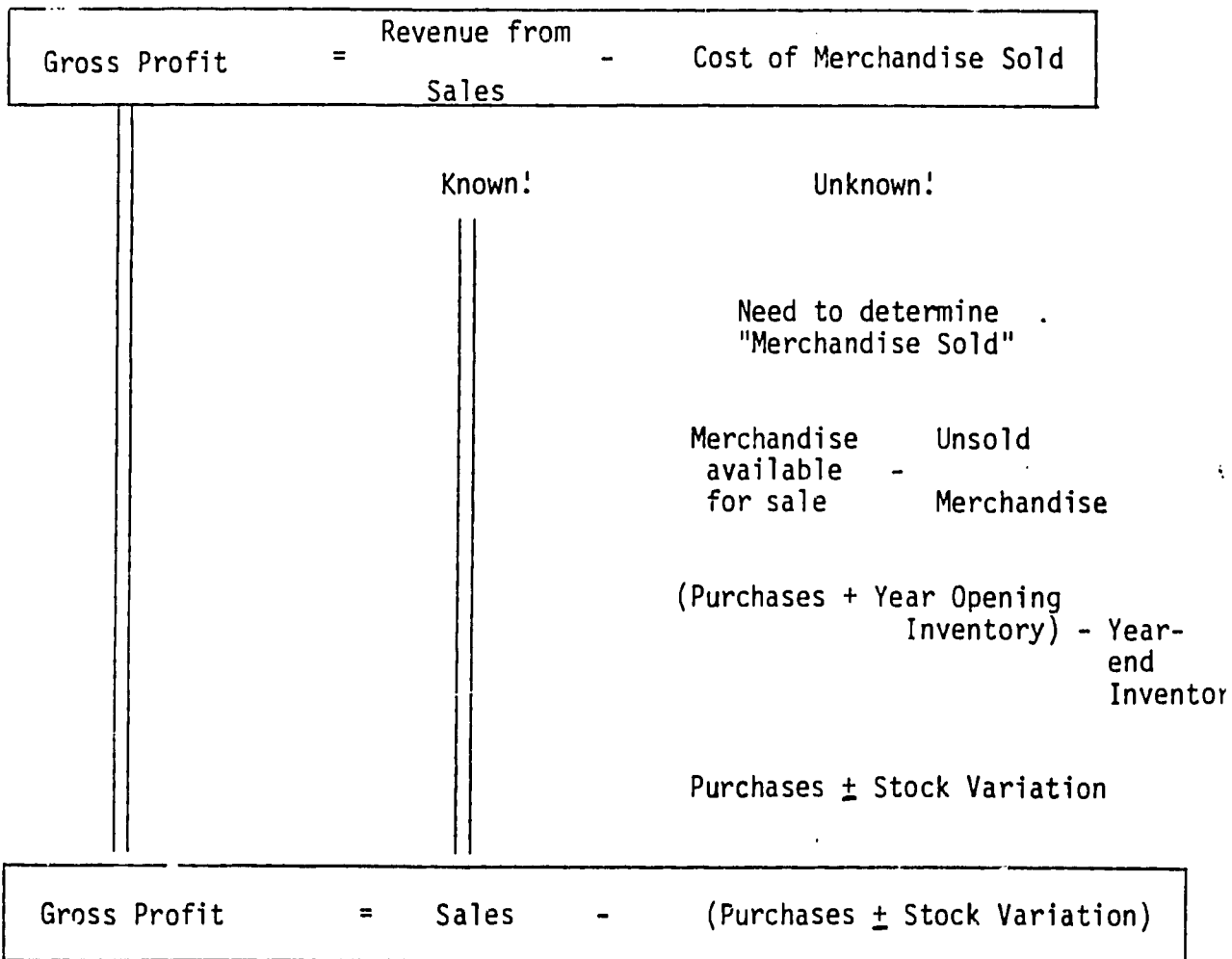
The latter two are respectively posted at their debit and at their credit.

Sales	Discounts
XXX	

Purchases	Discounts
	XXX

Their year-end balance is respectively transferred to the debit of the ~~Purchases~~ ^{Sales} account and to the credit of the ~~Sales~~ ^{Purchases} account.

2. The data recorded under "Sales", "Purchases" and "Inventory", help calculate the Gross Profit. Here is the formula:

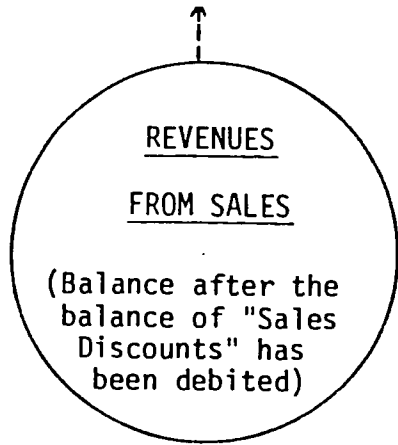


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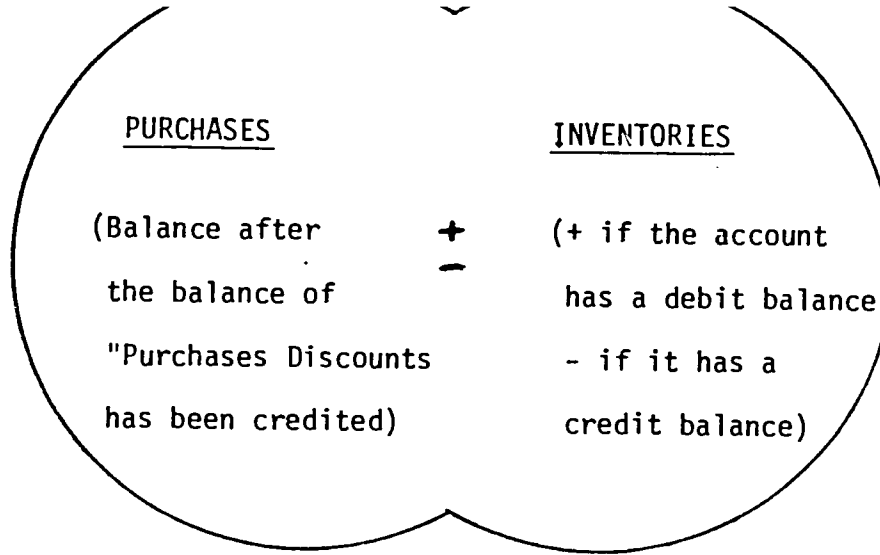
3. The computation of the gross profit is just the first step towards the determination of the net income. This determination is done through and represented by a matrix called "Income Statement". The step-by-step process unfolds like this:

- a.* the balance of "Purchase Discounts" and "Sales Discounts" are calculated and respectively transferred to the credit of "Purchases" and the debit of "Sales" in order to determine the net amount of both purchases and sales;
- b.* physical inventories are conducted and their valuation done;
- c.* the result is credited to the account "Inventory of Commodities" and the balance of the latter calculated;
- d.* the balance of all the other income statement accounts is calculated;
- e.* required adjustments are made to ensure that all and only current-year charges and revenues are accounted for;
- f.* the income statement is prepared and so the net income determined.

4. Graphically the actual computation of the net income is done as shown on the graph on page 70. After the net income is calculated, the balance sheet is prepared, then the Schedule of Accounts Receivable and the Schedule of Accounts Payable.

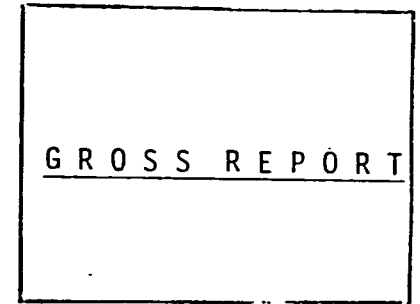


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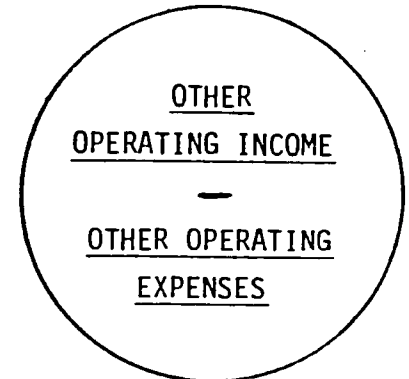


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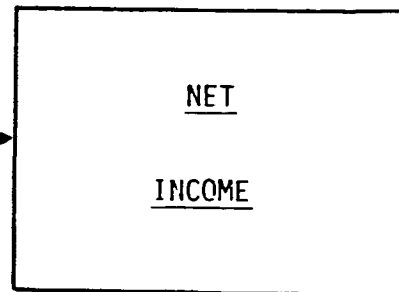
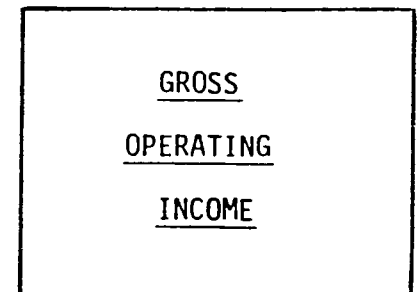
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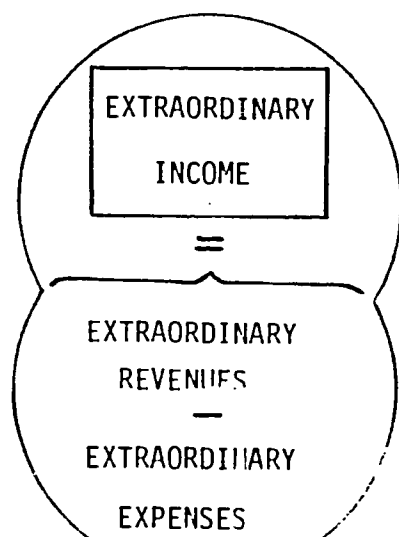
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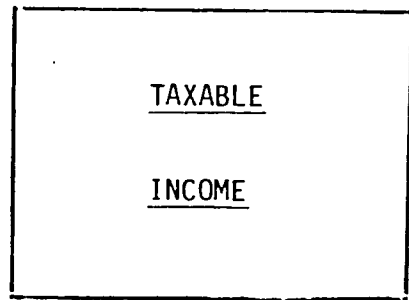
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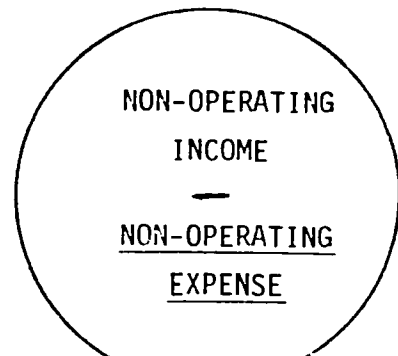
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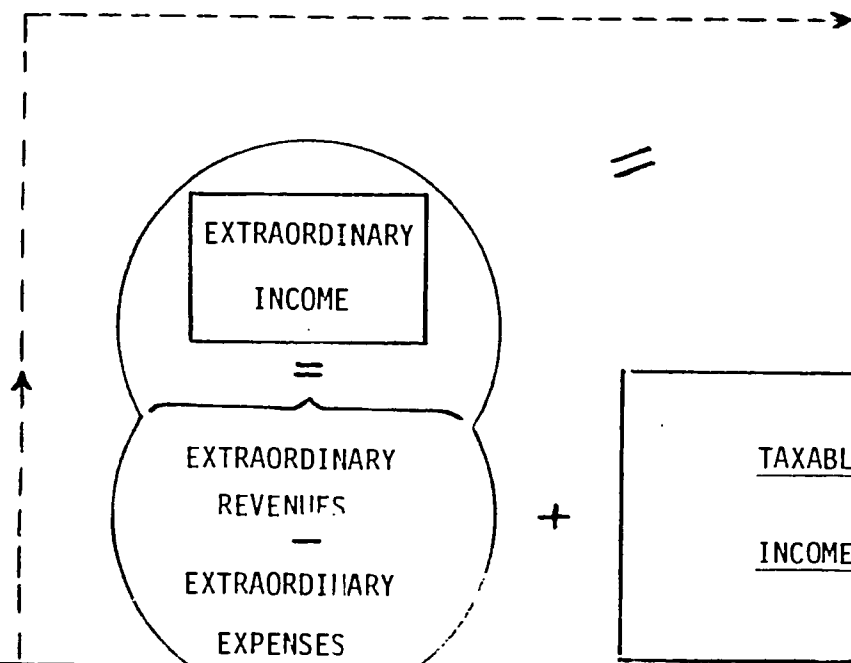
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5. One document which is essential in the summarizing process, especially at the end of the year, is the Bank Reconciliation Statement. It is taken monthly to maintain control and assure accuracy of financial reports and accounting records (journal and ledger). Here is how to proceed:

enter the balance per bank statement

add deposits not credited yet

deduct outstanding checks

Adjusted balance per bank statement

(which should be equal to the)

Adjusted balance per cashbook (bankbook)

(plus deductions)

The Bank Reconciliation Statement is prepared by the Accountant. But it is cross-checked by the Management.

3.5. SAMPLE FORMS

- Sales ticket
- Sales reports
- General Journal
- Sales Journal
- Purchases Journal
- Control Accounts
- Schedules of Accounts Receivable and Accounts Payable
- Trial balance
- Inventory Card

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FCM DAILY RETAIL BILLING REPORT (1)

FCM DAILY RETAIL DELIVERY REPORT

DATE:.....

NO.	REFERENCES		QUANTITY	SPECY	UNIT PRICE	TOTAL
	INVOICE	C.R. (2)				

(1) specify the type of report

(2) cash receipt

NAME :

SIGNATURE :

FCM DAILY RETAIL REPORT

DATE: _____

QUANTITY	SPECY	UNIT PRICE	TOTAL

NAME:

SIGNATURE:

RETAIL CASHIER'S DAILY REPORT

NAME:.....
.....

SIGNATURE:.....
.....

BILLS OF 5 000 FD.....

BILLS OF 1 000 FD.....

BILLS OF 500 FD.....

BILLS OF 100 FD.....

BILLS OF 50 FD.....

BILLS OF 10 FD.....

BILLS OF 5 FD.....

CHECK

TOTAL _____

ADVANCE _____

NET

THAT IS:.....

.....

CASHIER'S SIGNATURE

ACCOUNTANT'S SIGNATURE

GENERAL JOURNAL

Folio No.: _____

GENERIC EXAMPLE

CONCRETE EXAMPLE

No.	ACCOUNTS	AMOUNT	
	TITLE	Debit	Credit
...	<p>_____ date _____</p> <p>Debited Account</p> <p>Credited Account</p> <p>Explanation</p> <p>_____ 30/6 _____</p>
3.1	<p>Clients (1)</p> <p>Accounts Receivable</p> <p>Sales (2)</p> <p>(Sales Journal Folio...)</p> <p>_____ 31/7 _____</p>	500000	500000
		

TOTAL DEBITS = CREDITS

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ACCOUNTS RECEIVABLES/FCM/RCF/BBR

DATES	EXPLANATION	FOLIO GENERAL JOURNAL	DEBTOR	DEBIT	CREDIT	BALANCE

ACCOUNTS PAYABLE/FCM/RCF/BBR/ACPM

DATE	EXPLANATION	FOLIO GENERAL JOURNAL	CREDITOR	DEBIT	CREDIT	BALANCE

PURCHASES/FCM

DATES	EXPLANATION	FOLIO GENERAL JOURNAL	COUNTERPART ACCOUNT	DEBIT	CREDIT	BALANCE

SCHEDULES OF ACCOUNTS RECEIVABLE AND ACCOUNTS PAYABLE

BALANCE OF SUBSIDIARY ACCOUNTS

ACCOUNTS	AMOUNT		BALANCE	
	DEBIT	CREDIT	D	C
<u>CLIENTS</u>				
<u>DEBTORS/CUSTOMERS</u>				
X				
Y				
Z				
<u>CREDITORS/SUPPLIERS</u>				
X				
Y				
Z				

N.B.: Before preparing financial statements, a TRIAL BALANCE is prepared. The trial balance is organized in the same manner as the schedule above. However, in this centralizing system it would enlist only controlling accounts (i.e., their respective balance taken out of the General Ledger).

"

TOTAL OF THE CONTROLLING ACCOUNT "ACCOUNTS RECEIVABLE"

"

TOTAL OF THE CONTROLLING ACCOUNT "ACCOUNTS PAYABLE"

TRIAL BALANCE
(AFTER INVENTORY)

ACCOUNTS		BALANCES	
NOS.	TITLE	D	C
	Only accounts showing a balance. Income statement accounts are represented by either "Net Profit" or "Net Loss"		

APPENDIX C

FAO SOCIO-ECONOMIC STUDY

BASELINE SOCIO-ECONOMIC
AND MARKETING STUDY
OF
ARTISANAL FISHERIES IN THE
REPUBLIC OF DJIBOUTI

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(Consultants)

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Inger Bjoerklund
Georg Walter-Dehnert
Consultants

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1.0 SUMMARY

1.1 Sales

The assumption that the Djiboutian population dislikes fish has been found to be invalid. The demand for fish exceeds the present supply. All increases in production as far as public marketing is concerned have been absorbed by consumers regardless of the increase in price of fish.

In Djibouti-town there is only very limited access to fish. (Two selling points for local population, - ACPM and Central market - and three where expatriates buy their fish - 2 supermarkets and one private fish-shop). All IFAD-outlets to be opened close to traditional buying centres are expected to do well, provided they have regular and sufficient supplies of preferred species.

The management of retail-outlets should be responsible not only for sales but also for providing information and playing the important role of promoter. The role of the outlets must be seen as a long-term activity in order to develop dietary habits of fish consumption. The impact of pilot outlets on surrounding clientele should be evaluated over a period of time. Conveniently located outlets should be able to sell c. 10 tons/annum in the first years after being opened.

The household survey shows that the present fish consumption (in the areas observed) is approximately one tenth of the meat consumption; 75% of the interviewees eat fish twice a month (month of survey = May, month with good availabilities). Fish consumption is reduced during Ramadan and periods of limited landings. The majority of fish consumers declared their intention to eat more fish provided accessibility was improved. The majority of the population segment which, at present, does not purchase fish has declared its willingness to eat fish if more easily accessible. Definite refusal of fish was only reported from 8% of interviewees due to general dislike. Effective sales will greatly depend on how the outlets function.

Private consumption of fish increase significantly with higher level of income and particularly with higher level of education.

Changes in the present level of fish intake in Djibouti by private consumers will require a medium term commitment of promotion. Short term increase in sales can be achieved by improving the relationship between ACPM and the organisational buyers. Promotional activities should be developed and all actual and potential institutional clients should be regularly

supplied with information (e.g. on monthly basis) on the availabilities of species and their prices and should be given efficient and hygienic service including prompt delivery.

Both, the private consumers as well as institutional clients, prefer fresh fish and only a few species. Frozen fish is not yet well accepted. Private consumers prefer Dorades, Spanish Mackerel and Tuna, accounting for c. 75% of their purchases. A promotion campaign must aim at widening the variety of fish accepted and increase the acceptability of frozen fish as a substitute to fresh merchandise.

In medium to long-terms Djibouti has the potential to double or triple the present sales of fish.

1.2 Socio-Economic Situation Of Fishermen

Artisanal fisheries of indigenous population dates back only 150 to 200 years. Since 1900 both equipment and population have increased by approximately four times. Fishing is small-scale family business. Approximately 50% of all fishermen are boat-owners, usually owning one boat with gear, each. Approximately 85% of all young males in fishermen's families enter fishing. Approximately 45% of them join their fathers' crews, the rest those of related family-members (uncles, brothers). The number of fishermen working as hired hands is not expected to exceed 120 individuals. Young fishermen work c. 10 years as crew-members. Almost all fathers leave their equipment to their sons (or other closely related descendants). Between 25 and 35 years of age a fisherman may acquire his own boat, either inherited or bought for him by his father.

Elderly fishermen are inclined to fish as long as they are able. Job drop-out are negligible. Families of fishermen are small (one wife, 2 - 3 children) unless very successful, in which case families can increase to up to ten children and several wives.

The total population of fishermen is growing, but since new fishermen are recruited in fishing families only, the speed of growth is related directly to income levels. If the situation of the total population is improved in the future, the population is expected to grow faster than it has done up to now.

The population of fishermen is divided into two kinds: Some twenty boats and crews are active (5 and more landings per month); their level of organisation, maintenance, etc. is good to very good. If boats and new techniques are introduced, these boat-owners and crews are expected to adapt quickly (training), if a comparative increase in income or an equivalent decrease of effort with equal income is assured.

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2.0 INTRODUCTION, BACKGROUND

2.1 Some Historic Information

"According to the oldest fisherman still living (Abdallah Darwich Abdallah), Djiboutian artisanal fisheries must have commenced through Yemeni influence: Some boats may have come to Djiboutian waters regularly, with some fishermen settling and taking locals as crew-members. No precise information is available as to when indigenous fishing actually started, but from the above mentioned interview it seems that the semi-nomadic coastal population will not have started fishing much earlier than 1800.

By 1900, Obock had a small colony of fishermen: c. 15 "houris" were constantly based at the old capital (c. 3000 inhabitants in 1900) and some 50 fishermen and their families mostly lived from what was earned through fishing. Only a few fishermen lived outside Obock.

The Yemeni influence persisted: Most of the techniques used were those of the Yemeni fishermen in the area, and the equipment was imported from Aden, included the hulls of the boats. The wood for the boats was imported into Aden from India. The finishing however was done in Obock (planking, keeling, etc.). The interviewee's father is said to have been the first Djiboutian boat-builder; (c. second half of the last century).

The boats used were the same type of "houris" still used today. A sail as still found nowadays on some "boutres", resembling the dhow lateen rigging, and oars were the means of propulsion.

The boats had 2 - 6 crew-members according to the size of the boat.

It was said that early Djiboutian fishermen had learned to build nets (also taught by Yemenites) but made little use of them. They mostly fished with handlines of cotton. The preferred species of fish were: Houdar (Jacks), Ham (great barracuda), Chiroi (Kawakawa), Houmbouk (snappers and Couchar (grouper).

Apart from what was consumed by the fishermen's families and by some of the urban dwellers of Obock and Tadjoura (Djibouti-town did not yet exist) most of the fish was salted and dried. The fish was cut lengthwise (heads removed) and then salted and dried in the sun. The preserved fish was sold to Yemeni traders, coming to Djiboutian towns on market days, and exported to Arab countries. Inland trade in fish did not exist, and then, as now, the local nomads ate no fish. The reason given would be religious ("...it is dead and we did not see it die. Maybe it is unclean..."), but basically they wanted and still do insist on eating only what is produced within their self-sufficient cycle of production and what is their habitual food.

It seems that this situation lasted more or less until the end of the second world war, although the French population of Djibouti will have consumed fish and some of the city dwellers (Arabs) may have allowed an increase in local sales of fresh fish. The second world war accelerated the population growth in Djibouti-town (refugees from neighboring countries, improved harbour infrastructures, trade to Ethiopia via railroad, demand for labour-force, etc.)

The first important change after the war was the introduction of outboard engines in the 50's: A certain Commandant Alar started lending small outboard engines (Johnson 6 or 9 HP) to fishermen who regularly delivered their catches to the French Army. The motors were serviced by Army mechanics. Soon after that outboard engines were also offered for sale by the "Bess" warehouse.

In the 70's some organisation in matters of sales, cold storage etc. started for artisanal fishermen, loosely connected with the "Direction de l'Elevage et de la Pêche" (DEP) but the level of these services was poor (Pajot, 1977). It was only as late as 1979, when the situation was reorganised that effective measures in favour of a development of artisanal fisheries were undertaken.

2.2 Brief Description of the Present Situation

An important part of artisanal fishing in Djibouti today is concentrated in Djibouti-town, as far as selling fish is concerned (c. 70% of the country's total population lives here) and around the "Association Coopérative des Pêcheurs Maritimes" (ACPM) as far as landing sites and infrastructures go.

In 1982, in the month of peak activity (March) 76 boats were active in catching fish, 1 in catching lobster and 5 in catch squid, making a total of 82 boats. These boats carried 169 men as crew. All the boatowners also fish the selves (no exception known) so that approximatively half of the crew is at the same time owners.

Six of these boats are larger vessels (Pairel, 1982) with in-board Diesel engines (35 - 80 HP) varying in size. (Length 12.00 - 15.00m, width 2.40 - 3.20m, depth 1.00 - 2.20m) These boats have 5 - 6 crew-members and are mainly engaged in drift gillnetting. They also may partly be active in regional trade and transport.

The bigger type of vessel is called "boutres". The vast majority of fishing boats in Djibouti are "houris". A smaller houri will be a dug-out and planked canoe, a larger one will be a framed planked boat fitted with an additional keel. These boats vary in length from 6 - 10m, in width between 1.80 - 2.20m and in depth from 1.00 - 1.20m.

For propulsion outboard engines are used, from 6 HP over 8 and 15 HP (Yamaha mostly), some boats even using 25 HP engines. The most frequent type of fishing gear used in these boats is handlines and trolling lines (Pajot, 1977; this report also contains some technical information and recommendations).

Pajot assesses (for 1977) the total number of hours in Djibouti to be c. 100; it is not believed to exceed 120 in 1983.

In periods of high fishing activity 75 out of a maximum of 120 hours operate from-out ACPM. The rest are distributed over the country and the catches of these boats are destined for private consumption and local marketing (Djibouti, Obock, Tadjoura, etc.) The total population of artisanal fishermen (boatowners, their family-members engaged in fishing and hired hands) hardly exceeds 230 individuals.

Fishing in Djiboutian waters is entirely small scale. No trawlers and no licensed foreign vessels operate.

The ACPM is located next to the DEP and management as well as supervision is closely connected with this technical service. This favoured the considerable efforts which have been made since 1979 in order to improve the situation of artisanal fisheries: In recent years three cold stores (total 50m³ plus one store cooled to - 25°, an ice-making plant with 2,5 tons per day capacity and an ice-storage bin have been built at ACPM. The cooperative assures the purchase of all the landings at fixed prices and regardless of the level of production. Connected with the ACPM are a repair shop and a boat-yard. The repair shop is prepared to service and repair both Diesel and outboard engines. This service is provided for free with fishermen only paying for spare parts. The boat-yard works on lamination of used boats which need major repair and on prototypes of plastic boats which will be locally produced in future. As well as servicing the engines, ice is also provided for free; both services represent important subsidies for the fishermen. Spareparts and fishing equipment are available from ACPM stocks and can be bought on credit, provided the fishermen concerned regularly fish from-out ACPM.

The production of ACPM has increased during the last four years from c. 190 tons (1979) to 299 tons in 1982. (For details see Annex No. 7.1 p. 61 - 63) The DEP reports the cooperative's production as being c. 70% of the national production.

All fish is landed in the mornings, is weighed according to species, accounted automatically (an improvement introduced in 1983) and either sold fresh or filleted. Surplus is immediately frozen. The fishermen get paid a

few hours after unloading their catches. If they have credits to reimburse, installments are deducted from their returns.

Considerable improvements have been made as far as sales are concerned; at present these are c. 60% as wholesale to organisations such as the Army, hotels, restaurants, Catholic Relief Service (CRS) and World Food Program (WFP).⁺ 40% of the production is sold retail.

Everyday accounting has provided reliable production figures since March 1979. Even more detailed catch reports (in cooperation with UNDP-FAO project for 'Development of Fisheries in Areas of the Red Sea and Gulf of Aden') have been made since July 1982.

The Djiboutian government provides further support by covering electricity costs and salaries of several staff members working for the ACPM as accountants and statisticians. The ACPM receives foreign aid from FAC, IFAD and US-AID, in funds as well as in technical assistance.

2.3 Objectives of this Study

For the planning of future development activities in favour of Djiboutian artisanal fisheries the authorities and organisations involved judged it necessary to have some baseline data concerning:

- (a) The current importance of fish purchasing + preparation in
 - institutional fish consumption as well as in
 - individual householdsin order to determine possible constraints on the future promotion of fish sales;
- (b) the actual state of the fishery population, their families, etc. with particular emphasis on the willingness of descendants to enter fishing as a profession.

The importance of wholesale customers and the comparative small amount of fish purchased at present for private consumption seemed to indicate a low acceptability of fish as a protein for daily use by a population that is said to descent from nomadic ancestors and to refrain from fish-eating out of religious reasons. This assumption was deemed critical as a factor in further development of the sales side of artisanal fisheries.

The first part of the study therefore aims at

- (a) answering if and to what degree the Djiboutian population is inclined to eat fish, and

⁺): These clients are those called "institutional clients" (as in the ACPM-accounts) in the further text of this study.

if and to what extent sales could be increased by improving wholesale sales to institutional clients.

(b) As far as the fishermen themselves are concerned, the critical issues so far seem to be:

- Their low total number and
- their comparatively infrequent landings.

It was considered possible that future development implying both a demand for greater involvement by the fisherman and a larger number of men fishing, could lack the necessary social basis.

The present status of income from fishing should be described, since no evaluation of the profitability of artisanal fisheries had been presented so far. (Some sources quote the fishermen as belonging to the poorest of the nation, e.g. Barrania, 1982).

The second part of the study, therefore, is to provide baseline data on

- demographic characteristics of artisanal fishermen and their families with particular emphasis on recruitment of young fishermen,
- on the essential economic issues of production and expenditures.

The consultants arrived in Djibouti end of April 1983 and started with the collection of data already available and the immediate execution of smaller surveys (fishermen, institutional clients), plus the preparation of a household survey drafted for representative samples of the population living near the retail outlets for fish, constructed recently and to be opened soon (IFAD-funding). All activities had to be completed by mid June - start of Ramadan, followed by two months of extreme heat (Khamsin) during which the city is partly emptied; fishing is reduced in that period and dietary habits are unrepresentative. The household survey - questionnaires being finalised at FAC headquarters in Rome - was executed at the end of May and start of June. The final report was drafted in Rome in July and August 1983.

The study was funded by US-AID.

3.0 DIETARY HABITS

3.1 General

The population of the Republic of Djibouti is estimated to be 300 000 inhabitants. Approximately 200 000 live in urban areas, of which Djibouti-city accounts for 90%. Other urban areas are Obock, Tadjoura, Dikhil and Ali-Sabieh. The rest of the population consists of nomadic tribes scattered throughout the country (1).

Two major ethnic groups make up the population, the Issas representing 50% and the Afars approximately 40%. A resident Arab minority and European expatriates (the majority of whom are French) comprise about 10% of the population. Fluctuations in the population occur mainly because of the nomadic habits of the people, who partly continue to migrate, particularly during the period of extreme heat. The number of refugees from Somalia and Ethiopia is estimated to be 34000 (2).

The land is almost entirely desert and lacks water, energy supply and mineral resources. Agricultural production, representing about 5% of the gross domestic production, (3) covers only c. 1% of the country's surface. It is restricted to small scale gardening of a few kinds of vegetables and of melons, inadequate for local needs, plus pastoral herds of goats, sheep and cattle.

The climate is typical of coastal desert areas in this part of East Africa, with temperatures averaging between 25° and 45° C, little rainfall and recurring spells of drought. Most regions are very arid and only occasionally in times of rain is the vegetation enough for herds to graze.

Among the local population subsistence nutrition is the norm, with common iron and vitamin deficiencies among children and women. The sedentary poor subsist on what they can grow of corn, durra and beans and a few purchased staples, such as sugar, ghee or vegetable oils. Food prices are very high, as more than 95% of the food is imported.

The consumption of khat, an expensive non-nutritive stimulant, is widespread among the population. Khat is recognized as a significant factor in malnutrition as it

(1): The 1982 census, unpublished so far, will provide precise information in the near future.

(2): WFP estimates, May 1983

(3): Monthly Bulletin, United Nations, New York, Jan. 1983

depresses the appetite which may result in insufficient nutrient intake.

3.2 Nomadic Population

Food supply for the nomads is precarious and dependent on sufficient rainfall. The staple food in the diet of the nomads in the rural areas consists of milk in large quantities, (from goats, sheep, cattle or camels), durra, ghee and sheep's tail. A comparison of the nutritional properties in different milks and their prices (as quoted in Djibouti city) is shown below:

Table No. 1

Milk	Kcal/100ml	Protein (g)	Fat (g)	Price (FD)	1 liter (US \$)
Cows, whole	64	3.3	3.6	120	0.75
Goats	71	3.3	4.5	120	0.75
Sheep	108	5.6	7.5	120	0.75
Camel	63	2.0	4.1	200	1.25

Meat from goats, sheep and camels is eaten infrequently by the nomads, although it is the most highly valued food. Illustrative of the nomads' high esteem of animals and their products is the tradition of slaughtering a camel for a very special celebration, such as the Prophet's birthday, or the custom of offering a drink of milk to a visitor. However, preferences rarely coincide with availability/affordability. Annex No. 7.2.1, p. 64 shows prices of meat quoted at the central market in the capital, April 1983.

3.3 Urban Population

In order to comprehend the newly urbanized parts of the population in the survey, one must not dismiss the impact of their origin. Those descending from nomads in the area still may have relatives in the place of their origin and these family relationships are closely maintained. During the hottest months of the year, children below school age are sent away to their relatives living in cooler areas outside the capital. Children at school age and their parents may join them when schools close in June. However, apart from nomad-descendants, this only counts for richer families owning private property in mountain areas. (A large part of the present city dwellers

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will not have such possibilities). On the other hand - as far as still able of practising this type of migration - such practices may help to maintain links between rural and urban areas and help perpetuate traditional customs, including dietary habits.

The local urban population divides its daily food intake into two meals, a breakfast consisting of tea with sugar and a flat, round bread made of wheatflour and *durra*, which is eaten with some ghee. The main meal is eaten at lunchtime. It consists of (the inevitable) soup, rice or pasta, and meat mostly prepared with a sauce. If fish is ever eaten by the household it is once or twice a month. Bread is served with the meal. Characteristic of Djiboutian food habits is the lack of variety of food preparations. That is to say, it is not unusual to have the same kind of food prepared 5 or 6 times a week. Most of the meals are unbalanced, as vegetables and fruits are scarce and expensive (since all imported from abroad, mostly from Ethiopia). *Khat* is chewed (only by men) in the afternoons, after the midday meal. As it reduces the appetite, supper is not normally eaten. If an evening meal is eaten, (eg. by the rest of the family) it is again tea and bread with ghee.

The food habits of the foreign community are highly influenced by French customs. As mentioned above, more than 95% of all food is imported to Djibouti. France, Ethiopia and Kenya are the main suppliers of most food-stuff. Restaurants are plentiful and thrive on the expatriate clientele catering to their preferences.

4.0 FISH PURCHASING

4.1 General. Production, Consumption, Species

The total production of fish in Djibouti is estimated to have reached 390 tons in 1982. The increase of production since 1979, see table No. 2, below, is most probably due to the impact of ACPM's new storage facilities, which enabled the fishermen to make better use of favourable fishing periods.

Table No 2:
National production of fish
(kg liveweight)

Year	ACPM	Total National	Observations
1979	164 883	214 345	March til December only
1980	209 126	272 921	
1981	296 937	386 018	
1982	298 891	387 457	

Note that the production in 1982 does not repeat the increases of previous years. As assessed in Annex No 1, the production for 1983 is expected to be around 280 to 290 tons again. It may well be that the step to higher production will remain a singular event (impact of cold storage) and production will not increase further unless new sales and storage facilities are created.

Assessments of species and resources within the territorial waters of the Republic of Djibouti show an estimate tenfold potential to be exploited before reaching the maximum substantial yield of these resources. (IFAD App. Report, Sept. 1980, 'F. Nansen' Survey, May 1982). The most common and commercially valuable species are listed in Annex No. 7.3.1 p. 66 - 67.

The demand at present however is limited basically to a few species only (according to the household survey executed for this study): Snappers, tunas, Jacks and Dorades are preferred. In that regard things have not changed much during the last 80 years. Further details on species caught and their quantitative importance are provided in Annex 7.3.2 p. 68 - 69.

As mentioned above, the DEP reports the annual landings

at ACPM to represent c. 70% of the country's total fish production. Remaining catches are landed in Djibouti, Obock and Tadjoura. Most of the fish is sold to retail traders in Djibouti's city market or directly to individual consumers. A substantial, but unquantifiable amount is consumed by the fishermen's families. Apart from at ACPM, no handling- + ice-storage facilities for fish exist in the country.

All locally produced fish is consumed domestically, none is exported. (The trade with dried fish to Yemen, as mentioned above, p. 8, has stopped long ago). There are strong indications of a higher local demand for fish than the present production can meet. Assessments of potential sales are presented in chapter 5.1.3 (p. 24 f) and chapter 5.2.4 (p. 32ff). The price of fish compares very favourably to that of meat. Almost 100% is consumed as fresh fish, as there are no traditional customs of eating dried, smoked or otherwise cured fish or fish products. Individual local customers are mostly ignorant of the availability of frozen fish, as well as of quality aspects and consequently methods of preparation of frozen fish.

The actual local consumption of fish is limited to that of fisherfamilies, coastal populations and urban habitual consumers of fish with (more or less) easy access to fish retail outlets. Per capita supply of fish in Djibouti is 1.3 kg/year. (Total annual production per total population). Further chapters of this study will provide some specification of the actual private consumption of fish.

4.2 Selling Points for Fish (Djibouti-Town only)

4.2.1 Association Coopérative des Pêcheurs Maritimes (ACPM)

The ACPM is located in Boulaos, approximately 2 km from the city centre. ACPM is the largest wholesale and retail centre for fish, handling, as mentioned above, c. 70% of the total national fish production. During 1982 the catches of ACPM-members totalled 272 tons, about 60% of which went for wholesale and 40% for retail. In value wholesale and retail sales are equal due to reduced prices in favour of wholesale customers.

Fish is sold fresh in accordance with consumer preferences of total wholesale frozen fish was only 16%. Of retail sales, nearly 99% was fresh fish. For wholesale, the existence of an effectively operating cold store does, to some extent, compensate for seasonal drops in availability of fresh fish. However, as far as retail clients are concerned, it would require a promotion

campaign to introduce frozen fish as an accepted food item of private consumption.

Since the introduction of the flake ice machine (January 1981), the fishermen of the cooperative have received ice free-of-charge, which has resulted in a decrease in fish spoilage and an increase in the quality of their fish as compared with the fish sold at the central market. The non-ACPM fishermen, selling their fish in the central market only, have to purchase ice from a private ice plant. It is presumed that this happens very rarely.

Wholesale clients (defined as all buying at wholesale prices, such as community organisations, e.g. armed forces, hospitals; commercial enterprises, e.g. hotels, restaurants and individuals reselling fish on stalls in local markets) buy in quantities ranging from 5kg to more than 100kg per purchase in frequencies ranging from daily to twice a year. Most wholesales are delivered by ACPM by means of two insulated trucks (0.5 and 2.0 tons).

Retail customers are left with what the wholesale business does not account for. The individual customers express their preferences for certain species by restricting their purchases to traditional and familiar types of fish (see above, p. 16). The majority of the retail clientele at the ACPM are Djiboutian customers. As the cooperative is located on the outskirts of the city centre, customers have to come by bus or car. A common means of transportation in the city is to share a taxi ride with other travellers. Obviously the travelling involved discourages many potential customers.

A second problem is that the time when the ACPM outlet sells fish is restricted to a few hours in the morning (from c. 9:00 to 11:00 o'clock) after the fishermen's landings have been unloaded, weighed and accounted. Since the cooperative must, at the same time, handle the entire catch (cleaning, freezing, weighing and taking samples of length for statisticians, plus the activities connected with sales - executed by personnel otherwise occupied with filleting), there is a peak activity which sometimes is a disadvantage for customers.

Thirdly the hall, which is used at present for sales as well as for filleting, is not very appropriate to fulfill all the criteria of a fish shop. The heavy workload often leads to the customers having to wait in lines. Hygienic conditions are not ideal. Finally packaging services are extremely limited.

Table No 3, following page, shows the distribution of sales in fresh and frozen fish of ACPM in 1982. The stock movement record for 1982 is presented in Annex No. 7.4 p. 70.

Table No. 3:
Sales of fish at ACPM in kg, 1982 +)

	Wholesale	Retail	Total	% sold in Wholesale
Fresh	146,256	98,011	244,267	60%
Frozen	27,534	247	27,781	99%

4.2.2 The Central Market Djibouti

Inside the central market, located near Place Harbi, is a section with stalls occupied by 10 - 12 fishvendors. Outside the premises are an additional 5 - 10 vendors who sell fish and shrimps on the ground. The vendors buy most of the fish from independent fishermen, delivered by small carts to the market place. Occasionally, fish is bought at wholesale prices from the ACPM by the vendors.

The fishvendors selling in the stalls in the central market do not weigh the fish nor use ice handling it. Fish is sold whole, as fillets or cut in small pieces. The latter are arranged in piles on the counters. One pile was estimated to weight 200-300 g (April 1983). Prices are established according the traditional system, a given number of pieces per pile according to seasonal availability and round prices per pile (200 - 250 - 300 FD). The sales and the form of trading leaves some room for bargaining, but there seems to be common agreement upon the quantity-price ratio according to the season.

No statistics or estimates exist on the volume of turn-over of fish in the central market. The fish market at Harbi place is particularly well located. Vegetable and meat stalls are within the distance of few meters. This favours the housewives in that they can buy all food needed for one meal without much effort.

4.2.3 Expatriate Selling Places

(a) "La Maison du Pêcheur"

This is the only privately owned shop selling fish and seafood in Djibouti city. It is well located next to the Pierront supermarket. The customers are predominantly foreigners, demanding high quality products,

+) : Not including fish for baits, lobster, squid, crab.

good hygienic conditions and service. The shop purchases fish from ACPM at wholesale prices. Unfortunately the lack of time prohibited the evaluation of a full year of wholesale sales of ACPM in order to determine the quantities sold to particular clients.

(b) Supermarkets

The supermarkets included in this study (see below, chapter 5.1, interviews with institutional clients) are the three biggest in the city. Their customers are foreigners and well-off Djiboutians. The fish sold in supermarket is mostly imported from France. The choice of imports reflects a definite demand for species habitually eaten in the countries of origin. The customers are willing to accept high prices in order to fulfill their preferences. Only one supermarket, - Prisunic - also offers local fish. Of the three supermarkets, Prisunic is the biggest and has a rather big Djiboutian clientele. Unfortunately no figures on the volume of fish imports were obtained.

4.2.4 IFAD Fish Retail Outlets

Until recently Djibouti only had four selling points for local fish, two of which (Prisunic, 'Maison du Pêcheur') basically aim only at expatriate clients. The two others - central market and ACPM - are the only ones accessible to the local population of Djibouti-town, whereas some expatriate clients also may buy at ACPM. (Door-to-door sales are of negligible importance). Thus, apart from local consumption in Obock, Tadjoura and other coastal settlements, the access to fish for the vast majority of the population is reduced to two outlets, both rather close to each other, in the middle of town. This, naturally, is insufficient. Recognizing this fact, the DEP, with funding and technical assistance from IFAD, has decided to construct and open a certain number of retail outlets which were to serve particularly the population living in areas more distant from actually existing outlets. (See map, Annex No. 7.9 p. 78) At the time of this study, none of the outlets were operational. However the DEP planned to open two outlets on 27 June, Independence day. The outlets are all located in densely populated areas of the capital, most of them near a local market, dispensary, school, mosque or other community facilities.

Discussions held with the Chief Technical Adviser to the DEP revealed that certain aspects of how to operate the outlets were not fully defined (as to their final organization). The ultimate decisions on the operational organization of the outlets will be taken by the staff of IFAD/FAC at the ACPM/DEP. The "requirements" as listed in

Annex No. T.C.P. 71, were submitted to the Chief Technical Adviser for discussion.

As far as the household-survey - conducted for this study - was concerned, the outlets set the precedent for the population at which the survey should aim: It was drafted for an area which should have easy access to fish in a nearer future.

5.0 SURVEYS

5.1 Interviews with Institutional Clients

5.1.1 General

As mentioned previously, the wholesale clients of ACPM at present play the most important role as far as sales are concerned: c. 60% of the annual landings go to clients with large scale consumption, buying at reduced prices.

(a) Two of the organisational buyers have established fixed contracts, buying important quantities on a regular basis (CRS, WFP). These two institutions account for 25% of all ACPM's sales (1982: 68 tons). The fish bought by CRS and WFP is almost entirely frozen and destined for distribution in refugee camps, in 'Protection Mère et Enfants (PME), sometimes combined with demonstrations on fish handling and preparation. These activities - of CRS in particular - also have considerable importance as promotion campaigns, familiarizing potential consumers with fish.

(b) c. 35% of the yearly sales at present are sold to clients that mostly do have some type of food preparation for a larger number of individuals: Military and Navy units, Hospitals, Hotels and Restaurants. (The quantities and frequencies of fish in the hospital diets are restricted to the number of patients on normal diets, leaving little margin to increase the demand for fish. At present only one Hospital (Peltier) buys local fish. Thus the Military Hospital was included in the survey on basis of its potential demand capacity). Some of these clients are resellers: ship-chandlers, private shops, supermarkets. The quantity sold to these clients was, in 1982, c. 95 tons.

Thus: If ACPM was able to increase its sales to this type of client it would, evidently, be the best possibility of selling significant larger quantities of fish within a short-term.

Unfortunately the consultants were - due to limited time - not able to identify all facilities in Djibouti that at present have food preparation for a large number of individuals. Neither the ACPM nor other potential informants at present have exact information on

- all official or governmental organisations that provide warm meals regularly
- all Army or Navy units that provide warm meals
- all restaurants and hotels that include fish in their menu.

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If all such organisations were identified and then were measured against a close evaluation of ACPM accounts, a quantitative assessment of sales potentials could be established. This should take the quantities of imported fish into consideration as well, on which, also, no information is available so far.

5.1.2 Findings ⁺)

(a) Imported Fish

Imported fish plays an important role in fish consumption by organisations: Although the majority of clients (16 out of 19) more or less regularly buy at ACPM, still c. one third of them buys imported fish as well.

Only four of all organisations interviewed buy fish at ACPM exclusively and only two of them buy fish on the local market.

The first conclusion therefore is:

The clients tend to buy their fish from different sources. Improving sales to large scale clients or re-vendors will mean that ACPM, at least partly, is in competition with imported merchandise. This will then set standards of quality and set limits for prices. It will need separate evaluation to see whether ACPM will be able to compete with the variety of fish imported.

(b) Fresh v. Frozen Fish

The demand from institutional clients is for fresh fish, as soon as CRS and WFP are excluded: c. two third of all interviewees declared that they only bought fresh fish. Only one (supermarket Pierrot) buys all fish as frozen, but it is at 100% imported.

Still, there seems to be readiness to substitute fresh fish with frozen, particularly when the preferred species are not available as fresh (declared by c. two third of the interviewees); c. one third in that case would refrain from buying fish.

Also as far as "newly introduced local fish-products" are concerned, a relative acceptance of frozen fish seems to exist (25% of clients).

Fish is bought whole (preferred by 30% of clients) or filleted (25% of clients).

(c) Selling Conditions

The importance of selling conditions at ACPM (handling and service) in attracting or deterring clients is hard to judge from the small amount of interviews: Since 16 of 19 interviewees are regular clients they can be no source of information as to why other former clients buy no longer at ACPM or why occasional clients have not taken

⁺): The list of all institutional clients interviewed is provided in Annex No. 7.6 p. 72

to buying here regularly.

The interviewees show comparative satisfaction with service-, handling- and packaging conditions at ACPM. However, if only the restaurants are considered (eight were interviewed who have reduced their practice of buying regularly at ACPM), the level of critique is much higher: Almost all of them (with one exception) complained that orders (by telephone) were unsatisfactorily met. Only one is content with packaging and handling conditions. Service in general and hygienic conditions are judged to be medium, i.e. should still be improved. However, the quality is considered good to excellent by all restaurant clients (with one exception which finds it poor).

(d) Species

The clients seem to be accustomed only to a limited number of species. This has a strong influence on their purchases: A client may well buy his preferred species frozen if not available fresh, however he has little inclination to switch to other species he is not really familiar with. (Again c. one third completely refrains from buying in that case). This indicates the necessity of adapting the consumer milieu to preparation and consumption of fish not bought so far.

(e) Quantities

All clients, except 27% who say that the quantity available to them now is sufficient for their needs, indicate a readiness to increase their purchases if the supply is improved. (Under above specifications, species desired, fresh preferred, etc.).

5.1.3 Comments

It is believed that ACPM has a vast variety of possibilities of promoting their relations with organisational, wholesale clients. This could have considerable effects on the sales quite quickly. However, in order to achieve a significant increase in demand from that side, a number of conditions should be fulfilled:

(a) The ACPM must be provided with managerial facilities to permit such promotion. This would mean at least one, preferably two staff-members entirely dedicated to that type of activity. They should have at their disposal a separate telephone, vehicles and at least one insulated truck. Billing, accounting, and all other duties connected with the specific task should be run by them. From observations of the actual staff situation at ACPM, it seems that this would eventually lead to the

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creation of a post in "sales promotion", since it seems unrealistic to add these duties to one of the existing job descriptions. The existing staff is already fully engaged in current activities.

(b) ACPM should consider separating its retail outlet from wholesale selling. Either a separate retail outlet should be built (on the road front of ACPM) for selling fish on an improved level (possibilities of displaying cooled fish, balances, two to three qualified vendors, information on fresh catches, price notice boards, etc.) or closing the retail section at ACPM down. (Thus only having retail via newly opened outlets, with ACPM reducing its activities to wholesale delivery (outlets, other clients, etc.)

The possibilities of handling the distribution of bigger orders should be improved. This counts both for delivery to clients ordering by phone as those buying their fish themselves, which should be provided with the possibility of making their individual choice.

(c) The person eventually handling sales and promotion should identify all potential clients. They should be interviewed individually, concerning their demand for quantity and species of fish. In the same time they should be informed of the species caught most frequently and their irregular availability.

New clients should be attracted to become regular clients of ACPM by punctual delivery, prompt and good service, hygienic handling, etc. One could also consider reduced prices in an initial period of buying at ACPM (e.g. first three months).

5.2 Survey of Dietary Habits (Fish Consumption) of Urban Population

5.2.1 Introduction

As far as promotion of fish consumption among a wider range of Djibouti's population is concerned, the possibilities of future sales are already defined to some extent since the construction of the above named IFAD outlets have set a precedent.

From a practical point of view the household-survey was therefore prepared and executed so as to be representative for a population around some of the existing urban retailing outlets. This was to enable future checks on the respective impact of these outlets on fish consumption after they had been operational for a certain period. If opening the outlets significantly increased the ACPM's retail sales, the effect on altering the population's dietary habits could eventually be checked via a similar survey to that used to obtain the data provided by this study.

Details of the survey follow:

Facilitated by a direct cooperation with the Bureau Central de Recensement (BCR), five districts around an outlet were selected as enumeration areas. These districts were conform with survey-areas of the 1982 census. Once the results of the census will be published, further information on the demographic and economic structure of the population in the enumeration areas will be available and can be applied directly to the results of this survey. (The respective interviews were carried out by the enumerators who have worked in the same areas during the census). The choice of the enumeration areas (EA) was made on the basis of their location with respect to neighborhood facilities such as: markets, PME's, dispensaries, schools, etc.

The composition of ethnic groups is reflected by the fact that four of the EAs have a majority of Issas and one EA is inhabited purely by Afars. In each EA 10% of the population was interviewed randomly, the EA consisting out of 200 households. The interviewees were the housewives, responsible for purchasing food-stuff and cooking.

The average size of the households was 6.22 persons per household.

20 supplementary interviews with housewives were made in major market places.

A questionnaire was designed and pre-tested, which the enumerators translated into Somali and Afar.

The survey was carried out during the last week of May 1983 in order not to coincide with summer-holiday and Ramadan starting in June.

The data collected was tabulated the staff of FAO Fisheries Information, Data and Statistics Service, which also provided valuable advice on the methodology to be applied in the survey.

5.2.2 Results of Survey

5.2.2.1 Demographic Data

The survey included a certain number of questions collecting general data in order to place information on dietary habits into their respective social background.

The survey covered a total of 433 adults and 314 children (747 in all). Of the adults 52% were female (n = 223) and 48% were male (n = 200). Of the children 47% were female (n = 147) and 53% male (n = 167).

44% of the children were five years old or younger (n = 138), the same percentage was between 5 and 10 years old (n = 138) and 12% was between 10 and 15

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years (n=38).

(a) Education

As far as the children's education is concerned, 61% attended school. 18% of the children go to Koran schools (n = 56), and 40% to the public school. Private schools and attending the French school do not play an important role: "Other" schools only accounted for 3%, (n = 9).

As far as the adult's education is concerned it appeared that their school attendance rate is much lower than that of their children and different for men and women: 78% of the females have not attended school (n = 94 out of 120). Only 5 of them have been to secondary school and none of them have been to university. Amongst the men covered by this survey the school attendance rate is 43% (n = 50), out of which 21 have a primary school education only, 25 have attended secondary school and 4 have been at university.

(b) Employment

Out of the 433 adults in the households observed, there is employment information only on 37% (n = 161). Of these the majority works full time (85%, n = 136), 11% work part-time (n = 18) and 4% are said not to work at all (n = 7).

Still the economic situation seems to be quite favourable: 90% of the households own a radio, 52% a TV-set, 43% a refrigerator, 40% a cooker, 4% of them own a moped, 17% a car and 18% own their house. Only 8% of the households seem to own none of the items mentioned.

The small amount of data collected indicates that the survey was executed in areas where the population is rather well off (see the relative high number of households having their own houses, cars and TV-sets). Also the literacy rate is above the nation's average (assumed at 16% at present) with 61% of the children, 22% for adult women and 44% for adult men.

It appears that the majority of the population observed around the IFAD-outlets have characteristics of 'middle class' and thus is expected that they have, with respect to dietary habits, a higher flexibility in choosing food items.

Preferential attitudes towards fish will be influenced by urban patterns rather than by traditional rural customs.

The dietary habits that will be considered in the two following chapters, both for households that do eat fish and for those who do not, must be considered according to their background of comparatively good income- and living conditions.

3.2.2.2 Dietary Habits

(a) General Findings

The basic question that this part of the study was aiming at answering was "Is there an unsatisfied demand for fish in Djibouti?"

In order to facilitate the description of the consumers' attitudes towards fish, the group of surveyed households was divided into two segments:

- The fish consumers (75%, n = 91)
- The non-fish consumers (25%, n = 29)

Out of the 91 households which eat fish, only 10 were not willing to increase their fish consumption. The remaining 81 households declared that they would buy more fish if it was sold nearer to their homes. Of the 29 households which do not eat fish 10 firmly resisted the idea of fish consumption. The remaining 19 would probably buy fish if it were more easily accessible. Thus the survey showed a high unsatisfied demand for fish as in the survey 85% of the interviewees seem to be inclined to increase their fish consumption if its selling points were more accessible. Price and quality seem to be less important as far as potential increases are concerned.

(b) General Dietary Habits

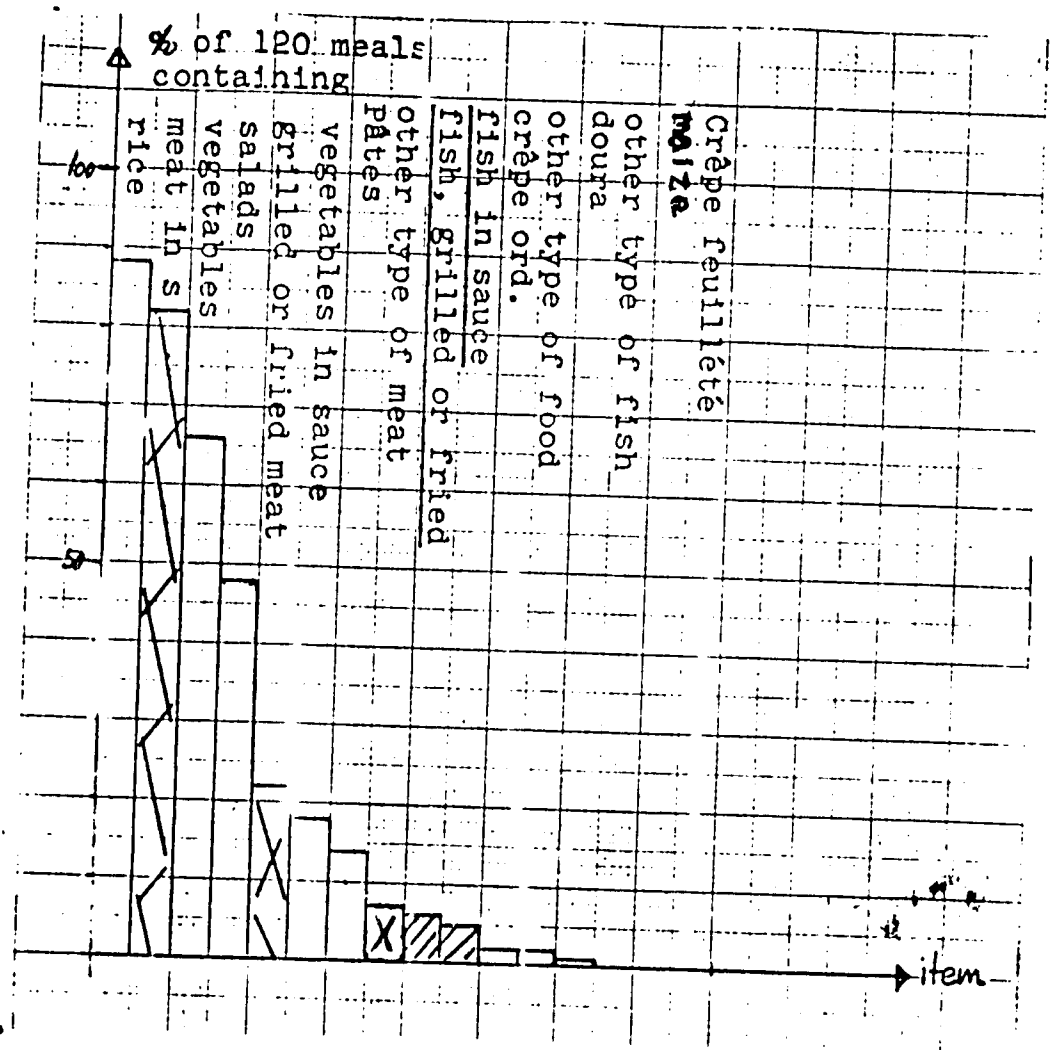
Before providing more detailed information on the two groups of households ("fish eaters" and "non-fish consumers") a short description of general food habits is given.

All interviewees were asked what they prepared for lunch the day before the interview. The graph on the following page indicates the food preferences obtained:

Meat, prepared in different forms, is by far the most frequently eaten food. A preliminary assessment from the given answers is that the frequency of fish consumption is about 10% of the frequency of fish consumption. Meat appears 5.6 times in warm meals (7 in one week). That would mean that the weekly intaking of fish is 0.56 times, or c. two times a month. (The survey was carried out during a period with high catches and good availability of fish.)

The further survey of dietary habits of fish consumers will show that this average figure can be considered to be rather valid.

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(c) Dietary Habits of Fish consumers

75% of all households surveyed have some form of fish consumption. (n = 91). The great majority of fish consumers prefers fresh fish and especially Dorades, Spanish Mackerel and Tuna. These three species account for more than three quarters of the purchased fish, showing the limited variation in consumers' preferences and/or limited knowledge of varieties.

The survey also showed that the fish consumers like fish because of its taste and that most of them prepare fish in a sauce of onions, spices and oil. Fish eaters of Arab origin only eat grilled fish. Rice and vegetables are mostly served with the fish. Expenditure on fish varies from family to family. The average expenditure of all households eating fish is 450 FD per purchase.

A rather important point arising from this survey is that two third of the fish consumers buy the fish from the central market while only one third buys

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from ACPM. An increased number of outlets near the traditional food buying places, e.g. markets, will probably have an extreme positive impact on fish consumption.

Evaluating the fish consumers per different levels of income (those owning a TV-set and a refrigerator to those not owning these items) showed that better-off people tend to eat more fish. Still it is the taste that is preferred. The fact that fish is cheaper than meat does not play any role.

The enumeration area who's population was purely Afar proved to have no non-fish consumers. All Afar households observed consume fish, but the average expenditure per purchase is lower than that of fish consuming households in the other areas.

(d) Dietary Habits of Non-Fish Consumers

29 of the households surveyed declared that they never eat fish. 10 of those would not want to spend money on fish even with outlets nearby, which indicates clearly that these persons are not willing to consume fish, even if promotion campaigns were started.

The remaining households declared that they would buy (and consequently consume) fish, and would be willing to spend an average of 350 FD per purchase, if only the fish shops were nearer to their homes, or, probably, to their habitual market places.

Non-fish consumers were found to have a higher percentage of illiterate persons than that part of the surveyed households that do consume fish.

5.2.3 Interviews with Private Purchasing Clients at ACPM.

In addition to the household surveys 49 private consumers were asked the same questions as asked in the household survey. These persons were interviewed while buying fish at the ACPM outlet. 17 consumers were interviewed on 2nd of June, 24 on the 4th of June 1983.

Also this sample of population interviewed (and the households they belong to) is not at all representative for the Djibouti averages. The economic standard seemed to be comparable with that found in the household survey: 48% of the interviewed women have a radio in their homes, 45% a TV-set, 35% a refrigerator, 28% a cooker, 4% a moped, 24% a car and 10% own their own house.

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- During 4 months of good availability two meals a month
- During 6 months of reduced availability only one fish purchase per month
- During Ramadan, July and August 2 months without fish consumption.

The yearly average for fish consumption per households is believed to be c. one fish-dish per month at present (Djibouti-town).

If c. 5,000 persons are assumed to inhabit an area within acceptable walking distance of a new retail outlet, and if this led them to increase their average monthly purchase from once to twice a month, the potential demand would be as follows:

800 households (6.22 persons per household in the survey)	
75% already consuming fish - increase of one purchase of 450 FD (= c. 0.8 kg)	480 kg/month
17% new consumers - increase of one purchase of 350 FD (= 0.65 kg)	88 kg/month
8% continue not to consume	- - - - -
+ population already consuming, also buying quantities previously bought elsewhere from new outlet	480 kg/month
	<hr/>
TOTAL monthly demand:	1,048 kg/month
26 selling days per month, i.e. daily demand c.40 kg	<hr/>

If the demand estimated above occurred during 10 months of the year (all potential clients in the areas observed increasing their monthly fish intakings by only one) this would lead to potential sales of 10 tons per outlet/year in a rather initial stage.

Whether the outlet functions as a sales promoter is naturally highly dependent on good management, convenient location, the shopping habits of the housewives in the area, e.g. buying all food-stuff in one single marketing place, in one single effort, in several efforts, in several places, buying alone, sending children, etc.

The above assessment allows another recommendation: Since from a quantitative point of view, increases in private consumption will be almost entirely from households already consuming fish, promotion campaigns could be aimed exclusively at that type of population with the objective to introduce a wider variety of species and increase the acceptability of frozen fish to substitute for fresh merchandise. Non-fish consumers are much more likely to change their dietary habits through informal neighborhood relations, and social opinion-leaders rather than through expensive, time and energy-consuming promotion campaigns.

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However, the educational level of the families, to which the interviewed women belong, was significantly higher than the educational level found in the areas of the household survey: Among the men 75% have attended school (43% in household survey), among the women 58% had an education (22% in household survey).

The interviewees all like and consume fish. Only two of the housewives questioned declared that they would not increase their purchases of fish if an outlet were opened nearer to their home. 43 women out of all 49 interviewed that their intention of buying more fish if it was sold closer to their home. The weekly frequency of meat consumption among that segment of the surveys is 5.2 out of 7 warm meals per week, but the weekly consumption of fish reaches 1.04 times/week as compared to 0.56 times in the population covered by the household survey.

46 out of 49 interviewees declared that they had consumed fish in the week before being interviewed and half of them have eaten fish twice in the proceeding week.

Apart from rather high fish consumption, the interviewees show the same dietary habits as observed for fish consumers in the household survey.

They like fish because of its taste, while economic considerations (fish being cheaper than meat) are of minor importance.

About half of the interviewees declared not to consume fish during Ramadan.

The average expenditure on fish is higher than that found in the household survey: 550 FD (as compared to 450 FD for fish consumers in household survey) per purchase.

The species preferred are the same among all persons interviewed (household survey and private consumers buying at ACPM): Dorades, Spanish Mackerel and Tuna account for 75% of the fish consumed.

An interesting aspect arises from the surveys (household + private consumers at ACPM): With increasing income and particularly with higher level of education the households consume less meat and relatively more fish. Decreasing consumption of meat with increasing level of income (and education) is the exact opposite of the respective tendency found by other household survey in other parts of the world. [†])

[†]): Review of Food Consumption Surveys, Vol II, FAO, Rome 1977

5.2.4 Comments and Conclusions

Although the surveys indicate rather a high potential demand for fish in Djibouti-town, one tends to be struck by the fact that at the same time both the fishing population and its production is comparatively limited.

The reason for this is simple: Djibouti has no traditional fish consumption. However, the assumption that the city of Djibouti reproduces on a large scale what is to be called 'nomadic prejudice against fish' of the original population of the area, is invalid. Rather - by undergoing swift urbanization - the city has adapted various preferences different from those of the original inhabitants. Djibouti in general has a high standard of living and countless contacts with foreign nations, African, European and Asian.

Certainly dietary habits have also changed. Nowadays fish is definitely not excluded from the menu. (The considerable quantities distributed by CRS and WFP definitely are consumed). Djiboutian and expatriate Army and Navy units consume fish and fish is served in all restaurants.

A considerable demand - or, if not explicitly a demand then a large potential for sales - has in some way been built up behind the fishermen's back (most probably in the last 30 - 40 years, in which Djibouti has developed rapidly).

The Djiboutian fisherman has no tradition of selling his fish himself. Originally foreign traders (Yemenis) bought his production and exported it. In contrast to many other African countries where the women have taken over the preservation of fish and fish-trade, no segment of the Djiboutian society deals with fish commerce so far.

However, present production is not limited in the precise sense of the word. It is very well adapted to the low outlet capacities of the present marketing structures which exist - apart from some wholesale customers (CRS, WFP, Army, a few restaurants, which are buying themselves or served with newly important means of transport) - only rudimentarily: Two selling points (ACPM, central market) plus one private fish-shop (and some other selling points aiming at expatriate clientele mostly) in a city of 200,000 inhabitants can not be expected to perform well enough in terms per caput consumption of fish by a majority of the population.

We have stated that the fish-vendors at the central market have their own suppliers. As the survey indicates, some two third of the urban private consumption is bought from the central market and only one third is bought at ACPM.

This permits the following assessment:

As reported by DEP, ACPM's total production stands for c. 70% of the national annual landings, i.e. 80 - 100 tons of fish are caught, sold and consumed bypassing ACPM. On the other hand, 45% of ACPM's production are not sold wholesale, thus must cover that part of private consumption, that - according the survey - is bought at ACPM. Assuming that central market in Djibouti-town handles c. 60 tons/annum, out of the c. 65 tons retail sold at ACPM p.a., some 30 tons directly enter urban private consumption; (from that view-point both DEP-reports and the survey confirm each other): At present between 75 and 100 tons/annum is privately consumed fish in Djibouti-town. (The consumption outside Djibouti-town can be estimated to be between 10 - 25 tons).

This certainly is not much for a population of 200,000 inhabitants (0.375 to 0.5 kg/caput/annum), but it is certainly rather a large amount to be handled by only two retail outlets. ("Maison du Pêcheur" excluded). Still we must assume that local restaurants offering fish dishes occasionally are also to be counted among private consumption in that regard. The over-all national per head consumption of fish (1.3 kg/caput/annum) is influenced by purchases by charitable institutions, distributing fish for free, and by military institutions where the composition of the menu usually is not a matter of individual preference. The fish consumed as a consequence of private expenditure at present hardly exceeds 0.5 kg/caput/annum.

If this figure is compared to the indications of willingness to increase private fish consumption, as obtained from the survey, and the fact that particularly inaccessibility has been stressed as the reason for limited purchases, the problem of whether significantly more fish could be sold to the public reduces itself to a question of investment and managerial input into a marketing system.

The consultants assume that each outlet should in the long run - if managed properly - be able to sell between 10 - 20 tons/annum or c. 50 kgs per day. (Ramadan, holidays, etc. = nil). Opening conveniently placed retail outlets step by step will reduce the quantities sold in retail at ACPM and the central market; (customers regularly consuming fish will switch to more conveniently located selling points).

In order to assess the short term potential sales per outlet based on information obtained from the household survey:
Fish-consumption is assumed to have the following frequency:

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6.0 SOCIO-ECONOMIC PROFILE OF DJIBOUTIANS ARTISANAL FISHERIES

6.1 Introductory Remarks

The first part of this study provided three basic conclusions concerning the urban demand for fish:

- The comparatively little private consumption of fish in Djibouti-town is not due to lack of demand but to lack of easy access to fish.
- There are also possibilities of increasing wholesale sales. Both types of demand (retail and wholesale) seem sufficient to double or triple the total national fish consumption within a period of five to ten years.
- The crux of the present situation is the absence of either a traditional or a modern marketing system, linking producer with consumer.

All efforts so far are reduced to what ACPM handles and what a few fish-vendors sell in Djibouti's central market.

The fishing population has not much choice: The fishermen are obliged to adapt the degree of their activity to the actual demand, regardless of potential sales. For them the actual demand is what ACPM can handle, and that is (because of limited possibilities of its staff), to sell as much fish as possible to wholesale clients: The speed of stock-turnover and the capacity of storage facilities are the definite limitation on landings for the fishermen. (The increase of production during the last years was mostly due to the installation of freezers).

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The second part of this study is to provide socio-economic information on the other side of the problem: The fishermen, their family background, activeness and production, expenditures, and return.

The consultant spent three weeks in Djibouti in order to observe the situation and to collect data (April - May 1983). The particular situation of Djiboutian artisanal fisheries made this job easier: Most of the activity in this sector is located around the ACPM. All fishermen unload here. Valid accounts are kept and all staff can be met without major efforts.

On the other hand, the total number of fishermen is low. One group of 50 - 60 boats have 3 - 4 landings per month. Apart from concentrating on unloading their catches, they live dispersedly and are hard to get in contact with.

Some of these fishermen with rather infrequent landings have been called "part-time" fishermen in documents (e.g. US-AID project doc. 1982, p. 2). This, as will be shown below, is not the appropriate term: There are no other sources of income besides fishing, regardless of whether the particular boat has frequent or infrequent landings. It must be assumed, that fishermen with few landings per month are oriented to a subsistence living, having their particular structure of preferences.

A second group of c. 10 - 20 boats and crews (the 'active' fishermen) showed different patterns: Their landings were much more frequent and proved to supply c. 50% of the ACPM's yearly intake.

In order to collect sociological information on fishermen and their families, all fishermen landing and unloading at ACPM were interviewed on three days on a row. (Total of 25 persons). The chance of including fishermen with subsistency oriented economic behaviour was only limited.

Further economic data (volume of catch, returns, equipment, etc.) referring to 22 boats with rather frequent landings were provided by the project-management of the IFAD-project. Both samples are valid to draw conclusions on active fishermen but they are neither representative for the total population nor do they include any particular characteristics of fishermen that have not adapted (or are not willing to adapt) to surplusproduction and accumulative behaviour.

The only information that is available concerning all fishermen delivering their catches at ACPM are the reports on 1982. (Annex No. 7.7, p.73ff) Technically these sources are not compatible with the data collected by the consultant. Neither in time (figures from 1982 vs. information from 1983) nor in substantial: Surplusproduction vs. averages of the total population, including the group itself with which the comparison was later made.

In order to obtain truly acceptable figures, a high input for data collecting would be necessary: Dispersed "part-time" fishermen and their background would have to be studied closely. This was not possible during the time available on this occasion. On the other hand, a survey of 3 - 4 months would hardly seem justified by the small numbers to be observed or their effective production figures. Still it should be considered, whether a comparatively study, approaching the problem with qualitative techniques and providing a rough assessment of the situation of "subsistency - fishing" in Djibouti, could follow this study in order to fill in the information still missing.

The different data and information produced in this second part of the report only aim at clarifying the most important tendencies in order to facilitate decision-

making. Generalizations and methodological irregularities are to be viewed with the background of limited accessibility of empiric data in the milieu given and within the limitations of a period of only three weeks. As far as figures, quantities, etc. are presented, a variation of c. 10% should be accepted.

Demographic information refer to 25 families. As far as small families are concerned (i.e. those having little income from fishing) some of the characteristics found may also be valid for 'subsistency fishermen' and their social background, but this report refrains from any conclusions in this regard.

The sources of this part of the study are:

- Reports, accounts, statistics, bibliography.
- Sample of 22 fishermen (boatowners only), production and income figures, period of January til April 1983 (IFAD - project).
- Total landings, boats and fishermen, year of 1982 (IFAD - project).
- Sample of 25 fishermen, interviewed with questionnaire from 3 - 5 May 1983
- Qualitative interviews with selected fishermen, on 7 May 1983
- Interview about history of fishing on 6 May 1983
- Technical information provided by managing staff of DEP and technical assistance experts.

6.2 Social and Demographic Data

Djibouti's artisanal fisheries seem to be highly influenced by, if not mostly in hands of, a few families: Darwich, Hassan, Gaber, Fitini, Youssouff, etc.: Fathers and several sons, all well experienced in fishing, all having their own equipment and with grandsons and nephews in their crews ... These families and some others have been fishing for several generations.

The majority of fishermen interviewed started fishing in their childhood, c. two third of them at an age of less than ten years old. (Only one was older than 20 years when he took up the job). The young men get trained by a family-member: Father, uncle or elder brother (together 84%) and 44% of the young fishermen enter their father's crew. About half of the fishermen stated that they were at present training other people in fishing; this mostly refers to family-members (53%) but may include close friends. If somebody works as a hired hand he is not supposed to get any training (n = 0).

Eight out of ten male descendants of the fishermen questioned are in their father's profession or are likely to enter it when old enough.

People that are not related to a fisherman are unlikely to become crew-members: Since all boatowners actively fish themselves and c. 45% of all crew-members are recruited from close relatives, little opportunity is left for an outsider to join in: 6 'boutres' operating with 5 - 6 men (tot. = 30) and 120 'houris' with crews of 2 - 3 persons (tot. = 260) provide 390 jobs altogether of which 125 are taken by boatowners and 140 by their family-members. This leaves some 125 jobs for outsiders.

The families of fishermen are rather small (1 wife, 2 - 3 children). Two of the fishermen questioned had larger families (one had 14 children, the other 10). They were the heads of successful, well-off families. These men may also have several wives.

About two thirds of the fishermen had to take care of either their own or their wives' parents, who joined the households to live out their old age. About one third of them still had another person (not a close relative) to take care of. The average type of family therefore consists of 6 - 8 persons: A couple, 2-3 children, one of which may fish with his father, and 2 - 3 elder people whose living must also be earned from fishing.

Although we find important families in fishing,

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from an economic point of view fishing remains small scale family business. (Boatowners alien to the milieu are unknown). One fisherman possesses one boat plus the equipment to go with it. (Only one man interviewed owns two boats and only one fisherman was found to operate with leased equipment). If the business is run successfully and can afford a second boat, this is rather given to the most experienced son, who by that time may have worked 10 - 15 years as a crew-member. If the sons are not old enough to run their own boat, a younger brother or another close relative may join the family business (he too only on the basis of sufficient professional experience).

Fishermen tend to continue fishing as long as they can. 70% of the interviewees intend (once they are obliged to quit their work) to leave their equipment to a son (or a closely related family-member). One person interviewed does not want his son to become a fisherman. Three are thinking of selling or leasing their boat.

Almost all boatowners are married (only two observed to be single). The family - besides being the social background from where the job newcomers are recruited - does not participate in the work: Except for a little help with net-repairing and cleaning (also done by male relatives, said 25% of interviewees), there is no help from non-crew-members. Participation of females (e.g. door-to-door sales, delivery to habitual clients, etc.) is absent. (n = 0)

The questionnaire contained two separate questions concerning supplementary sources of income in periods of low fishing activity: 58% of the fishermen interviewed answered that they live on credit during that time. Only 30% can be said to have some savings to help them over these months. Only one person had a part-time non-fishing job. (Occasional unqualified labour). That means, that for the vast majority of fishermen fishing is the only source of income. This counts both for fishermen with frequent as with infrequent landings. Nothing like "part-time" fishing seems to exist.

The percentage of grown-up fishermen interviewed who attended school was 16% (= national average) whereas that for their children was 30% (koran schools included).

The ethnic distribution amongst the interviewees was: 56% Afar, 12% Issa, 32% Arab.

6.3 Economic Aspects

6.3.1 1982 (Production, Landings, Gross>Returns)

The figures compiled in this chapter are evaluations from different tables provided in the IFAD project progress report Dec. 1982. This was the only possibility of providing the distribution of landings, production, number of boats and fishermen operating, etc. over one full year.

Unfortunately the monthly catch-report (as kept since July 1982, see Annex No. 7.3.2 p.68^{ff}) for June 1983 was not received in order to have another source of data covering one full year of production and number of landings.

The detailed tables for 1982, showing the monthly distribution of production and landings etc. for fish, lobster and squid are to be found in Annex No. 7.7 p. 73 ff

The following chapter presents the evaluation only. Table No 4 shows the yearly averages of activity of boats, crew-members, catches and returns.

Table No 4 :
1982-Averages; Boats, Catches & Returns

	Fish	Lobster	Squid	TOTALS (annum)
\bar{X} boats operating (per month)	55	6	2.2 ^{†)}	63
\bar{X} number of fishermen fishing (per month)	125	15	1,25 ^{†)}	141
\bar{X} landings per boat (per month)	4.09	2.58	5.21	- -
Total annual catch (kg)	294,738	3,384	785	298,907
Catch per boat (monthly \bar{X})	454.80	31.91	30.70	- -
\bar{X} catch per landing	112.81	12.36	6.47	- -
\bar{X} monthly return (FD) per boat	108,693	70,213	39,600	- -
\bar{X} return per landing (FD)	26,699	24,268	7,935	- -
Total value of production	70,501,325	7,444,800	945,600	78,891,725

^{†)}: Figures of low credibility; more units and fishermen assumed to be engaged.

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Comments:

(a) Fish - Catching

As far as fish - catching is concerned, during 1982 between 41 and 76 different boats were observed to be active (every month), with 95 - 162 fishermen on board. The average of all of 1982 is 55 boats/month and 125 fishermen/month. These boats fished with an average of 4.09 landings/month, catching 454.80 kg/month or 112.81 kg per trip. The total value of all fish caught in 1982 was FD 70,501,325 (402,864.-- \$) with an average return of 108,693 FD (621.10 \$) per boat/month or 26,999 FD (154.28 \$) per landing.

(b) Lobster - Catching

For lobster- and squid-catching boats the source (IFAD-Report Dec. 1982) unfortunately is not detailed enough (boats fishing lobster and/or squid not separated, etc.) and some of the information provided seems questionable (number of boats too low if compared with number of crew-members in some cases, etc.). In order to establish an activity-profile - as done for fish-catches below - the total number of boats/fishermen engaged is too low and the period observed too short.

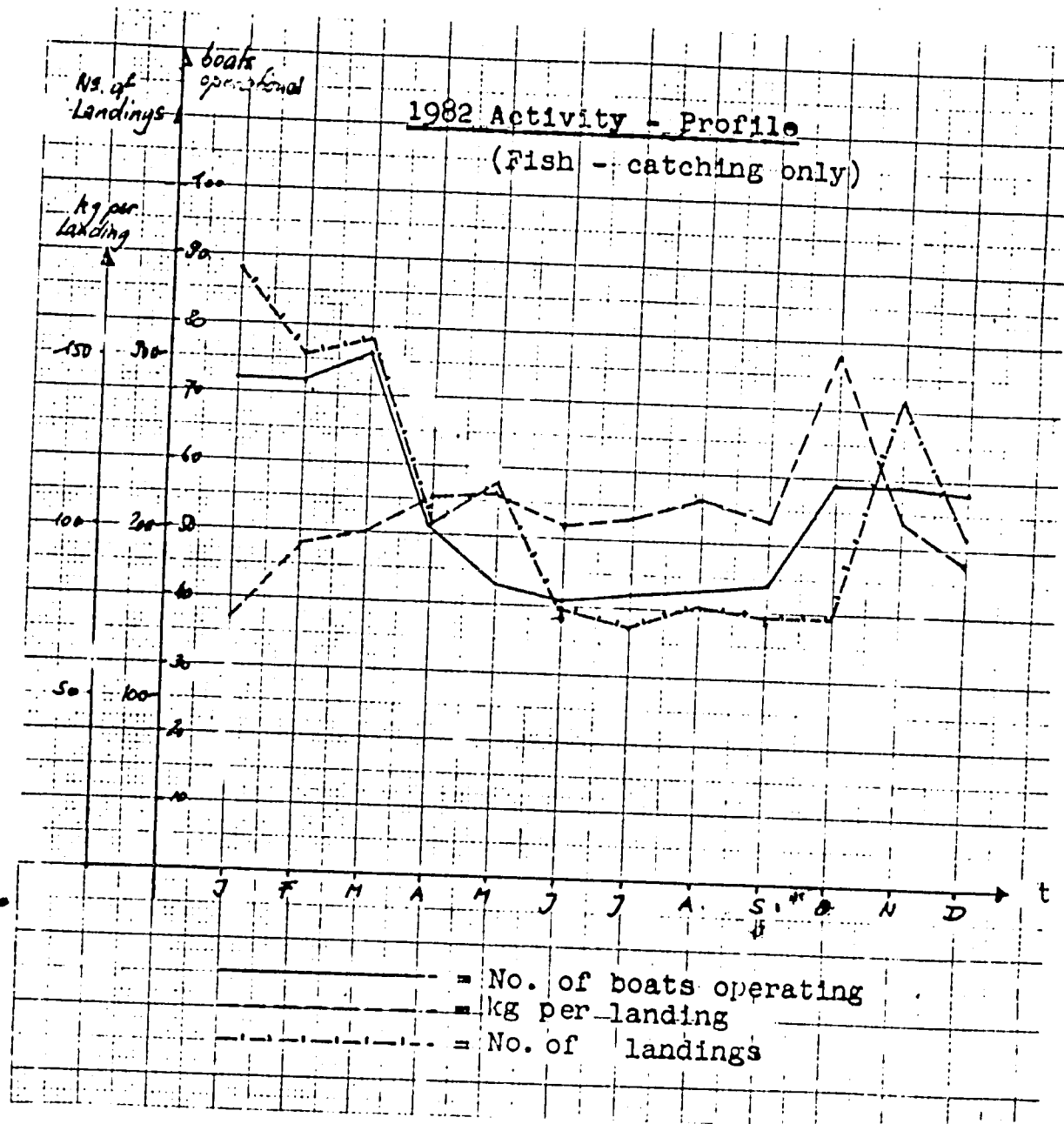
Between one boat in off-season and 15 boats in peak fishing period (May, August, September) leave ACPM for lobster catching, with between one and 38 fishermen. The yearly average is 6 boats with 15 crew-members each month. These boats fish with an average of 2.58 landings/month, catching some 31.91 kg/month or 12.36 kg per landing. The total value of the 1982 lobster catches was FD 7,444,800 (42,541.71 \$), assuring a monthly return of 70,213 FD (408.21 \$) to each boat or 24,268 FD (136.67 \$) per landing.

(c) Squid - Catching

For squid the figures are the lowest; there are no fishermen specialized in squid-fishing. This appears as supplementary income to lobster-fishing, mostly in the limited period of high activity (April til June). A smaller number of boats seems to be very active then (up to 19 trips/month in May +). 93 landings out of the annual total of 120 landings are unloaded during peak period. The total annual value of squid-catches amounts to 946,600 FD (5,403.42 \$), i.e. an average of FD 39,600 (226.28 \$) gross-earning per month/boat or FD 7,935 (45.34 \$) gross-earning per average landing.

+: Questionable information.

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NB: Observations like those on which this report has been based should be made over a period of several years; boats having different types of activities, or switching, should be identified, etc. in order to verify assumptions based on 1982 and fish-catching only:

The period from April til November is one of reduced activity but of better return expectation. Fish catching boats are active from December through to March, but their gross-earnings are reduced. Together with a profitability assessment, as presented in the following sub-chapters, these kind of observations may influence the credit-policy of the ACPM, since fishermen may be unable to earn enough in order to pay back the loans, which are at present simply deducted from their catch-payments, etc. To what extent supplementary activities such as squid- and lobster-catching can compensate for the reduced income from fishing in certain periods would have to be analyzed separately. The facts available - for the time being - are insufficient in that regard.

6.3.2 1983, January til April
(Production, Landings, Cross>Returns)

For the first four months of 1983 more detailed information is available: Besides the catch accounts kept by ACPM, rather detailed sheets on boat-owners are compiled within the activities of the IFAD-project. These sheets cover the 23 boats fishing with considerable frequency (owned by 22 men, one owning two boats) and report the frequency of landings, production and gross-income. The data on the equipment were unfortunately not yet completed (May 1983) apart from the type of engine used. Also some of the fishermen have not been observed over the full period of four months.

The following table extrapolates activity and production (for incomplete information) over the period of four months as if fished with the frequency observed during the shorter periods for which figures have been provided. (Original information is shown in brackets).

If the consecutive numbers of fishermen observed do not show any specification, the boats catch fish only. The abbreviations used are: s. = squid, l. = lobster, f. = fish.

Production figures have been rounded-up or levelled-off to full 10 kg.

Figures for gross-income in FD have been rounded-up or levelled-off to full 1,000.

Table No. 5
Sample of boat-owners observed during January til April (1983)

Consecutive number of boat-owner	no. of obsrvs	Frequency of landings	Production in kg	Gross-return	HP of engines used
1	4	55	10,100	2,345,000	15 (2)
2	4	55	8,450	2,000,000	6
3	3	20 (15)	2,630 (1,900)	650,000 (490,000)	15
4	4	14	1,650	435,000	15
5	4	17	3,850	950,000	15
6	4	50	4,550	1,030,000	15
7	4	15	1,340	350,000	8
8	4	38	2,600	600,000	15
9	4	14	1,340	370,000	8
10 s/1	4	13	860	230,000	8
11	4	15	1,030	270,000	25
12	4	50	3,840	990,000	25
13 s/1/f	3	10 (7)	700 (600)	335,000 (250,000)	15
14	4	10	1,350	350,000	15
15	4	19	2,860	115,000	15
16 s/1/f	4	6	570	185,000	15
17	3	21 (16)	1,200 (890)	260,000 (197,000)	15
18	4	14	1,070	272,000	8
19	2	8 (4)	1,100 (550)	290,000 (145,000)	15
20	4	13	980	365,000	15
21 s/1	3	8 (6)	375 (250)	165,000 (110,000)	8
22	4	17	3,600	968,000	15
<hr/>					
TOTALS:	-	481	56,195	14,125,000	--

The possible observations on the period in which ACPM regularly kept statistics, permits the assumption that, from January til April, production roughly represents one third of the annual production:

Year	ACPM annual production	January til April	%
1979 ¹⁾	198,200 kg	66,100 kg	33,35 %
1980	209,126 kg	71,208 kg	34,05 %
1981	296,729 kg	86,444 kg	29,61 %
1982	294,732 kg	110,259 kg	37,40 %
1983	n.a.	94,688 kg	n.a.

The figures available for January til April 1983 confirm what has been stated for 1982: Lobster-fishermen (who will probably also catch squid during the good season) tend to make significantly fewer trips per months (c. 2.2) than boats catching fish mostly: Their habitual fishing grounds are the most distant ones (Yemen Red Sea coast, see Annex No. 7.8 'Habitual Fishing Grounds', p. 76f). For their entirely different income per landing (much higher ex-vessel prices) and due to the fact that they usually make trips of several days, the boats mentioned for lobster and squid fishing (previous page) are excluded from the following comparisons.

The boats catching only fish (mostly during one single night's trip; n = 18) made a total of 444 landings during the period observed. This is an average of 8.2 landings per month.

However, if the 6 most active boats are separated (5 owners), making between 38 and 55 landings during the 4 months, they made 253 landings out of the 444 (= 57%), i.e. they made an average of 12.6 landings per month.

Through these landings they produce 29,540 kg (or 52.22%) of all fish landed by the 18 boats observed (fish catches only, total of 53,490 kg).

Comparing the sample with the total production of January til April 1983 (94,688 kg fish, value of FD 22,650,000), we can identify what is left in both production and potential gross-earnings for all the boats that have not been observed: (regardless of their specific number during the first four months of 1983).

¹⁾: Figures on production are only available for March til December. Annual and January - April production extrapolated from production reported for said period.

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Table No.
Distribution of Production and Gross-Earnings
(January til April 1983)

	Production		Gross - Earnings	
	Kgs	% of total	F D	% of total
6 'active' boats	29,540	31.2 %	6,965,000	30.8 %
12 'regular' boats	23,950	25.3 %	6,245,000	27.6 %
rest	41,200	43.5 %	9,440,000	41.6 %
TOTAL	94,688	100.0 %	22,650,000	100.0 %

As we have observed for 1982, between 45 and 75 boats are fishing in the different months of the year. But it was especially from January til March that the number of operational boats exceeded 70:

Owners and crews of boats fishing regularly or often caught and earned more than half of what some 50 others will have to share between them.

These figures on the first four months of 1983 show high variations between the total population of artisanal fishermen both in activity and potential production (and thus gross income-expectation). The averages established for the total population of fishermen (year of 1982) are not very informative. On the contrary: They are rather deceptive as far as landings per month and potential earnings are concerned. A majority of boats will not fish more frequently than 2 times or 3 times per month. (This again refers to the question of subsistency fishing, as mentioned above, p. 40. For a correct description of the total population of Djibouti's artisanal fisheries, an assessment of their structure of preferences, mode of living, expenditure situation etc. will play an important role.)

6.3.3 Expenditures and Earnings

6.3.3.1 Sensitivity Aspects

This part of the report is based on rough assumptions and generalizations, some of which may bias the conclusions. A few of them are:

(a) Impact of engine-power on productivity

In general one expects a boat with a larger engine to have a higher production figure than a comparative boat (same type, same equipment) with a smaller engine. If this is true, an economic evaluation has to show to what extent increased income matches the significantly higher costs for stronger propulsion. This refers to the assumption in the following sub-chapters, that both 8 HP and 15 HP powered boats have equal return-expectations.

(b) The real catch per trip, unloaded at ACPM is rather hard to determine:

-- Fishermen owning more than one boat may use only one of them to deliver (containing the catches of all boats possessed);

Fishermen fishing in distant areas organize themselves by sending one boat to take the catch to ACPM, to collect all the money earned and get fuel and ice for all boats; Returns are distributed when joining the other teams again.

Fishermen originating from neighboring countries (Solamia, Yemen) now living in Djibouti but still having family and friends there, may deliver catches from others, paying them when they return. This permits non-Djiboutians (non-ACPM members) to take advantage of comparatively high prices and desirable convertible currency as well as of assured sales managed in short periods of time.

This refers to all accounts and statistics kept at ACPM.

(c) The equal cost assumption for all types of fishing (active, less active, fish vs. lobster, etc.) may be very questionable: Some owners are very aware of servicing needs; they keep their engines well looked after, have two engines per boat, etc. In brief, their equipment lasts longer, is more cost-effective than that of others. (Referring to the assumption that all engines last c. two years.) The life-expectation of an outboarder should be - in case a more precise analytic approach is eventually applied - expressed by hours of use, which would be on the other hand hard to observe and to determine. This assumption

†): This practice should be examined in more detail because it is unclear whether the fish from several boats is delivered separately or all thrown together. The latter practice would certainly cause disagreement between the fishermen and is not very probable.

is also made as far as the life-expectation of one boat is concerned.

(d) Costs for fishermen particularly those making few trips can, via the same assumption (equal costs for all types of fishing) enter the profitability assessment (to follow) as being by far too high. We have positive information that some of the better-off fishermen own more than one engine per boat (e.g. 10 engines to 6 'active' boats). Still the IFAD-report of Dec. 1982 states 56 hours being opposed by only 58 engines. A certain percentage of them will be constantly un-operational. (Servicing, break-downs, etc.) This may indicate that some ten boats can be without engines at some time. It can be assumed that particularly fishermen making only few trips per month may borrow equipment from each other, etc. and consequently are far from owning a fully equipped boat, thus having reduced capital replacement costs. Furthermore they make less use of their boats so that they will last longer. On the other hand, their engines will be less well serviced (this is considered superfluous cost, the necessary cash may not be available, etc.)

The consultant's lack of detailed information on all matters mentioned under (b) - (d) prohibits any interpretation of the impact of these aspects on the actual costs.

However on the question of higher catches by more highly powered boats some information is available. As far as the boats observed from January til April 1983 are concerned, significantly higher catches were not observed from boats using stronger engines. On the contrary: All boats (with one exception) having a poor production/landing - ratio use 15 HP engines. Amongst boats with a positive ratio we find all types of engines used: 6 HP, 8 HP, 15 HP and 25 HP.

The most productive boat-owner (Ali "Baya" Hassan) unloads catches from two boats, producing 5,050 kg per boat. Second in rank is Yaya Gaber, who makes the same amount of trips with a single boat but produces 8,450 kg with it, and earns only (gross) 345,000 FD less than Baya. Yaya Gaber operates with (the only) 6 HP engine. Thus he not only owns the most productive single unit, but his net earnings will certainly be twice or three times as high as "Baya" Hassan's, caused by a fraction of fuel-expenditures of that which Hassan must spend and also via reduced costs for crews.

The consultant does not expect long-term observation even of the total population to produce any proof for "better catches by stronger engines" (ceteris paribus), as far as Djiboutian artisanal fisheries are concerned. The higher buying price of 15 HP engines and the higher fuel input in particular are - unless some other justification is found for using them - superfluous costs indeed.

6.3.3.2 Fixed Costs

(a) Present

(i): Boat

Example: 1 houri, c. 7m long, load c. 750kg, bought as hull (wood imported from Europe) finished in Djibouti, lasts c. 10 years; Price (June 1983, ready for use):

1,000,000 FD

(ii): Outboard engine

Examples: 8 HP and 15 HP Yamaha Prices at ACPM (paid by installments, bought on credit) both to last c. two years.

Price for 8 HP:

135,000 FD

for 15 HP:

175,000 FD

(iii): Gear

Example: Net (Mullet) size 30m x 2.5m material costs c. 8,000 FD, lasts c. 10 months,

(costs for lines negligible)

10,000 FD

Total initial investment costs: - with 8 HP 1,145,000 FD
 - with 15 HP 1,185,000 FD

Annual capital replacement costs: with 8 HP c. 175,000 FD
 with 15 HP c. 200,000 FD

(b) Price Increases

In order to provide rudimentary possibilities of calculating price contingencies, the price increases, - as far as information was obtained - are presented below. (in FD)

	1962	1965	1977 ¹⁾	1983
a. houri 7m (finished)	110,000	n.o.	c. 500,000 ¹⁾	1,000,000
b. Outboard engine	45,000	60,000 ²⁾	- -	135,000 175,000
c. Nets	n.o.	n.o.	n.o.	n.o.
d. Fuel, 1 l	35	n.o.	n.o.	135
e. Fish, 1 tc (x - annum)	n.o.	n.o.	n.o.	239,200 1979: 152,630 ³⁾

1): Based on Pajot, Report 1977

2): 6 HP Johnson, both 1962 and 1965

3): IFAD-App. Report, 1980

3.3.3 Variable Costs

(a) Maintenance

(i) Boat

The above mentioned 7m hour, lasting 10 years, in that period needs one full overhaul that costs at present

(p.a. 400,000 FD
20,000 FD)

(ii) Outboard Engines

According to the information obtained the said outboarders need one full overhaul in two years, this includes:

- new crank shaft
- new pistons
- set gaskets
- full check of carburator and waterpump, if to be replaced: 10,000FD

Maintenance costs + half waterpump (p.a. 85,000 FD
42,500 FD)

Regular service, including:

- change spark plugs
- change contact breaker
- change oil in shaft

Between 5,000 and 10,000 FD/month, average (p.a. 7,500 FD/-
90,000 FD)

Total yearly maintenance costs on boat and engine:

172,500 FD
(c. 1,000.- 8)

(b) Crews; the Sharing System of Divisible Returns

Crew-members are paid according to the returns of a given catch. After all costs for fuel, oil, food and drinks have been deducted from the gross-catchings, the rest is divided into three equal parts.

One part is destined to cover the costs for boat and engine.

One part goes to the boat-owner.

One part goes to the crew. If the boat-owner fishes himself (which is the case generally) he also takes an equal part of the crew's share according to its size.

From all the information available we estimate the average crew of hours to be 2.5 men, one of which being the boat-owner. As mentioned above, almost half of the crew will be family-members or close relatives of the boat-owner. While being trained the young fishermen do not usually get any payment but rather some pocket money.

The sharing system as used at present may have a misleading component for the boat-owner as far as the long-term evaluation of his business is concerned: The boat-owner will take his own share, plus a share of c. 40% of what goes to the crew (if the crew is 2.5 men), plus the share destined for the coverage of equipment costs. He will naturally not put this latter money aside, but will use it up: Paying back (private) credits, lending money to others, running costs of the household, leisure (mostly chewing Khat): The comparative high sum will make him believe that his business is basically productive.

However, the increases of prices for boats in particular may - in a period of several years, when he is eventually obliged to buy new outfit - disillusion him as to how far his comparative 'good' income really goes: Having paid back everything on the old boat, now worn out long ago, he believes his net earnings to be high enough to assure credit in favour of replacing the equipment, and thinks of reimbursing the necessary credit via the third to cover the respective costs, as it is the custom. In that case the traditional sharing system - particularly in cases of infrequent landings - may prove to be impractical; the third destined to cover for equipment costs is not sufficient to match with the actual costs. The boat-owner can find himself obliged to pay half or more of his earnings as reimbursements for loans on new outfit. The profession of a fisherman may then suddenly lose its financial attractiveness.

The final evaluation of returns per investment will therefore try to isolate all cases in which fishermen already have higher expenditures for fixed costs than assumed to be covered by the traditional sharing system.

(c) Fuel Costs

During the interviews held on 3 - 5 May 1983 the fishermen were requested to indicate their most frequent fishing grounds. (The map included in Annex No. 7.8 p. 70 was established with the information obtained).

The time input in travelling to these areas is rather hard to determine. The fishing boats used are very small for off-shore fishing and their speed is highly dependent on weather conditions and on the smoothness of the sea surface. Under favourable circumstances they may be able to travel rather swiftly, but speed may be cut to half by small waves and some wind. Under regular circumstances the distance from ACPM landing site to the Obock fishing grounds is covered in c. 2.5 hours. From Djibouti to the Islands of 'Sept Frères' takes 6 hours of travelling. (Both trips marked in above mentioned map). Most of the habitual fishing grounds of Djiboutian fishermen lie within a distance that can be covered within three hours after leaving ACPM. One frequently fished area is more distant (Godheira), and several of the less frequently fished grounds are also within three hours travelling time. For this assessment we assume that two thirds to three quarters of all fishing trips are undertaken with time inputs of 3.0 to 3.5 hours one way. This counts for boats with 8 HP engines. A boat equipped with a 15 HP engine will be able to travel much quicker. The assumption is: Fishermen leaving for a 12 hours night-fishing trip usually have to spend 6 hours cruising (8 HP) and 4 - 5 hours, average 4.5 hours, if equipped with a 15 HP engine. (There and back)

Mr. F. Frésil, ACPM's chief mechanic, has provided figures on fuel consumption according to local conditions and provided that the engine is well adjusted:

- Yamaha, 15 HP, cruising speed: 10 l/h (acc. to factory: 7 l/h)
- Yamaha, 8 HP, cruising speed: 6 l/h

Particularly when fishing in distant areas the fishermen organize themselves in teams, - as mentioned above - sending only one boat back to ACPM to deliver the catches and bring fuel, food and ice. In terms of fuel, this arrangement is assumed to reduce costs by 10 - 15%. The fuel consumption at lining speed is estimated to be half of that at cruising speed.

These figures lead to the following approximation:

- (1): 8 HP engine
 - 36 liters for cruising
 - 15 liters for fishing, total c. 40 liters per trip

(11): 15 HP engine
45 liters for cruising
25 liters for fishing, total c. 70 liters per trip

The fuel price for 2-stroke mix, 2%, for June/July 1983
is 135 FD (0.78 \$).

Fuel costs per average trip:

(i):	8 HP engine; 40 liters x 135 FD =	5,400 FD	
	./. 15 % reduction =	800 FD	
	Average fuel costs per trip:	<u>4,600 FD</u>	(29.14 ₮)
(11):	15 HP engine; 70 liters x 135 FD =	9,450 FD	
	./. 15 % reduction =	1,400 FD	
	Average fuel costs per trip:	<u>8,050 FD</u>	(46.- ₮)

(d) Miscellaneous

Bait, (sardines if available) food and drinks
account for 5,000 to 10,000 FD per month, according to
the frequency of trips undertaken (according to inter-
views of 7 May 1983).

6.3.3.4 Profitability Assessment

The tables produced in the following chapters
are based on two assumptions:

- The average landing of fish is 120 kg (circa the
average of 1982)
- The annual average value per kg fish is 239.20 FD (1.36 \$)

The profitability assessment is provided for two examples:
c. four landings per month, which is the average of all
fish-catching boats in 1982, and for c. eight landings per
month, which has been found to be the average of the 18
fish-catching boats (active + regularly fishing units),
observed in January til April 1983.
The tables show annual figures.

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(c) Some Evaluative Figures

As has been mentioned above (p. 50 f, 'Sharing System of Divisible Returns'), the share that the fishermen allocate to cover capital replacement costs (one third of divisible returns) may be critical: The economic behaviour of the fishermen does not really consider the actual need of funds and the final amount that is to be put aside for the respective coverage. The consultant therefore would like to point out:

Contingencies have not entered the above made stability assessments. Boats in particular (from 1962 - 1983) have undergone high price increases (c. 45,000 FD/annum). Depreciation would, - once analyzing all aspects involved - certainly be much higher than assumed in the tables on the previous page.

-- At present all units (8 HP + 15 HP engines on smaller hours) operating with four or more efforts per month (as calculated in the examples) are able to cover capital replacement costs by one third of annual divisible returns:

	Annual share for equipment	Capital replacement costs accord. examples calculated
4 trips/month		
8 HP	385,665 FD	175,000 FD
15 HP	310,466 FD	200,000 FD
8 trips/month		
8 HP	731,330 FD	175,000 FD
15 HP	620,933 FD	200,000 FD

But here again it must be underlined that the fishermen's actual handling of the returns does not conform with the structural assumptions of the calculations on the previous page: He will consider all money that is not spent on fuel and miscellaneous plus crew to be his income and thus be deceived about what the real situation of his small enterprise is: he will consume the actual net revenue, - since fishing himself, have a share of c. 40% out of the money destined to the crew - and add funds theoretically destined for capital replacement to what he considers to be his, so to say, 'over-all' income (from which he will eventually try to buy new equipment, when needed).

In order to illustrate this the following table shows roughly assessed economic facts (as established in this chapter) opposed by the traditional behaviour of the fishermen (established according the examples calculated above).

	ann. net revenue	ann. net ¹⁾ earn. of boatowner	boatowner's ²⁾ assumed profitability
4 trips, 8 HP	363,866	518,132	903,798
15 HP	248,434	372,620	683,086
8 trips, 8 HP	1,115,167	1,407,700	2,139,033
15 HP	869,357	1,117,740	1,738,673

The effect of such self-deception is - if valid - particularly important for boats with low frequency of fishing. If these boats which have been called those of 'subsistence' fishermen, are at present operating with worn or old equipment, the consultant assumes that re-equipping them may become impossible in the near future or at least reimbursements for credit to buy the materials will be so high (as compared with the net income) that fishing according to the old patterns of behaviour will become unattractive: These fishermen will either have to change their economic attitude (and become more active) or drop out of the profession, occasionally working as hired hands.

Another aspect of individual evaluation of small enterprise in this type of fishing is the monthly net income of the fishermen. We have mentioned above that the average crew of a houri is 2.5 men, one of which being the boat-owner himself. Circa 40% of the crew-costs, above p. 54, would be a crew-member's earnings. For boat-owners the figures are provided above (annual net earnings of boat-owners). These figures on a monthly basis:

Table No. 7
Monthly Earnings

	Boat-owner		Crew-member
	effective	assumed	
4 trips, 8 HP	43,177 FD (246.70 g)	75,316 FD (430.40 g)	12,855 FD (73.45 g)
15 HP	31,052 FD (177.45 g)	56,924 FD (325.30 g)	10,348 FD (59.15 g)
8 trips, 8 HP	117,308 FD (670.35 g)	178,252 FD (1,018.60 g)	24,377 FD (139.30 g)
15 HP	93,145 FD (532.25 g)	144,890 FD (827.95 g)	20,700 FD (118.30 g)

1): This figure is composed out of annual net revenue + 40% crew income.

2): Added annual net revenue + 40% crew-share + 1/3 divisible returns.

The net earnings per individual are very varied considering this rather homogeneous type of fishing:

- As shown above in the profitability assessment, the increased costs for fuel, when using a bigger engine, directly affects the net earnings of crew-members, since fuel costs are deducted from gross-earnings before the returns are divided up.
- The difference between the income of a boat-owner vs. the net income of a crew-member is important. A boat-owner will earn c. 4 - 6 times as much as a crew-member. But the crew-member of an active boat is almost as well-off as the boat-owner with few landings per month.
- For a crew-member working on a boat with bigger engine but low frequency of fishing, the job loses its attractiveness very rapidly. Although earning c. 15.- \$ in one night, this man must find other supplementary sources of income (e.g. working other boats too). With the present cost of living in Djibouti he will be unable to feed a family and to survive on 60.- \$ a month.

6.4 Comments and Conclusions

From the data available and the evaluations presented it seems possible to divide the population of Djibouti's artisanal fishermen into two groups as far as their economic situation is concerned:

- One group with low frequency of fishing
- One group being rather active

(a) Boats, their owners and crews fishing with low frequency (up to 4/month) are assumed to have a subsistence oriented attitude towards their profession. (Unfortunately this study is not able to provide any specific information on this group as such). The number of these 'subsistence fishermen' is rather high, estimated to be c. 50 boats and crews. Their landings account for only c. 50% of ACPM's total annual production. Their income too is rather low: Between 150.- and 250.- \$ per month for a boat-owner, 50.- to 75.- \$/month for one of his crew-members. The level of income depends on the effective number of landings per month and on the type of engine used. The higher fuel costs (if using e.g. a 15 HP Yamaha instead of a smaller, 8 HP engine) reduce net earnings by c. 30%. This affects crew-members in particular, since fuel costs are deducted from gross-earnings before the net earnings are calculated (traditional sharing system).

The economic situation of these boats is at a critical stage:

- The prices for equipment are very high, and so are the price increase rates (for boats in particular).
- An informal credit system (within the family, friends, relatives, but also with habitual clients and owners of shops where the fishermen buy regularly) seems to play an important role. Most of the fishermen, the poorer in particular, seem to have debts. Few seem to be aware of their actual income-situation and the needs for living. Economic problems will be seen and handled on a day to days basis.
- The fishermen mislead themselves via the traditional sharing system (net-earnings are assumed to be almost twice as high as effective). As little as their family-life is organised according to any economic evaluation, as little will these fishermen be aware of how low their income from fishing is if compared with initial capital investment costs of 1983.
- It can be possible that fishing will lose its economic attractiveness for most of the 'subsistancy fishermen' if forced to replace their equipment in the years to come.

No information is available so far on whether the 'subsistancy fishermen' have ways of adapting themselves to this critical situation. They may buy used equipment, share engines between them and their wives may also work to provide cash income, etc. It is not possible to estimate whether they are willing to increase their low number of landings significantly when finding themselves in a situation forced to earn more money in order to pay back a given credit and to survive. If future development of artisanal fisheries in Djibouti leads to the introduction of new and more productive fishing techniques, it is impossible to say for the time being whether 'subsistancy fishermen' will be interested in learning new techniques and adapting themselves to a new mode of production. (However, from what can be learned from subsistancy artisanal fisheries in other African countries, the structure of preferences of self-sufficiency fishermen is persistent and hard to change).

(b) As far as the second group (the 'active' fishermen) is concerned, their number is rather small (c. 20 boats and crews), but it can be assumed that these have overcome a purely subsistancy oriented economic way of running their small enterprise. All these boats with 3 or more landings per month are operating "in the black" at present. From what was learned in the respective interviews, they have a rather clear view of their situation

and the different aspects influencing it. (e.g. they complain in particular about high equipment costs, are aware of the limited possibilities of selling the fish they catch, "...we can not catch more than the cold-stores can take...", etc.).

4 - 5 of these boats are very productive, fishing 10 - 15 times per month and landing c. 25% of ACPM's annual intakings.

The net income in the case of the second group may range between 500.- and 1,000.- \$/month for a boat-owner and 150.- and 250.- \$/month for a crew-member, depending again on the effective number of landings and the fuel-consumption of the engine used.

Artisanal fisheries in Djibouti is a family business; this counts for 'active' fishermen as well as for 'subsistency fishermen'. It can be assumed that in the families of active fishermen, young men are trained on these boats in a technically and economically improved way of running a fishing business.

For both groups we assume that the attractiveness of the profession is high at the moment: In the case of 'subsistency-fishermen' the job seems to assure the income needed for surviving with comparative little effort. For the second group it has become evident that a man - if owning a boat and fishing frequently - can earn a rather high amount of money. Fishing in Djibouti has no problems in recruiting newcomers.

As far as development planning is concerned, the following recommendations are made:

- (a) If new techniques are to be introduced, the active fishermen are expected to be interested and to adopt a new technology in their mode of production. Such a change must then fulfill one of the following conditions:
 - Either it provides a comparative increase of income with equal effort;
 - or it provides a comparative decrease of effort with equal income;
 - or it assures an equivalent income at equivalent effort for a larger number of men.
- (b) Alterations in that regard will have the highest probability of operating independently if put (after training, with the necessary credit system provided) into the hands of the family-system that at present seems to structure artisanal fisheries in Djibouti. An ownership/crew-system neglecting these family-ties will have little likelihood of succeeding.

(c) Concentrating on productive families at the beginning should not lead to a petrification of the economic differences that exist between the fishermen. The possibilities of improving the situation of less flexible and poorer fishermen should be studied separately and ways should be found to make these fishermen (and their families) participate in future development.

(d) Technical aspects, as far as infrastructures go, favour a future development of artisanal fisheries in Djibouti. The high concentration of facilities, services and men engaged in one location (ACPM) permit an expectation of high efficiency of man-power and capital inputs. The level of services achieved up to the present are considerable and represent a good basis for future activities.

(e) The very high equipment costs in Djibouti have been mentioned several times. All attempts made so far regarding workshop - repair, services - and boat-yard - lamination, new constructions - are extremely important in increasing the life-expectation of the equipment used and in making the fishermen independent of usurious prices on the public market.

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Since the creation of a marketing system has been found to be the prior condition for any changes in fisheries, the activities on the sales side of the development would leave sufficient time for the aspects of the problem concerned with the fishing itself: To carry out the necessary studies and experiments, for preparation in technical and infrastructural regards and for the fishermen to receive good training.

Artisanal fisheries in Djibouti has good potential for development. This counts for resources, for demand and for the social basis in the fishing population. The development however would imply a long-term commitment. Planning should cover 5 - 10 years to come.

Konstanz, 29.8.1983

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7.0 ANNEXES

7.1 Production Levels, ACPM, March 1979 -
April 1983

Figures are actual purchases at the ACPM, increased 30% for consumption, spoilage, and direct sales by fishermen to consumers. (kg)

<u>1979</u>	Fish	Other +)	30% increase	Total
March	20,121	-	6,036	26,157
April	17,991	254	5,473	23,718
May	16,957	358	5,194	22,509
June	12,445	482	3,878	16,805
July	13,321	410	4,117	17,839
Aug.	16,167	311	4,943	21,421
Sep.	16,525	273	5,039	21,837
Oct.	16,414	346	5,028	21,788
Nov.	16,934	198	5,139	22,271
Dec.	15,330	55	4,615	20,000
TOT.:	162,196	2,687	49,462	214,345 ++

1980

Jan.	14,790	-	5,494	20,284
Feb.	14,686	153	4,452	19,291
March	19,196	363	5,868	25,427
April	22,536	666	6,961	30,163
May	22,544	713	6,977	30,234
June	15,700	457	4,847	21,004
July	16,109	400	4,953	21,462
Aug.	17,653	688	5,502	23,343
Sep.	15,604	-	4,681	20,285
Oct.	17,448	-	5,234	22,682
Nov.	17,267	82	5,205	22,554
Dec.	12,071	-	3,621	15,692
TOT.:	205,604	3,522	63,795	272,921

+): Other = lobster, squid, crab

++): Ten months only, ACPM annual production estimated around 190 tons.

Production Levels continued

	Fish	Other	30% increase	Total
<u>1981</u>				
Jan.	16,289	130	4,926	21,345
Feb.	18,973	195	5,750	24,918
March	20,657	260	6,378	27,205
April	30,515	665	9,354	40,534
May	28,131	702	8,650	37,483
June	23,169	999	7,250	31,418
July	18,138	285	5,527	23,950
Aug.	19,584	668	6,076	26,328
Sept.	25,579	1,074	7,996	34,649
Oct.	30,267	66	9,100	39,433
Nov.	33,792	39	10,149	43,980
Dec.	26,625	125	8,025	34,775
<hr/>				
TOT.:	291,729	5,208	89,081	386,018
<hr/>				
<u>1982</u>				
Jan.	27,200	41	8,172	35,413
Feb.	26,974	41	8,105	35,120
March	31,067	91	9,347	40,505
April	25,018	941	7,788	33,747
May	29,200	897	9,029	39,126
June	17,744	383	5,438	23,565
July	16,856	294	5,145	22,295
Aug.	21,485	1,090	6,772	29,347
Sep.	18,393	344	5,621	24,358
Oct.	27,097	28	8,138	35,235
Nov.	34,396	8	10,321	43,644
Dec.	19,302	17	5,793	25,102
<hr/>				
TOT.:	294,732	4,165	89,699	387,457
<hr/>				

Production Levels, continued

<u>1983</u>	Fish	Other	30% Increase	Total
Jan.	27,440	10	8,235	35,685
Feb.	20,625	5	6,189	26,816
March	12,916	9	3,877	16,802
April	33,707	538	10,273	44,418
TOT.:	94,688	562	28,574	123,721

In the previous years the first four months tend to represent c. 33% of the annual production. In that case the ACPM total annual production would be c. 285,000 kg, the total national production c. 370,000 kg.

7.2 Prices

7.2.1 Meat Prices in Djibouti
(April 1983)

	FD/kg	Observations
Mutton	1,000	strong demand, always available
Goat	1,000	strong demand, always available
Beef	700 - 900	less preferred, always available
Camel	600	highly appreciated, very limited availability
Groundmeat	600 - 800	Appreciated especially by Arabs and Europeans, (sold in supermarkets)
Pork	2,000	Imported for foreigners only, sold in super- markets, always available

7:3 Species

7.3.1 List of Names

Scientific Name	Common Names		Official FAO		Somali	Afar
	English	French	English	French		
LUTJANIDAE						
<u>Lutjanus bohar</u>	Red snapper	Rouge à dents	Twospot snapper	Vivaneau chien rouge	Bohare	Bohare
<u>Lutjanus coccineus</u>	Humped snapper	Rouget	Humhead snapper	Vivaneau tête	Houmbouk	Houmbouk
<u>Lutjanus argentimaculatus</u>	Red snapper	Dorade rosé	Mangrove red snapper	Vivaneau du mangrove	Sifane	Gueva asso
SCOMBRIDAE						
<u>Scomberomorus commerson</u>	Kingfish	Thazard	Narrow-barred Spanish mackerel (indo-p.)	Thazard rayé	Derake	Darassa
<u>Thunnus albacares</u>	Yellowfin Tuna	Thon rosé	Yellowfin tuna	Albacore	Zenoub	Halivi
<u>Sibyanus affinis</u>		Thonine	Kawakawa	Thonine orientale	Chiroi	
<u>Rastrelliger kanagurta</u>	Indian mackerel	Maquereau	Indian mackerel	Maquereau des Indes	Barra	Balane
CARANGIDAE						
<u>Caranx spp.</u>	Jack	Carangue	Jack	Carangue	HouDar	HouDar
<u>Scomberoides lysan</u>	Jack	Carangue	double spotted queenfish	1)	Dourabe	Girbi
<u>Caranx ignobilis</u>	- -	- -	giant trevally	1)	- -	- -
<u>Elagatus bipinnulata</u>	Rainbow runner	Gazelle de mer	Rainbow runner	Comète saumon	Toume	
SPHYRAENIDAE						
<u>Sphyaena barracuda</u>	barracuda	barracuda	great barracuda	Barracuda	Akam	Agam/gouddi
LETHRINIDAE						
(<u>Lethrinus (waigensis)</u>) ²⁾	Dorade	Dorade	Emperor, scavenger	empereur	Gahache	Gahchi
SERRANIDAE						
<u>Epinephelus tauvina</u>	grouper	mérou	greasy grouper	1)	Couchar	Mereita/Tona
<u>Epinephelus chlorestigma</u>	grouper	mérou	1)	1)	couchar	
<u>Epinephelus aerolates</u>	spotted grouper	mérou mouchete	aerolated grouper	1)	coul-coul	
OTHER FISH						
Clupeidae	sardine	sardinelle	sardinella	sardinelle (ou alache)	- -	- -
Mugilidae	mullet	mulet	mullet	mulet	arabis	biguill
Rachycentridae	black catfish	cobia	cobia	mafou	sakala	
<u>Elagatus bipinnulata</u>	rainbow runner	gazelle de mer	rainbow runner	comète saumon	toume	
<u>Coryphaena hippurus</u>	dolphinfish	coryphère	dolphinfish	coryphère commune	honfluss	anflusse
Haemulidae (syn: pomadasidae)	grunts	- -	grunts	grondeurs	coul-coul	
SHARKS & RAYS						
<u>Carcharhinus melanopterus</u>	shark	requin	blacktip reef shark	1)	loraol	louback
<u>Carcharhinus spp.</u>	sharks	requins	sharks	requins	loraol	
<u>Dasyatis varnak</u>	ray	rae	1) 6)	1)	rabis	tibirbijo/sofone/barbara
SHELLFISH AND SQUID						
<u>Fanulirus sp.</u>	lobster	langouste	lobster	langouste	langouste	abondell
	squids	calamars	squids	calamars	aboumedado	tillinno
	shrimps	crevettes	shrimps	crevettes	rhohabe	
	crabs	crabes	crabs	crabes	aboumedado	

(Footnotes on following page)

Footnotes, referring at proceeding page

NB: The list of commonly caught species, scientific, common english and french names has been checked and adapted according to 'Species Identification Sheets, Western Indian Ocean' by Dr. Cornelia Nauen, FAO. The named identification sheets are in preparation and will be published soon. (The original list was provided by ACPM).

1): No official FAO-names available yet

2): The name 'dorades' (fr.) is usually associated with the family Sparidae. A species Lethrinus waigensis (family Lethrinidae) is not recognized. There is instead a species Lutjanus vaigiensis, a synonym of L. fulvius, that might be the one in question.

3): 'Dorades' usually: Sparidae

4): 'Rachycentridae': Sergaentfishes, Cobias

5): Elagatus bipinnulata, although listed under 'other fish', belongs to the family of Carangidae.

6): FAO usually 'Pastenague' for genus Dasyatis.

NB: The species 'bonite', observed in the monthly catch reports, compiled and presented on the following pages, is believed to be Katsuwonus pelamis (Skipjack tuna) or other Scombridae.

7.3.2 ACPM Monthly Catch Reports (July 1982 - May 1983)

The following tables present a compiled version of ACPM monthly catch reports, as made available by Messrs. Youssouff and Hamoud. The names of the species observed are reproduced as quoted in the source. It is recommended to adapt the respective names to correct English, French or scientific expressions as presented on the proceeding page.

In some of the months the catch reports deviated significantly from the intaking and sales accounts, kept by Mr. P. Deritto. The differences are shown on the tables to follow. It is recommended to check into the respective figures.

1 9 8 2	July		August		September		October		November		December	
Species observed	quantity in kg	No. of landings	quantity in kg	No. of landings	quantity in kg	No. of landings	quantity in kg	No. of landings	quantity in kg	No. of landings	quantity in kg	No. of landings
ougets	5,034	29	2,187	14	4,526	30	11,057	46	13,856	37	2,090	15
orades	1,215	12	668	18	279	4	284	6	34	2	25	1
et. Dorades	- -	-	- -	-	997	31	1,369	42	- - -	-	2,918	73
comb. comm.	2,989	42	95	5	73	4	785	20	1,448	23	2,360	22
arracuda	28	2	- -	-	27	1	130	4	511	10	495	9
r. Caranx	172	4	- -	-	95	2	126	1	129	4	1,206	7
et. Caranx	484	15	834	21	920	23	10,455	32	2,750	59	2,901	57
. Ignobile	5,510	48	14,160	84	4,766	41	421	3	- -	-	- -	-
ilet	161	11	2,111	19	2,248	27	2,758	40	3,592	58	2,664	40
onite	302	6	12	1	1,531	17	7,199	97	6,048	59	1,073	19
lvers	466	13	1,421	10	3,136	49	1,887	47	3,564	99	3,570	104
obster	320	32	932	58	468	37	22	3	- -	-	3	1
uid	20	7	5	3	8	6	6	4	7	3	4	2
TOTALS:	16,701	221	22,425	233	19,074	272	36,499	345	31,939	354	19,309	350
MPM accounts:	16,836	---	21,485	---	18,395	---	27,095	---	34,296	---	19,302	---
viation:	+ 135	---	- 940	---	- 679	---	- 9,404	---	+ 2,457	---	- 7	---

1983												
Species observed	January		February		March		April		May		TOTALS/SPECIES	
	quantity in kg	No. of Landings	quantity in kg	No. of Landings	quantity in kg	No. of Landings	quantity in kg	No. of Landings	quantity in kg	No. of Landings	quantity in kg	Landings
Rougets	5,611	38	5,057	35	1,297	13	7,284	28	3,067	14	61,366	199
Dorades	- -	-	87	4	274	2	138	1	409	5	3,413	55
Pet. Dorades	6,474	111	3,085	68	2,437	40	2,487	37	588	16	20,355	418
Scomb. comm.	990	26	1,078	24	1,508	18	1,792	30	4,693	92	17,811	306
Barracuda	153	4	626	9	492	7	10,068	95	2,836	49	15,366	190
Gr. Caranx	65	2	112	1	119	4	1,085	18	1,015	19	4,124	62
Pet. Caranx	3,373	67	2,345	32	1,370	35	997	25	882	23	27,311	200
C. Ignobile	- -	-	- -	-	- -	-	- -	-	403	7	25,260	183
Mulets	3,656	39	4,251	41	2,210	25	1,135	20	201	7	29,797	339
Bonite	34	2	178	6	364	9	92	4	323	6	14,525	222
Divers	7,683	144	3,806	82	2,849	67	8,089	106	9,239	131	45,710	852
Lobster	- -	-	- -	-	- -	-	475	25	492	38	2,712	194
Squid	10	5	5	4	9	4	63	15	141	34	278	87
TOTALS:	28,049	438	20,630	306	12,929	224	33,705	404	24,289	441	265,549	13,588
ACPM accounts:	27,440	---	20,625	---	12,916	---	33,705	---	n.a.	---	n.a.	
Deviation:	- 609	---	- 5	---	- 13	---	+ 2	---	---	---	---	

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7.4 ACPM Stock Movement Record 1982

Total stock 31.12.81:	<u>1 979</u>	
<u>Purchases</u>	<u>Quantity</u>	
	<u>(kg)</u>	
Fish, whole, fresh	294 708	
Lobster	3 386	
Squid	777	
	<u>298 871</u>	
Entrance total	300 850	
<u>Sales</u>	<u>Wholesales</u>	<u>Retails</u>
Fish, whole, fresh	126 769	98 030
Fish, whole, frozen	8 964	
Fish, tranche, fresh	796	
Fish, fillets, fresh	18 691	3 981
Fish, fillets, frozen	18 570	247
Lobster, fresh	1 742	433
Lobster, frozen	904	255
Squid, fresh	147	153
Squid, frozen	234	48
Fish, salted	152	
Total	<u>176 969</u>	<u>99 147</u>
Baits total	1 497	
<u>Losses</u>		
● Spoiled fish	5 992	
Diverse loss	6 170	
Total	<u>12 162</u>	
Other total	669	
Stock - 31 December 1982	10 406	

7.5 Professional Requirement of Fishvendors

1. Simple accounting/bookkeeping, (standard to be designed by ACPM/IFAD)
2. Knowledge of:
 - Different common local species, (fat-lean fish, white-dark meat, differences in tastes,)
 - Different methods of fishpreparations, (according to species, nutritional- and economic value)
 - Basic nutritional value of fish; protein, minerals, vitamins, fat, energy,
 - Quality criterias of fish; eyes, scales, firmness, smell, differences in fresh and iced, etc.
 - Basic nutritional/economic value of fish, as compared to meat, milk, egg etc.
 - Economic aspects on fishconsumption from a national-economic point of view
3. Practical skills:
 - Cleaning, cutting, filleting of the most common species available
 - Hygienic maintenance of the shop
 - Arrangement of a selling display of the fish
 - Capability to convey information and promote fish consumption to the clients (see 2. above)
 - Capability to attract new customers

PHYSICAL REQUIREMENTS OF THE FISH RETAIL OUTLETS

	installation	to be provided by ACPM/IFAD	to be provided by Vendor	to be maintained by ACPM/IFAD	to be maintained by Vendor	to be replaced by ACPM/IFAD	to be replaced by Vendor	Responsibility: ACPM/IFAD	Responsibility: Vendor
Water/Electricity	X								
Ice		X							
Boxes to store fish on ice		X							
Trays for display of fish		X							
Sales-counter				X					
Shelves	X			X					
Scale		X		X					
Price-list (wallspace)		X		X					
Wastebin with lid		X		X					
Cuttingboard		X		X					
Knives		X		X					
Sponge/cleaningpads		X		X					
Wash-detergent		X		X					
Apron (of plastic, washable)		X		X					
Gloves (for hands and for utensils)		X		X					
Plasticbags to emballage the fish		X		X					

7.6 List of Institutional Clients
(as interviewed April 1983)

(a) Military

1. Armée Nationale, RCI (DC)
2. 5e RIOM Ordinaire
3. 13e DBLE Ordinaire
4. "Le Rhin" (French Navy)

(b) Hospitals

5. Hôpital Peltier
6. Hôpital Militaire

(c) Shiphandler

7. Solomondis

(d) Supermarkets

8. Pris Jnic
9. Semiramis
10. Pie. ont

(e) Restaurants and Hotels

11. Appollo Club
12. Le Kintz
13. Youssouff
14. Sheraton
15. Ogoul
16. Mama Elena
17. D'Arta
18. Ahmed M. Ahmed

(f) Shops

19. "Maison du Pêcheur"

Month	Boats				Catch (in kg)			Gross-earning (FD)		
	Number of boats operating	Number of fishermen	Total No. of landings	Landing per boat operating	From all boats operating	per landing (one boat)	per boat operating	total value of catches	x earning per boat	x earning per landing
Jan	72	153	357	4.95	27,200	377.77	76.31	6,506,240	90,362	18,255
Feb	72	143	305	4.24	26,974	374.63	88.35	6,452,180	89,613	21,135
Mar	76	162	322	4.23	31,067	408.77	96.63	7,431,226	97,779	23,115
Apr	51	112	209	4.10	25,018	490.54	119.64	5,984,305	117,337	28,619
May	43	98	234	5.44	29,200	679.06	124.83	6,984,640	162,433	29,839
Jun	41	95	165	4.02	17,744	432.78	107.65	4,244,364	103,521	25,751
Jul	42	105	148	3.52	16,856	401.33	114.01	4,031,955	95,998	27,272
Aug	43	108	165	3.84	21,485	499.65	130.11	5,139,212	119,516	31,124
Sep	44	130	160	3.64	18,393	418.02	114.84	4,399,605	99,991	27,272
Oct	59	142	162	2.75	27,096	459.25	167.00	6,481,363	109,853	39,946
Nov	59	148	283	4.80	34,394	582.95	121.45	8,227,044	139,441	29,050
Dec	58	108	208	3.58	19,311	332.95	93.00	4,619,191	79,641	22,246
	55	125	226	4.09	- - -	454.80	112.81	- - - -	108,693	26,999
TOTALS	-	-	2,718	-	294,738	-	-	70,501,325	-	-
Average								402,864.-	621.10	154.28

T.T.1 FISH catches (ex-vessel price 1kg fish mixed = 239.20 FD = 1.36 \$)
 T.T.1 1980 - 2. Location (Ascend. TRAD-report Dec. 1980)

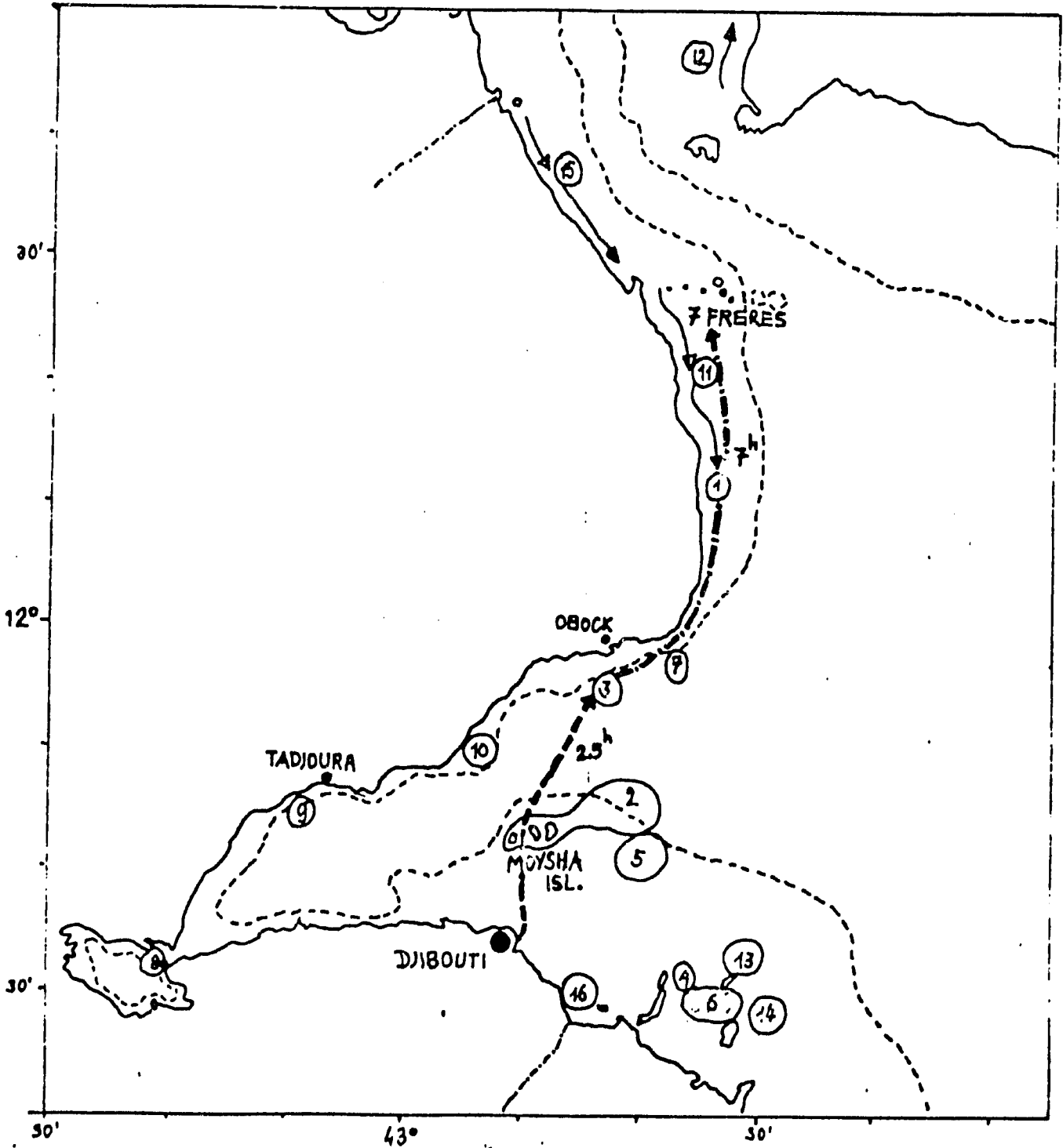
Month	Boats				Catch (in kg)			Gross-earning (FD)		
	Number of Boats operating	Number of fishermen	total No. of Landings	landing per boat operating	from all boats operating	per boat operating	per landing (one boat)	total value of catches	Earning per boat	Earning per landing
Jan	4	8	16	4.0	11	2.75	0.68	24,200	6,050	1,210
Feb	2	4	4	2.0	35	17.50	8.75	77,000	38,500	19,250
Mar	1	2	1	1.0	39	39.00	39.00	85,800	85,800	85,800
Apr	8	20	38	4.7	663	82.87	17.63	1,458,600	182,325	38,792
May	12	30	54	4.5	674	56.16	12.48	1,482,800	123,566	27,459
Jun	10	23	28	2.8	240	24.00	8.57	528,000	52,800	18,857
Jul	9	22	31	3.4	275	30.55	8.98	605,000	67,222	19,711
Aug	15	38	78	5.2	1,085	72.33	13.91	2,387,000	159,133	30,602
Sep	10	24	36	3.6	338	33.80	9.38	743,600	74,360	20,655
Oct	1	2	2	2.0	22	22.00	11.00	48,400	48,400	24,200
Nov	1	2	0	0	0	0	0	0	0	0
Dec	1	1	1	1.0	2	2.00	2.00	4,400	4,400	4,400
Yr	6	15	-	2.58	-	31.91	12.36	-	70,213	24,268
TOTALS	-	-	287	-	3,384	-	-	7,444,800	-	-
Avg								42,541.71	408,21	138.67

7.7.3 Lobster Catches (Ex-vessel price for Lobster = 2,200 FD = 12.57 g)

T-1.3 Squid Catches (Ex-vessel price for squid: 1,200 ₱ = 6.35 \$)

Month	Boats				Catch (in kg)			Gross-earning (₱)		
	Number of boats operating	Number of fishermen	Total No. of landings	landing per boat operating	from all boats operating	per boat operating	Per landing (one boat)	total value of catches	% earning per boat	% earning per landing
Jan	1	1	1	1.0	29	29.00	29.00	38,400	38,400	38,400
Feb	2	2	2	1.0	6	3.00	3.00	7,200	3,600	3,600
Mar	5	5	5	1.0	60	12.00	12.00	72,000	14,400	14,400
Apr	2	5	30	15.0	277	113.50	7.56	332,400	166,200	7,042
May	2	3	39	19.0	223	111.50	5.86	267,600	133,800	7,042
Jun	2	5	14	7.0	143	71.50	10.21	171,600	85,800	12,257
Jul	2	4	7	3.5	20	10.00	2.85	24,000	12,000	1,714
Aug	2	3	5	2.5	5	2.50	1.00	6,000	3,000	600
Sep	2	4	6	3.0	6	3.00	1.00	7,200	3,600	600
Oct	3	6	6	2.0	5	1.60	0.83	6,000	2,000	333
Nov	1	2	3	3.0	7	7.00	2.33	8,400	8,400	2,800
Dec	1	2	2	2.0	4	4.00	2.00	4,800	4,800	2,400
\bar{x}	2.25	1.25	-	5.21	-	30.70	6.47	- - -	39,600	7,935
TOTALS	-	-	120	- -	758	- - -	- -	945,600	- - -	- - -
\bar{g}								5,403.42	226.28	45.34

7.8 Fishing Grounds



----- = cont. shelf (100m)
 - . - . - . = border

Numbers according to list on following page
 Map reproduced from R/V "F. Nansen", 2-5 March 1981
 Identification of fishing grounds by Mr. R. Tello,
 masterfisherman.

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In order to approach active costs, the fishermen interviewed between 3 and 5 May have been requested to indicate their habitual fishing-grounds. During evaluation the following list has been established counting only those areas which have been indicated at least two times. The following list presents the fishing-grounds ranked according the frequency of indication.

Name of area	Frequency of indication
1. Godheira	11
2. Moysa Islands	11
3. Obock	10
4. Somalia	10
5. Sido	7
6. RDS	6
7. Rasbir	5
8. Goubet	5
9. Tadjoura	5
10. Dauley	3
11. Korangar	3
12. Yemen (lobster)	3
13. Aibat	2
14. Fil Fil	2
15. Mouhoule	2
16. Loyada	2

7.10 Literature and Reports used

- (1) Arundson, E.H.: "Fisheries Development in Djibouti" (Phase II) (US-AID-Report) Djibouti, Dec. 1982
- (2) Farrania, A.A.: "Report on Socio-Economic Aspects of the Gulf of Aden Fisheries in the Republic of Djibouti" (FAO-Report) Suez, May 1982
- (3) Djibouti, République de: Ministère de l'Agriculture et de Développement Rural; Service de l'Elevage et de la Pêche: "Programme de Développement des Pêches" Djibouti, s.d.
- (4) FAO: "Review of Food Consumption Surveys" (FAO-Doc.) Vol. II, Roma 1977
- (5) IFAD: "Djibouti Artisanal Fisheries Pilot Development Project" (Appraisal Report) Sept. 1980
- (6) IFAD: "Projet Pilote de Développement de la Pêche Artisanale" (Rapport Semestriel) Djibouti, Dec. 1982
- (7) Moal, R.A.: "Storage, Processing and Distribution of Fish" (FAO-Report) Roma, March 1971
- (8) Myklevoll, S.: "A Pelagic Fish Survey in the EEZ of the Republic of Djibouti" (F. Nansen) Bergen, 1982
- (9) James, D.: "Report on Travel to India, Somalia and Djibouti", (FAO-Report) Roma, Aug. 1982
- (10) Pajot, G.: "Report of IOP/FAO Fisheries Mission to the Republic of Djibouti" (13 - 29 Nov. 1977)(FAO-Report) Roma, s.d.
- (11) Resources Development Associates: "Development of Fishing; and Fisheries in Djibouti" Diamond Springs, Aug. 1982
- (12) Ruckes, E.: "Die Vermarktung von Frisch- und Frostfisch im Zuge wirtschaftlicher Entwicklung" (PhD-Thesis) Berlin, 1978

MR. TELLO

INSTITUTIONAL CLIENTS

No.	Name	Address
3 rd Regt PC 5A.	Armee National,	RCI (DC) (1 ^{er} INGER BJORKLUND) ^e BJORKLUND.
1 st - Gueson	5e RIGM	Ordinaire N ^e AIDID
8 ³⁰ - ifuncle 4	13e D.B.L.E.	Ordinaire
A. 188 11 ³⁰ Gueson	D.A. 188 Mess	Ordinaire 351201
	Unite Marine	351020
	Hopital Peltier	
	Hopital Militaire	
	Dasakalakis	
	Solomondis	
	Pris Jnic	
	Semiramis	
	Pierront	MR. STEPHAN
14 th 1030	One french navy ship	
14.	Appolo Club	
	Le Kintze	
	Plein Ciel	
	Youssouf	
	Sheraton Hotel	
	La Palmeriae	
	Longchamp	
	Saint Germain	

Monsieur,

Le Ministère de l'Agriculture et du Développement Rural, l'USAID et la FAO des Nations Unies réalisent conjointement une étude sur la production et la consommation du poisson à Djibouti.

Vous, ou votre organisme, êtes compris dans le groupe important que nous avons nommé "Grands organismes clients" (tels que l'armée, les hôpitaux, les restaurants, etc...).

Par conséquent nous vous serions très reconnaissant d'avoir l'amabilité de nous consacrer un peu de votre temps et d'apporter la contribution de votre expérience dans l'achat et la consommation du poisson en répondant à ce questionnaire.

Nous vous en remercions d'avance et vous prions d'accepter, Monsieur, l'assurance de notre haute considération.

Questionnaire, Grands organismes clients.

Nom de l'organisme :

Date:

Code:

Q 1. Combien de fois par semaine/mois/année achetez-vous du poisson?

1.1

1.2

jamais

Q 2. Où achetez-vous le poisson?

2.1

au marché local

2.2

à la "Pêcherie"

2.3

à un pêcheur

2.4

à la "Maison du Pêcheur"

2.5

au Prisunic

2.6

chez Pierront

2.7

chez Semiramis

2.8

Importation

Q 3. Le poisson est-il toujours disponible quand vous prévoyez d'en acheter?

3.1

oui

3.2

non

Q 4. Du total de vos achats de poisson, quel est le montant de poisson frais et celui de poisson congelé? (en %)

4.1

% frais

4.2

% congelé

Q 5. Si le poisson frais n'est pas disponible, achetez-vous alors en substitution:

5.1

du poisson congelé

5.2

aucun achat

Q 6. Quel est le type de poisson que vous achetez le plus (3 choix de ceux le plus souvent achetés)

6.1

poisson frais entier

6.2

poisson ^{frais} en tranches

6.3

poisson ^{frais} en filets

6.4

poisson congelé entier

6.5

poisson congelé en tranches

6.6

poisson congelé en filets

Q 7. Achèteriez-vous des nouveaux produits locaux de poisson, tels que:

- 7.1
- 7.2
- 7.3
- 7.4
- 7.5
- 7.6

- poisson séché
- poisson fumé
- poisson séché-salé
- poisson préparé congelé
- semi-conserves de thon et sardines
- AUCUN

Q 8. Comment évaluez-vous les aspects suivants à l'endroit où vous achetez le poisson?

8.1 Environnement hygiénique

excellent bon moyen mauvais

8.2 Le service vis à vis des clients

excellent bon moyen mauvais

8.3 La qualité du poisson disponible

excellente bonne moyenne mauvaise

8.4 La manipulation de vos commandes

excellente bonne moyenne mauvaise

8.5 L'emballage du poisson

excellent bon moyen mauvaise

8.6 La distribution de vos commandes

excellente bonne moyenne mauvais pas applic.

Q 9. A votre avis, la qualité du poisson varie-t-elle suivant l'endroit où vous l'achetez?

9.1

oui

9.2

non

Q 10. Si vos achats de poisson varient dans l'année, quels sont les mois où vous en achetez le plus?

10.1 janv. fév. mars

10.2 avril - mai - juin

10.3 juil. août. sept.

10.4 oct. nov. déc.

10.5 pas de variation.

Q 11. Vous êtes-vous abstenu d'acheter du poisson pour l'une des raisons suivantes?

11.1

l'espèce préférée non disponible

11.2

prix trop élevés

11.3

qualité de l'espèce préférée non acceptables

11.4

aucune abstention.

Q 12. Parmi les poissons locaux suivants, indiquez les 5 espèces que vous préférez le moins (en commençant par le moins préféré).

12.1 dorade

12.2 merlu

12.3 carangue

12.4 thon

12.5 barracuda

12.6 maquereau

12.7 requin

12.8 rouget

12.9 mullet

12.10 sardine

12.11 taurin

12.12 sole

12.13 autres

Q 13. Veuillez évaluer les raisons pour lesquelles vous préférez le moins ces poissons:

- 13.1 ne désire pas essayer de nouvelle espèce
- 13.2 les espèces sont difficiles à préparer
- 13.3 les espèces ne sont pas familières
- 13.4 les autres espèces sont moins chères
- 13.5 vos clients demandent certaines espèces
- 13.6 une certaine préparation est basée sur une espèce
- 13.7 ne sait pas préparer ces espèces
- 13.8 n'aime pas le goût

Q 14. Si un approvisionnement de poisson disponible n'était pas limité et restait au prix actuel, que feriez-vous?

- 14.1 ne pas acheter plus qu'actuellement
- 14.2 acheter du poisson plus souvent
- 14.3 acheter plus de poisson
- 14.4 acheter des espèces non achetées normalement

Q 15. Combien de poisson de plus(en %) comparé à vos achats actuels achèteriez-vous alors?

15.1 %

Q 16. Quels sont dans les aspects suivants ceux pour lesquels vous achèteriez plus de poisson?

- 16.1 Manutention/Emballage améliorés
- 16.2 Plus de variétés de poissons disponibles
- 16.3 Approvisionnement accru de poisson congelé
- 16.4 Campagne de promotion de poisson
- 16.5 pénurie ou augmentation du prix de la viande
- 16.6 aucun

Q 17. Si vous achetiez plus de poisson qu'actuellement veuillez indiquer les trois espèces que vous achèteriez alors:

- | | | |
|---|---|---------------------------------------|
| 17.1 barracuda <input type="checkbox"/> | 17.2 maquereau <input type="checkbox"/> | 17.3 sardine <input type="checkbox"/> |
| 17.4 mullet <input type="checkbox"/> | 17.5 thazar <input type="checkbox"/> | 17.6 thon <input type="checkbox"/> |
| 17.7 sole <input type="checkbox"/> | 17.8 mérrou <input type="checkbox"/> | 17.9 dorade <input type="checkbox"/> |
| 17.10 carangue <input type="checkbox"/> | 17.11 requin <input type="checkbox"/> | 17.12 rouget <input type="checkbox"/> |

Q 18. Veuillez évaluer les méthodes de préparation du poisson que vous considérez être les plus communes/populaires:

- 18.1 en sauce
- 18.2 frit
- 18.3 grillé
- 18.4 au four
- 18.5 fumé
- 18.6 cru
- 18.7

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APPENDIX D

**YEARLY FISHERY ACTIVITY
STATEMENTS**

BILAN DE L'ACTIVITE DE PECHE 1979

1979 - PAGE 1

Nom Scientifique	Nom Francais	Nom Anglais	Nom Local	Jan.	Fev.	Mars	Avril	Mai	Juin	Juil.	Aout	Sept	Oct.	Nov	Dec.	Total	Extrapolation
<i>Scomberomorus commerson</i>	Thazar	King fish	Derake			1358	4136	5800	3444	2453	1481	3261	1378	2194	1127	26634	
<i>Lutjanus sanguineus</i>	Doraderouge	Red snapper	Humbouk			363	900	2178	1879	1412	2294	1359	1058			11443	
<i>Lutjanus bahar</i>	Rouget	Snapper	Bahar			1301	2614	1465	585	541			1879	1459	2825	13069	
<i>Sphyræna q. nigrinus</i>	Baracuda	Baracuda	Akam/Khood			1532	4575	1948	301	1517			598	1895		12366	
<i>Thunnus abesus albocores/alaluga</i>	Thon	Tunas	Zenoub			40					426	624	1624	2038	2862	7614	
<i>Caranx selfaciatu/elecate</i>	Carangue	Jacks	Houdare			201					3971	4266	406	100		8944	
Carangidae	Carangue	Jacks	Bayade			631	1224	841	1495	3160	3843	1398	2495	721	1687	17495	
<i>Letrinus sp.</i>	Dorade	Dorade	Gahache			961	815	25		70			329	2140	1990	6330	
Mulgidae	Mulet	Mullet	Arabis			1646	1003	1750	1218	1324	1535	1916	2806	3055	1721	17974	
<i>Epinephelus</i>	Merou	Groupers	Cachar			650	475	134	200	345		500	192	300		2796	
<i>Rastrelliger kanaqurta</i>	Maqueraux	Mackerals	Bara														
<i>Carcharhinus melanopterus</i>	Requin	Sharks	Loram			100							569	1145	1314	3128	
<i>Dasyatis varnak</i>	Raie	Ray	Rabis										65	37	46	148	
<i>Pristipomides sp.</i>	Dorade	Snapper	Huntag									1886	797			2683	
<i>Lutjanus argentimaculatus</i>	Dorade rouge	Red snapper	Sifane			815	585	398	825	1261	458		1401	550	500	6793	
<i>Elagatis bipinulata</i>	Gazelle	Rainbow runner	Tumere														
<i>Sardinella</i>	Sardine	Sardine	Sardine										85			85	
<i>Euthynnus affinis</i>	Thon	Tuna	Chiroi														
Divers N.I.						10523	1664	2418	2458	1229	2149	1315	732	900	1258	24686	
<i>Panulirus versicolor</i>	Langoust	Lobster					208	293	416	389	177	228	270	150	20	2151	
	Calamar	Squid	Aboumedade				46	65	66	21	32	45	26	5		306	
	Crabe	Crab									102		50	43	35	230	
	Crevettes	Shrimp											66	20		86	
Total						20121	18245	17315	12927	13722	16478	16798	16826	17152	15385	164,969	251,090

N.I = non identifie

5/1

BILAN DE L'ACTIVITE DE PECHE 1979

1979 - PAGE 2

DONT

Nom Francais	Jan.	Fev	Mars	Avril	Mai	Juin	Juil.	Aout	Sept	Oct.	Nov	Dec.	Total	Extrapolation
Poisson			20121	17991	16957	12445	13312	16167	16525	16414	16934	15330	162,196	
Langouste				208	293	416	389	177	228	270	150	20	2,151	
Calamar				46	65	66	21	32	45	26	5		306	
Crabe								102		50	43	35	230	
Crevettes										66	20		86	
Total			20121	18245	17315	12927	13722	16478	16798	16826	17152	15385	164,969	251,090

	Nom Francais	Jan	Fev	Mars	Avril	Mai	Juin	Juil	Aout	Sept	Oct.	Nov	Dec.	Total	Extrapolation
	Pêcheurs	Poisson			30	46	54	43	48	41	40	48	46	56	45
Langouste					20	12	20	49	19	30	25	24	6	20	25
Calamar					1	1	1	1	1	1	1	1		1	2
Crabe									6		1	4	1	1	16
Crevettes											1	1		1	8
Embarcations		Boutres			2	7	7	6	9	5	3	4	3	4	4
	Houri			11	11	11	10	12	13	9	16	14	17	14	16
	Divers							2		1	1	2	2	2	3

‡ Extrapolation

Capture Est.: - Les Ventes Marche Central
- Consommation par les Pêcheurs

Moyenne Ex. = 108 Pêcheurs

= 24 Embarcations

Poisson = 30‡
Crabe = 98‡
Crevette = 15 Kg/Jour Marche Central

‡ Extrapolation
Pêcheurs et Embarcation est. 30‡

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BILAN DE L'ACTIVITE DE PECHE 1980

1980 - PAGE 1

Nom Scientifique	Nom Francais	Nom Anglais	Nom Local	Jan.	Fev.	Mars	Avril	Mai	Juin	Juil.	Aout	Sept.	Oct.	Nov.	Deç.	Total	Extrapolation
<i>Scomberomorus commerson</i>	Thazar	King fish	Derake	1559	3658	2614	3448	10481	6348	1415	1594	300	974	1927	1202	35520	
<i>Lutjanus sanguineus</i>	Doraderouge	Red snapper	Humbouk	400	328	230	499	--	--	600	450	355	--	243	--	3705	
<i>Lutjanus bahar</i>	Rouget	Snapper	Bahar	2526	1709	3023	4437	3190	2080	2127	1635	2837	4315	276	--	28155	
<i>Sphyræna q. nigrinns</i>	Baracuda	Baracuda	Akam/Khocod	1707	751	1706	5385	642	--	--	--	--	2781	1776	1446	16194	
<i>Thunnus abesus albacores/alaluga</i>	Than	Tunas	Zenoub	1353	609	308	359	--	--	650	500	2598	2374	1046	1389	11686	
<i>Caranx selfaciatus/elecate</i>	Carangue	Jacks	Foudare	--	--	2725	748	4358	3139	2237	3536	916	--	--	--	18053	
Carangidae	Carangue	Jacks	Barade	1138	1523	1023	372	--	--	250	274	2950	1644	3369	768	13311	
<i>Letrinus sp.</i>	Dorade	Dorade	Gachache	2120	1690	1971	2208	--	--	1046	1174	2480	2121	1685	510	17005	
Mulgidae	Mulet	Mullet	Arabis	860	2471	1075	704	807	200	1000	1267	1400	2339	1304	700	14127	
<i>Epinephelus</i>	Merou	Groupers	Cochar	109	--	297	--	--	--	--	--	--	--	--	--	406	
<i>Rastrelliger kanagurta</i>	Maqueraux	Mackerals	Bara	--	--	--	145	736	592	--	--	--	--	--	--	1473	
<i>Carcharhinus melanopterus</i>	Requin	Sharks	Loram	602	160	346	--	--	--	--	--	--	--	1118	1665	3891	
<i>Dasyatis varnak</i>	Raie	Ray	Rabis	138	9	--	158	--	--	--	--	--	--	--	--	305	
<i>Pristipomides sp.</i>	Dorade	Snapper	Huntag	--	--	--	--	--	--	2604	2247	--	--	--	--	4851	
<i>Lutjanus argentimaculatus</i>	Dorade rouge	Red snapper	Sifane	806	663	2341	1763	1380	1650	1612	1185	512	900	1969	1261	16042	
<i>Elagatis bipinulata</i>	Gazelle	Rainbow runner	Tumere	--	--	--	--	--	--	550	300	--	--	--	100	950	
<i>Sardinella</i>	Sardine	Sardine	Sardine														
<i>Euthynnus affinis</i>	Than	Tuna	Chirai	--	716	774	953	--	--	--	--	356	--	--	--	2799	
Divers N.I.				972	399	713	1357	950	1691	2018	3091	300	--	2554	3030	17075	
<i>Panulirus versicolor</i>	Langoust	Lobster		--	123	209	517	713	57	400	688	--	--	82	--	3139	
	Calamar	Squid	Aboumedade	--	10	--	149	--	--	--	--	--	--	--	--	159	
	Crabe	Crab		--	20	154	--	--	--	--	--	--	--	--	--	174	
	Crevettes	Shrimp		--	--	--	--	--	--	--	--	--	--	--	--		
Total				14790	14839	19509	23202	23257	16157	16509	18341	15604	17448	17349	12071	209,076	312,568

N.I. = non identifie

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BILAN DE L'ACTIVITE DE PECHE 1980

1980 - PAGE 2

DONT

Nom Francais	Jan.	Fev	Mars	Avril	Mai	Juin	Juil	Aout	Sept	Oct.	Nov.	Dec.	Total	Extrapolation
Poisson	14790	14686	19146	22536	22544	15700	16109	17653	15604	17448	17267	12071	205,554	
Langouste		123	209	517	713	457	400	688			82		3,189	
Calamar		10		149									159	
Crabe		20		154									174	
Crevettes														
Total	14790	14839	19509	23202	23257	16157	16509	18341	15604	17448	17349	12071	209,076	312,568

Pêcheurs	Nom Francais	Jan	Fev	Mars	Avril	Mai	Juin	Juil	Aout	Sept	Oct.	Nov.	Dec.	Total	Extrapolation
	Poisson	51	32	52	47	43	43	48	44	42	35	38	36	43	61
	Langouste		20	15	25	25	25	25	30			15		23	33
	Calamar		1		1									1	2
	Crabe	2	2	16										7	16
	Crevettes													6	6
Embarcations	Boutres	3	3	5	5	3	3	4	4	3	2	2	1	4	4
	Houri	15	11	15	12	13	12	15	15	12	12	13	12	13	23
	Divers	2	3	1	1	2	3	1				1	1	1	2

⌘ Extrapolation

Capture Est.: - Les Ventes Marche Central
- Consommation par les Pêcheurs

Moyenne Ex. = 118 Pêcheurs

= 13 Embarcations

Poisson = 30%

Crabe = 98%

Crevette = 15 Kg/Jour Marche Central

⌘ Extrapolation

Pêcheurs et Embarcation est. 30%

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BILAN DE L'ACTIVITE DE PECHE
ACPM 1982

1982 - PAGE 1

Nom Scientifique	Nom Francais	Nom Anglais	Nom Local	Jan.	Fev	Mars	Avril	Mai	Juin	Juil.	Aout	Sept	Oct	Nov	Dec	Total	Extrapolation
<i>Scamberomus commerson</i>	Thazar	King fish	Deracke	3129	2035	473	1691	8563	7763	3012	95	73	785	1402	2360	31381	
<i>Lutjanus sanguineus</i>	Doraderouge	Red snapper	Humbouk	1656	3421	6685	4539	3128	2190	4061	2172	4321	11090	14423	2098	59784	
<i>Lutjanus bohar</i>	Rouget	Snapper	Bohar	254	2811	1356	433									4854	
<i>Sphyrna tiburo</i>	Baracuda	Baracuda	Akam/Khood	542	835	2567	3760	1098		28		27		585	495	9937	
<i>Thunnus obesus albacores/alaluga</i>	Thon	Tunas	Zenoub	1623	799	13	142			302	12	1531	7199	6166	1073	18860	
<i>Caranx selfacatus/elecate</i>	Carangue	Jacks	Houdare				1752	1205	5103	510	1160	4766	421			32917	
Carangidae	Carangue	Jacks	Bayade	3120	2310	2204	1244	2281	207	656	834	1015	1171	2618	4107	21768	
<i>Lutjanus sp.</i>	Dorade	Dorade	Gonache	6445	8006	9374	2725	3852	202	1215	668	1276	1653	2240	2943	40599	
Mulgidae	Mulet	Mullet	Arabis	4180	3220	2312	1354	932	314	1606	2111	2248	2758	3498	2664	27197	
<i>Epinephelus</i>	Merou	Groupers	Cachar	897	945	414	243	26								2525	
<i>Rastrelliger kanagurta</i>	Maqueraux	Mackerals	Bara	36		105	358	528	317				130			1474	
<i>Carcharhinus melanopterus</i>	Requin	Sharks	Laram	3581	1618	1159	18									6376	
<i>Dasyatis varnak</i>	Raie	Ray	Rabis	199	74	65	5									343	
<i>Pristipomides sp.</i>	Dorade	Snapper	Huntag														
<i>Lutjanus argentimaculatus</i>	Dorade rouge	Red snapper	Sifane														
<i>Elagatis bipinulata</i>	Gazelle	Rainbow runner	Tumere			198	130	47								375	
<i>Sardinella</i>	Sardine	Sardine	Sardine	553	686	694										1933	
<i>Euthynnus affinis</i>	Thon	Tuna	Chirai														
Divers N I				1239	2771	1993	5701	7107	1647	466	1433	3136	1887	3461	3570	34411	
<i>Panulirus versicolor</i>	Langouste	Labster		11	35	39	663	674	240	274	1085	338	22		223	3383 ²³	
	Calamar	Squid	Aboumedade	29	5	51	277	223	143	20	5	6	5	7	3	775	
	Crabe	Crab															
	Crevettes	Shrimp															
Total				27240	27014	31157	25959	30097	18127	17150	22575	18737	27124	34401	19317	298,907	

N I = non identifie

BILAN DE L'ACTIVITE DE PECHE
ACPM 1982

1982 - PAGE 2

DONT

Nom Francais	Jan	Fev	Mars	Avril	Mai	Juin	Juil.	Aout	Sept.	Oct	Nov	Dec.	Total	Extrapolation
Poisson	27200	26974	31067	25018	29200	17744	16856	21485	18393	27096	34394	19311	294,738	
Langouste	11	35	39	663	674	240	275	1085	338	22		2	3,384	
Calamar	29	6	60	277	223	143	20	5	6	5	7	4	785	
Crabe														
Crevettes														
Total	27240	27015	31166	25958	30097	18127	17151	22575	18737	27123	34401	19317	298,907	

Pêcheurs	Nom Francais	Jcn	Fev	Mars	Avril	Mai	Juin	Juil.	Aout	Sept	Oct.	Nov.	Dec.	Total	Extrapolation
	Poisson	153	143	162	112	98	95	105	108	130	142	148	108	125	
	Langouste	8	4	2	20	30	23	22	38	24	2	2	1	15	
	Calamar	1	2	5	5	3	5	4	3	4	6	2	2	3	
	Crabe														
	Crevettes														
Embarcations	Boutres	5	6	7	4	5	5	6	5	5	6	5	4	5	
	Houri	67	62	69	47	38	36	32	38	39	53	54	54	49	
	Divers	5	4	6	5	5	13	13	20	14	2		2	9	

Total = 143 Pêcheurs

= 63 Embarcations

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BILAN DE L'ACTIVITE DE PECHE 1981

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Nom Scientifique	Nom Francais	Nom Anglais	Nom Local	Jan.	Fev	Mars	Avril	Mai	Juin	Juil.	Aout	Sept	Oct	Nov	Dec.	Total	Extrapolation
<i>Scomberomorus commerson</i>	Thazar	King fish	Derake	1257	1284	1312 ²	1163	4404	6548	1177	767	1985 ²	2393	1337	1158	25086	
<i>Lutjanus sanguineus</i>	Doraderouge	Red snapper	Humbouk	229	343	458	1483	4295	2300	1497	210	368	5503	9326	4652	31164	
<i>Lutjanus bohar</i>	Rouget	Snapper	Bohar	1136	1704	2272	7862	1340	763	936	1197	248	--	--	--	17458	
<i>Sphyræna nigrinus</i>	Baracuda	Baracuda	Akam/Khood	2080	2400	2720 ²	6810	891	120	142	122	54	169	541	639	16688 ²	
<i>Thunnus obesus albacores/ataluga</i>	Thon	Tunas	Zenoub	903	660	418	36	157	38	234	896	3252	1961	1154 ²	389	10158 ²	
<i>Caranx selfaciatu/elecate</i>	Carangue	Jacks	Houdare	95	142	190	162	1748	7201	6001	12594	7967	140	140	30	41310	
Carangidae	Carangue	Jacks	Bayade	1966	2565	3164	3537	1786	100	301	351	1964	3309	4793	4030	27866	
<i>Le'trinus sp.</i>	Dorade	Dorade	Ganache	1307	1706	2105	1380	676	262	14	122	771 ²	6719	5824	5078	25364 ²	
Mulgidae	Mulet	Mullet	Arabis	830	1790	960	874	1910	78	412	1620	1697	3667	4581	4629	23048	
<i>Epinephelus</i>	Merou	Groupers	Cochar	80	120	161	155	--	139	34	21	130	374	257	1021	2492	
<i>Rastrelliger kanagurta</i>	Maqueroaux	Mackerals	Bora	--	--	468	904	998	1709	641	--	--	--	--	--	4720	
<i>Carcharhinus melanopterus</i>	Requin	Sharks	Loram	1800	1868	1936	748	189	5	185	117	415	340	102	1545	9250	
<i>Oxychis varnak</i>	Raie	Ray	Rabis	6	9	12	136	24	--	32	9	30	8	212 ²	109	587 ²	
<i>Pristipomides sp.</i>	Dorade	Snapper	Huntag	--	--	--	--	--	--	--	120	--	1327	127	--	1474	
<i>Lutjanus argentimaculatus</i>	Dorade rouge	Red snapper	Sifane	676	384	92	343	380	--	800	--	--	--	--	--	2675	
<i>Elagatis bipinulata</i>	Gazelle	Rainbow runner	Tumere	50	--	--	--	--	--	--	--	448	15	--	--	513	
<i>Sardinella</i>	Saraine	Sardine	Sardine	106	159	212	--	--	--	102	--	--	1380	853	26	2838	
<i>Euthynnus affinis</i>	Thon	Tuna	Chirai														
Divers N.I				3768	3839	3545	4613	3498	3961	5763	1580	5192	3637	4544	3320	47260	
<i>Parulirus versicolor</i>	Langouste	Lobster		125	188	--	--	581 ²	914 ²	420 ²	529 ²	1050 ²	35 ²	35	55 ²	3955 ²	
	Calamar	Squid	Aboumedade	5	7	--	--	191 ²	84 ²	--	--	--	11	5	69 ²	372 ²	
	Crabe	Crab		--	--	--	--	--	--	--	14	--	--	--	--	14	
	Crevettes	Shrimp															
Total				16419	19168	20026	30206	28469	24223	19065	20255	26072	30908	33831	75751	295.394	385.282

N I = non identifie

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BILAN DE L'ACTIVITE DE PECHE 1981

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DONT

Nom Francais	Jan.	Fev	Mars	Avril	Mai	Juin	Juil.	Aout	Sept.	Oct	Nov.	Dec.	Total	Extrapolation
Poisson	16289	18973	20026	30026	27695 ⁷	23223 ¹³	18630 ¹⁵	19725 ²³	25031 ³	30841 ⁸	33792	26625 ³	291,050	
Langouste	125	188	--	--	581 ²	914 ²	420 ⁴	529 ²	1050 ³	55 ²	35	55 ⁶	3,955 ⁴⁷	
Calamar	5	7	--	--	191 ³	84 ²	--	--	--	11	4	69 ³	372 ²³	
Crabe	--	--	--	--	--	14	--	--	--	--	--	--	14	
Crevettes														
Total	16419	19168	10016	30206	28469	24223	19065	20255	26072	30908	33831	26751	295,394	385,282

	Nom Francais	Jan	Fev	Mars	Avril	Mai	Juin	Juil	Aout	Sept	Oct	Nov	Dec.	Total	Extrapolation	
	Pêcheurs	Poisson	38	50	63	73	90	70	87	67	105	95	122	130	82	102
Langouste		13	25	36	109	65	60	66	64	50	13	7	9	43	45	
Calamar		1	1	1	1	2	2				1	1	1	1	2	
Crabe								1							1	16
Crevettes																6
Embarcations		Boutres	3	4	5	12	10	11	9	6	7	4	2	2	6	6
	Hour	16	23	29	26	45	36	41	31	52	49	75	81	42	52	
	Divers	2	2	2	2	2	2	2	2	2	2	2	2	2	2	

⌘ Extrapolation

Capture Est.: - Les Ventes Marche Central
- Consommation par les Pêcheurs

Moyenne Ex. = 171 Pêcheurs

= 60 Embarcations

Poisson = 20%

Crabe = 98%

Crevette = 15 Kg/Jour Marche Central

⌘ Extrapolation

Pêcheurs et Embarcation = 20%

1981

BILAN DE L'ACTIVITE DE PECHE
ACPM 1983

1983 - PAGE 1

Nom Scientifique	Nom Francais	Nom Anglais	Nom Local	Jan.	Fev	Mars	Avril	Mai	Juin	Juil	Aout	Sept	Oct	Nov	Dec	Total	Extrapolation
<i>Scamberomus commerson</i>	Thozar	King fish	Derake	990 ³	1078	1503	1792 ^{2,3}	4693	5104 ¹	889 ⁵		243	207 ²	2083	4265	22849 ^{2,3}	
<i>Lutjanus sanguineus</i>	Doraderouge	Red snapper	Humbouk	5611	5057	1297	6684	3067	2902	1261	2832	2355	4359	1801	373	37599	
<i>Lutjanus bohar</i>	Pouget	Snapper	Bohar		87	274	138	409	70		1087	6545	3002	1884	214	13710	
<i>Sphyrna a. nigrinus</i>	Baracuda	Baracuda	Akam/Khood	153	626	492	9268 ³	2836	23			8	249	505	455	14615 ³	
<i>Thunnus obesus</i> <i>albacores/alaluga</i>	Thon	Tunas	Zenoud	34	178	364 ¹	92 ⁵	323	228 ³	1071	327	4297	8172	5512	8613	29212 ¹	
<i>Caranx</i> <i>semafodatus/elecate</i>	Carangue	Jacks	Moudare	65	112	119	1084	1417 ¹	4705 ²	11039 ¹	3416	1041	171	645	140	23955 ³	
Carangidae	Carangue	Jacks	Bayade	3373	2345	1370	997	881 ¹	142	531 ¹	366	1518 ¹	4105 ²	3533	4279	23942 ³	
<i>Leiurus sp.</i>	Dorade	Dorade	Gonache	6474	3085	2437	2487	588 ³	17	35		265	2175	2533	1978	22074 ³	
Mulgidae	Mulet	Mullet	Arabis	3656 ⁵	4251	2210	1135	201	117	927	654	859	1828	1925	2578 ²	20342 ³	
<i>Epinephelus</i>	Merou	Groupers	Cochar											723 ³	1606	2329 ³	
<i>Rastrelliger</i> <i>kanagurta</i>	Maquereux	Mackerels	Bera														
<i>Carcharhinus</i> <i>melanopterus</i>	Requin	Sharks	Loram														
<i>Dasyatis</i> varnak	Rale	Ray	Rabis														
<i>Pristigomides sp.</i>	Dorade	Snapper	Huntag								12483	1720				14103	
<i>Lutjanus</i> <i>argenteus/maculatus</i>	Dorade rouge	Red snapper	Sifane														
<i>Etalagatis</i> bipinulata	Gazelle	Rainbow runner	Tumere														
<i>Sardinella</i>	Sardine	Sardine	Sardine														
<i>Euthynnus</i> affinis	Thon	Tuna	Chirai														
Divers N I				7068	3821	3004	7445 ²	9394 ³	1725	1773 ²	4321	5527	4980	2639	2740	54438 ²	
<i>Panulirus</i> versicolor	Langouste	Labster					474 ^{1,2}	491 ^{2,3}	565 ³	340 ³	556 ³	589 ^{2,3}	77 ^{1,2}			3094 ³	
	Calamar	Squid	Aboumedade	9 ²	5 ³	8 ¹	64 ¹	130 ³	123 ³	14 ³	157	4 ^{2,3}	10 ^{1,2}	17 ¹	0 ³	546	
	Crabe	Crab															
	Crevettes	Shrimp															
Total				27434 ²	20645 ³	13079 ³	31662 ³	24437 ³	15723 ³	17882 ³	26639 ³	24872 ³	29336 ³	23800 ³	27242 ³	282,812 ³	

N I = non identifie

BILAN DE L'ACTIVITE DE PECHE
ACPM 1983

1983 - PAGE 2

DONT

Nom Francais	Jan.	Fev.	Mars	Avril	Mai	Juin	Juil.	Aout	Sept.	Oct.	Nov.	Dec.	Total	Extrapolation
Poisson	27425	20640	13070 ²	31123 ²	23711	15034 ²	17528	26143	24279	29249 ¹	23783 ²	27241 ⁰	279,228 ⁵	
Langouste				474 ²	491 ²	565 ¹	340 ²	556 ²	589 ²	77 ²	17 ¹		3,111 ²	
Colamar	9 ²	5 ²	8 ²	64 ²	130 ²	123 ²	14 ²		4 ²	10 ¹		0 ²	371 ²	
Crabe														
Crevettes														
Total	27434 ²	20645 ²	13079 ²	31662 ²	24432 ²	15723 ²	17882 ²	26699 ²	24872 ²	29336 ²	23800 ²	27242 ²	282,812 ²	

Pêcheurs	Nom Francais	Jan	Fev	Mars	Avril	Mai	Juin	Juil.	Aout	Sept.	Oct.	Nov.	Dec.	Total	Extrapolation
	Poisson	133	99	89	115	82	70	65	74	104	124	130	133	101	
	Langouste				24	24	30	38	44	36				32	
	Colamar	2	2	2	6	6	5	6		2	4	4	2	4	
	Crabe														
	Crevettes														
Embarcations	Boutres	4	6	6	6	5	2	2	3	3	3	3	2	4	
	Houris	57	39	34	43	28	30	28	30	45	45	58	62	42	
	Divers	1	1	1	3	25	18	22	22	19	14	2	1	14	

Total = 137 Pêcheurs

= 60 Embarcations

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DEVELOPMENT OF FISHING AND FISHERIES

IN DJIBOUTI - PHASE I

VOLUME IV
APPENDICES E - Y

Final Report on
Resources Development Associates
Technical Assistance Contract
AID/AFR-C-1630
April, 1985

Prepared by:

Paul A. DeRito
Robert W. Campbell
Keith W. Cox
Dee W. McFadden
Theodore McNeil

RESOURCES DEVELOPMENT ASSOCIATES, INC.
801 MOREY DRIVE
PLACERVILLE, CA 95667

APPENDICES

APPENDIX A	USAID MID-PROJECT REPORT
APPENDIX B	FISCAL MANAGEMENT SYSTEM
APPENDIX C	FAO SOCIO-ECONOMIC STUDY
APPENDIX D	YEARLY FISHERY ACTIVITY STATEMENTS
APPENDIX E	AN ANALYSIS OF FISHERIES EFFORT AND ENVIRONMENTAL ASSESSMENT
APPENDIX F	FISH INVENTORY REPORT
APPENDIX G	RENOVATION PROPOSAL
APPENDIX H	RETAIL OUTLET REGULATIONS
APPENDIX I	RETAIL OUTLET CONTRACT
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APPENDIX Q	VESSEL RFP
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APPENDIX S	RDA - USAID MEMO ON VESSEL SPECIFICATIONS
APPENDIX T	RDA VESSEL SUBCONTRACT
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APPENDIX Y	FINAL VESSEL INSPECTION REPORT

APPENDIX E

**AN ANALYSIS OF FISHERIES
EFFORT AND ENVIRONMENTAL
ASSESSMENT**

ANALYSIS OF FISHERIES EFFORT AND ENVIRONMENT ASSESSMENT

Project: Djibouti Fisheries Development (603-000)
Prepared by: Dr. John J. Gaudet
(Regional Environment Officer, REDSO/EA)

Scoping Statement:

Scoping Statement (submitted 8 July, 1981 see reftel Djibouti 1516) as follows:

"The EA will consider those topics mentioned in paragraph 2 and 3 in State 132088 that is:

A. Increased Fishing Effort

- 1) Update of current and projected sustainable yield
- 2) Current and projected catch including discussion of yield versus catch
- 3) Impacts on:
 - (a) marine mammals
 - (b) endangered or threatened species
 - (c) non-target fish species
- 4) Wording of covenant for inclusion in project agreement

B. Oyster Culture Sub-Project

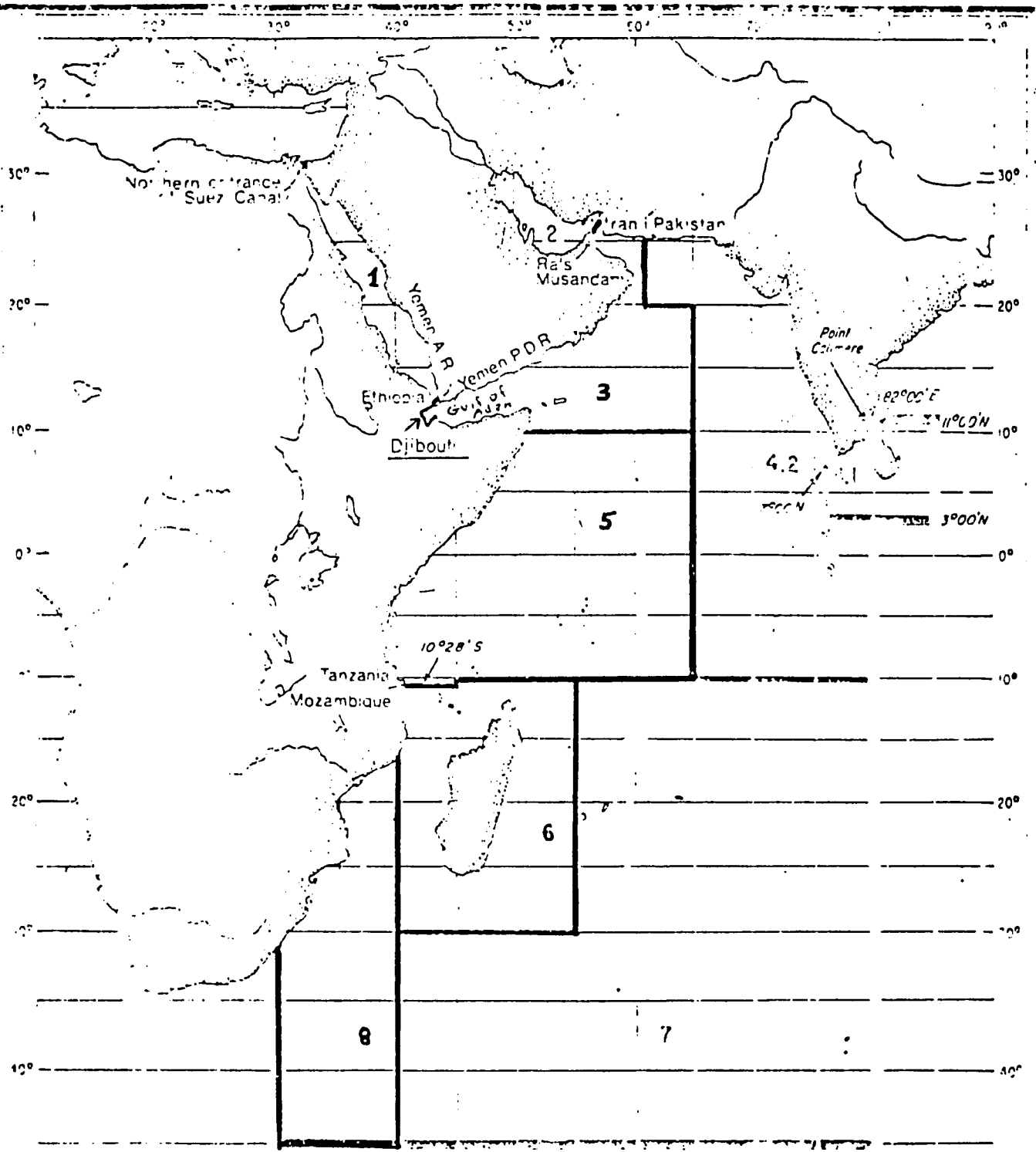
- 1) Assess potential negative impacts of culture techniques
- 2) Impact of future extension to large areas
- 3) Under what conditions should such project be abandoned?"

I. INTRODUCTION

A. Local Climate and Marine Fish Production

The Republic of Djibouti is a small country with a volcanic terrain. It has a semi-arid climate with two main seasons (1). From the late summer to the end of March the cold season (22.5 - 28.7°C) is dominated by the northern sea winds which bring scant rainfall (130 mm over 26 days during March and also in November). The hot season between May and October is dominated by the southern monsoon which brings hot daily temperatures (30.5 - 40.4°C). These two seasons have a large effect on local fish production because of their effect on marine conditions (2). The hot summer season induces a current off the coast of Somalia which in turn results in a summer upwelling with nutrient-rich water coming to the surface from the depths (100-200 m). This creates ideal conditions for significant offshore production. Off the Djibouti Coast in the Gulf of Aden (Fig. 1) the water warms up and a thermocline develops at 20-30m (Table 1). Because of the presence of this warm, nutrient-rich water a good fishery develops for pelagic fish (e.g. sardines) which become especially abundant along the coast (see Fig. 2 for distinction of types of catches). Later, the cooler weather causes the thermocline to sink (Table 1) and with this the pelagic and demersal species disperse. The surface water is now cooler and there is a passage of warm, highly saline profound^{al} water from the Red Sea into the Gulf of Aden.

This saline layer at a depth of 300-1000 meters is low in oxygen (1 ml/l) and is probably responsible for the dispersal of fish at this time.



FAO Fishing Areas Indian Ocean

Figure 1

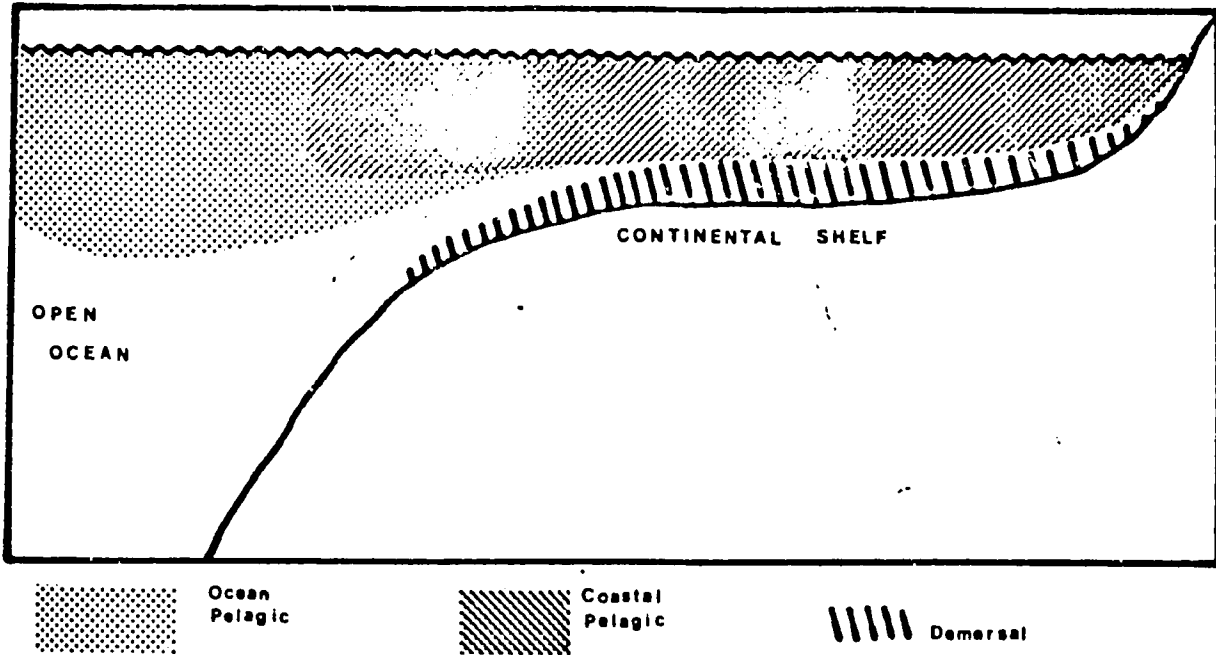


Fig.2. Basic distribution of catches on or above the continental shelf. Oceanic pelagic fish would include: tuna, krill; coastal pelagic sardines, mackerel; and demersal jacks, groupers, etc.

Table 1.

Seasonal changes in thermocline and fishery in Gulf of Aden (adapted from 2 and 7).

<u>Months</u>	<u>Monsoon</u>	<u>Thermocline</u>	<u>Gradient</u>	<u>Fishery Conditions</u>
May-Oct (Summer)	South	20-30 m	0.40°C/m	Pelagic spp. concentrate along coast, hand lines used.
Oct-Apr (Winter)	North	100-200 m	0.15°C/m	Pelagic spp. diffuse, benthic spp. disperse, hand lines less useful must use bottom net

General Conditions:

	Surface	Deep Water
Temp (°C)	24-29	14-18
Salinity (‰)	35.8-36.8	35.2-35.8
Diss.O ₂ (ml/l)	4-5	0.4-1.0
Phosphate (ug/l)	low	50-80

B. Present State of the Indian Ocean Fisheries

The Indian Ocean vicinity supports one quarter of the world's population, but provides only 5% of the world's catch. The countries in the Gulf of Aden (Yemen Democratic Republic, the northwest coast of Somalia and Djibouti) had a combined 1979 catch of 62,000 metric tons (mt). A large portion of this is due to an offshore tuna fishery, which is a major industrial fishery in the Indian Ocean carried out by fleets from eastern Asia. There is much information on this topic available from FAO (3,4) but many of the figures do not apply to the developing countries because the figures are based on offshore longline fishery data. For example, the FAO estimated 1978 catches for yellow fin tuna (Thunnus albacares, the most popular tuna caught in the Indian Ocean) at 52,000 mt. Of this only 20% was taken by surface catch, the remainder was by longline. The maximum sustainable yield (MSY) for this species is estimated at a little less than 40,000 mt, a figure already being approached by the longline industry. However, the total surface catch could still be increased especially if the effort is directed toward medium-sized yellow-fin.

Stocks of smaller tuna species such as skipjack have not been significantly exploited in this region. In addition there is a large potential for catches of small pelagic species (especially sardines). The FAO recommended an increase in fishing effort for coastal Africa using: longlining, trolling and driftnetting for tuna; and small scale pair trawling, or small and medium scale purse seining for small, coastal pelagic fish.

Although the broad surveys conducted by FAO do not provide the precise information needed in limited areas, the FAO is now pursuing intensive sub-regional surveys. This will eventually benefit most of the

member states of the Indian Ocean in Region 3 in which Djibouti is located (Fig. 1).

II. FISHING EFFORT IN DJIBOUTI

A. Present Catch Effort

The fishing effort in Djibouti is centered around in-shore artisanal fishermen. In 1980 this consisted of 33 "houris" (small 7 meter boats) and 4 "boutres" (large craft) on lease from Somalia. The total effort of 70 fulltime fishermen resulted in a catch of 311 mt (Table 2).

Table 2. Total catch for Djibouti based on adjusted landings*

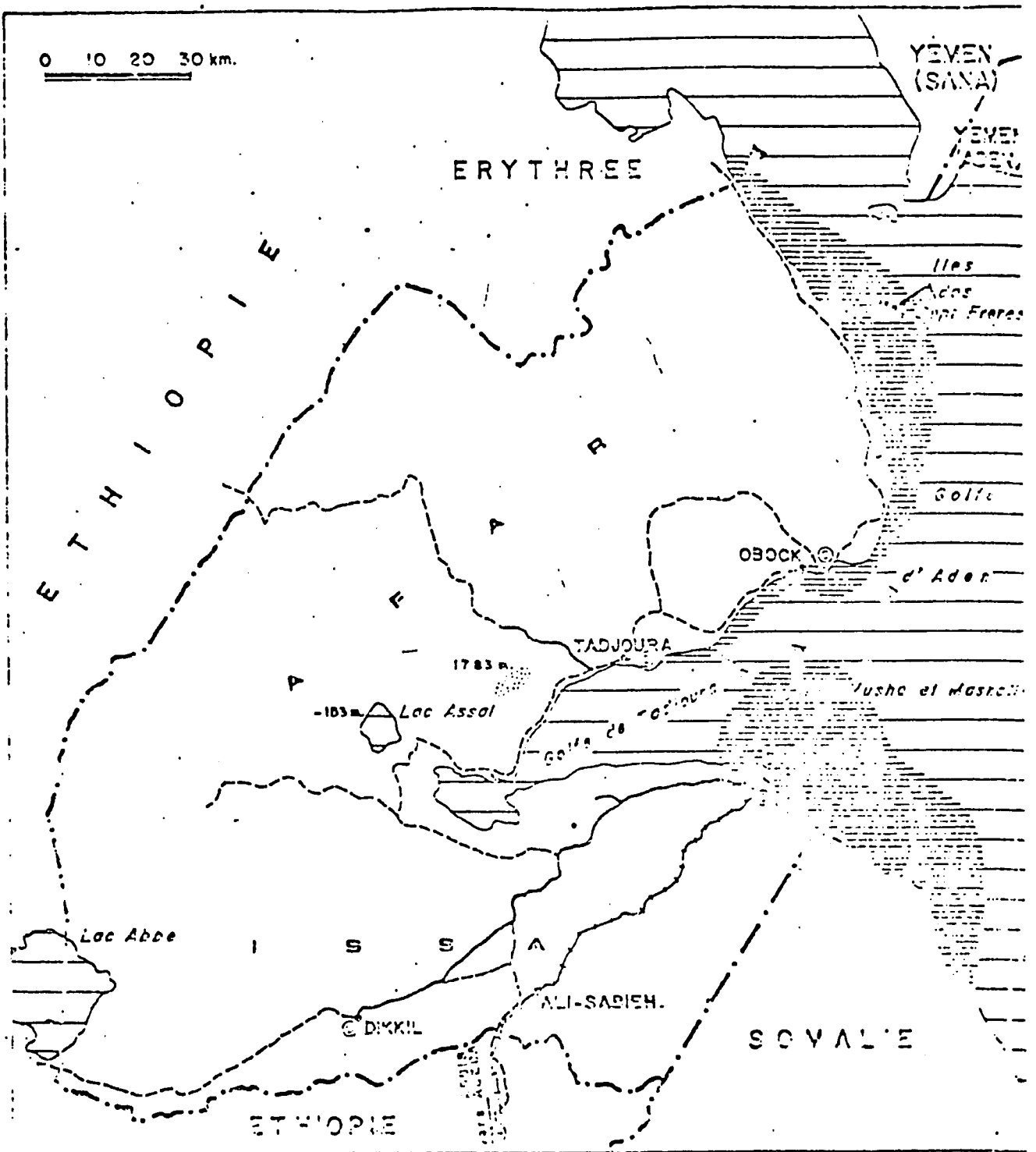
	1979 (mt)	1980 (mt)
Snappers	62.3	103.7
Tuna - Mackerel	49.0	73.6
Jacks	52.8	57.7
Barracuda	17.7	23.1
Other Bony Fish	30.8	28.9
Shark	4.6	6.0
Crab	11.5	8.7
Lobster	3.1	4.6
Shrimp	4.3	(est) 4.0
Squid	0.5	0.3
Misc.	14.4	0.7
Total	251.0	311.3

* Figures from monthly records kept by the Association Cooperative de Pêche Maritime

Most of the fish are taken within the regions marked on the map (Fig. 3) and the principal species are listed in Table 1 Appendix A . Other, less common species are listed in the surface pelagic and bottom (demersal) trawl catches in reported Tables 2 and 3 of Appendix A (from the Cruise Report of the Research Vessel "Dr. F. Nansen", March, 1981). The general distribution of these fish groups and local fishing techniques can be found in Appendix B which is from the 1978 Cox Report (9).

B. Fishing Effort Expansion

Development of Djibouti's artisanal fishing industry will occur through USAID assistance to small fishermen. The intention is to improve the nutritional status of Djiboutians and provide a better life for the 300 people connected with the fishing industry. The USAID project will provide a boat building and repair facility, and will compliment the IFAD program (International Fund for Agriculture Development). Thus the estimates of the total catch per boat and the combined expected increase under both USAID and IFAD will be dealt with together in this assessment. The most recent calculation is shown in Table 3.



- FRONTIERE INTERNATIONALE
- ROUTE
- - - PISTE
- +—+— CHEMIN DE FER
- ⊙ AERODROME

- ▨ FORET
- ▲ CULTURES
- A F A R GROUPE ETHNIQUE
- ▨ ZONES DE PECHES

Fig. 3

Table 3. Present and projected catches per boat and overall catch effort calculated by FAO. This represents a conservative (maximum) effort.

Type of Boat	Number of fishermen	Catch per boat (mt)	Total catch (mt)
<u>PRESENT EFFORT (1981)</u>			
Houris	33	12	396
Boutries	4	45	180
Total			576
<u>PROJECTED EFFORT (after project expansion)</u>			
Houris (33+10)	43	17	731
Boutries(4+2)	6	45	270
Total			1001

This indicates a doubling of total catch expected over the next few years as a result of project expansion.

C. Maximum Sustainable Yield (MSY)

As yet there is not enough information available in Djibouti to accurately calculate MSY. However a rough estimate can be made based on the fishing area, the present effort and the MSY predicted by FAO for the whole geographic region.

1. Total Area - The Djibouti coastline of 300 km is fished in essentially three local areas shown in Fig. 3 as:

Area A - from the southern frontier to Khor Ambado, with a shelf depth of 20-35 m and area of 820km².

Area B - the main gulf (Gulf of Tadjoura) with a southern sector of 400m² and a larger northern sector (up to Obock) of 60km².

Area C - north of Ras Bir with a shelf of 30-50m dropping quickly to 200 m and comprising 100 km².

The total available area for fishing effort would be 2,280 km².

2. Total catch - If the catch based on landings (Table 2) is further corrected for the total catch throughout the country, then the overall conservative estimate (Table 4) would seem to be a reasonable figure. This places the catch at 576 mt per year and gives a total catch rate of 0.25 t/km² (0.17 for demersal; 0.08 for pelagic).

3. Local Estimated Yields (MSY) - The most accurate MSY based on the local FAO report, which is in turn based on local catches (7), estimated demersal stock MSY at 5000 mt.

4. Yields Estimated for the General Region - In the Indian Ocean the FAO estimated the demersal fish annual yield North of 5° latitude to be 2 mt/km² (5). In the less productive southern parts of the Indian Ocean it would be 0.5 mt/km² which can be taken as a maximum. If we take 2mt/km² as a rough average of MSY, then the Djibouti demersal annual catch could be increased by 8 times (from 0.17 mt/km² to 2.0 mt/km²) or up to 4752 mt.

The pelagic resources in the Indian Ocean are more difficult to estimate, but the FAO suggested a potential increase would be possible of 1 to 4 mt/km² off East Africa (5). If we take 2 mt/km² as a rough average MSY, then the Djibouti pelagic annual catch could be increased by 25 times from (0.08 mt/km²) or up to 4500 mt.

These rough calculations also agree with the recent FAO local report (7) which estimated potential demersal catches at 2000-4600 mt and pelagic catches at 5000 mt.

III. IMPACT OF INCREASED FISHING EFFORT

A. Impact on Target Species

1. Primary Impact - The present project intends to increase fishing effort with an emphasis on demersal species. These are generally large fish that are easier to handle, clean and market. In the other countries of the Gulf of Aden there is more emphasis on the pelagic fishes especially sardines (e.g., compare the per cent catches in Table 5).

Table 5. Comparison of Djibouti catch composition to that of Yemen Democratic Republic (3).

	<u>Djibouti % catch</u>	<u>Yemen % of cat</u>
Snappers	33	-
Tuna-Mackerel	24	8
Sardines	0	46
Jacks	19	-
Barracuda	7	-
Other Fish	9	21
Shark	2	6
Squid	1	18

Thus, even though the projected increased demersal catch of 1000 mt will fall well below the calculated MSY of 2000-4500, there is still a danger in future years of overfishing the inshore demersals because the Djibouti fishery is too one-sided. It would be

wiser to eventually broaden the base of the fishing effort especially if (and when) the total annual catch ever approached 1000 mt.

Regarding the potential for pelagic fish, the experimental trawling (10) carried out in March 1981 reported densities of pelagic and demersal fish stocks along the north shore above Ras Bir (Figs. 4 and 5), even though the trawling was carried out in March prior to the migration to this area of the schooling pelagic fish (Clupeoids, Carangids and Engraulids). Personal sighting by M. Rose of the local aquarium also confirm that there are deep-water stocks of shark off the north shore in addition to pelagic clupeoids. As pointed out in the Project Paper (Annex IV-3 page 3) the withdrawal of Yemeni sardine fishing operations in this area leaves much room for development of the pelagic fisheries.

2. Secondary and Long-term Impacts - One large secondary effect of increased fishing would be an increase in fish waste. At present the offal from the fish processing activity at the cooperative market is simply collected and dumped outside the city in the refuse dump. Although this removes the offal as an immediate problem for the project, there is great interest from PVO aid organizations (Catholic Relief Services) is using this offal as fertilizer in tree-planting programs. Encouragement should be given to such a scheme because any future expansion of the fisheries will result in even more pressure to re-cycle such material, especially if the "profit margin" (i.e. cost-benefit) becomes more narrow.

B. Impact on Non-Target Species - The long-term benefits from the local fisheries will only accrue if careful records are kept and if some research is began in terms of: fishing techniques, statistical treatment

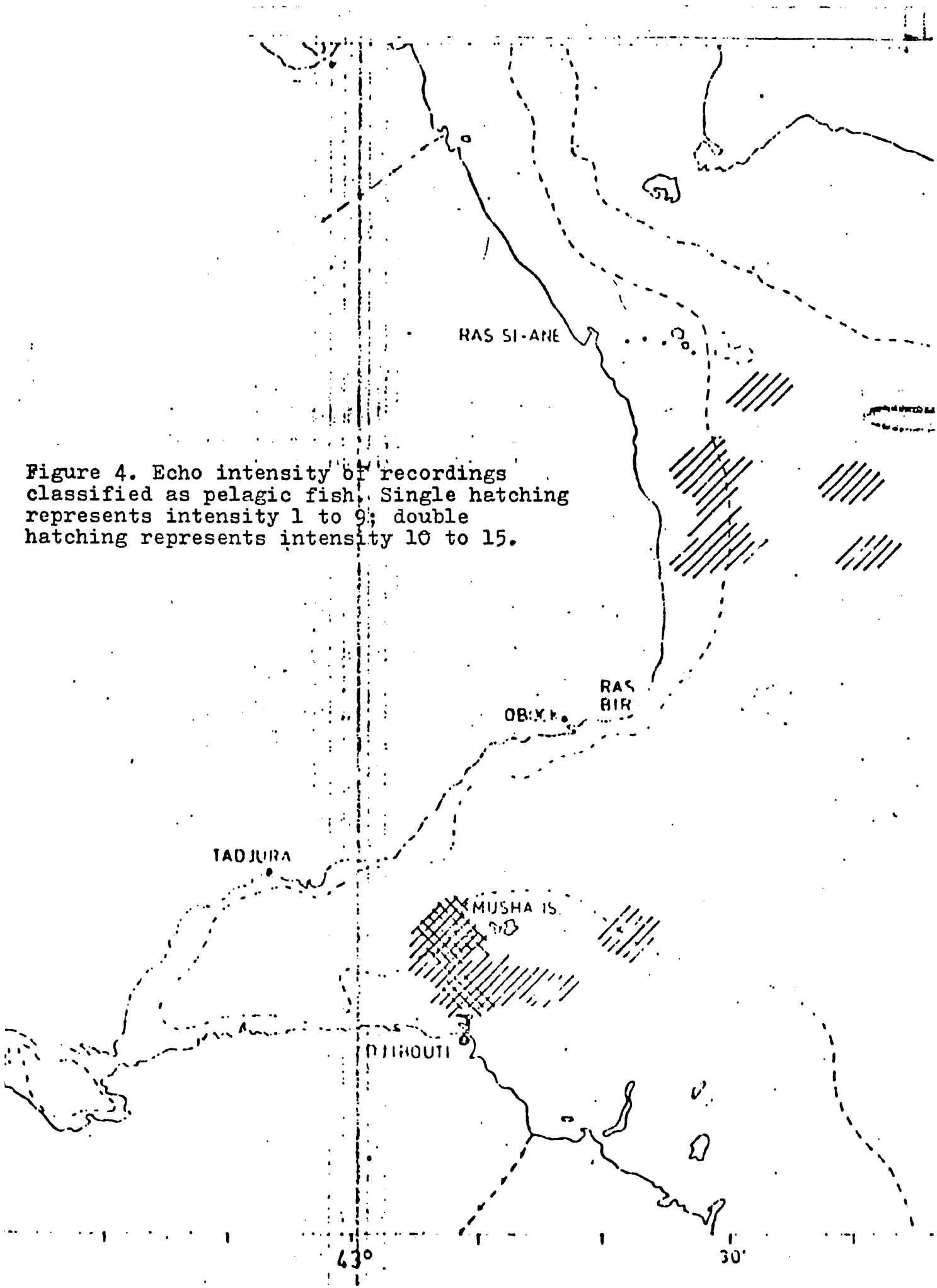
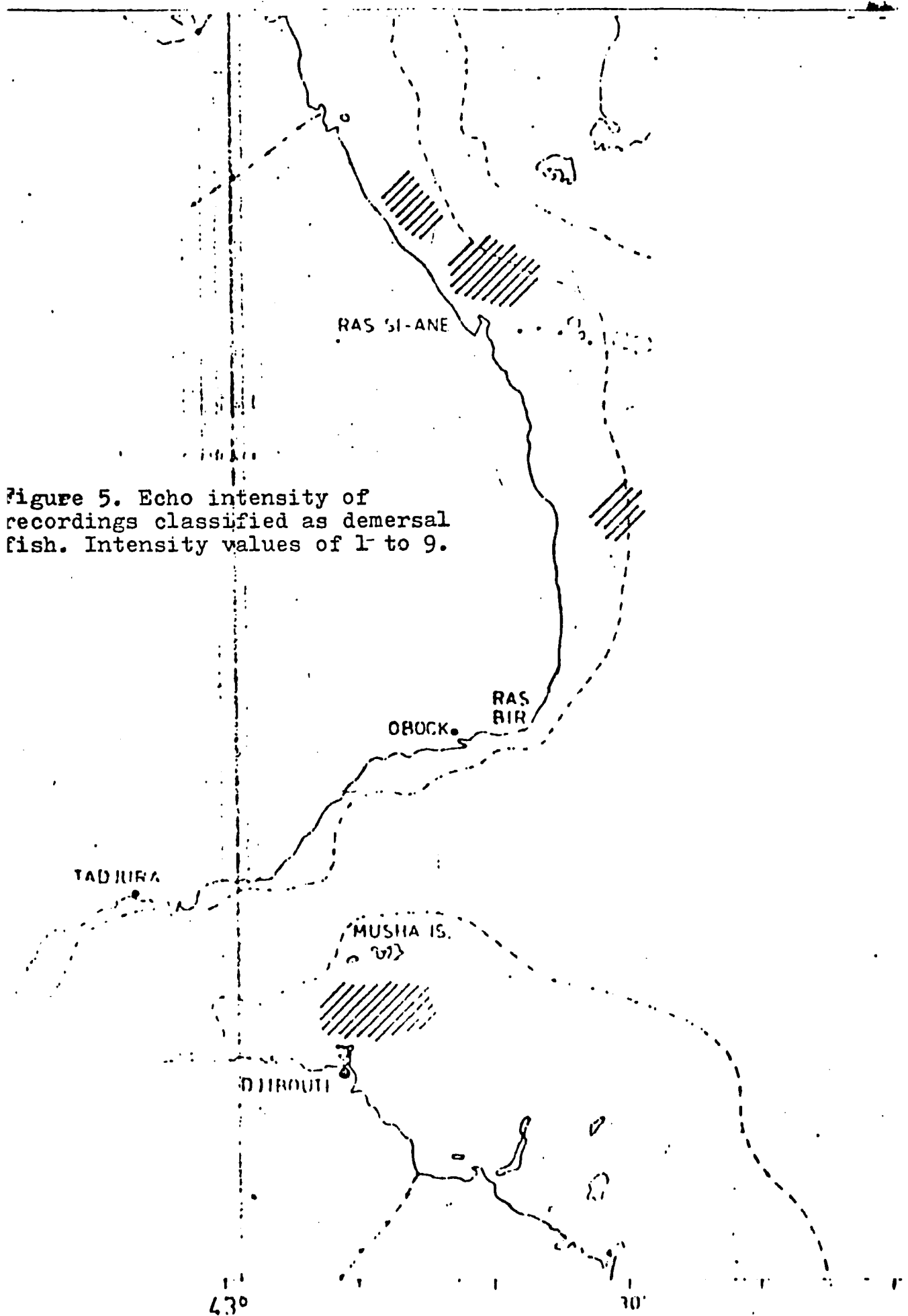


Figure 4. Echo intensity of recordings classified as pelagic fish. Single hatching represents intensity 1 to 9; double hatching represents intensity 10 to 15.

Figure 5. Echo intensity of recordings classified as demersal fish. Intensity values of 1- to 9.



of catch data, technical and scientific training, and ecological research on local fish species. All of these should be eventual goals for future research programs in Djibouti. At present we do know that the fish fauna of Djibouti consists of approx. 600 species (M. Rose pers. comm.) Some of these species will certainly be affected by continued pressure on inshore areas ^{it} should be assessed for impacts on the non-target species. In fact the assessment and management of coral reef fisheries along the African Coast is now a definite goal of FAO and the Indian Ocean Fishery Commission (5), thus, the advice of FAO should be sought in regards to future fishing effort and techniques.

Other non-target (non-mammalian) species would be sea turtles of which there are 3 species in Djibouti waters. The hunting of, dealing in, and exportation of sea turtles and their eggs is now specifically prohibited by the Djibouti Presidential Decree (13 May 1980 see copy attached as a Appendix C). As this important Decree becomes more well-known to local fisheries and shell-collectors it will be a good step forward in the international conservation effort for these animals.

This report will therefore recommend that the Decree be more prominently displayed and circulated so as to inform the general public as to the penalties for taking these animals.

C. Impact on Endangered or Threatened Species

Of the marine mammals, the most important one in this regard is a sirenian, the dugong (Dugong dugon). It is classified by the IUCN as "vulnerable", i.e., it is likely to move into the endangered category in the near future if the causal factors continue operating. At

present the artisinal fisherman's use of lines and shark nets result in a few dugongs being taken occasionally. However, fishing methods are bound to change and more efficient gear will be introduced with time.

The FAO "Draft Global Plan of Action for the Conservation, Management and Utilization of Marine Animals" states the case as follows:

"The dugong is hunted for subsistence throughout its circumtropical range, and is also threatened in many areas increasingly by incidental capture in fishing gears, especially nets." In Djibouti the general advertisement of the Presidential Decree (Appendix C) would help because this specifically prohibits the hunting of dugong. In the long-term, as part of its potential tourist industry effort and in support of its future fishing resource, the Government of the Republic of Djibouti ^{should} establish some basic marine research program as outlined in Appendix D. Part of such a research effort could be a local study of the life cycle, population sizes and movements of the dugong, as recommended by the FAO/UNEP Global Plan of Action (8).

Regarding other marine mammals, Mr. Rose, Conservator of the Tropical Aquarium of Djibouti informed me that the local dolphin populations are not very much disturbed by the present fishing effort. Of the three species in Djibouti one is considered rare to the Indo-Pacific region, but locally it is a more common animal. These cetaceans will benefit from the Presidential Decree, because it also specifically protects all dolphins in addition to the dugong. As a long-term measure the Advisory Committee of Experts on Marine Resources Research of the FAO proposed that protected habitats be established for cetaceans. The creation of

marine nature reserves off the islands of Musha and Maskali as outlined in the Presidential Decree will serve as a good basis for such cetacean sanctuaries. Djiboutian territorial waters.

D. Regulation of the Fisheries

In the original Project Paper a case was made for the development of an ecological "consciousness" among the fishermen and shell collection (PP Annex IV-3, page 3). For example the taking of undersized or egg-bearing spiny lobsters and the disturbance, collection and sale of corals and shells were cited as the most pressing problems. Some pressure on these resources will now be relieved by the Presidential Decree, because it specifically prohibits the collection of fish, shells and coral in Djibouti's new marine parks. It also prohibits the exportation of coral and shells from the country and provides for a certificate of origin for all shells being sold. The penalty for hunting protected animals (dugong, sea turtles, dolphins) is 3 months to one year in jail, and/or \$1,700 to \$1,400 fine. While the shell or coral export penalty is 11 to 90 days jail and/or \$200 to \$1,700. But, as pointed out above, the provisions of the Decree must be advertised especially in places where fisherman, shell collectors and skin divers are more liable to see the penalties involved. Perhaps a more meaningful method would be to publish a small booklet locally or design a poster with some explanation of how these measures will be beneficial to fisherman and the general public in the years to come.

IV. OYSTER CULTURE SUB-PROJECT

1. Introduction - Oyster culture is a good possibility in Djibouti because previously the nets used in the experimental culture of red alga showed incrustations by several marine organisms including several local oyster species. ISEART at present does not have the equipment, facilities or personnel to carry out any expanded research program in aquaculture, however, because of Djibouti's increasing need for marine production for food supply, it was felt that at least the initial aquaculture trials using oysters should be started.

2. Technique - The oyster culture pilot project will be carried out using the standard technique outlined in the project paper amendment (9). This will involve importation of seed oysters by air freight and subsequent transfers at different growth stages. At maturity the oysters will be marketed at the cooperative facilities now in use for local fish distribution.

3. Impacts - The environmental impacts of marine aquaculture are generally small in countries where it is already practiced. Some possible problems could be:

a. Introduced species- An experimental alga species was introduced into Djibouti and is now being cultured for possible production of edible algae using the Indonesia species Eucheuma spinosum. No problems were encountered in terms of adverse effects due^{to} this introduction. In fact, the problem is more one of protection! So many predators are present in Djiboutian waters that it is difficult to protect the original algal seed culture.

It is recommended in that the USAID oyster sub-project, some local species could be tried in addition to the introduced species. Also the introduced oyster seed

culture should be closely observed from the start to see if it will adversely affect local oyster species. The local species apparently grow on the algal culture racks and are fairly easy to obtain for experimental use

b. Introduced diseases or parasites- it is possible that the introduced seed oyster may carry diseases or endoparasites. For the sub-project it is recommended that the seed oysters be certified as being disease-free prior to shipping samples. They should also be dissected and observed to see if any obvious disease or parasites are present.

c. Culture extended to large areas- in the event that the experimental pilot cultures are successful, the commercial expansion of oyster culture in large areas must be done with caution and under the direction of ISERT. Culture areas to be considered for the pilot studies under the sub-project are indicated in Fig. 3. If these areas are later extended by commercial enterprises they should not be located so as to encroach on any of the new marine reserve areas. Also they should not be located in areas that are extensively used by fishermen as this will cause a disruption in traditional fishing patterns. Finally, they should be located in pollution-free regions, far from any sewage outfall. The ability of bivalves to accumulate bacteria, viruses and toxins is too well-known to dwell on here, but should be kept constantly in mind during project design and commercial expansion.

4. Abandonment of the Sub-Project - In the event that the introduced oyster shows any negative effect on local species in the initial observations or if any diseases or endo-parasites are obvious during the pilot stage, the residual material should be collected, destroyed and the sub-project abandoned.

5. Summary - Marine aquaculture has had several success stories in the tropics and certainly should be encouraged as a way of increasing food production in seaside countries. However, a certain degree of caution must be maintained by the project manager. It is assumed that the sub-project will be maintained at an experimental or pilot level, but if it does show any promise then the interest of local people should be encouraged in order to stimulate commercial production. Local research efforts should also be encouraged to look into other forms of aquaculture. Because of the large number of local marine fish species (over 600) Djibouti is blessed with a large potential for development of marine resources. The market for these resources (shrimps, mussels, giant prawns, mother-of-pearl, mullet, etc) indicates that growth and management of local marine species should be given high priority.

V. RECOMMENDATIONS

1. Fishing Effort

The present estimated catch effort (576 mt) as well as estimated projected catch effort (1000 mt) fall well within the estimated maximum sustainable yields for this region. However, if and when, the annual catch effort reaches 1000 metric tons, an attempt should be made to diversity the fishing effort to concentrate on coastal pelagic species especially sardines.

2. Conservation

Marine mammals, endangered species and the new marine nature reserves are now protected under Presidential Decree of 13 May 1980. This decree should be advertised and posted in places where it will be seen by shell collectors, fishermen, sportsmen, and the general public.

3. National Fisheries Strategy

A long-term research effort is needed to allow for the rational management of marine resources. Some research topics and suggestions arising from this report are listed in Appendix D and may be of help to ISERT in setting future research priorities, and in conserving non-target fish species.

4. Oyster Culture Sub-Project

The culture beds should be located: a) so as not to interfere with local fishing effort; b) outside of the protected marine park areas; and c) far from any source of pollution. Local oyster species should be tried in addition to imported species.

5. Cause for Abandonment of Sub-Project

If initial cultures of seed oysters show any adverse effect on local species, or signs of significant disease or endoparasites, the sub-project should be abandoned.

6. Environmental Determination

If the above recommendations are followed a negative determination is recommended.

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Staff and Affairs Officer, USAID Mission,

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Table 1. Principal species caught. Based on data from the Assoc. Coop. de Peche Maritime and the Aquar. Trop. de Djibouti (M.Rose).

Scientific Name	Common Names		Djiboutian
	English	French	
<u>SNAPPERS</u>			
<i>Lutjanus bohare</i>	Red snapper	Rouge a dents	Bohare
<i>Lutjanus coccineus</i>	Humped snap.	Rouget	Houmbouk
<i>Lutjanus argentimaculatus</i>	Red snapper	Dorade rose	Sifane
<u>TUNA-MAKERELS</u>			
<i>Scomberomorus commerson</i>	Kingfish	Thazar	Derake
<i>Thunnus albacares</i>	Yellowfin	Thon rose	Zenoub
<i>Euthynnus affinis</i>	Tuna	Thonine	Chiroi
<i>Rastralliger kanagurta</i>	Indian Maker.	Maquereaux	Barra
<u>JACKS</u>			
<i>Caranx</i> spp.	Jack	Caranque	Houdar
<i>Scomberoides lysan</i>	Jack	Caranque	Dourabe
<u>BARRACUDA</u>			
<i>Sphyraena barracuda</i>	Barracuda	Barracuda	Akam
<u>DORADES</u>			
<i>Lethrinus waigensis</i>	Dorade	Dorade	Gahache
<u>GROUPERS</u>			
<i>Epinephelus tauviana</i>	Grouper	Merous	Couchar
<i>Epinephelus chlorostigma</i>	Grouper	Merous	Couchar
<i>Epinephelus aerolates</i>	Spotted group.	Mer.mouchete	Coul-coul
<u>OTHER FISH</u>			
<i>Sardinella</i> spp.	Sardine	Sardinelle	-
<i>Mugil</i> spp.	Mullet	Mulet	Arabis
<i>Rachycentron canadum</i>	Black K'fish	Cobria	Sakala
<i>Elagatis ripinulata</i>	Rainbowrunner	Gazelle d.Mers	Toume
<i>Coryphene hippurus</i>	Dolphinfish	Coryphene	Honfluss
Haemulidae	Grunters	-	Coul-coul
<u>SHARK</u>			
<i>Carcharhinus melanopterus</i>	Shark	Requin	Loraol
<i>Carcharhinus</i> spp.	Sharks	Requines	Loraol
<i>Dasyatis varmak</i>	Ray	Rae	Rabis
<u>SHELLFISH & SQUID</u>			
<i>Panulirus</i> sp.	Lobster	Langouste	Langouste
-	Squid	Calmars	Aboumedado
-	Shrimp	Crevettes	Rhorhabe
-	Crab	Crabe	Aboumedado

TABLE 2. Pelagic trawls

Station Number	105	106	107	109	110	111	112	113	115
Date	2.3	3.3	3.3	3.3	3.3	4.3	4.3	4.3	4.3
Hour start	2345	0110	0440	2005	2300	0125	0350	1035	1845
Towing time (minutes)	30	30	30	30	30	30	40	15	30
Position N	11°38'	11°48'	11°46'	12°09'	12°12'	12°16'	12°19'	12°35'	11°59'
E	42°47'	42°49'	42°59'	43°27'	43°39'	43°45'	43°27'	43°16'	43°28'
Fishing depth, headline (m)	0	50	0	0	25	30	25	25	30
Bottom depth (m)	225	-	166-50	28-78	360	312	39	43	-
Total catch (kg)	1.60	38.00	3.00	0.10	17.00	11.20	2.10	6.10	48.50
Agalliniformes (Larvae)				+		+	0.30	0.10	0.20
AGOGONIDAE Apogon sp.							+		
CARANGIDAE Decapterus macrozona							0.05		
Sparus craniophthalmus			0.10		0.60		0.20		
Seriolina nigrofasciata					+		+		+
CHAMPSODONTIDAE Champsodon sp.									0.05
CLUPEIDAE Sardinella sp.	0.05								
EMMELICHTHYIDAE Emmelichthys nitidus				+			0.50		
ENGRAULIDAE Stolephorus sp.			0.02				+		
SPINULIDAE Spinula orientalis		+							
MESOCOTONIIDAE		0.25							
MYCTOPHIDAE	+	36.50			3.90	4.00			36.80
MONACIDAE			0.03						
PARALEPIDAE Lestidium sp.	+	0.45							2.20
Pleurenectiformes (Postlarvae)					+				
SPHYRAENIDAE Sphyræna (jello)			1.20						
Sphyræna obtusata					2.60				
TRICHIURIDAE									0.30
Fish larvae and juveniles (various spp.)				+				+	
CERIALOPODA ("Loligo")		0.05	0.05	+	3.90	2.50	0.70	0.10	2.35
CRUSTACEA (Charybdis edwardsii)	1.55	0.75	1.60		6.00	4.70	0.35		6.60
Krill									
Jelusa Jelly-fish				+					
								5.90	

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Table 3. Bottom trawl catches. R/V "Dr. Fridtjof Nansen" s Djibouti Cruise; 2 - 5 March 1981.

Station Number		108	114	116
Date		3.3	4.3	4.3
Hour start (30 min. haul)		0735	1020	2305
Position N		11°38'	12°35'	11°38'
E		43°13'	43°15'	43°14'
Total catch (kg)		515	90	214
ARIIDAE	Arius (thalassinus)	-	-	2.00
BALISTIDAE	Abalistes stellaris	-	-	0.80
CARANGIDAE	Decapterus maruadsi	-	-	0.40
	Scomberoides comersonianus	1.00	-	-
	Scomberoides lysan	1.00	-	-
	Selar crumenophthalmus	-	-	14.80
CLUPEIDAE	Dussumieria acuta	1.00	-	1.00
	Bardinella (gibbosa)	1.00	-	0.80
ECHENEIDAE	Echeneis naucrates	-	-	0.20
GERREIDAE	Gerres filamentosus	3.00	-	0.20
LEIOGNATHIDAE	Gazza minuta	90.00	-	26.40
	Leiognathus leuciscus	1.00	-	0.20
	Leiognathus splendens	325.00	-	1.60
MULLIDAE	Upeneus sulphureus	2.50	-	-
NEMIPTERIDAE	Nemipterus japonicus	12.00	-	20.80
PLATYSPHALIDAE	-	-	-	0.40
PSETTODIDAE	Psettodes erumei	5.00	-	0.20
SCOMBRIDAE	Rastrelliger kunagurta	-	-	0.40
SPHYRAENIDAE	Sphyræna (jello)	-	-	1.40
	Sphyræna obtusata	-	-	0.40
SYNODONTIDAE	Saurida (tumbil)	5.00	-	30.00
TETRAODONTIDAE	-	3.00	-	1.80
THERAPONIDAE	Therapon jurbua	-	-	0.20
	Therapon theraps	10.00	-	13.00
TRICHIURIDAE	Trichiurus lepturus	3.50	-	1.80
CARCHARINIDAE	Carcharhinus albimarginatus	-	90.00	-
	Carcharhinus limbatus	-	-	13.10
	- (juvenile)	2.00	-	0.20
SPHYRNIDAE	Sphyræna sp.	8.00	-	-
MYLIOBATIDAE	Rhinoptera javanica	40.00	-	80.00
CETHALOPODA	("Sepia")	-	-	0.30
CRUSTACEA	Penaeus sp. (large)	1.00	-	1.50
	- (small)	-	-	0.25
	Theraps orientalis	-	-	0.20

1. Fish distribution

Like most tropical areas, many different species are found here but only the most numerous ones of commercial value need be considered at this time.

a. Tunas: According to Abee (1976), four species of tunas are represented in the waters of Djibouti - albacore (Thunnus albacares), thonine (Euthynnus sp),
and
tongol tuna (T. (Kishinocilla) tonggol), /listao (Katsuwani pelamis).

The "albacore" and "thonine" are reported to be most numerous; however other tunas and tuna-like species are present in large numbers but are not taken by current fishing methods. The seasonal distribution and the behavior of the "albacore" change according to size. The young (1 to 4 kg) are found in greatest numbers from April-May to November in the southern part of the Gulf^f of Tadjoura, moving in small schools on the surface. The medium size (4 to 5 kg) are found throughout the Gulf and on the Gadoria Plateau from September to January in surface schools. From September to December, the larger size adults descend to the thermocline level (50 to 100 m deep) where they can be detected with an echo sounder.

The "thonine" are present in the Gulf from April until December with maximum numbers appearing in autumn in the southern part of the Gulf between Musha Island and the Ghubbet, as well as along the northern coast of Djibouti between Ras Duan and the Islands of the Seven Brothers.

b. Snappers (Lutjanidae)

Known locally as vivanaux, snappers are numerous in Djibouti. Several genera and species are reported. The most numerous and commercially important are vivanaux
and
rouge (Lutjanus sanguineux) / vivanaux huntag (Aprion microlepus).

The vivanaux rouge (red snapper) is found in 20-80 m depths throughout Djibouti waters over rocky, irregular bottoms. From May to September they are in depths of 30 - 50 m, at the thermocline level. Often they will congregate on the surface in the open sea around Ras Duan and Ras Bir. For the rest of the year, the thermocline is deeper and not as well defined and the snappers are found on the bottom among the

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rocks at depths of 80 m in the western zone of Tadjoura, and at 30 - 40 m on the plateau between Ras Bir and the Islands of the Seven Brothers.

The vivanaux huntag is more seasonal than the vivanaux rouge and from May to August is found between Ras Duan and Ras Bir in large numbers at the thermocline level. In the winter months, they have been taken in the Musha Island area at depths of 150 m by hand line.

c. Dorads (Lethrinidae)

The principal species Lethrinus waigensis is found throughout the year at depths of from 15 to 70 m all along the coastal waters including the shallow bottoms around Musha Island and on the Danakil shores as well, and in the deeper zones of the Gordoria Plateau.

d. Merous or groupers (Serranidae)

The two main species, Epinephelus tauvian and E. chlorostigma, are found in the same areas as the ^{dorads} ~~broads~~. The larger groupers (10 kg) are found along the continental plateau at depths of 50 to 80 m. A third species E. acrolates, the spotted grouper "choll-kholl", is occasionally found in the open sea from April to June at depths of 30 to 50 m near Ras Duan and Ras Bir. During the remainder of the year they are found dispersed along the irregular bottoms in those areas.

e. Carrangues or jacks and travallys (Carrangidae)

These are present all year in the shallow waters along the coast from the surface to depths of 35 m. The greatest quantities are present between May and November and the size of the fish is the same in a school but varies from school to school.

f. Baracuda (Sphyrinidae)

^{Several} ~~Two~~ species are found in Djibouti waters. S. jello is present in coastal waters throughout the year except during the summer months when it is seldom taken. The other species, S. ~~_____~~, ^{are} ~~is~~ more frequent in offshore waters and ^{are} ~~is~~ also present throughout the year.

A number of species of smaller size fish are present in Djibouti waters. However, with the exception of the sardinella taken by Yemeni fishermen, the rest have little commercial value except as bait for hand lines. The sardinella (several species) are found along the shores from April to June and from October to January. Another species of small fish, Leiognathus equilla, is abundant most of the year except during the summer months. It is found on muddy bottoms northeast of Djibouti.

These are the main fish of commercial interest. Other species appear in the catch such as mullet (Mugil), sea catfish (Aristes), various species of shark (Carcharinidae, Spyrnidae), and rays (Rajadae sp), but with the exception of the sharks, which are always present, there is no information on the seasonality or distribution of these other species.

An evaluation of the available data does not permit a more exact determination of the total volume of exploitable stocks. However, there is no doubt that the potential stock is large enough for a relatively modest fishery development project.

2. Fisheries background and statistics

The present fishery is carried out by artisanal fishermen operating almost entirely within local territorial waters. Although adjacent to the Gulf of Aden which supports a rich marine resource, the fishery does not extend into that area. Djibouti is not now ^{nor has it been} or was ever used as a base for an off-shore fishing fleet.

There have been a number of surveys of the fishery, ^{as well as} several programs ^{for} ~~for~~ ^{initiated} for assisting further development of the artisanal fishery. The only important development was introduction of the outboard motor. The present fisheries are to be found at the City of Djibouti, Obock, Tadjoura, and Khor Angar, with the City accounting for around three-fourths of total landings. Obock (the original capital) is next in importance as it is located ^{adjacent to} what is agreed as the most productive fishing area. Tadjoura supports a smaller fishery. Khor Angar on the Red Sea provides a base for Yemeni fishermen during part of the year and sometimes for Djiboutians fishing for the local market.

Because of the relatively small size of Djibouti's fishery zone, fishing is quite limited and prospects for development must be tailored to fit the available resources. From extensive interviews with fishermen, discussions with fish sellers, market managers, fishery officials and others knowledgeable in fisheries, the total number of fishermen is estimated at approximately 200. Of this number, probably one-third or 65 can be considered full-time professionals; the others fish on a part-time basis. Fishing is a family affair and ~~sons learn from fathers~~ ^{fishers teach sons who} and in turn pass this knowledge on to their sons. Though at a low technical level, current fishing activity is effective and the fishermen are quite skilled in their methods.

The problem is one of inadequate equipment rather than method. Better nets of a more suitable design and material ^{than those} currently used will undoubtedly enable the fishermen to increase the present catch significantly. Since the local supply of fishing gear is limited to providing gear for sport fishing, the fishermen are dependent upon the Yemen for their nets, lines, floats, etc. This equipment is often not of the correct material nor of the right construction for the Djibouti fishermen but, as it is their only source, they must make do.

The most commonly used fishing gears are as follows:

a. Handlines.

These are monofilament of .80-1.4 ^{mm diameter} with stainless steel leaders, and usually with swivels. Hook sizes depend upon the species sought after - with only one hook per line. Sinkers are lead and the size (weight) of the sinker depends upon the depth fished. All this gear is available in Djibout where they are purchased by fishermen. Prices are high in comparison with those in the United States; but, considering freight, duties, etc., they are not excessive. The overall cost of handlines is not a deterrent to the fishermen; however, their efficiency could be improved by adding more hooks to the present single hook line.

b. Trolling lines.

These are usually made up of 100 m of cotton line to which sections of 140/100 m

monofilament nylon are attached at both ends. Swivels and 80 cm of wire leader with 5-8 cm hooks are attached. A 100 g lead weight is attached to the cotton line where it is joined to the nylon section. The hook is baited with a small fish (usually a mackerel) with the main body of the hook implanted into the body cavity with only the barb exposed. Some fishermen use artificial lures which they make themselves.

c. Nets.

Several kinds of nets are used by the fishermen. The straight net used as a seine for fish in shallow water over the coral reefs is 60 to 70 m in length, 2 m deep and has a 25 mm mesh. The line net is a larger version of the straight net, measuring 100 m by 5 m and is used as a surrounding net. The trammel net is used for large fish and is made of two superimposed layers; the first measures 30 m by 2 m with a 40 mm mesh, the second is 30 m by 8 m with a 35 mm mesh.

Only the larger craft are able to fish with large gill nets. Most of the craft are small houris which are predominantly handliners; the amount of fish caught by this method is necessarily limited.

Fishing is carried out either day or night depending upon the sea and the phases of the moon. The line fishermen fish mostly around the Mascali and Musha Islands and the Loyada-Abomili zone. Those with motors go up as far as Ras Bir,

^{Landing} Statistics on the fisheries of Djibouti are weak and the best available represent rough estimates which themselves may vary according to the source. The statistics used in this report were derived in the main from cross-checking different sources of available figures, questioning industry people and by personal observation.

Annual landings by Djibouti fishermen are around 350 tons and possibly even as high as 400 tons. No breakdown according to species are available. Tunas, ^{durads} breams, jacks and shrimp were in good supply in the market.

All landings were made in the City except for around 50 tons made in Obock, Tadjoura and minor points. Though added into total catch in several country reports, we have not included an estimated 200 tons of migrating sardine-like species taken by Yemeni fishermen

UNITE - EGALITE - PAIX

S : PREMIER MINISTRE *BT*

MINISTRE DU COMMERCE,
DES TRANSPORTS ET DU
TOURISME *14/2*

DECRET N° 80-052/PR/MCTT

portant sur la protection de la faune
et des fonds sous-marins

LE PRESIDENT DE LA REPUBLIQUE

CHEF DU GOUVERNEMENT

- VU Les lois constitutionnelles n° 1 et 2 du 27 juin 1977 ;
- VU L'ordonnance n°77-003 du 30 juin 1977 ;
- VU Le décret n°78-072 du 2 octobre 1978 portant nomination des membres du Gouvernement ;
- VU La délibération n°262/7°L du 12 mai 1972 relative à la protection des richesses naturelles et des gisements préhistoriques ;
- VU L'arrêté n°72-1363 du 20 septembre 1972 fixant les mesures de protection de la faune et des fonds sous-marins ;
- VU La décision n°72-458/P.C.G. du 24 mars 1972 portant création d'une Commission de Sauvegarde de la Faune et des Fonds sous-marins ;
- VU L'avis de cette commission en date du 7 novembre 1979 ;
- SUR Proposition du Ministre du Commerce, des Transports et du Tourisme ;

Le Conseil des Ministres entendu en sa séance du 13 mai 1980

DECRETE

INTERDICTIONS :

ARTICLE 1ER / La chasse sous-marine en scaphandre ou avec fusil à gaz
quelque qu'elle soit est interdite dans les limites des eaux territoriales.

ARTICLE 2 / La chasse, le commerce, l'exportation des cétacés, des dugongs, des tortues de mer et de leurs oeufs est interdite dans l'ensemble du territoire marin et terrestre de la République.

ARTICLE 3 / Le parc territorial de MUSHA est maintenu. Il s'étend sur la base madréporique située à l'Est d'une ligne rejoignant le Phare de MUSHA à la pointe Ouest de l'île du Large, à l'exception du Banc Dankali : Les activités de pêche, sous quelque forme que ce soit, le ramassage du corail et des coquillages y sont interdits.

ARTICLE 4 / Il est créé une zone de réserve intégrale à MASKALI SUD zone comprise entre le phare de Maskali et le grand banc de sable de la côte au tombant. Toutes les activités aquatiques et subaquatiques y sont interdites.

RESTRICTIONS :

ARTICLE 5 / La chasse sous-marine est interdite dans le Goutet entier passes comprises, aux Seba (Sept Frères) tous les récifs et côtes de l'archipel, baie de Ras Syan y compris et la totalité du massif corallien de Maskali (voir carte).

ARTICLE 6 / La chasse sous-marine est momentanément restreinte dans l'ensemble de la République, aux espèces figurant à l'annexe jointe.

ARTICLE 7 / L'exportation des poissons de coraux ainsi que la collecte des coquillages sont momentanément suspendues. La vente des coquillages est soumise à la production d'un certificat d'origine étrangère.

ARTICLE 8 / La chasse sous-marine est réservée aux personnes âgées de plus de 16 ans.

ARTICLE 9 / Toute personne voulant se livrer à la chasse sous-marine devra se faire délivrer une attestation gratuite, comportant son nom, son prénom et son adresse. Cette attestation sera délivrée par l'Office de Développement du Tourisme qui, à cette occasion remettra à l'intéressé un exemplaire du présent décret.

ARTICLE 10 / Restent autorisées les pêches et collectes effectuées à titre scientifique sous le contrôle du Président de la Commission de Sauvegarde de la Faune et des Fonds sous-marins.

MESURES D'APPLICATION :

ARTICLE 11 / Sont habilitées à constater les infractions au présent décret les personnes suivantes :

- Les Commissaires de la République
- Les Officiers de Police Judiciaire
- Le Chef de Service de l'Élevage et des Pêches
- Le Chef de Service des Affaires Maritimes

07/0

- Le Conservateur de L'Aquarium Tropical
- Les Gendarmes Maritimes

ainsi que tous les Agents spécialement assermentés à cet effet.

ARTICLE 12 / - Les infractions aux articles 1 à 4, peine de 4^e catégorie soit 3 mois à 1 an d'emprisonnement, et de 300 000 à 2 millions de FD, ou l'une de ces 2 peines seulement.

- Les infractions aux articles 5 à 9 peine de 3^eme catégorie au lieu de 2^eme catégorie :
de 36 000 FD à 300 000 FD et de 11 jours à 3 mois d'emprisonnement ou l'une de ces 2 peines seulement.

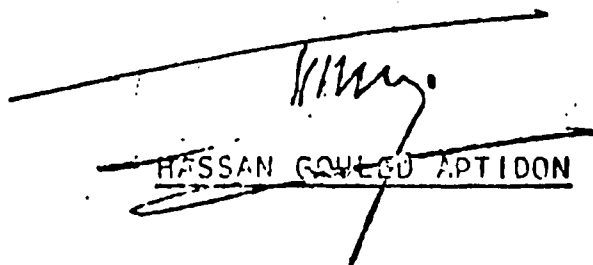
- En outre, la confiscation des armes de chasse, scaphandres et des embarcations qui ont servi à commettre l'infraction pourra être décidée par le Ministère Public, le Juge d'Instruction ou la Juridiction saisie.

ARTICLE 13 / Le présent décret abroge l'arrêté n°72-1363 du 20/9/1972 fixant les mesures de protection de la faune et des fonds sous-marins.

ARTICLE 14 / Le Ministre de la Justice, Le Ministre de la Défense Nationale, Le Ministre de l'Intérieur, Le Ministre de l'Agriculture, Le Ministre du Commerce, des Transports et du Tourisme, sont chargés chacun en ce qui le concerne de l'application du présent décret.

ARTICLE 15 / Le présent décret sera exécutoire dès sa publication qui interviendra selon la procédure d'urgence.
Il sera également publié au Journal Officiel de la République.

Djibouti, Le 25 Mai 1980


HASSAN GOULED APTIDON

A N N E X E

ESPECES AUTORISEES A LA CHASSE SOUS-MARINEClasse des Chondrichthyens ou poisson cartilagineux

- Toutes les espèces de requins sont autorisées à l'exception des requins vivant sur le fonds (requins tapis - requins nourrices - requins de sable).

Classe des Osteichthyens ou poisson osseux

- | | |
|------------------------|--|
| Ordre des Mugiliformes | <ul style="list-style-type: none"> - famille des mugilidae (mullets) - famille des sphyraenidae (barracudas) |
| Ordre des perciformes | <ul style="list-style-type: none"> - famille des carangidae (caranx) - famille des coryphainidae (coryphène) - famille des scombridae (thon, thazard) |

Sont interdites donc toutes les autres espèces y compris les ratos, murènes, perroquets, mérous, daurades, napoléons, etc...

Langoustes : à la main seulement et en apnée.

Appendix D

Long-term Research Effort in Fisheries

- 1) Surveys should be carried out in the major inshore fishing areas to define the future maximum sustainable yield for Djibouti.
- 2) Off-shore experimental trawling should be encouraged to further define potential fisheries.
- 3) Present catch statistics should be reviewed by FAO and/or local fish experts to define the most common species and to refine the statistical techniques.
- 4) An ecological inventory of the local marine fauna should be initiated by the local marine aquarium along with permanent collections for future research use, as well as a tourist resource.
- 5) A research library and research facilities for study of the marine fauna should be initiated under the care and direction of a permanent conservator of the marine aquarium.
- 6) Assessment and management guidelines should be drawn up for the marine reserve areas, coral reefs and future protected areas.
- 7) Training Djiboutians should begin at several levels in terms of fisheries and marine resources. There is a real need here for practical training to increase fishing effort as well as research to identify and manage present marine resources as well as future marine aquaculture projects.

APPENDIX F

FISH INVENTORY REPORT

1983 COOPERATIVE SALES/
PRODUCTION REPORT

July 1984

Prepared by:
Paul Derito, Project Manager

RESOURCES DEVELOPMENT ASSOCIATES, INC.
P.O. BOX 407
DIAMOND SPRINGS, CALIFORNIA 95619
(916) 622-8841

PRODUCTION:

% DIFFERENCE:

	<u>1983</u>	<u>1982</u>	
January	27 434.70 Kg.	27 240.40 Kg.	
February	20 645.20	27 014.90	
March	13 079.30	31 157.70	
April	31 663.00	25 959.30	
May	24 333.00	30 097.75	
June	15 723.40	18 127.10	-17% (after 6 months)
July	17 882.40	17 150.80	
August	26 699.15	22 575.05	
September	24 872.80	18 737.90	
October	29 337.00	27 124.10	
November	23 800.60	34 401.50	
December	<u>27 242.65</u>	<u>19 285.10</u>	
<u>TOTAL:</u>	282 713.20	298 871.60	-5%
Fish	279 230.10	294 708.30	
Lobster	3 094.05	3 386.20	
Calamar	<u>389.05</u>	<u>777.10</u>	
<u>TOTAL:</u>	282 713.20 Kg.	298 871.60 Kg.	

Production declined by 5% from 1982 to 1983. The greatest proportion of the decline occurred during the first 6 months of 1983, mostly due to unfavorable weather conditions. Production recovered over the last 6 months of 1983, in fact surpassing 1982 production by 8%. Even though this is encouraging, yearly trends from 1981 - 1983 show that ACPM production

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has reached a plateau level (Figure 1). That is a 3 year average of 292 tons/year that varied plus or minus. It is important to understand the ACPM production cycle and its seasonal variance (Figure 2). The fishing season is divided into 2 seasons, a winter season from November to March and a summer season from April to October. Peak production occurs during the March - May, and October - November periods. Whenever production curbs descend, it is due to the following factors: unfavorable weather conditions or ACPM storage facilities filled to capacity. For example, the month of March, 1983, showed the lowest recorded production for any month over the three year period. Normally, March being a transition month from winter to summer, should show an increase over February. Because of unfavorable weather conditions in March of 1983, fishing days were lost, thus the curb descended until the more favorable summertime conditions became prevalent. During peak production periods, March - May, and October - November, sharp decreases can be noted after peak increases. April of 1982 and November of 1983 are good examples. Normally, these months should show increases from the previous month. What occurs is that storage capacity has reached the saturation level and the fishermen are asked to stop production. The last reason for declining production is the Khamsin period of unfavorable weather conditions occurring during the summer months of July - August. The current production stagnation is probably due mostly to demand (sales). The ACPM has been operating at production levels where it is meeting demand, (to be discussed further in the sales section).

Figure 3 represents what could be maximum potential of the current ACPM fleet. That is if the highest monthly total for the past three years for each month is plotted, the potential production would equal 335 tons/year. This could be produced given conditions of adequate storage and favorable weather conditions.

SALES:

% DIFFERENCE:

	<u>1983</u>	<u>1982</u>	
January	25 280.10 Kg.	25 264.10 Kg.	
February	18 985.00	24 429.40	
March	15 045.20	24 758.30	
April	17 124.50	22 522.90	
May	18 199.10	25 137.80	
June	20 445.90	16 010.20	-16% (after 6 months)
July	20 475.40	19 071.90	
August	23 281.60	20 895.30	
September	26 617.00	19 024.70	
October	28 481.80	23 096.00	
November	30 420.20	29 148.70	
December	<u>29 511.30</u>	<u>26 766.80</u>	
<u>TOTAL:</u>	273 867.10 Kg.	276 126.10 Kg.	-0.8%

ACPM sales showed a negligible difference in sales from 1982 to 1983, even though less fish were produced. This can be explained by a decrease in losses from 1982 to 1983, thus a greater percentage of fish was available for sale.

	<u>1983</u>		<u>1982</u>	
Production-Opening stock	282 826.50 Kg.		300 250.90 Kg.	
Sales	273 867.10	96.9%	276 126.10	91.8%
Explained losses	4 294.50	1.5%	14 340.20	4.8%
Unexplained losses	777.60	0.3%	10 271.30	3.4%
Closing Stock	3 887.30	<u>1.3%</u>	113.30	<u>0.0%</u>
		100.0%		100.0%

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Sales (demand) follow a seasonal cycle (Figure 4) with it being greatest during the November, winter period. The beginning summer season, March - May, produce a surplus that is sold during lower production months of June - August. The October - November peak production months produces a surplus for the following December - January period when demand is higher than production. ACPM storage capability increased after the opening in August, 1982 of a new freezer facility (Figure 5). This has enabled the ACPM to meet demand during months of low production.

Maximum potential sales (Figure 3) were calculated in the same manner as production. The total maximum sales equaled 305 tons. This reinforces the fact that the ACPM could produce potentially more than it could sell. The ACPM has over the last three years provided inputs as an encouragement for increased production (storage capability, ice production, outboard motor and boat repair, etc.). Except for the opening of new retail outlets recently in September of 1983 and the CRS fish promotional campaign, inputs to stimulate demand have lagged behind those of production. To then break the current stagnation, increased emphasis should be placed on marketing. The result could be a 10 - 15% increase in sales and production for 1984. To go beyond this level would require additional boats, improved fishing methodology, programmed use of the Khor Angor during those months of decreased production and further emphasis on marketing.

	<u>1983</u>		<u>1982</u>	
	<u>WHOLESALE</u>	<u>RETAIL</u>	<u>WHOLESALE</u>	<u>RETAIL</u>
January	17 598.00 Kg.	7 682.10 Kg.	13 184.10 Kg.	12 080.00 Kg.
February	12 721.60	6 263.40	13 312.40	11 117.00
March	10 038.70	5 006.50	12 992.90	11 765.40
April	9 262.80	7 861.70	12 700.80	9 822.10
May	12 188.60	6 010.50	15 794.50	9 343.30
June	15 898.70	4 547.20	10 625.50	5 384.70
July	15 842.30	4 632.50	13 442.90	5 629.00
August	18 156.20	5 125.40	15 938.80	4 956.50
September	20 125.10	6 491.90	13 647.70	5 377.00
October	21 421.10	7 060.70	15 683.70	7 412.30
November	23 989.50	6 430.70	20 287.40	8 861.30
December	<u>22 535.80</u>	<u>6 975.50</u>	<u>19 347.60</u>	<u>7 419.20</u> .
<u>TOTAL:</u>	199 799.00 Kg.	74 088.10 Kg.	176 958.30 Kg.	99 167.80 Kg.
<u>PERCENTAGE</u>	73%	27%	64%	36%

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	<u>1983</u>		<u>1982</u>	
	<u>WHOLESALE</u>	<u>RETAIL</u>	<u>WHOLESALE</u>	<u>RETAIL</u>
Fresh Fish	122 201.30Kg.	66 287.60Kg.	126 754.00Kg.	89 045.80Kg.
Frozen Fish	32 169.60	12.50	8 964.80	-0-
Fresh Fish Steaks	123.00	417.90	796.90	-0-
Fresh Filet	20 155.10	5 914.30	18 691.10	8 981.60
Frozen Filet	22 977.30	267.30	18 570.40	247.70
Fresh Lobster	1 087.70	473.90	1 742.40	433.00
Frozen Lobster	911.80	508.60	904.30	255.90
Fresh Squid	121.60	188.90	147.50	153.70
Frozen Squid	31.60	17.10	234.00	48.00
Salted Fish	<u>-0-</u>	<u>-0-</u>	<u>152.90</u>	<u>2.10</u>
<u>TOTAL:</u>	199 799.00Kg.	74 088.10Kg.	176 958.30Kg.	99 167.80Kg.

Retail sales remained at a constant level for 1983, representing 27% of all sales. Retail sales were less than 1982 while wholesale sales increased from 1982 to 1983 representing 73% of all sales.

	<u>1983</u>	<u>1982</u>
Average purchase price fish	243.3 FD/Kg.	243.0 FD/Kg.
Average selling price fish	342.5 FD/Kg.	354.70 FD/Kg.

There was no appreciable difference in the average purchase price for a kilogram of fish from 1982 to 1983. What is significant is that from the total amount of kilograms sold, which did not vary significantly from 1982 - 1983, resulted in an average selling price of 12.7 FD less than 1982 to 1983. This is due to a greater amount of fish sold wholesale.

RETAIL OUTLETS:

In September of 1983 six retail outlets were opened in Djibouti City by SEP, and two others in October (Figure 6). In addition, a retail outlet was opened in Arta with the aid of CRS. Currently, the retail outlets represent 14% of all wholesale sales. Only two outlets, Avenue 26 and Ambouli, I have shown encouraging results. Arhiba, after a change in management, is beginning to function at a higher level. Additional follow-up is needed to determine for what reason the others are operating at lower levels (Figure 6).

INVENTORY CONTROL:

As explained in the sales section, the ACPM had less explained and unexplained losses from 1982 to 1983. This is a result of improved storage and handling techniques and strict control of accounting for every fish bought, sold, stored or spoiled.

IN:

Purchases	282 713.20 Kg.
Opening Stock	<u>113.30</u>
	282 826.50

OUT:

Wholesale	199 779.00 Kg.
Retail	74 088.10
Internal Transactions	214.10
Spoilage	2 675.80
Scale Loss	1 404.60 - (Discontinued after installation of electronic scale, April, 1983)
Closing Stock	<u>3 887.30</u>
	282 048.90

Result - -777.60 Kg. Unexplained loss.

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FISH PREPARATION:

From May to December 1983, monthly totals of fish filets yielded from whole fish were recorded. The result of this exercise was to correct, if necessary, the conversion factor of fish to filet. The results showed a high of 2.85 to a low of 2.18. If the two highest and the two lowest are eliminated, the average of the remaining four is a conversion factor of 2.25.

	<u>WHOLE FISH:</u>	<u>FILETS:</u>	<u>CONVERSIONS:</u>
May	7635 Kg.	3343 Kg.	2.28
June	3438	1577	2.18
July	4109	1476	2.78
August	8249	2898	2.85
September	5638	2556	2.20
October	2710	1241	2.18
November	1096	485	2.26
December	1166	505	2.31

REVISED CONVERSION TABLE:

A new table of coefficients will be applied beginning January 1, 1984. A new coefficient for filet will be applied based on a study of conversion of whole fish to filet, conducted over an 8 month period. The fresh to frozen coefficient of 5% will remain unchanged. The coefficient for fresh storage loss will be lowered by 2.5% as it appears that there is an improvement in handling techniques, such as re-icing and first in first out. A test to see if these coefficients are correct will be the ending balance each month. If there are unexplained surpluses, then the coefficients are too high; if there are unexplained losses, then they are too low.

CONVERSION:

Whole Fresh Fish	1.025
Whole Frozen Fish	1.075
Fresh Fish Steaks	1.275
Frozen Fish Steaks	1.325
Fresh Filet	2.25
Frozen Filet	2.30
Fresh Lobster	1.025
Frozen Lobster	1.075
Fresh Calamar	1.025
Frozen Calamar	1.075

6/1/10

QUANTITES DE POISSONS ACHETES A LA COOPERATIVE PAR LES POISSONNERIES

Poissonnerie	Septembre	Octobre	Novembre	Decembre	Total	Moyenne Mensuelle	Moyenne Jouraniere
Arta		143,40	114,05	122,40	379,85	126,61	4,22 Kg.
Stade	207,40	432,45	391,35	397,35	1.428,55	357,13	11,90 Kg.
Avenue 26	495,30	597,05	582,75	756,65	2.431,75	607,93	20,26 Kg.
Ambouli I	700,40	834,65	625,55	889,90	3.050,50	762,62	25,42 Kg.
Engueila	348,05	315,50	292,95	195,85	1.152,35	288,08	9,60 Kg.
Quartier 7 Bis		201,05	161,80	58,25	421,10	140,36	4,67 Kg.
Ambouli II		65	142,90	259,55	467,45	155,81	5,19 Kg.
Arhiba	113,55	369,15	510,60	618,65	1.611,95	402,98	13,43 Kg.
Quartier 4	357,10	268,75	213,95	341,30	1.181,10	295,27	9,84 Kg.
Total	2.221,80	3.227,00	3.035,90	3.639,90	12.124,60	3.136,79	104,53 Kg.
% Vente En Gros	11%	15%	12%	16%	14%		

(Fig. 6)

APPENDIX G

RENOVATION PROPOSAL

March 31, 1984

A PROPOSAL FOR THE RENOVATION OF THE PECHERIE
AND COOPERATIVE ADMINISTRATIVE OFFICES

Paul DeRito
Chief of Project
U.S.A.I.D. Fisheries

The following is a proposal for the renovation of the Pecherie facility, specifically the selling area, offices and warehouse. This proposal is presented with the idea of best utilizing the existing infrastructure. It can be summarized as follows:

1. The creation/construction of area (s) for wholesale and retail sales.
2. The construction of (3) administrative offices within the existing facility.

present situation (see Fig. 1).

Wholesale and retail sales are conducted in one area of about 120 meters squared. Retail clients have about 26 meters squared behind the counters. Wholesale clients have an assigned area next to the accounting offices in which to place orders and pay for them.

Offices for management and accounting are located within the Pecherie facility. An accounting annex is located outside the facility next to the EP garage.

The ACPM central warehouse encompasses an area of about 120 meters squared. It has two enclosed areas for storage of outboard motor spare parts and fishing gear.

The problems encountered with the present situation can be summarized as follows:

1. The present selling area is too small for both wholesale and retail sales. Congestion occurs along the counter where retail sales occur, and next to the accounting office for wholesale sales.
2. There are eight ACPM personnel designated for the selling area (see Fig. 1). Of the eight, two are used exclusively for retail sales, one cashier and one seller. One person is designated exclusively to sell to wholesale clients. The remaining five have dual functions, the (3) fish cutters who prepare for wholesale and retail clients, the weigher who weighs all sales on the electronic scale, and the guard who controls all fish exiting the facility. Often during peak selling hours in the early morning service is slow. The problem is not that of too few personnel, it is one of lack of space and organization to work effectively.
3. ACPM offices are not being used effectively. The present accounting office is used by the cashier, the accountant and the manager. The ACPM manager has more of a general administrative and commercial role than that of accounting. There are wholesale clients, fishermen,

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and personnel often found in the accounting office wanting to see the manager. This interferes with the cashier and accountant from doing their jobs.

4. The ACPM central warehouse is too small to hold the amount of material that is currently in stock. It is difficult to do an inventory because materials cannot be manipulated to be counted.

Intermediate Phase.

It is obvious that major renovations are needed. Funding for these renovations will not be available immediately. In the meantime, some improvements can be accomplished with minimal expense. (see Fig. 2).

1. It is proposed that accounting and management switch their present locations, with the exception of the ACPM manager who would remain behind in the old accounting office. This would separate the two offices by function. It would help isolate the accounting office and let the manager take a greater responsibility in ACPM commercial activities.
2. It is proposed that all cash operations be handled by one cashier. Presently the ACPM uses two cashiers, one for retail sales and one for wholesale sales, material sales and fish purchases. During it's first few months of operation one cashier was used for all fish sales. It was later separated, not because it was difficult for the cashier to handle all transactions, but because from an accounting standpoint it was difficult to separate retail and wholesale totals. The cash register that is used can only give one total.

By purchasing a new machine capable of producing more than one total, retail and wholesale can be combined again. For a trial period the machine would remain in the retail selling area. This would allow the cashier to become familiar with the operation of the machine and give time to prepare the new accounting office (see Fig. 2) where the machine will go.

During the trial period fish purchases and material sales would be made from the old accounting office. Eventually all cash operations would be handled from the new accounting office. A new set of control procedures for fish sales would be implemented at the end of each day (see Fig. 3).

3. With the construction of the warehouse annex, materials can be moved out of the central warehouse which will alleviate the overcrowding. At the same time an inventory would be taken.

o summarize, the intermediate phase would accomplish the following:

1. Effective use of the managerial and accounting offices and personnel.
2. Consolidation of all cashier operations, with daily control of all fish sales. Cost savings with the elimination of one cashier position.
3. Inventory and reorganization of the central warehouse.

Renovation Phase.

Two options are proposed for the renovation phase. Option one (Fig. 4) would create separate selling areas for wholesale and retail sales. It would also be possible to operate the retail sales area as a private concern. Option two (Fig. 5) would leave wholesale and retail together, but in a larger area. Each option would include the construction of 3 offices, management, commercial activities and accounting. Each option would also include provisions to use the space above new construction for storage of materials.

Option One.

This option creates separate selling areas for wholesale and retail. The new wholesale area would encompass an area of about 120 meters squared, located in the old wholesale-retail selling area. As the ACPM increases it's sales volume it is projected that the great majority of the increase will be wholesale sales. It is important that there will be an area sufficient in size to handle this increase.

The new retail area would be located where the old directors office is, plus continuing into the warehouse. There would be one long counter with one entrance and one exit. This arrangement would make for an even flow of clients. As many as two sellers and three fish cutters can work behind the counter.

A cashiers booth would be located centrally to the wholesale and retail selling areas. Again, the principle of one cashier for all cash operations would be utilized. If it is decided not to have the retail area operated privately, the cashier could handle retail sales as well as wholesale sales and fish purchases.

The (3) new ACPM offices would be located starting from the old accounting and continuing into part of the warehouse. They would be designated as the commercial activities office, for ACPM manager, the management office for the

ACPM director, and the accounting and archives office for the ACPM accountant.

The warehouse would be reduced to 25 meters squared of floor space. The majority of storage space would be found above the newly constructed retail selling area and the accounting and archives office. Thus the warehouse would have an area equal in square meters as it did before.

The basic question to resolve in option one is whether to have the retail area operate as a private concern. There is no question as to having a retail outlet at the Cooperative. There will always be clients that will come, believing that they will get fresher fish and a better selection. The current retail outlet has been operating at an average volume of sales of 200 Kg/day, representing 23% of total volume. This 200 Kg. per day average has remained constant over the last two years. It can then be projected that future ACPM sales based on 1000 tons production, 90% would be wholesale sales. The 10% volume perhaps does not warrant the investment that would be needed in infrastructure, personnel and overhead expenses, but it could be viable as a private retail operation. In fact, if managed correctly, it could increase it's sales volume. The ACPM does not lose because it would sell to the private retailer.

To summerize, the following is a list of advantages verses disadvantages for Option One:

Advantages:

1. A large wholesale area sufficient in size to handle projected increased wholesale sales.
2. Private retail selling area alleviating ACPM of management burden with reduction of costs.
3. Market price for retail fish will stabalize, an advantage for all retailers who before found it difficult to compete against the ACPM retail price.

Disadvantages:

1. If private option is not viable, ACPM would have increased expenses in additional personnel and overhead.
2. The selection of the individual to operate the retail outlet might prove to be difficult.
3. Construction costs would be higher in the building of two selling areas as opposed to building one large area (option two).

Option Two:

If the private retail option is not viable, option two would be the better solution. It would create one large wholesale retail selling area. Many of the same principles applied in option one would be used. The retail section would have one long counter with one entrance and exit. There would be a central cashiers position to handle all cash operations. The wholesale area would have one long counter for preparation work and it's own weighing station.

The (3) new offices would be constructed in the warehouse. As in option one, there would be provisions made for storage space above new construction.

To summarize, the following is a list of advantages and disadvantages for option two:

Advantages:

1. This is the better solution if the ACPM wants to keep retail sales. It employs the double use of personnel for wholesale or retail sales depending on where they are needed.
2. It would be less costly than option one, mainly because in option two there is no retail area to build.

Disadvantages:

1. Having retail sales as a part of ACPM activity is as stated before, a management burden.
2. Whereas option one provides optimum space for wholesale sales which will represent the greater portion of projected sales, option two provides for less area with no possible room for expansion.

It is not expected that major renovations can commence in the immediate future. Besides the decision of which option to choose, there is a question of how it would be funded. It is though important from a planning standpoint to decide now which direction to take.

APPENDIX H

RETAIL OUTLET REGULATIONS

-MINISTÈRE DE L'AGRICULTURE
ET DU DÉVELOPPEMENT RURAL.

SERVICE DE L'ELEVAGE
ET DES PECHES.

-REPUBLIQUE DE DJIBOUTI-

UNITE - EGALITE - PAIX

ARRÊTÉ N° 83-0552/PR/AGR

Portant modification partielle à l'arrêté n°80-0143/PR/MADR du 26/01/80 concernant la fixation des tarifs applicables à la Pêche de Boulaos et aux Poissonneries de Djibouti et des Districts.

VISAS : PREMIER MINISTRE
MINISTRE DES FINANCES.

LE PRESIDENT DE LA REPUBLIQUE
CHEF DU GOUVERNEMENT

- VU- Les lois constitutionnelles LR/77-001 et 77-002 en date du 27 juin 1977 ;
- VU- L'ordonnance LR/77-08 en date du 30 juin 1977 ;
- VU- Le décret n°82-041 du 5 juin 1982 portant nomination des membres du gouvernement ;
- VU- La délibération n°244/7ème L du 4 Avril 1972 fixant l'organisation et les attributions du Service de l'Elevage et des Pêches ;
- VU- L'arrêté n°1 120 du 1er AOUT 1956 réglementant l'importation, le transit, l'exportation et la circulation intérieure des animaux vivants et des produits d'origine animale dans le territoire de la République ;
- VU- Délibération n°475/6ème L du 24 Mai 1968 portant réglementation financière dans la République de Djibouti ;
- SUR Proposition conjointe du Ministre de finances et du Ministre de l'Agriculture et du Développement Rural.

Le Conseil des Ministres entendu dans sa séance du 15 MARS 1983

A R R E T E

Le présent arrêté ne modifie que le chapitre V de l'arrêté n°80-0143/PR/MADR , les autres chapitres restent inchangés.

ARTICLE 1/- Location des chambres froides et du tunnel de congélation de la Pêcherie de Boulaas.

L'usage de ces chambres froides et du tunnel de congélation est exclusivement réservé à la Coopérative de Pêche en vue d'y stocker les poissons et les crustacés selon un forfait de 300 000 FD par mois.

ARTICLE 2/- Vente de glace en paillettes

Elle sera réservée uniquement aux pêcheurs membres de la Coopérative et aux gérants des poissonneries construites par le Service de l'Elevage et des Pêches;

La Coopérative vendra la glace au tarif de 10 frs le Kilogramme

Elle versera au Service de l'Elevage et des Pêches un forfait mensuel de 100 000 FD par fabrique de glace.

ARTICLE 3/- Véhicules

Le Service de l'Elevage et des Pêches assure le Transport du poisson des différents points de débarquement à la Pêcherie de Boulaas puis vers les différentes poissonneries de Djibouti ALI-SABIEH et DIKHIL.

Les frais de transport sont fixés pour l'utilisation des 2 véhicules isotherme forfaitairement à la somme de 50 000 FD par mois;

ARTICLE 4/- Location des poissonneries de Djibouti et des Districts :

Le Service de l'Elevage et des Pêches attribue à des particuliers sous certaines conditions les poissonneries de Djibouti et des districts de l'intérieur :

a) - Poissonneries de Djibouti :

Les loyers mensuels sont fixés forfaitairement pour :

-Engueila, cité stade à 6 000 FD

-Quartier 4, Av.26, Arhiba, Quartier 7 bis, Ambouli I,
Ambouli II, Balbala à 5 000 FD

b) - Poissonneries des districts de l'intérieur

Les loyers mensuels sont fixés forfaitairement à 2 000 FD

Ces loyers devront être payés par avance le 5 de chaque mois.

Conditions d'attribution de ces poissonneries :

- 1) - La priorité sera donnée aux anciens pêcheurs, et aux personnes ayant déjà l'expérience dans le domaine de la commercialisation du poisson.
- 2) - L'utilisation de ces poissonneries est exclusivement réservée à la vente du poisson et des produits de la mer provenant de la coopérative de Pêche. Elles ne peuvent être sous louées ou cédées.
- 3) - Il ne sera attribué qu'une seule poissonnerie par personne.
- 4) - La présence de l'attributaire doit être effective à tout moment il peut être assisté d'employés placés directement sous sa responsabilité.
- 5) - L'entretien intérieur du bâtiment est à la charge de l'attributaire qui sera responsable de toutes dégradations constatées.
- 6) - L'attributaire aura à sa charge les dépenses d'eau et d'électricité pour lesquelles il doit prendre les abonnements nécessaires auprès des Eaux de Djibouti et de L'E.D.D
- 7) - Le poisson devra être pesé lors de la vente devant l'acheteur et le prix de vente par espèces seront affichés de façon à être lus clairement par le public.

.../...

8) - Le Service de l'Elevage et des Pêches et tout autre service habilité (arrondissements, districts) veilleront à la régularité des activités et au respect des règles d'hygiène.

9) - Un contrat de location sera établi entre le Service de l'Elevage et des Pêches et l'attributaire.

En cas du non respect de l'une des clauses énumérées ci-dessus le Service de l'Elevage et des Pêches peut résilier ce contrat sans préavis.

10) - Pour les Poissonneries des districts de l'intérieur les rôles du Service de l'Elevage et des Pêches sont confiés aux commissaires de la République chefs de district.

DJIBOUTI, le 16 AVRIL 1983

HASSAN GOULED APTIDON



APPENDIX I

RETAIL OUTLET CONTRACT

C O N T R A T D E L O C A T I O N

Il est convenu ce qui suit entre :

- Le Service de l'Elevage et des Pêches

et

-

.....

ARTICLE 1 : Le Service de l'Elevage et des Pêches loue à

.....

la poissonnerie sise à

ARTICLE 2 : La location prend effet à compter du

ARTICLE 3 : Le montant du loyer mensuel est fixé à la somme de

.....

ARTICLE 4 : Le locataire

s'engage à respecter les termes du cahier des charges ci-annexé.

Fait à Djibouti, le

Le Locataire
(Lu et approuvé)

Le Chef du Service de l'Elevage
et des Pêches.

CAHIER DES CHARGES

Conditions d'attribution des poissonneries :

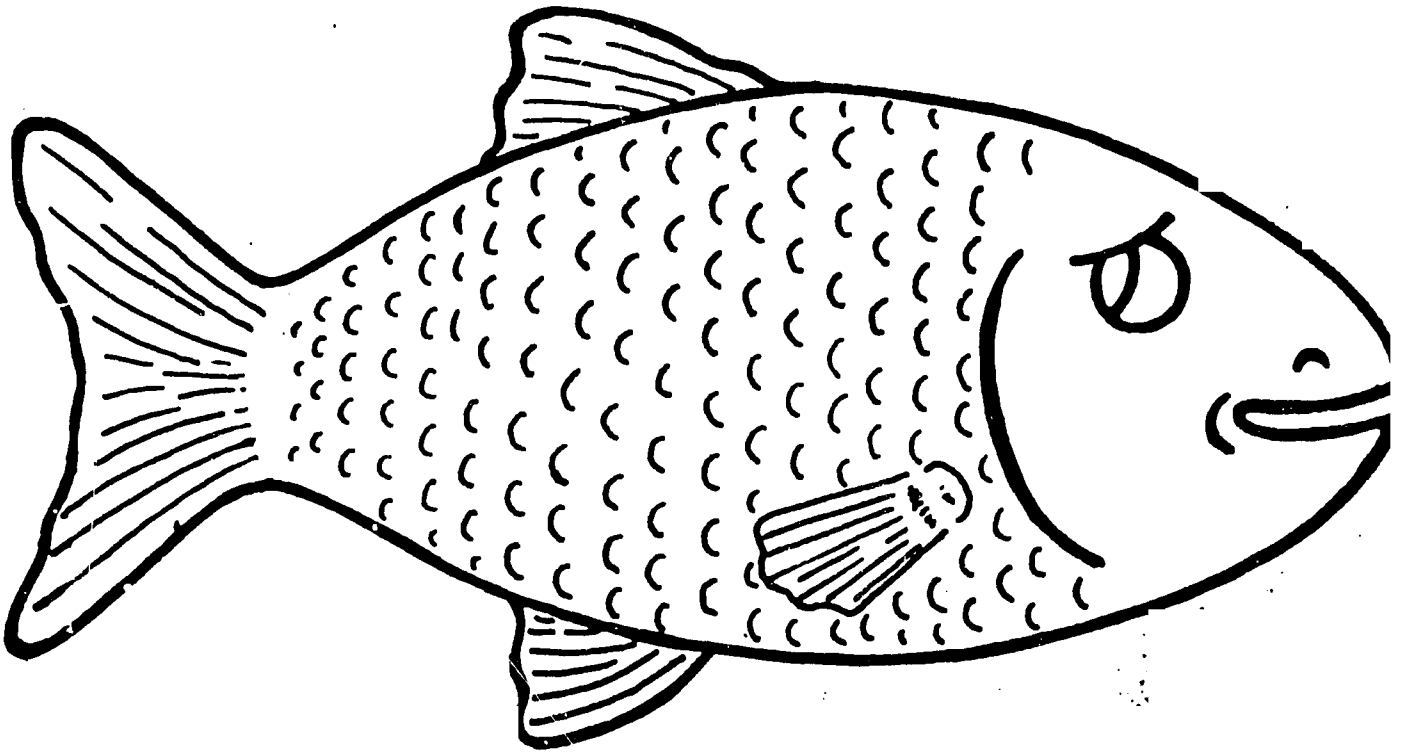
- 1) - La priorité sera donnée aux anciens pêcheurs, et aux personnes ayant déjà l'expérience dans le domaine de la commercialisation du poisson.
- 2) - L'utilisation de ces poissonneries est exclusivement réservée à la vente du poisson et des produits de la mer provenant de la coopérative de Pêche. Elles ne peuvent être sous louées ou cédées.
- 3) - Il ne sera attribué qu'une seule poissonnerie par personne.
- 4) - La présence de l'attributaire doit être effective à tout moment il peut être assisté d'employés placés directement sous sa responsabilité.
- 5) - L'entretien intérieur du bâtiment est à la charge de l'attributaire qui sera responsable de toutes dégradations constatées.
- 6) - L'attributaire aura à sa charge les dépenses d'eau et d'électricité pour lesquelles il doit prendre les abonnements nécessaires auprès des Eaux de Djibouti et de L'E.D.D.
- 7) - Le poisson devra être pesé lors de la vente devant l'acheteur et le prix de vente par espèces seront affichés de façon à être lus clairement par le public.
- 8) - Le Service de l'Elevage et des Pêches et tout autre service habilité (arrondissements, districts) veilleront à la régularité des activités et au respect des règles d'hygiène.
- 9) - Un contrat de location sera établi entre le Service de l'Elevage et des Pêches et l'attributaire.
En cas du non respect de l'une des clauses énumérées ci-dessus le Service de l'Elevage et des Pêches peut résilier ce contrat sans préavis.
- 10) - Pour les Poissonneries des districts de l'intérieur les rôles du Service de l'Elevage et des Pêches sont confiés aux commissaires de la République chefs de district.

l'Attributaire

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APPENDIX J

POUR VOTRE SANTE



Pour Votre Santé

T A B L E D E S M A T I E R E S

- I. POURQUOI MANGER DU POISSON ?

- II. OU POUVONS-NOUS ACHETER DU POISSON ?

- III. COMMENT CHOISIR LE MEILLEUR POISSON FRAIS
 A LA POISSONNERIE ?

- IV. COMMENT PREPARER LE POISSON QUE NOUS
 AVONS ACHETE ?

- V. COMMENT CUISINONS-NOUS LE POISSON ?

- VI. COMMENT FAISONS-NOUS SECHER LE POISSON ?

- VII. COMBIEN DE TEMPS FAUT-IL POUR
 SECHER LE POISSON ?

- VIII. QUELLES SONT LES VARIETES DE POISSON
 A DJIBOUTI ?

I. POURQUOI MANGER DU POISSON ?

Parce-que c'est bon pour notre santé !

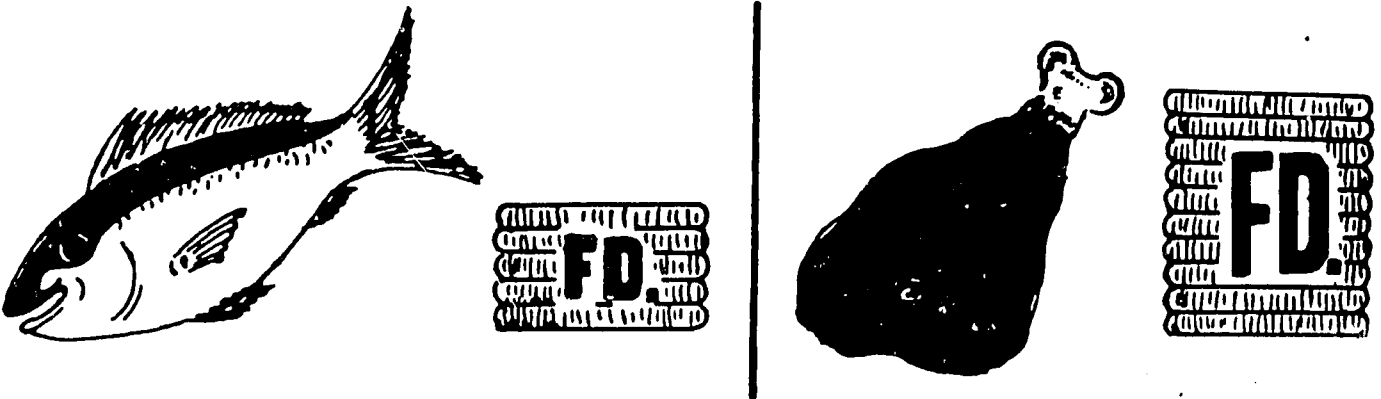
Il est plein de proteines, d'énergie et de vitamines -
trois choses dont notre corps a besoin chaque jour.

Parce-que c'est bon pour notre porte-monnaie !

Notre poisson vient de notre propre mer djiboutienne.
Nous n'avons pas besoin d'importer du poisson en
conserves cher quand nous mangeons notre propre poisson
frais ou séché.

Le poisson est abondant et très varié dans notre mer
ainsi nous pouvons le vendre bon marché.

Le poisson coûte la moitié du prix de la viande !



Peut-être que la meilleure raison de manger du poisson
est que c'est bon à manger.

Le poisson de Djibouti est délicieux !

C U N A K A L U U N K A
A K U M A K U U L U N

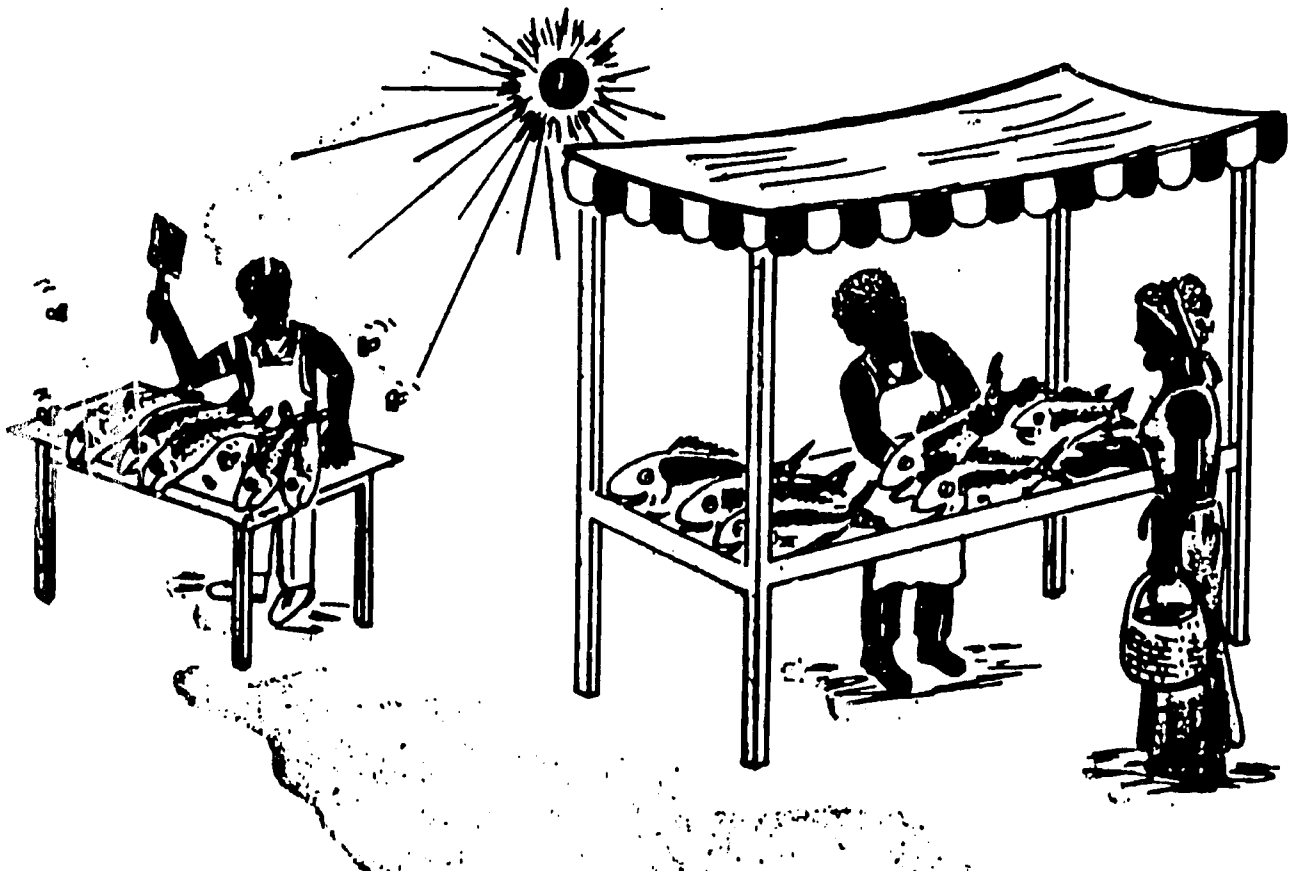
II. OU POUVONS-NOUS ACHETER DU POISSON FRAIS ?

Dans Djibouti-ville nous pouvons acheter du poisson frais au Service des Pêches ou à ses nouvelles poissonneries dans les quartiers en ville. Les nouvelles poissonneries sont très commodes.

De nouvelles poissonneries sont aussi en place dans les districts d'Obock, de Tadjourah, d'Ali-Sabieh et de Dikhil. Il y a aussi des poissonneries à Wea et Arta.

II. COMMENT CHOISIR LE POISSON LE PLUS FRAIS SUR LE MARCHÉ ?

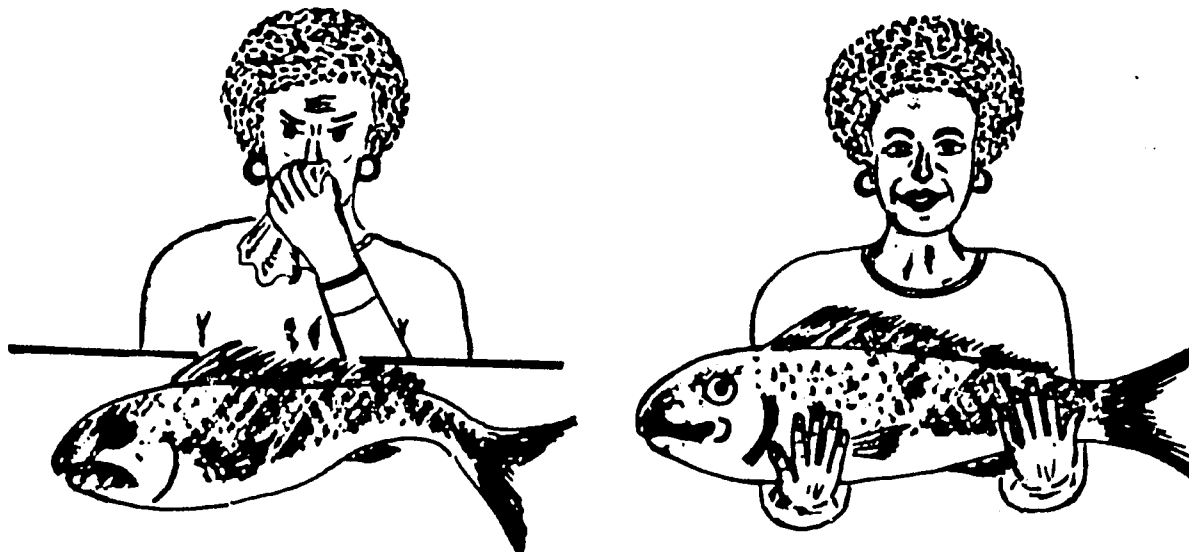
Acheter le poisson au marchand dont le magasin est propre et frais et qui a le moins de mouches.



Choisir le poisson avec les yeux blancs,

dont les ouïes sont rouges,

et qui a l'odeur du poisson frais....

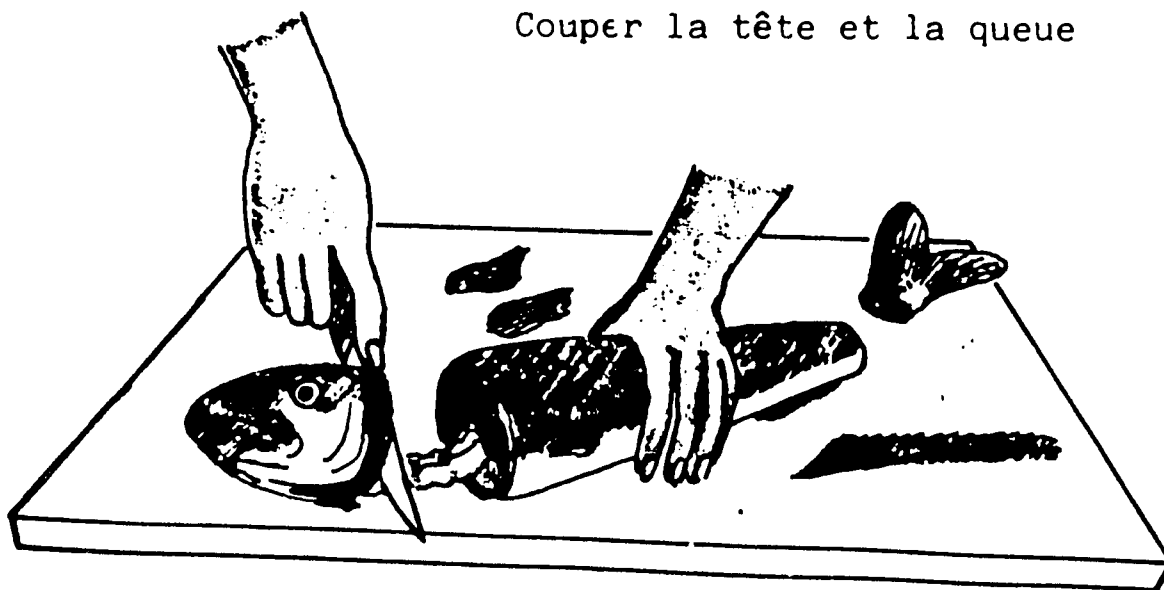


IV. COMMENT PREPARER LE POISSON QUE NOUS AVONS ACHETE ?

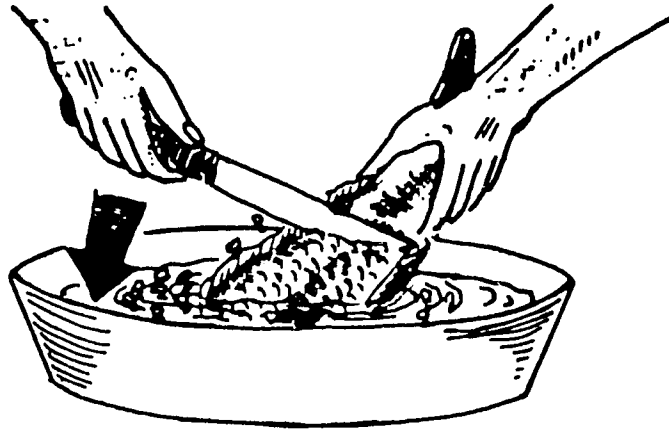
La préparation du poisson pour le repas de famille est facile !

S'assurer de garder le poisson à la fraîcheur et le nettoyer vite :

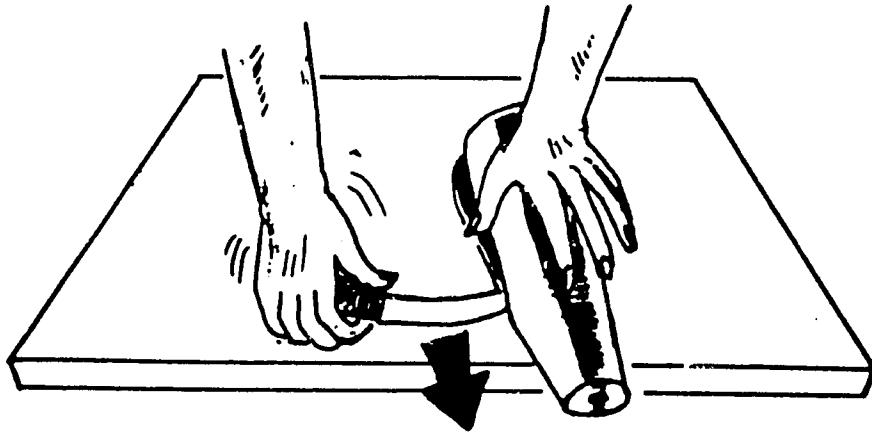
Couper la tête et la queue



L'écailler avec un couteau



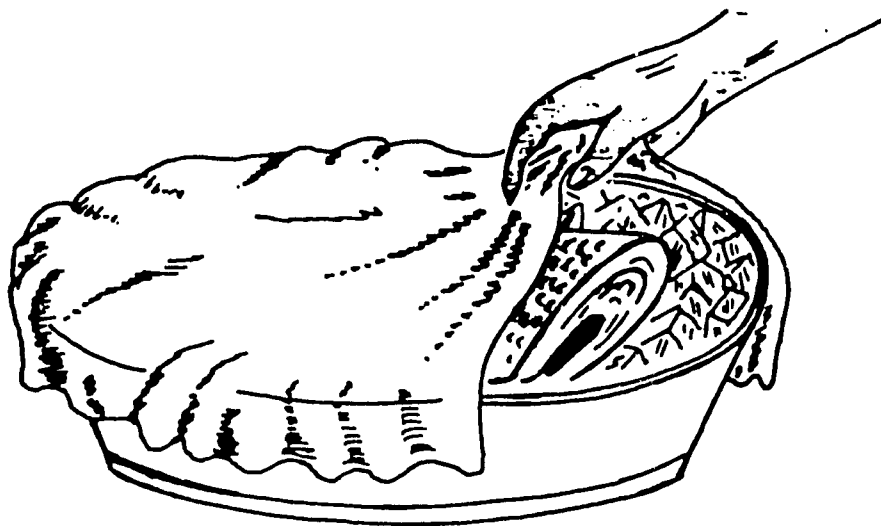
Couper le poisson



Enlever les ouïes

et rincer le poisson dans l'eau propre





Garder le poisson au frais et couvrir jusqu'à ce que vous soyez prêts à le cuisiner. Utiliser la tête du poisson pour faire la soupe. Vers la fin du livret, vous connaîtrez les façons de sécher le poisson pour le garder longtemps.

COMMENT CUISINER LE POISSON ?

Cuisiner le poisson est aussi facile que pour la viande et plus rapide et moins cher !

Voici quelques recettes faciles pour cuisiner le poisson.

a. Le poisson à la Amina

faire frire le poisson dans de l'huile végétale avec du sel, du poivre et des épices si vous le désirez. Pour les enfants mettez moins de poivre et d'épices (et enlever les arêtes).

b. La soupe de poisson de Kadra

Acheter un poisson de taille moyenne.

Après l'avoir écaillé, vidé et enlevé les ouïes, couper le poisson en morceaux.

Rincer les morceaux avec de l'eau propre (y compris la tête du poisson).

Faire bouillir le poisson dans de l'eau.

On peut ajouter beaucoup de légumes - oignons, carottes, pommes de terre ou tout autre légume que l'on trouve sur le marché. On peut aussi ajouter beaucoup d'épices - sel, poivre, coriandre, ail, persil. Plus d'imagination fait une meilleure soupe !

Cette soupe est saine et bonne pour toute la famille y compris les petits enfants.



c. Le Poisson Frit d'Aïcha

Ceci est aussi un repas très délicieux et sain pour la famille entière.

Couper le poisson en petits morceaux et lui ajouter du riz cuit et des légumes tels que : oignons, carottes, chou et petits pois. Ajouter du sel et du poivre et faire frire tout le mélange dans un peu d'huile végétale.

d. Ceci est une recette spéciale utilisée dans beaucoup de régions du monde (spécialement pendant la saison fraîche).

1. Découper le poisson et les pommes de terre en morceaux de la taille d'une bouchée, qu'il y en ait assez pour la famille entière.

Hacher quelques oignons.

2. Mettre le tout dans un grand pot et ajouter de l'eau jusqu'à ce qu'il soit juste couvert. Ajouter le sel et le poivre.

3. Le laisser cuire doucement jusqu'à ce que les pommes de terre soient presque complètement molles.

Laisser refroidir un peu la soupe et

4. placer alors le pot sous un feu très doux. Remplir le pot avec du lait pour faire une bonne soupe épaisse. (Vous pouvez utiliser du lait frais ou du lait en poudre que vous avez délavé)

5. Chauffer la soupe jusqu'à ce qu'elle soit juste prête à bouillir. (Si le lait boue il caillera mais aura bon goût).

Il est bon de servir la soupe chaude avec une salade de tomates, d'oignons et de poivrons.

BON APPETIT !

VI. COMMENT FAIRE LE SECHAGE ET LE SALAGE DU POISSON ?

Sécher le poisson a beaucoup d'avantages sur le poisson frais :

- Vous pouvez garder le poisson séché longtemps,
- Vous pouvez stocker le poisson plus facilement et il est plus économique.

Si vous voulez garder le poisson à long terme voici deux méthodes très simples à suivre :

Le sel

Les meilleurs résultats seront obtenus en mélangeant 2/3 de gros sel et 1/3 de sel fin.

Le sel devra être bien sec.

Pour 10 litres d'eau, ajouter 5 kgs de sel
(5 litres d'eau : 2,5 kgs de sel)

Le Poisson ou filets de poisson

Le poisson devra être traité frais, vidé et la colonne vertébrale retirée. Il est nécessaire de laver le poisson ou les filets et de

retirer toutes les impuretés (sang etc...)

L'épaisseur des filets ne devra pas excéder 4 cm
(trois doigts)

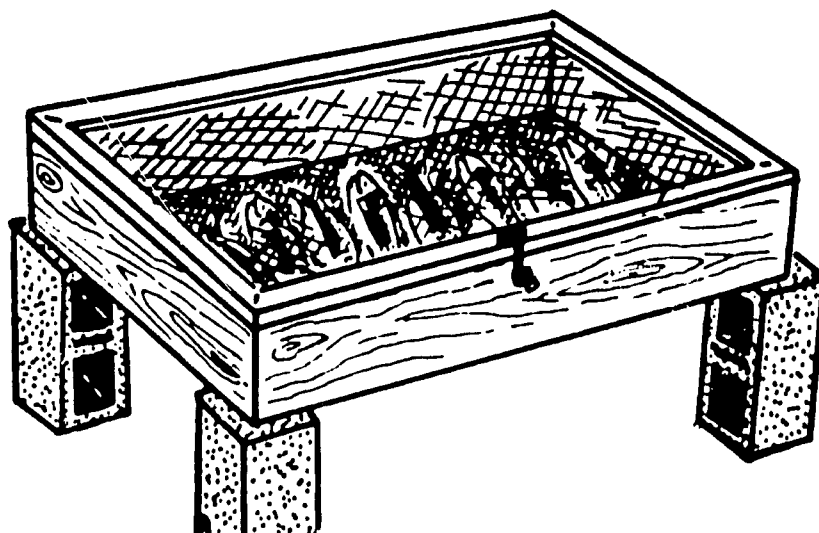
De bons résultats seront obtenus avec des filets
d'une épaisseur de 2,5 cm (deux doigts).

1er METHODE : Le salé - séché

(Pour garder le poisson une semaine à 15
jours)

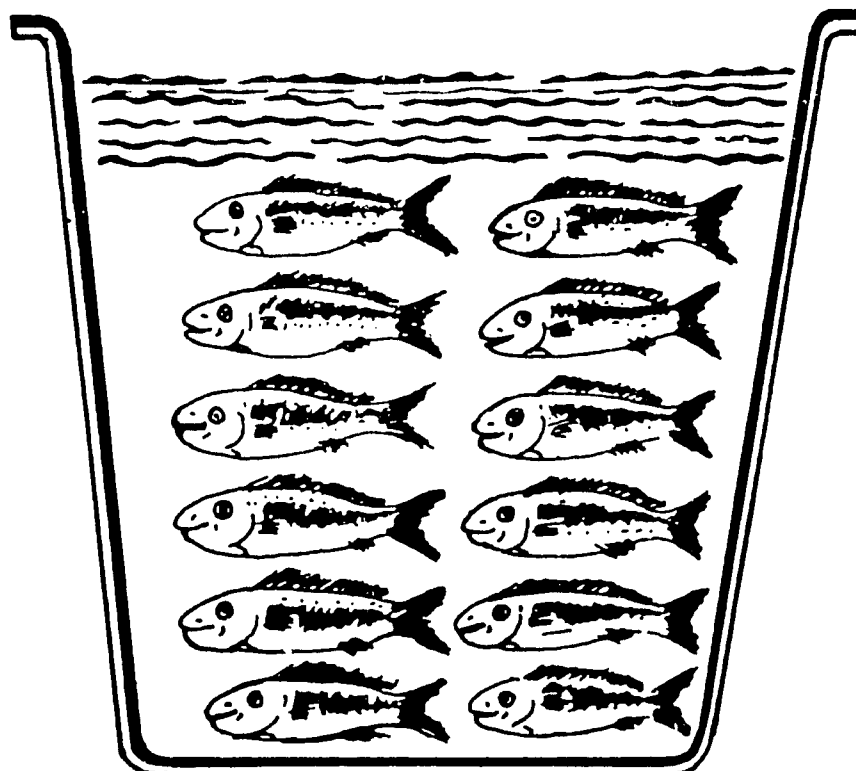
- Ouvrir le poisson, retirer la colonne vertébrale,
et les écailles.
- Laver à l'eau pour retirer les impuretés.
- Imprégner la chair de sel.
- Etendre sur une claie de séchage recouverte d'un
grillage très fin (grillage de garde manger).
- Sécher au soleil durant trois jours effectifs.

Voici un exemple de séchoir de poisson familial
qui peut être fabriqué à un prix minime.



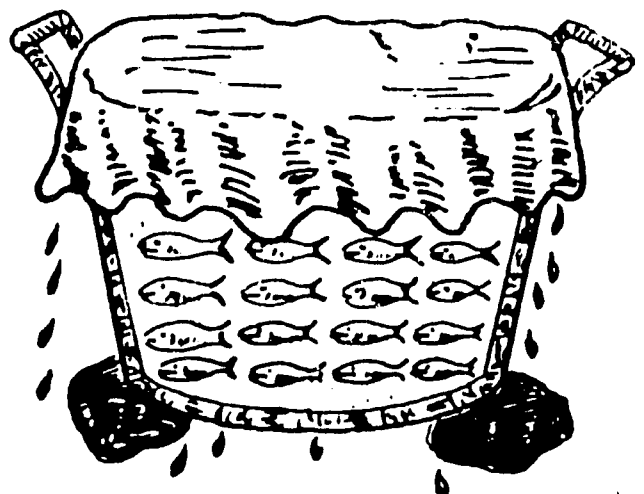
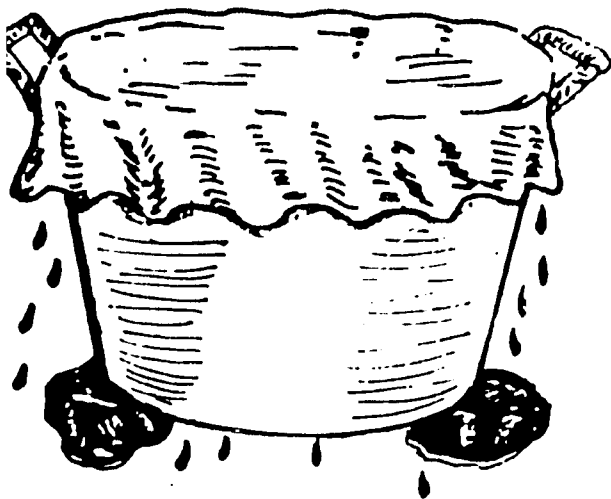
2ème METHODE : Salage en eau saumurée

(Pour garder le poisson 3 à 4 mois)



- Le salage de petites quantités de poisson doit être effectué en utilisant un seau en plastique.
- Saler le fond du seau en déposant une couche de sel.
- Etendre une couche de filets ou de poisson (épaisseur recommandée 2 cm).
- Etendre une couche de sel
- La saumure se forme en 4 ou 5 heures.

- La saumure doit effleurer de la partie supérieure de la couche de poisson.
 - On peut, directement après l'opération du salage en seau, ajouter de l'eau pour couvrir la couche de poisson à condition que cette eau soit une eau salée (10 litres d'eau : 5 kgs de sel).
 - Une saumure est correcte quand on observe qu'il reste une certaine quantité de sel non dissoute.
 - Au bout de trois jours laver les filets à l'eau, saler les filets où poisson et sécher au soleil sur claies.
 - Afin d'assurer un bon salage par saumurage, les seaux de salage pourraient être recouverts extérieurement d'une toile en jute. Le seau devrait être posé sur un récipient plat recouvert d'eau.
- La toile imprégnée d'eau par l'évaporation rafraîchira le seau de saumure.



- Il est recommandé de ne pas exposer le seau de saumure au soleil et de recouvrir la claie de séchage d'un grillage fin ou d'un fin plastique pour éviter le contact des mouches et autres insectes.

VII. COMBIEN DE TEMPS FAUT-IL POUR SECHER LE POISSON ?

Après le saumurage, cela prendra de 9 à 16 heures selon la taille des filets que la famille a séchés. (Retirer le soir).

Temps de séchage

Filets de	1 cm	24 heures	soit	4 jours	de	7 heures		
"	de 1,5 cm	35 "	"	5 "	"	"	"	"
"	" 2 cm	48 "	"	7 "	"	"	"	"
"	" 2,5 cm	72 "	"	10 "	"	"	"	"

Important : Pour éviter une déshydratation trop rapide du poisson, il est recommandé pendant les 2 ou 3 premiers jours de retourner les filets de poisson (épaisseur 2 cm).

On considère que le poisson est sec lorsqu'il ne reste plus de parties blanches et qu'il est d'une couleur jaune pâle.

VIII. QUELLES SONT LES VARIETES DE POISSON A DJIBOUTI ?

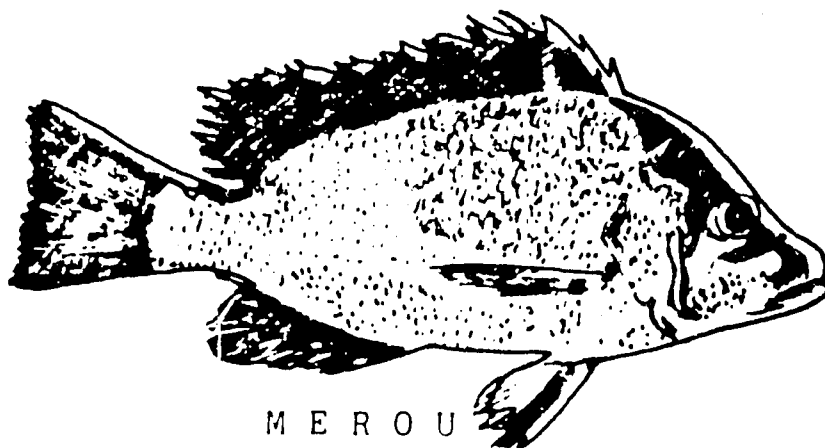
La mer de Djibouti est abondante et contient beaucoup de variétés de bon poisson à manger et à aimer.

Cette terre est bénie grâce à une bonne ressource le POISSON !

Ci-après sont quelques poissons qui sont disponibles dans l'année et que vous pouvez acheter aux poissonneries :

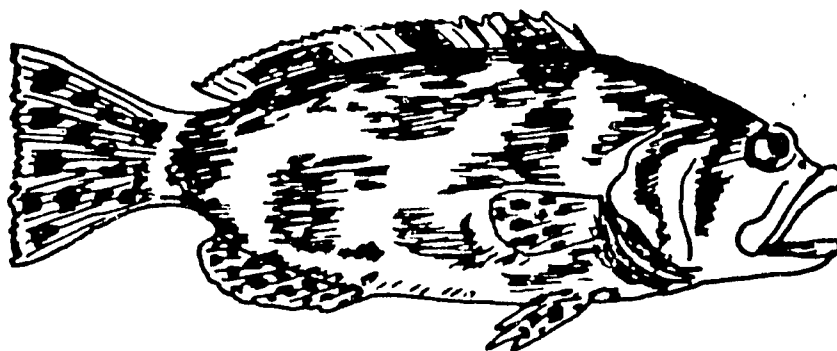
D O R A D E

(Un bon poisson à frire et pour la soupe)



M E R O U

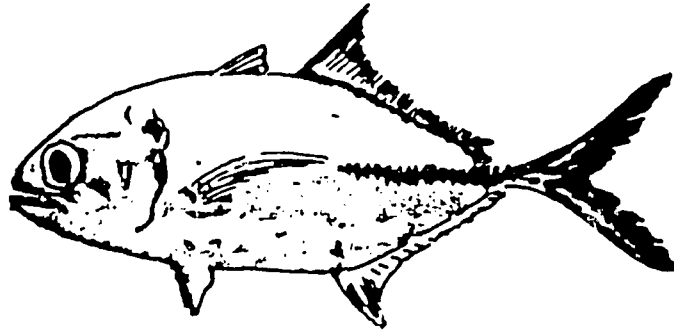
(Un bon poisson à frire avec des légumes)



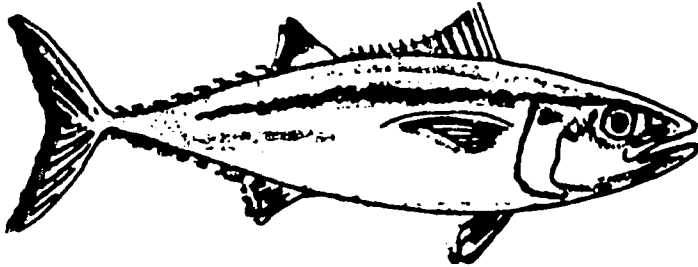
62/2

C A R A U X

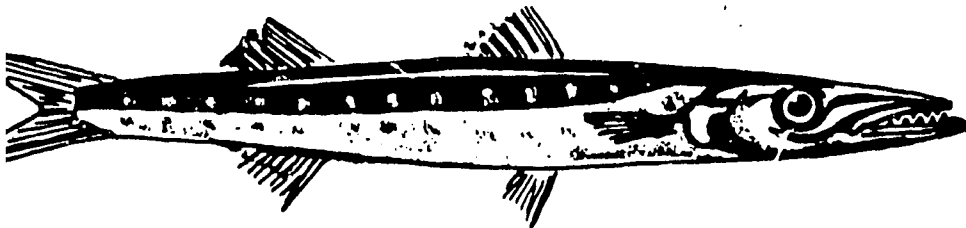
(Un poisson pour tous les types de cuisine)

T H O N

(Un poisson riche en graisses et vitamines)

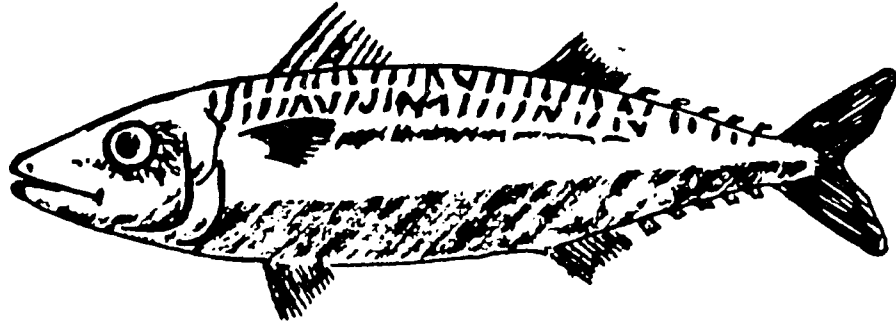
B A R R A C U D A

(Un excellent poisson pour les soupes ou à frire)

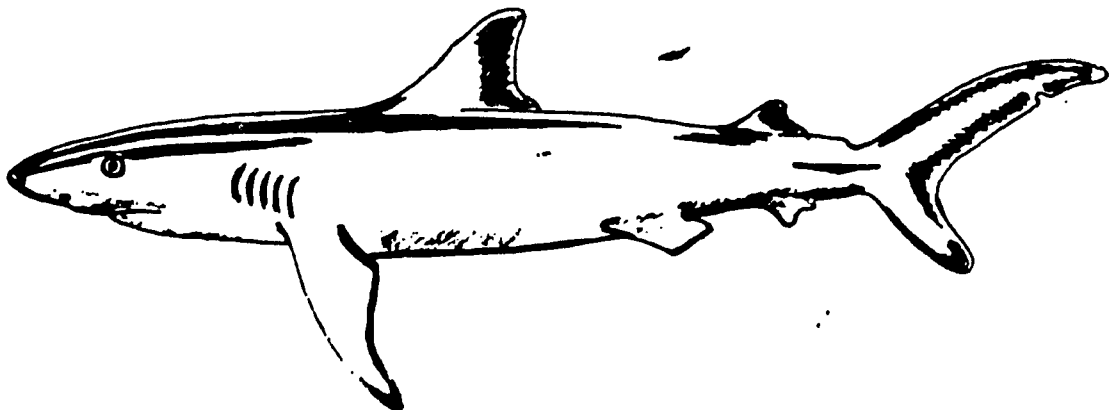


MAQUEREAU

(Un poisson riche aussi en graisses - excellent pour les soupes)

REQUIN

(L'un des poissons les plus abondants à Djibouti et le moins utilisé. Excellent pour les filets).



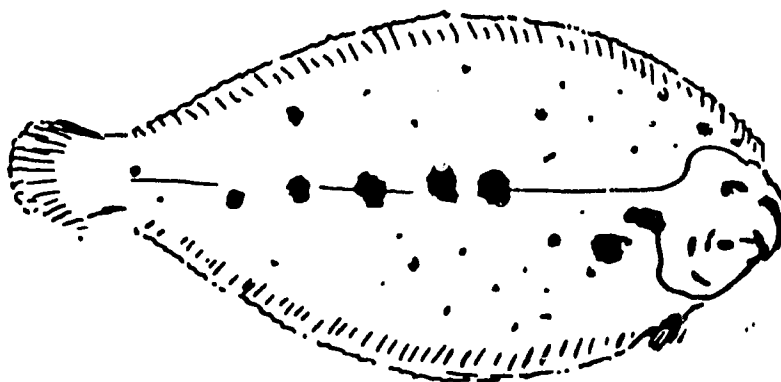
T H A Z A R

(Un autre poisson à tous usages pour les soupes ou à frire)

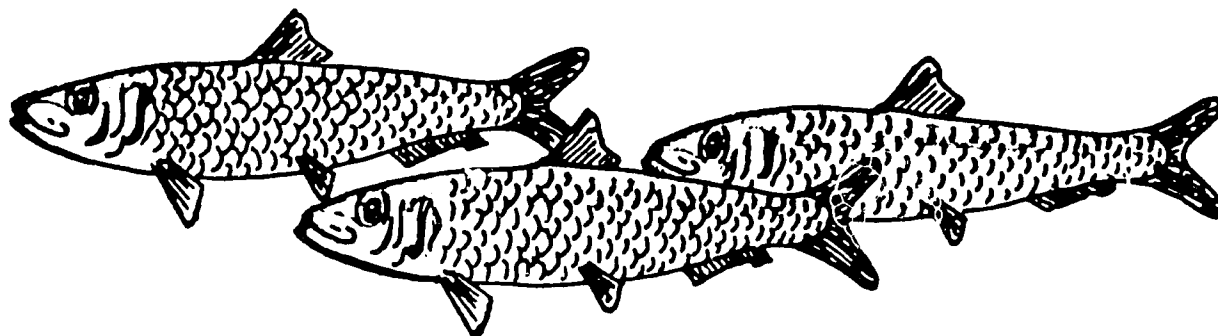


S O L E

(Un poisson exceptionnellement tendre à frire)



S A R D I N E



Ce poisson est l'un des fruits de mer de Djibouti, Même s'il est en conserve, c'est un poisson chargé de riches vitamines et de sels minéraux, bon marché à l'achat ET facile à préparer (un très petit nettoyage est nécessaire).

Voici une recette facile que toute la famille aimera :

- Laver les sardines dans de l'eau propre (sécher avec un linge)
 - Saupoudrer d'un peu de farine, sel et poivre sur les sardines.
 - Faire frire dans de l'huile végétale dans une poêle sur un feu moyen.
- Servir avec des pommes de terre frites, une salade de tomates et oignons. DELICIEUX et nutritif.
- Vous pouvez aussi sécher les sardines au soleil comme il a été expliqué avec d'autres poissons. Laver simplement, saupoudrer de sel, sécher au soleil pendant 2 à 3 jours (garder couvert avec un grillage contre les mouches et autres insectes).

Ce livret, préparé par le Catholic Relief Services(CRS) à Djibouti en collaboration avec le Service des Pêches, a été rendu possible grâce aux fonds d'Accord attribués par l'UNICEF et le Gouvernement des Etats Unis par l'intermédiaire du CRS.

Ce livret de formation est destiné à être utilisé par le personnel sanitaire et social travaillant dans les PMI, les Clubs Sociaux des Femmes, l'Union des Femmes Djiboutiennes et les écoles primaires rurales.

APPENDIX K

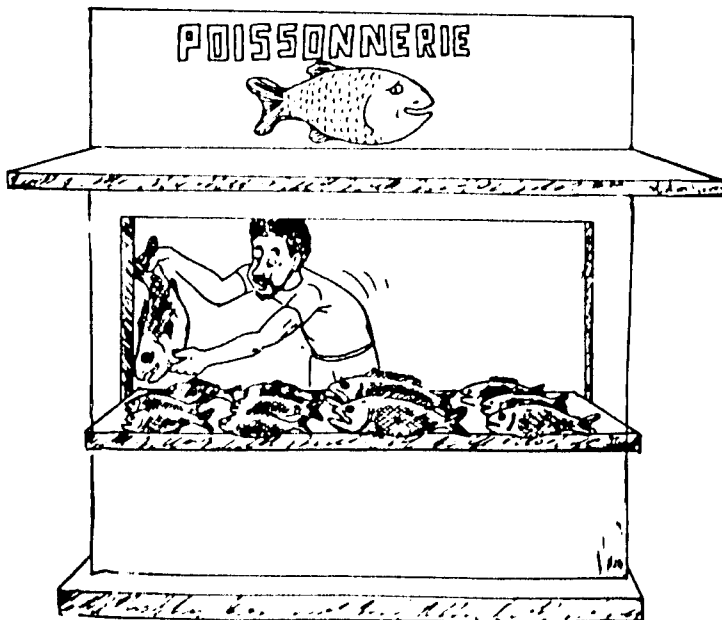
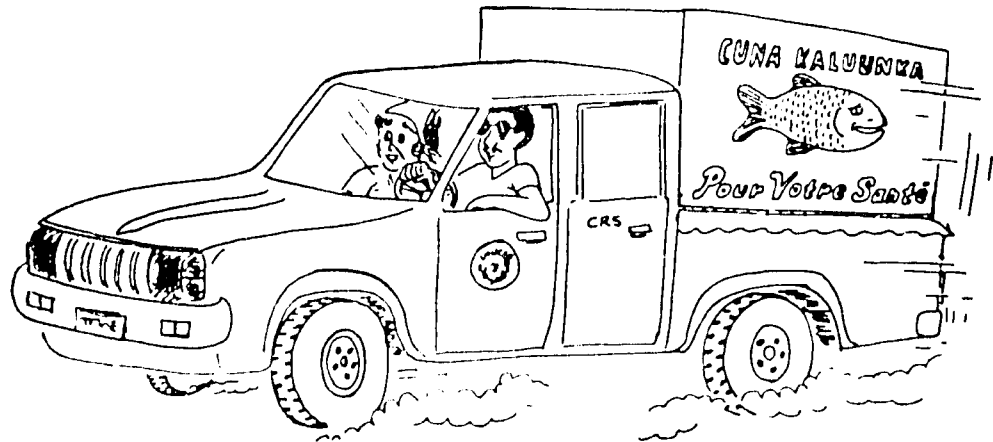
**CRS FISH HEALTH NUTRITION
FLIP CHARTS**

D'OÙ VIENT LE POISSON?



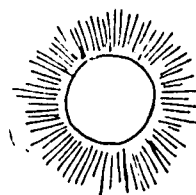
LE PECHEUR PREND LE
POISSON DANS LA MER

IL EST TRANSPORTÉ
PAR UN CAMION



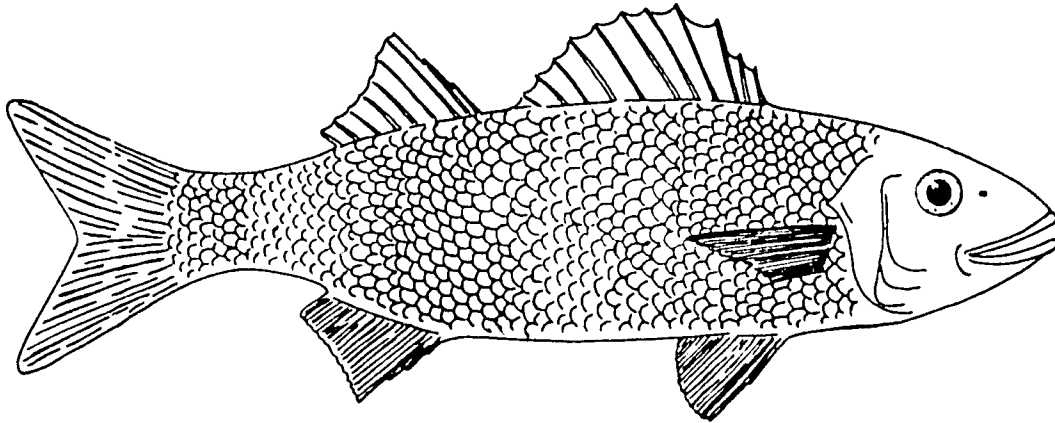
ET VENDU À LA
POISSONNERIE

N'ACHÈTE PAS LE POISSON DANS UN ENDROIT SALE



**ACHÈTE LE POISSON QUI EST À L'ABRI DU
SOLEIL ET DES MOUCHES**

IL FAUT BIEN NETTOYER LE POISSON

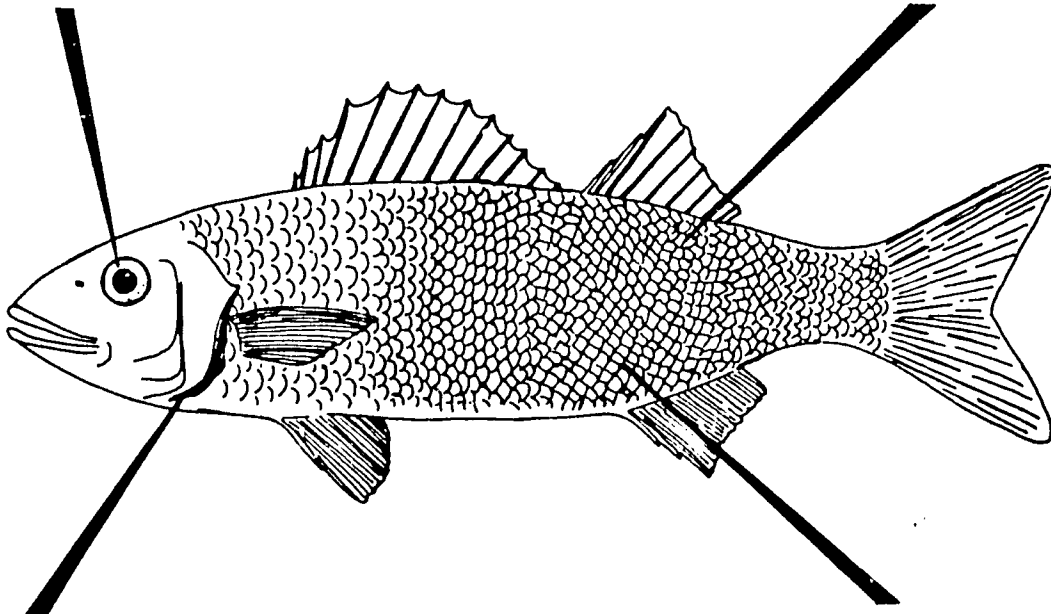


RINCER LE POISSON ENTIER

COMMENT CHOISIR LE MEILLEUR POISSON?

LES YEUX BLANCS

LE CORPS DOIT ÊTRE FERME

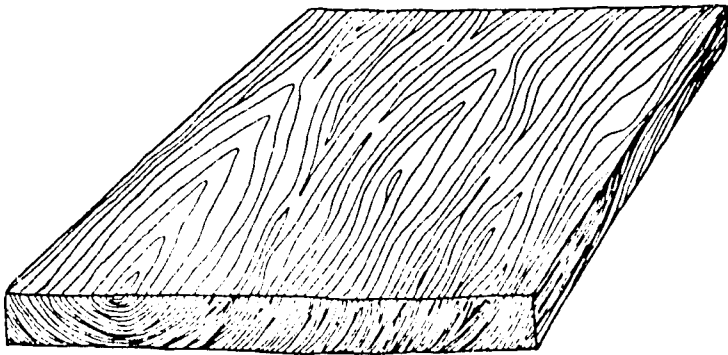


LES BRANCHIES ROUGES

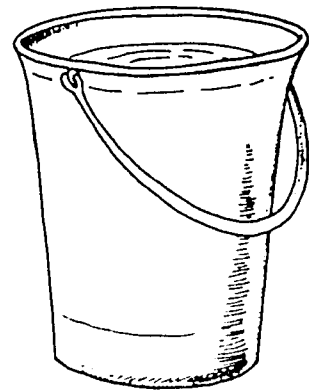
IL DOIT AVOIR SA PEAU

COMMENT NETTOYER LE POISSON?

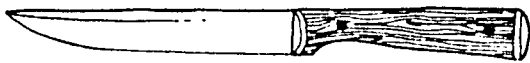
ON A BESOIN DE:



UNE PLANCHETTE PROPRE



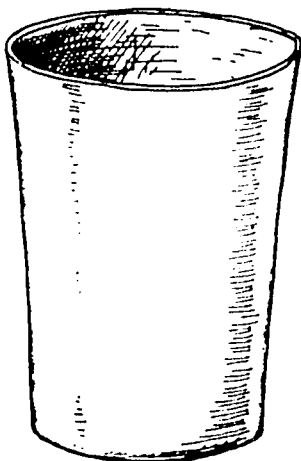
L'EAU PROPRE



UN COUTEAU PROPRE



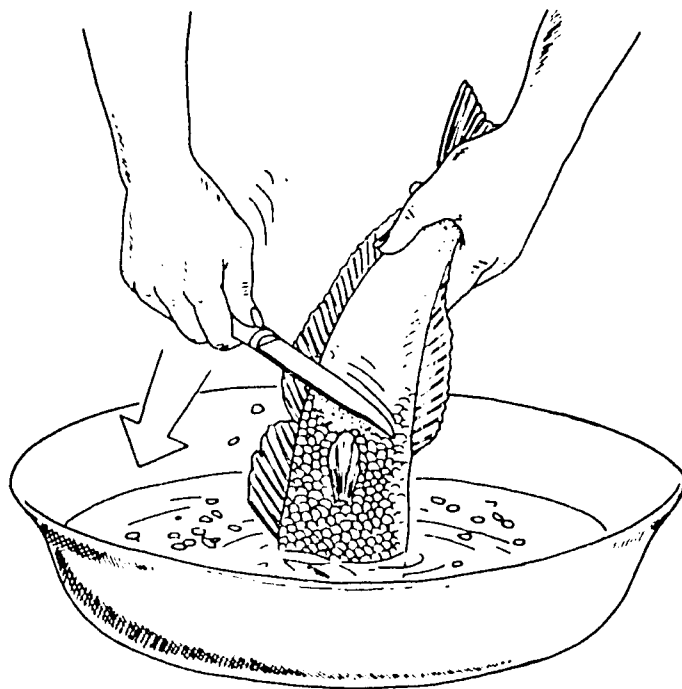
UN VERRE PROPRE



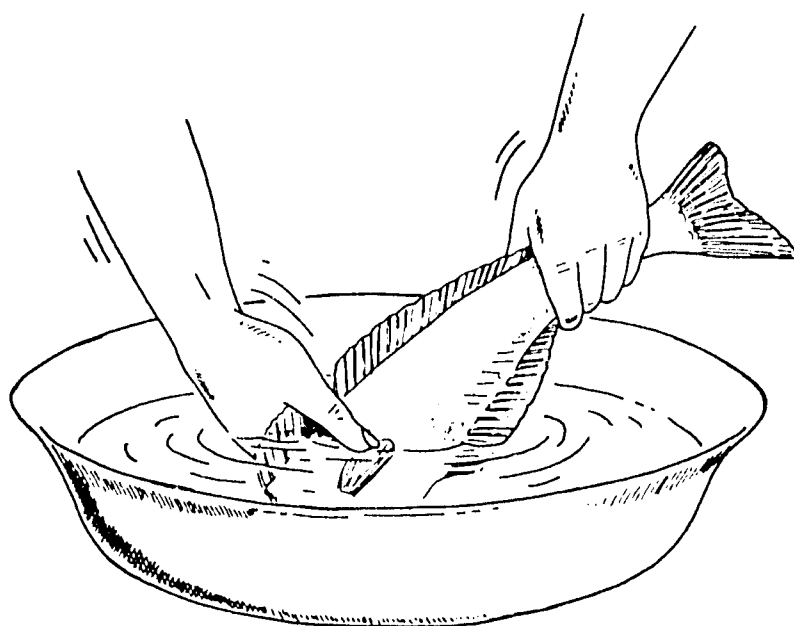
UNE CUVETTE PROPRE

UNE POUCELLE POUR LES DÉCHETS

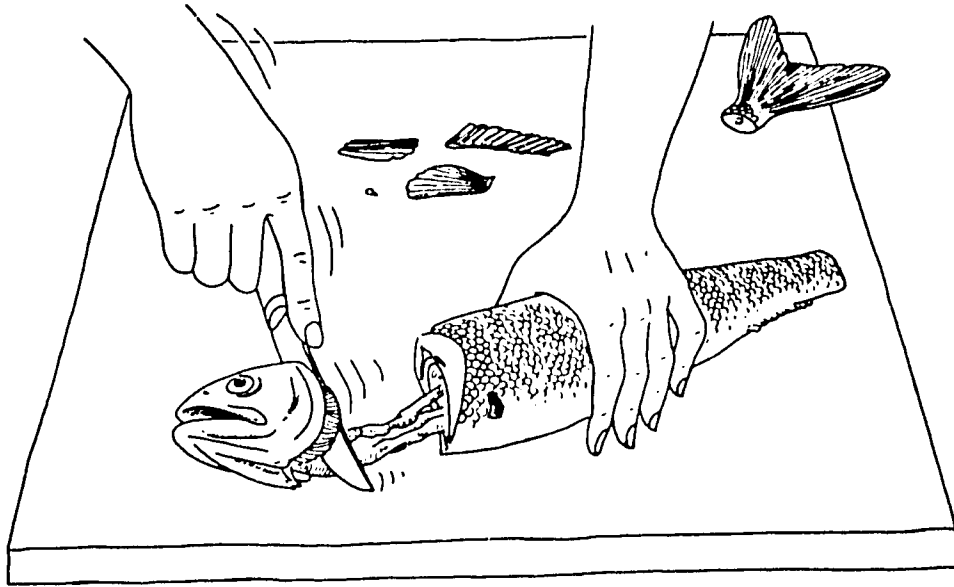
**ON DOIT ÉCAILLER LE POISSON EN PARTANT
DE LA QUEUE VERS LA TÊTE**



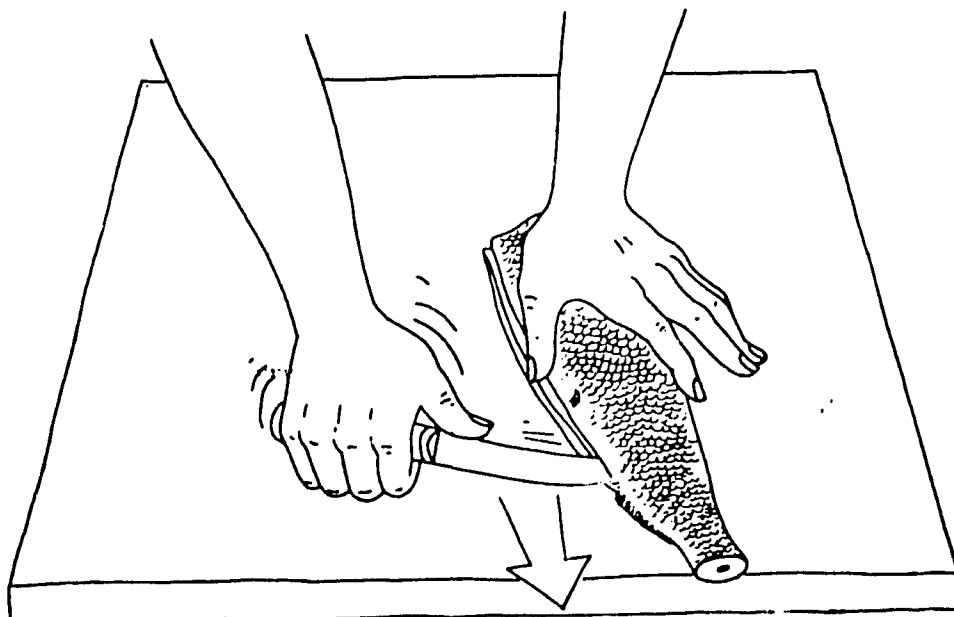
LAVER LE POISSON DANS L'EAU PROPRE



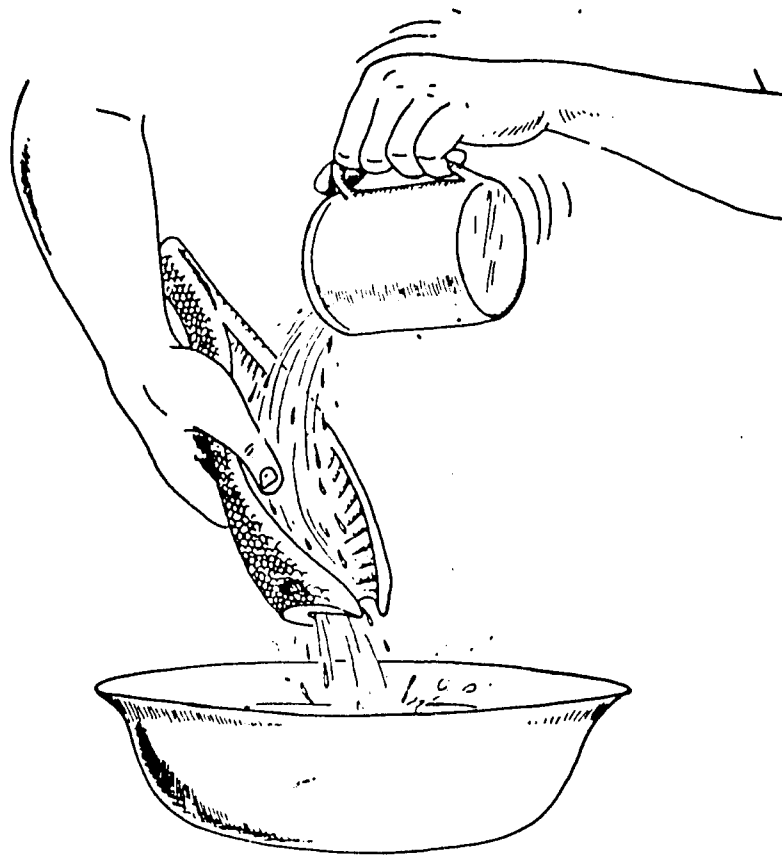
ENLEVER LA TÊTE ET LA QUEUE



OUVRIR LE VENTRE ET VIDER L'INTERIEUR



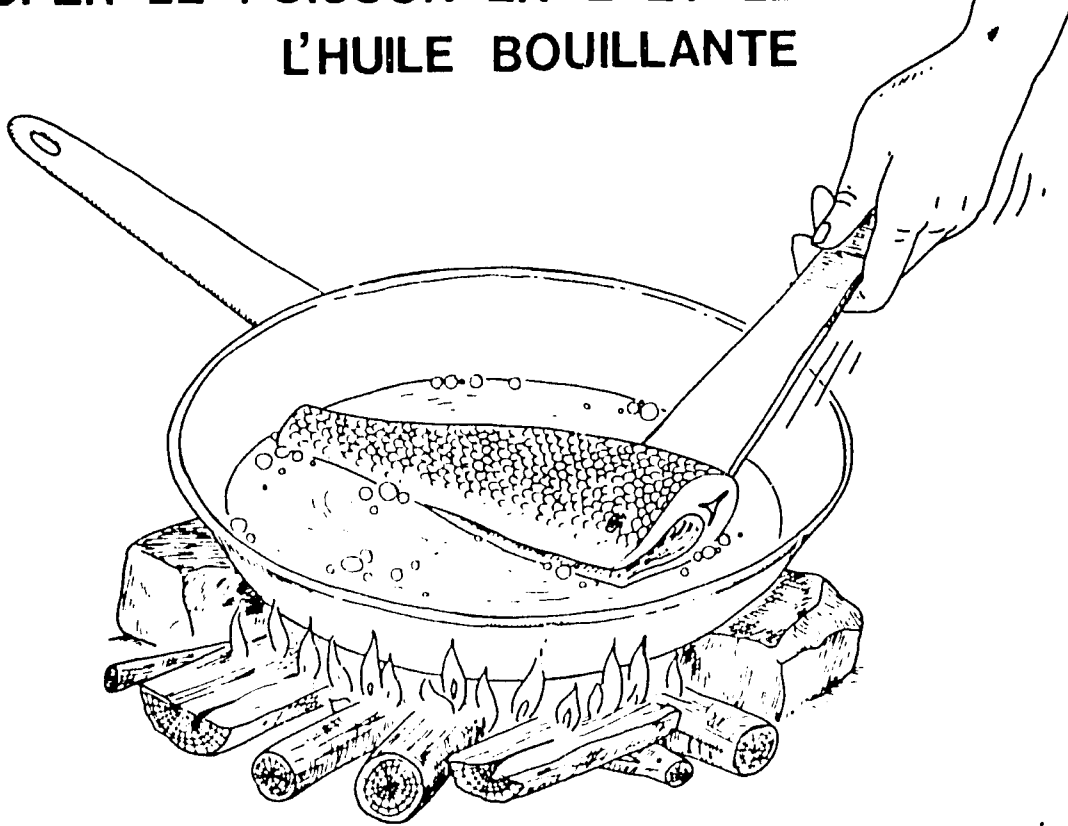
NETTOYER L'INTERIEUR AVEC DE L'EAU PROPRE



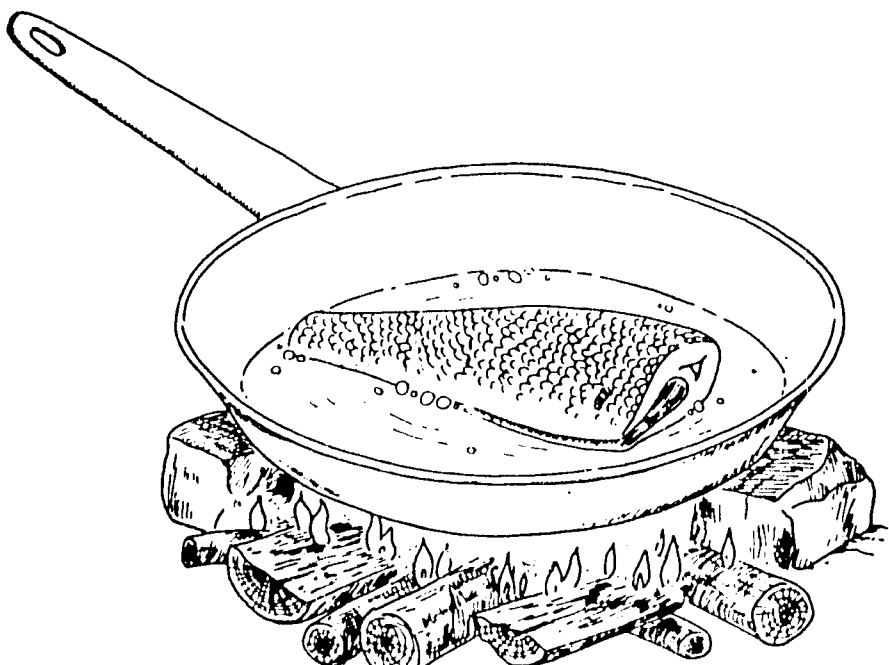
MAINTENANT IL EST PRÊT À CUIRE

COMMENT FAIRE FRIRE LE POISSON?

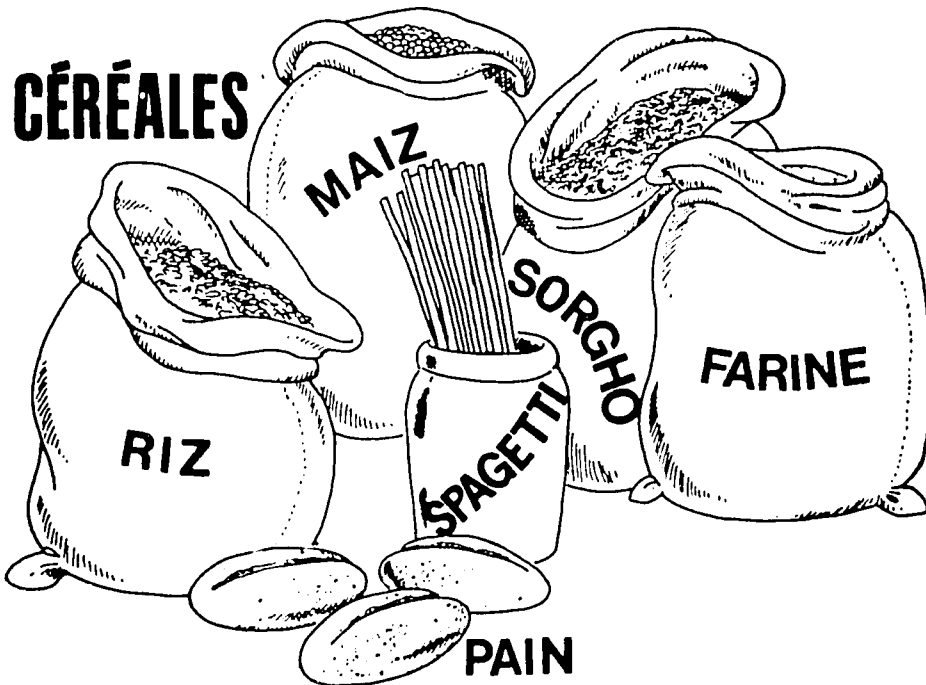
COUPER LE POISSON EN 2 ET LE METTRE DANS
L'HUILE BOUILLANTE



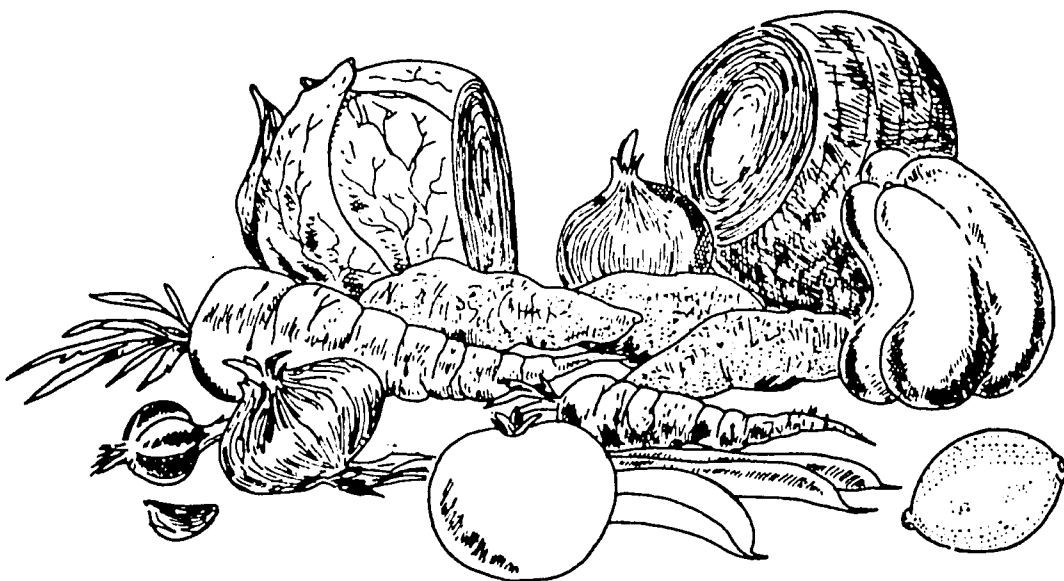
LAISSER À PETIT FEU JUSQU'À CE QU'IL SOIT TENDRE



VOILÀ DES ALIMENTS QUE VOUS POUVEZ MANGER AVEC DU POISSON

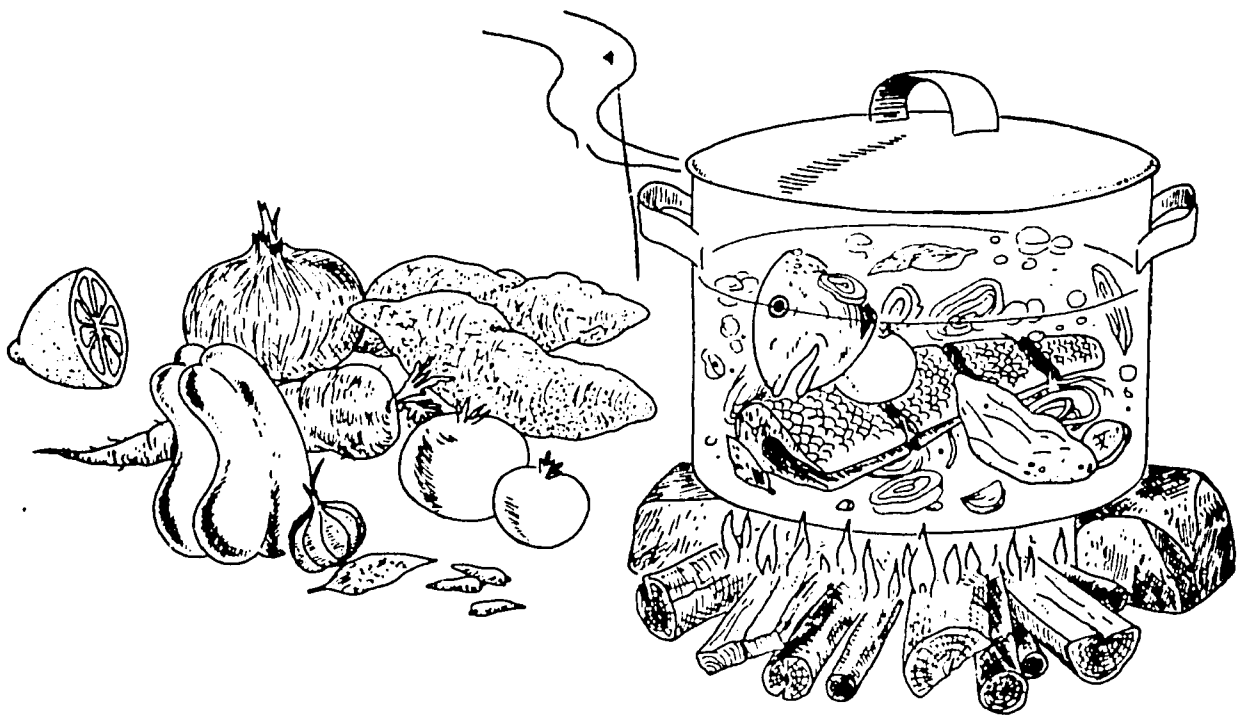


LÉGUMES ET FRUITS



D'AUTRES MANIÈRES DE CUISINER LE POISSON

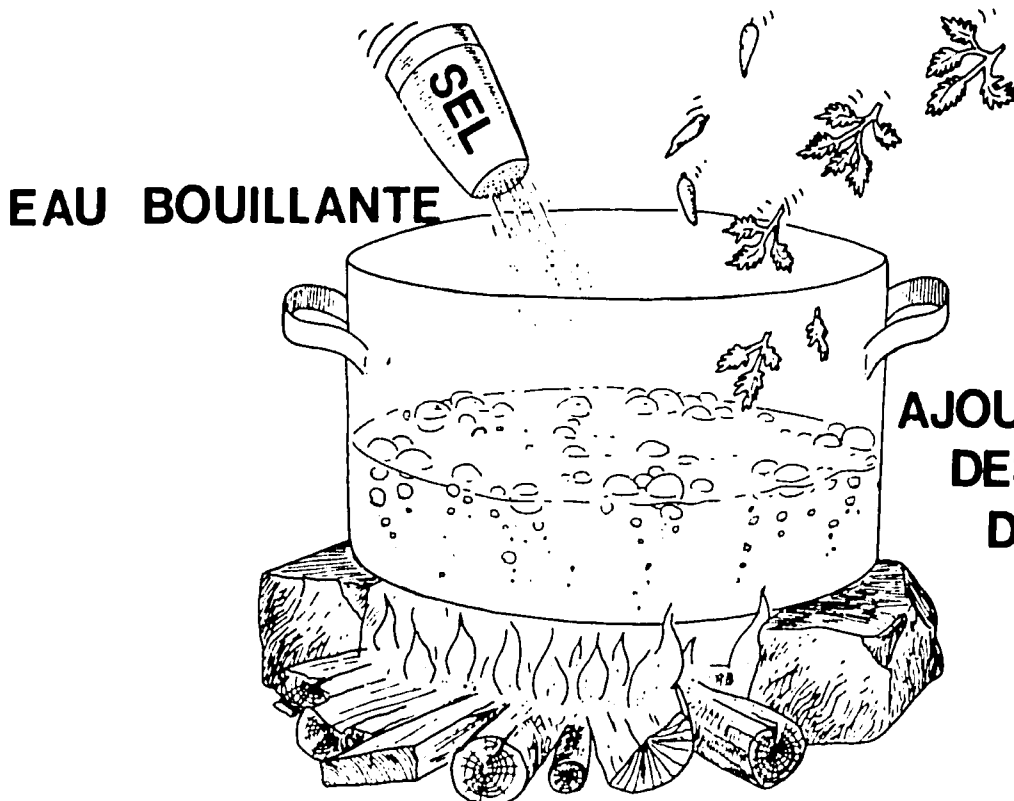
COMMENT PRÉPARER LE POISSON EN SAUCE



**DÉCOUPER LE POISSON, LE NETTOYER ET LE FAIRE
BOUILLIR DANS L'EAU AVEC:**

**DES OIGNONS
DES TOMATES
DES POMMES DE TERRE
DE L'HUILE
DU PIMENT
ET DU SEL**

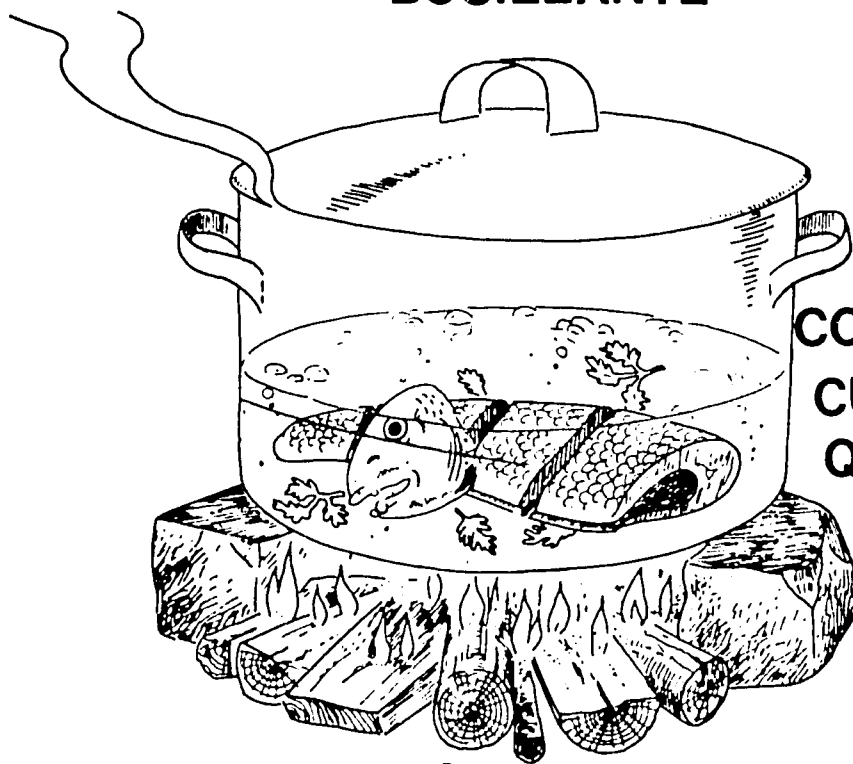
COMMENT PRÉPARER LA SOUPE DE POISSON



EAU BOUILLANTE

**AJOUTER DU SEL,
DES LEGUMES
DES ÉPICES**

**DÉCOUPER LE POISSON ET LE METTRE DANS L'EAU
BOUILLANTE**



**COUVRIR ET LAISSER
CUIRE À FEU DOUX
QUELQUES MINUTES**

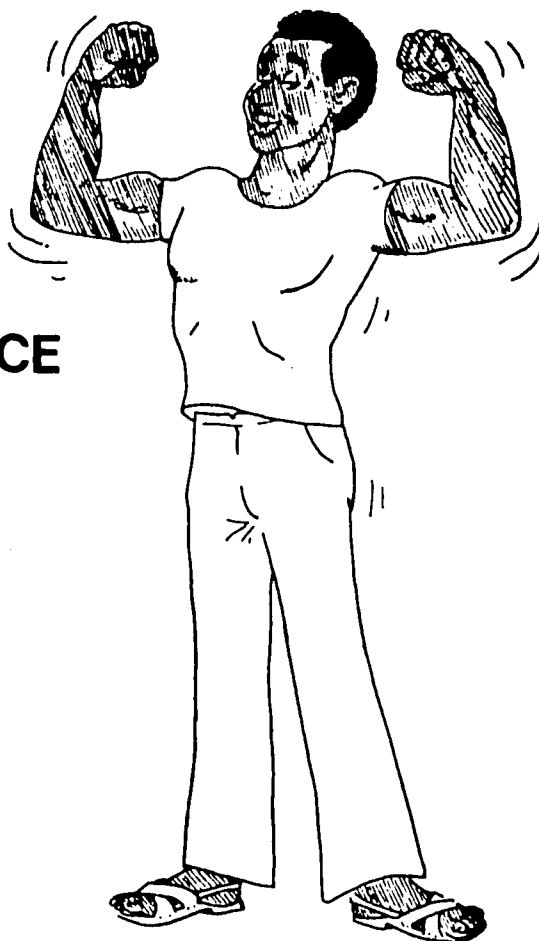
**LE POISSON EST BON À MANGER AVEC DU CITRON ET
VOUS POUVEZ BOIRE LE JUS DE LA SOUPE**

**LE POISSON EST
BON À MANGER**



**LE POISSON EST BON
POUR NOTRE SANTÉ**

LE POISSON DONNE LA FORCE



**LES ENFANTS QUI MANGENT DU POISSON SONT TRÈS
ENERGIQUES ET EN BONNE SANTÉ**



**LE POISSON EST PLEIN DE PROTÉINES,
D'ÉNERGIE, ET DE VITAMINES**

APPENDIX L

COOPERATIVE BY-LAWS

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STATUS OF
THE COOPERATIVE ASSOCIATION FOR SEA FISHERIES

TITLE I

FORMATION, NAME, PURPOSE, DURATION
REGISTERED OFFICE OF THE ASSOCIATION - ADHESION

Article 1:

A maritime limited cooperative association with variable capital has been formed.

The name of the association is:

COOPERATIVE ASSOCIATION FOR SEA FISHERIES

Article 2:

This association focuses on the purchase of nautic instruments, of manning, fishingboats maintenance and supply facilities, of fuel and fats, of individual equipment for fishing or for the working of maritime fishing concessions.

Article 3:

The registered office is in Boulaos Djibouti. Its territorial district includes the whole territory of the Republic of Djibouti including the territorial waters.

The registered office can be transferred to any other place in the city of Djibouti on the decision of the Management Committee, subject to approval of the next ordinary General Meeting and anywhere else in the Republic of Djibouti by virtue of a resolution of the ordinary General Meeting of the members.

Article 4:

The duration of the Association is fixed for a period of 99 years from the depositing of the status, except extension of time or dissolution.

Article 5:

... professional fishermen approved by the management committee may
... the Association.

Article 6:

Each adherent shall pay an annual subscription of 1000 F, to be paid entirely at the time of the adhesion and three consecutive years.

Article 7:

These contributions are nominal, the issued registered securities will be extracted from a counterfoil record, they will be signed by the Director of the Association and will show its stamp.

Article 8:

These contributions are permanently the property of the Association, they are valid the whole calendar year.

TITLE II

MANAGEMENT COMMITTEE - RESOLUTION

Article 9:

The Association is managed by a Management Committee consisting of nine members elected by secret voting for one year by the General Assembly and chosen among the most representative members of this Assembly, fishermen of each district and of the different fishing categories have to be represented.

In case of vacancy, the Committee foresees and provides temporarily for the replacement of its members, The next General Meeting proceeds to their permanent replacement.

The authority of the members elected in that manner comes to an end at the moment when the mandate of the replaced member should normally terminate.

The renewal of the Committee occurs in full.

The outgoing members are reeligible.

The Committee chooses among its members by secret voting, elects a board consisting of a President, vice-president, secretary, treasurer, ...

The board is elected for one year, its members are reeligible in their duties. The duties of the Management Committee members are free.

Article 10:

The management committee meets once a month and every time it is convened by its President or on the request of the fourth part of its members.

The third part of the Management Committee members has to be present to validate the resolutions.

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The Chief of the Livestock and Fisheries Service, as well as the Chief of the Maritime Affairs Service may attend de jure in an advisory manner the meeting of the Committee. All convocations have to be addressed to them for this purpose.

The Chief of the Livestock and Fisheries Service can place on the agenda of the meeting any item of his choosing. He can convene at any moment the meeting of the Committee to call upon it to deliberate over the questions he considers he has to submit to its review.

Article 11:

Any Management Committee decision taken on the basis of a motion regularly placed on the agenda and related to the commitment of public funds or to the Association social or economic policy will be subject before carrying out to the approval of the Minister of Agriculture.

TITLE IV

DIRECTION

Article 13:

The Director, who may not belong to the Cooperative, is nominated by the Minister of Agriculture.

Article 14:

The Director is in charge of the implementation of the Management Committee's resolutions. On the President's approval, the Committee hands over to him the necessary power.

Article 15:

Toward a third party, the Director represents the Association with the most extended powers as far as the object permits, subject to the powers the law explicitly assigns to the General Assembly and to the Management Committee.

Article 16:

The General Assembly of the Association regularly instituted, represents the adherents as a whole, its resolutions are binding on all of them.

It includes all the adherents. The Management Committee President, in his absence the Vice-President, in default the designated administrator presides over it,

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It gathers together once a year and every time it is convened by the Management Committee or by the fourth part of its members at least.

It approves the accounts of the last fiscal year, vote the budget of the next fiscal year, deliberate over the questions placed on the agenda and provides, if necessary, for the replacement of the Management Committee members,

It listens to the reports on the Management Committee, on the financial and moral situation of the cooperative,

The Chief of the Livestock and Fisheries Service, as well as the Chief of the Maritime Affairs Service attend the general meetings in an advisory capacity and are convened for this purpose.

Article 17:

An adherent may appoint, as his representative to the General Meetings, another adherent duly commissioned.

Article 18:

Resolutions are made by a simple majority of the attending or represented members. Each member hold only one vote.

Article 19:

The attendance record contains the name and the address of the attending or represented adherents. It is duly initialed by the attending persons and certified by the Assembly board.

The annual report and the accountancy are addressed every year to all the Association members, with a report from the representative of the Treasury Department certifying the rightness of the accounts.

TITLE V

DISSOLUTION - DISPUTE

Article 20:

On termination of the period foreseen for the life of the Association, or in case of early dissolution, a specially convened General Assembly sets the winding up methods. It nominates one or several liquidators or charges the administrators in charge with the winding up.

During the winding up process, the General Assembly's powers remain the same as during the life of the Association.

All the assets of the Association are realized by the liquidators who holds for this purpose the most extended powers

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After the payment of the registered debts, on proposal of the Board of Directors, the special General Assembly proposes to the Livestock and Fisheries Service to allot the reserve fund to an organization, a society or an institution serviceable to seafaring men.

Under no circumstances these funds can be distributed amongst the adherents.

Article 21:

Disputes that could arise between the Cooperative members and the Cooperative Association about the interpretation, the implementation of the hereby status or of the internal regulations, will be subject to arbitration.

Within the three days following the submission of the dispute to the Director or his representative, the parties specify the terms of the dispute and nominate, with one accord, two arbitrators; in default of an agreement on the sentence within 10 days, the President of the Management Committee will nominate an arbitrator who will adjudicate without appeal.

TITLE VI
GENERAL PROVISIONS

Article 22:

The Cooperative Association for Sea Fisheries will be subject to supervisions ordered by the Chief of the Livestock and Fisheries Service.

Article 23:

The accountancy of the Association is kept according to the Commercial Law.

Article 24:

The Management Committee lays down an internal regulation.

The hereby status and the internal regulation are duly registered.

Article 25:

An account will be opened in a bank under the name of the Cooperative Association for Sea Fisheries. This account will execute all operations of the Association and will receive all eventual donations and grants.

All the issued checks, without exception, will bear the signatures of the Director of the Association and the Chief of the Livestock and Fisheries Service.

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Article 26:

Points which are not settled in the herein Status will be settled in pursuance of the Decree No. 55 184 of the 2. February 1955 related to the Cooperative Status.

APPENDIX M

COOPERATIVE INTERNAL BY-LAWS

6/10/21

INTERNAL REGULATIONS OF THE COOPERATIVE

Article 6 Revolving Credit Fund

Article 6.1 Description

Article 6.1.1

Within the Cooperative a Revolving Credit Fund will be created. This fund will be used to buy and sell to Cooperative members fishing material and equipment at reasonable prices. The receipts of these sales will be reinvested in fishing material and equipment.

Article 6.1.2

At its inception the Revolving Credit Fund represents the value of the fishing material and equipment given by donor agencies.

Article 6.1.2

An inventory of the initial material will be made and prices will be determined. Since it will be necessary to place additional orders in the future, prices will take into account inflation and transport charges.

Article 6.1.3

Conforming to Article 25 of the Cooperative statutes, an account will be opened in a local bank. This account will receive receipts of the sales of fishing material and equipment of the Revolving Credit Fund and government subsidies.

Article 6.1.4

A petty cash fund will be created from the annual dues of each member. This fund will be managed by the Board of Directors of the Cooperative and used for general Cooperative expenses. The Board of Directors of the Cooperative will determine the amount that is necessary to establish this fund. The surplus can be deposited into a banking account separate from the main cooperative account or can be kept at the Cooperative itself. The petty cash fund can be replenished then from either the banking account or what is on hand at the Cooperative.

Article 6.1.5

The supervision of the Revolving Credit Fund will be carried out by the Board of Directors of the Cooperative, the Cooperative Director, Fisheries Service staff and the Chief of Service for Live Stock and Fisheries.*

*This group will now be referred to subsequently as the Revolving Credit Fund Committee.

Article 6.1.6

Conforming to Article 23 of the Cooperative statutes, accounting practices will follow the commercial code for both the Revolving Credit Fund and the petty cash fund.

Article 6.1.7

A financial report will be presented to the Board of Directors of the Cooperative at the end of each trimester. At the end of each fiscal year, a financial report and budget for the coming year will be presented to the Cooperative (at its annual general meeting). Conforming to Article 9 of the Cooperative statutes, the annual financial report will be certified as to its validity by a representative of the Ministry of Finance.

Article 6.2 Operation

Article 6.2.1

A cooperative store will be opened to sell fisheries materials and equipment. This store will be controlled by the Revolving Credit Fund Committee. The hours the store will be opened will be published at a later date.

Article 6.2.2

Any member of the Cooperative will have the right to purchase fisheries materials and equipment from the Cooperative store.

Article 6.2.3

A quota on purchases will be established by the Revolving Credit Fund Committee to assure an equitable distribution among all members.

Article 6.2.4

Credit purchases will be limited to those articles that the Revolving Credit Fund Committee thinks that a majority of members could not pay in cash. What will be available to purchase on credit will be published by the Cooperative.

Article 6.2.5

Except for unusual circumstances, all members of the Cooperative have the right to purchase those specified fisheries materials and equipment on credit. If a member desires credit he will ask in writing to the Director of the Cooperative. The Director then will pass this request on to the Board of Directors of the Cooperative. The Board of Directors will then decide on whether to grant credit.

Article 6.2.6

If credit is granted, the grantee will sign a contract with the Cooperative. This contract outlines the obligations to pay off the loan and penalties that may be imposed for non-payment of obligations. The contract will be signed also by 2 members of the Cooperative. These 2 co-signers will be responsible to pay off the loan in case the grantee cannot meet the obligations.

Article 6.2.7

Penalties for non-payment will be decided by the Board of Directors of the Cooperative.

Article 6.2.8

In case of default no money will be reimbursed to the grantee.

Article 6.2.9

The Cooperative remains owner of all materials and equipment purchased on credit until that loan is paid 100%.

Article 6.2.10

The following determination will be used in calculating monthly payment obligations:

- a) A minimum of 10% of the total price must be paid in advance.
- b) The following formula will be used for calculating interest

$$\frac{(\text{Total of the loan}) \times (10\%) \times (\text{Number of months to pay back})}{12 \text{ months}}$$

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- c) The number of months to pay back the loan will be determined by the grantee and the Cooperative
- d) The monthly payment will then be the interest calculated plus the amount of the loan divided by the number of months to pay back the loan.

Article 6.2.11

No member of the Cooperative will be allowed to have more than one outstanding obligation except upon approval of the Board of Directors of the Cooperative.

Article 6.2.12

Before presenting a case of non-payment of obligation to the Board of Directors, the Director of the Cooperative will do the following: 1) Inform the grantee in writing and verbally, that he has missed a payment and that he has 1 week to rectify the situation; 2) If after 1 week the payment has not been made, the co-signers will be asked to pay; 3) If the co-signers cannot pay, the Director of the Cooperative will inform the Board of Directors at the Cooperative to decide what penalties to impose. Due to special circumstances, each case of non-payment will be decided on its own merits. The most severe penalty that can be imposed is the return of the material or equipment to the cooperative.

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APPENDIX N

PRICE STUDY

COMPARISON DES MARGES BRUTES JOURNÉE DE 21

DESCRIPTION	KILOGRAMME	VENTE FD	ACHAT FD	MARGE BRUT	VENTE FD	ACHAT FD	MARGE BRUT	% DIFFERENCE
P. Caraque	18,65	8553	5535	2738	7460	4663	2798	
P. Dorade	1,0	400	300	100	350	180	170	
Thon	126,45	63225	37935	25290	50580	31613	18967	
Thon	3,4	1360	748	612	1150	612	538	
Caraque	27,85	11140	6127	5013	9748	5013	4735	
Dorade	6,35	2780	1529	1251	2433	1251	1182	
Divers	41,05	16420	9031	7389	15368	7389	6979	
Filet	8,15	6520	x	2486	6113	x	2812	
Langouste	2,55	7395	5610	<u>1785</u>	6375	5100	<u>1275</u>	
				49201			39487	
P. Caraque	10,25	4100	3075	1025	3588	2563	1025	
Thon	426,85	170740	128055	42685	149398	106713	42685	
Thon	28,8	1640	6336	2304	8064	5784	2880	
Caraque	3,4	1020	748	272	952	612	340	
Dorade	20,7	6210	4554	1656	5796	3726	2070	
Divers	15,35	4785	3509	1276	4466	2971	1595	
Filet Special	149	89400	x	<u>15645</u>	89400	x	<u>29055</u>	
Langouste	12,6	35280	27720	<u>64863</u>	30240	25280	<u>79650</u>	
				114064			115137	
				<u>+ 73560</u>			<u>5040</u>	
				121624			124177	+2%

Détail

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COMPARISON DES MARGES BRUTES JOURNÉE DE 6-4

DESCRIPTION	KILOGRAMME	VENTE FD	ACHAT FD	MARGE BRUT	VENTE FD	ACHAT FD	MARGE BRUT	% DIFFERENCE
P. Dorade	3.8	3520	2156	1764	3430	1764	1666	
Thalaz	64.8	32400	19440	12960	25920	16200	9720	
Thon	3.3	1520	726	594	1155	594	561	
Carraque	24.35	9980	5489	4491	8733	4491	4242	
Dorade	26.85	10740	5907	4833	9398	4833	4565	
P. Bonavada	38.45	15380	11535	3845	13458	6521	6937	
Divers	107.7	43080	23694	19386	37695	19386	18309	
Calmar	0.95	525	420	105	525	420	105	
Langoust	1.2	3480	2640	840	3000	2400	600	
				<u>48818</u>			<u>46305</u>	
THALAZ	170.75	68300	51225	17075	59763	42688	17075	
Carraque	21.6	6480	4752	1728	6048	3888	2160	
Dorade	7.6	2280	1672	608	2128	1368	760	
Divers	143.25	42575	31515	11460	40110	25785	14325	
P. Bonavada	2.8	380	840	140	784	504	280	
				<u>31011</u>			<u>34600</u>	
				<u>79829</u>			<u>80905</u>	+ 1%

PTM

EW 6/85

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COMPARISON DES MARGES BRUTES JOURNÉE DE 9-4

DESCRIPTION	KILOGRAMME	VENTE FD	ACHAT FD	MARGE BRUT	VENTE FD	ACHAT FD	MARGE BRUT	% DIFFERENCE
DETAIL	P. Caraque	4.7	2115	1410	705	1880	1175	705
	P. Doinde	5.1	2040	1530	510	1785	918	867
	Thazar	27.65	13825	8295	5530	11060	6913	4147
	Doinde	5.25	2100	1155	945	1838	945	893
	P. Brucuda	20.8	12320	9240	3080	10780	5544	5236
	Divers	24.95	9980	5489	4491	8733	4451	4242
	Filet	23.2	18560	X	7076	17400	X	8004
	Calamar	1.35	2025	1620	405	2025	1620	405
	Langouste	4.05	11745	8910	2835	10125	8100	2025
					<u>25597</u>			<u>26524</u>
P. Doinde	17.15	6003	5145	858	5145	3087	2058	
Thazar	162.6	65040	48780	16260	56910	40650	16260	
Doinde	21.95	6585	4829	1756	6146	3351	2195	
Divers	103.1	30930	22682	8248	28868	18558	10310	
Filet	2.05	1435	X	420	1333	X	502	
P. Brucuda	0.8	280	240	40	224	144	80	
Filet Special	105.0	63000	X	11025	63000	X	20475	
				<u>38607</u>			<u>51880</u>	
				64184			78404	+ 22%

COMPARISON DES MARGES BRUTES JOURNÉE DE 11-4-84

	DESCRIPTION	KILOGRAMME	VENTE FD	ACHAT FD	MARGE BRUT	VENTE FD	ACHAT FD	MARGE BRUT	% DIFFÉRENCE
DETAIL	P. Caraque	14.85	6683	4455	1485	5158	3713	1485	
	P. Dorade	10.3	4120	3050	1030	3605	1854	1751	
	Thurzar	28.55	14275	8565	5710	11420	7138	4282	
	Caraque	12.65	5060	2783	2270	4428	2277	2151	
	Dorade	11.85	4740	2607	2133	4148	2133	2015	
	P. Baranade	15.6	6240	4608	1560	5460		2652	
	Divers	31.35	12540	6857	5643	10373	2808 5643	5330 4778	
	Filet	13.85	11080	X	4224	10398	X	1107	
	Tranche Divers	4.1	2255	X	1703	2050	X		
	Calmar	7.4	11100	8880	2220	11100	8880	2220	
	Langouste S.T.	6.7	19430	14740	4690	16750	13400	3350	
					32065			31121	
	Fabrics	P. Caraque	51.3	26520	15350	5130	17555	12825	5130
P. Dorade		3.6	1260	1080	180	1080	648	432	
Thurzar		121.5	48600	36450	12150	42524	30375	12150	
Caraque		80.1	24030	17622	6408	22428	14418	8010	
Dorade		13.75	4125	3025	1100	3850	2475	1375	
Divers		37.45	11235	8235	2996	10486	6741	3745	
Filet		172.45	120715	X	35352	112093	X	42250	
Calmar		3.15	4410	3780	630	4410	3780	630	
S.T.					63915			33722	
TOTAL				95588			104843	+ 5%	

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COMPARISON DES MARGES BRUTES JOURNÉE DE 15-4

DÉTAIL

DESCRIPTION	KILOGRAMME	VENTE FD	ACHAT FD	MARGE BRUT	VENTE FD	ACHAT FD	MARGE BRUT	% DIFFERENCE
Thon	3.3	1320	726	594	1155	594	561	
Carangue	11.15	4460	2453	2007	3303	2007	1896	
Dorade	2.05	820	451	369	719	369	349	
Divers	74.65	29860	16423	13437	26128	13437	12691	
Filet	6.3	5040	X	1922	4725	X	2174	
Tranche Divers	14.6	8030	X	3927	7300	X	3542	
Langouste	3.85	11165	8470	2695	9625	7700	1925	
				24951			23538	
Thon	3.3	990	726	264	924	594	330	
Carangue	63.85	20955	15367	5588	19558	12573	6985	
Dorade	4.65	1355	1023	332	1302	837	465	
Divers	65.7	19710	14454	5256	19396	11826	6570	
Filet	6.55	4585	X	1343	4258	X	1605	
Filet Special	30	18000	X	3150	18000	X	6850	
Langouste	11.95	33180	26070	7110	28440	23700	4740	
				23083			26545	
				48034			50083	+4%

COMPARISON DES MARGES BRUTES JOURNÉE DE 23-4

DESCRIPTION	Kilogramme	VENTE FD	ACHAT FD	MARGE BRUT	VENTE FD	ACHAT FD	MARGE BRUT	% DIFFERENCE	
PÉTAL	P. Carangue	16.1	7245	4830	2415	6440	4025	2415	
	P. Dorade	3.35	1580	1185	395	1383	711	672	
	Thazar	66.6	33300	15980	13320	26640	16650	9990	
	Dorade	16.4	6560	3608	2952	5740	2952	2789	
	Filet	0.95	760	X	250	713	X	328	
	Tranches Thazar	6.6	3060	X	1439	3630	X	1551	
	Calamar	2.05	3075	2160	615	3075	2460	615	
					<u>21426</u>			<u>18359</u>	
P. Carangue	1.2	480	360	120	420	300	120		
Thazar	272.0	108800	81600	27200	95200	68000	27200		
Filet Speed	37.3	22380	X	<u>3917</u>	22380	X	<u>7274</u>		
				<u>31237</u>			<u>34534</u>		
				<u>52663</u>			<u>52953</u>	0%	

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COMPARISON DES MARGES BRUTES JOURNÉE DE 25-4

DESCRIPTION	KILOGRAMME	VENTE FD	ACHAT FD	MARGE BRUT	VENTE FD	ACHAT FD	MARGE BRUT	% DIFFÉRENCE
DÉTAIL	THAZAR	21.85	10925	6555	4370	8740	5463	3277
	Caranque	12.05	4820	2651	2169	4218	2169	2049
	Dorade	26.7	1080	3874	4806	9345	4806	4539
	Divers	22.35	9160	5049	4131	8033	4131	3902
	Filet	8.75	7000	X	<u>2669</u> 18145	6563	X	<u>3019</u> 16786
Thazar	65.7	26280	19710	6570	22955	16425	6570	
Caranque	48.4	14520	10648	3872	13552	8712	4840	
Filet	22.1	15470	X	4531	14365	X	5415	
Filet Special	30.65	18390	X	3218	18390	X	5977	
Dorade	15.8	4740	3476	1264	4424	2844	1580	
Divers	73.6	22060	16192	5868	20608	19248	7360	
Langouste	6.8	19040	14960	<u>4080</u>	16320	<u>13600</u>	<u>2720</u>	
				<u>25423</u>			<u>34462</u>	
				47568			51248	+ 7%

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COMPARISON DES MARGES BRUTES JOURNÉE DE 27-5

DESCRIPTION	KILOGRAMME	VENTE FD	ACHAT FD	MARGE BRUT	VENTE FD	ACHAT FD	MARGE BRUT	% DIFFERENCE
Thazar	2.45	1225	735	490	980	613	367	
Caraque	29.65	11860	6523	5337	10378	5337	5041	
Dorade	35.5	14200	7810	6390	12425	6390	6035	
Divers	18.7	7480	4114	3366	6545	3366	3179	
Filet	12.65	10120	x	3958	9488	x	4364	
Timbales	12.6	6930	x	3589	6300	x	3402	
Culmar	0.8	1200	960	240	1200	960	240	
Langouste	5.0	14500	11000	3500	12500	10000	2500	
				<u>26570</u>			<u>25129</u>	
Thazar	61.3	24520	18390	6130	21455	15325	6130	
Caraque	11.4	3420	2508	912	3192	2052	1140	
Dorade	63.55	19065	13981	5084	17794	11459	6335	
Divers	23.25	6975	5115	1860	6510	4185	2325	
Filet	7.85	5455	x	1609	5103	x	1923	
Filet Special	30.3	18180	x	3182	18180	x	5908	
				<u>19777</u>			<u>23781</u>	
				45347			48503	+ 8%

DETAIL

APPENDIX O

**COOPERATIVE 1983 - 84
FINANCIAL STATEMENTS**

ACTIF		MORC COMPTABLE ACPM	
<u>IMMOBILISATIONS</u>			9.905.332
2181 - MATERIEL & MOBILES DIVERS	2.606.470		
2182 - BALANCES	1.712.485		
2183 - BACS	2.123.051		
2184 - OUTILLAGE	1378.011		
2185 - ARCHIVES D'ATLIER	2001.750		
2186 - AGENCEMENTS INTERIEURS	4800		
2187 - MATERIEU REQUISIT	120000		
2188 - IMMOBILISATIONS DIVERSES	15.640		
<u>RÉPLISSABLES ET STOCKS</u>			25437087
3711 - STOCK MATERIEL DE PECHE	12.511.240		
3712 - STOCK MOTEURS	3.956.750		
3713 - STOCK PIÈCES DETACHÉES	2.697.215		
3714 - STOCK POISSONS, FAUCONS, CANNES	1481.100		
3715 - DÉPOT DE GARANTIE	64.000		
3716 - STOCK MATERIEL SECURITE	684.000		
3717 - STOCK ENBAHICHOUS	748.000		
3718 - STOCK MATERIEL CAN	3294.375		
<u>IMMOBILISATIONS MORC COMPTABLE ACPM</u>			87.287.00
<u>COMPTES D'ORDRE</u>			423.560
4252 - AVANCES AU PECHER	213.630		
4253 - ACOMPTES AU PERSONNEL	209.930		
<u>CLIENT REALISEMENTS COMPTABLES</u>			6.368.190
4112 - CLIENTS PECHERIE 1982	478.950		
4113 - " " 1982	5889.995		
<u>PECHERIE DEBITEURS ET CLIENTS</u>			9.808.435
<u>DEBITEURS</u>			
4115 - PECHERIE MOTEURS & EQUIPEMENT	7239.950		
4116 - PECHERIE & CLIENTS PECHE	710.795		
4117 - PECHERIE COMPTABLES	1757.690		
<u>DEBITEURS</u>			10.888.741
312 - BANQUE	8.722.328		
330 - CAISSE	2.166.363		
A Reporter		62.801.245	87.287.00

PASSIF		MORC COMPTABLE ACPM	
<u>COMPTES DE FINANCEMENT & RESERVE</u>			84.157.565
5171 - SEP	24.473.887		6.850.000
5172 - FIDA	11.290.450		57.112.000
5173 - LES AID	7.494.745		17.325.000
5174 - FAC	5.237.310		6.000.000
5176 - CRS	8.994.256		
5180 - JOCOIN	135.000		
5177 - PRDPA/MR/GAD	2.224.720		
5179 - BULGET NATIONAL	24.288.142		
<u>COMPTES D'ORDRE PASSIF</u>			16.176.625
4823 - CLIENTS PECHERIE	6365.190		
4872 - PECHERIE MOTEURS & EQUIPEMENT	7.337.920		
4871 - PECHERIE & CLIENTS COMPTABLES	2.468.485		
4874			
<u>RESULTATS</u>			37.442.845
BENEFICE 1981 1.842.642			
PERTE 1982 214.082.800			
PERTE 1983 2520.021			
A Reporter		62.891.245	87.287.00

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3.

Repons

EXPLOITATION 1/2 AU 31/12 - 1983

DETERMINATION DES RESULTATS BRUTS

MATERIEL DE PECHÉ	MOTEURS	PIECES DETACHEES	MATERIEL & MATÉRIEL	EMBARCATION	PRODUITS DE LA PÊCHE	FCC	CN	PÊCHERIE
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STOCKS AU 01/01/83	9308177	249750	3701721	5686277	-	25990	14727927	7445398	25990	
ACHATS DU 01/01 AU 12/31/83	1700445	2652250	809942	-	4500000	75207920	8851693	800942	75107920	
STOCKS AU 31/12/83	(13.195.647)	395260	(697215)	(294375)	745.000	4781100	16468392	(7423590)	11481120	
PRIX DE REVIENT DES VENTES	(2.187.027)	4114250	1874445	392362	3752000	7275820	7.111.225	804.750	7370250	
VENTES ENCAISSÉES							5452275	848.825	94825034	
RESULTATS BRUTS SUR VENTE ENCAISSÉE							(1658948)	14.075	21072.214	19427341
BENEFICE BRUT TOTAL										
VENTES ENCAISSÉES							5452275	848.825	94825034	
FACTURES A ENCAISSER							7339950	2468485	6368190	
TOTAL ENCAISSE ET A ENCAISSER							12792225	3317310	101193224	
PRIX DE REVIENT DES VENTES							(7.111.225)	(834.750)	(73.752.820)	
RESULTATS BRUTS SUR ENCAISSEMENTS ET SOMMES DUES							5681002	2482560	27440404	
BENEFICE BRUT TOTAL										55.603966

A reporter

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4.

Rapports

EXPLOITATION 1/2 AU 31/12 - 1989

DETERMINATION DES RESULTATS NETS
SUR VENTE ENCAISSEES

TOTAL

FCR

CN

PECHERE

DEPENSES
COMMUNES

PERTE BRUTE

<1.658948> <1.658948>

BENEFICES BRUTS

21.086.285

14.075

21.072.224

6001 ACHATS EMPAQUAGE

<964.400>

<964.400>

6022 ACHATS COUPEAUX RACLETTE

<25.340>

<25.340>

6023 ACHATS OUTILAGE ET MAT. CONSOMMABLES

<172.215>

<172.215>

6061 ACHATS FOURNITURES DE BUREAUX

<621.230>

621.230

6094 ACHATS DIVERS

<314.990>

<173.900>

<9770>

151.320

6151 LOCATION CHAMBRES FROIDES

<4.800.000>

<4.800.000>

6152 LOCATION VEHICULES

<600.000>

<600.000>

6151 TRAVAIL STRAT. SER. CHAMBRE FROIDE

<4.100>

<4.100>

6152 " " ENIBARCATION

<59.585>

<59.585>

6153 " " LOGEUX

<22.210>

22.210

6154 " " MATERIEL

<28.985>

28.985

6155 AIGUISAGE COUPEAUX

<78.400>

<78.400>

6211 SALAIRES JOURNALIERS

<229.900>

229.900

6411 SALAIRES

<22.526.909>

22.526.909

6474 HS

<2.535>

2.535

6475 CONGES PUES

<130.000>

130.000

6242 ELECTRICITE

<12.451.282>

12.451.282

6025 CARBURANT LUBRIKANT

<740.043>

740.043

6261 PTT

<209.770>

209.770

6291 PUBLICITE INSERTIONS

<4.500>

4.500

6221 ANALYSE DES EAUX

<24.000>

<24.000>

6351 TIMBRES FISCAUX

<10.300>

10.300

6271 FRAIS BANQUE

<4.750>

4.750

A reporter

<24.598.109>

<1.658.948>

<391.625>

21.149.222

<24.002.452>

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RECAPITULATION CLIENTS ET PECHEURS JERTELINE 31/12/83

	SOLDE 30/09/83	SOLDE 31/12/83
1. CLIENTS PECHERIE 1982	478.195	478.195
2. CLIENTS PECHERIE 1983	4.053.832	5.889.995
3. PECHEURS MOTEURS 1981	523.735	474.705
4. PECHEURS MOTEURS 1982	1.283.075	1.013.395
5. PECHEURS MOTEURS 1983	1.332.610	1.905.040
6. PECHEURS MOTEURS BATAIS 1983	4.387.410	3.926.810
7. PECHEURS CLIENTS MECANIQUE 1983	517.135	710.795
8. PECHEURS C-FLEX	-	1.757.690
	<u>12.575.972</u>	<u>10.176.625</u>
(1) CLIENTS PECHERIE 1982		
RESTAURANT GALREED	36.300	36.300
MAISON DU PECHEUR	83.000	83.000
RESTAURANT YOUSOUF	9.370	9.370
RESTAURANT ABDOU	23.750	23.750
SAINT HAD	98.800	98.800
LE BOURDAIS	21.000	21.000
ENGUELLA	95.375	95.375
NIK DONILD	21.000	21.000
SAID IDRIS	57.200	57.200
ABDOUKADER MAKO	30.000	30.000
DAIBI MESS OFF	8.400	8.400
	<u>478.195</u>	<u>478.195</u>

13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
7			②	CLIENTS FECHERTE 1983			SOLDE 30/9/83				SOLDE 31/12/83						
				ABDOU DIKHIL			12.000				12.000	-					
				AQUARUNI ODT			7035				7.035	-					
				ARMEE NATIONALE RCI			41.145				27.135						
				ARMEE NATIONALE HO.MA			•				33.195						
				CRS - FN			147.860				444.925						
				CENTRE D'ESTIVAGE ARTA			66.290				•						
				CERCLE MESS OFF			39.000				187.780						
				DASCALAKIS			18.945				18.945	-					
				13 OPLE - CERCLE MIXTE			405.315				268.250						
				DA - 188 M OFF			57.610				80.980						
				DA - 188 MESS OFF			159.905				183.215						
				DA - 188 MESS ORD			84.250				35.230						
				CFPA - ECOLE ARTA			39.605				140.103						
				HOSPITAL MILITAIRE			•				10.575						
				MARIAN DUCHATEAU			13.435				13.435	-					
				ARMEE MESS MIXTE			56.120				76.175						
				PAM			2471.535				3552.120						
				PROTECTION MEME L'NEA.T			537.361				773.101						
				LE RHIN			56.000				56.000	-					
				SRIANON ORD			•				60.30						
				SCLOMONDIS			16.200				16.200						
				ARMEE NATIONAL DE LA JEUNESSE			176.739				192.209						
				SOCOM - SHIPCH			-				21.175						
				VORATA			-				18.620						
							4.053.832				5.889.795						

1554

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(5)

RECEVEURS DEBITEURS MOEURS '83			SOLDE	
			30/9/83	8/12/83
SAID AHMED	51	98.950		98.950
SALEM ABDO	52	130.000		130.000
ALI MOHAMED ABDO	76			125.000
ZED SAID	62	73.500		46.500
SOULEIMAN IDRIS	63	145.140		124.660
AHMED KASSIM Y	64	140.020		132.140
MOHAMED SALIM	65	145.000		145.000
ISSA IDRIS	66	140.000		117.880
MOLA SALEM	67	145.000		131.280
ABDOL SOULIMAN	68	157.500		134.950
MOHAMED SALEM CHEILO	69	157.500		142.220
SALEM BAKRI				137.200
MOHAMED ABDUJAROMO	70		-157.500 <3980>	153.520
MOHAMED SOULEIKI M	71		155.000 <4260>	150.740
ALI SALEM ALI	72		145.000	145.000
			1.332.610	1.905.040

(6)

RECEVEURS DEBITEURS MOEURS & BATEUX '83						
ALI HASSAN	53	528.960	30.000	7.800	21.500	468.700
HASAN ALI GOURA	54	496.400				455.070
MOHAMED SALEM	55	500.160				404.120
ALI SALEM	56	400.500				397.840
ABDALLAH ALI	57	463.360				415.940
IDRIS BACAK	58	492.370				466.220
DIAMA ROBLIE	59	516.580				474.140
DAHER ROBLIE	60	491.180				460.340
IBRAHIM HASSAN	61	435.500				384.420
			4.387.410			3.926.810

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RECEIPTS / CLIENT MECHANIQUE			SOLDE	SOLDE
			30/9/83	31/12/83
			5	
ALI MOHAMMED			15.200	22.200
ALI HASSIM			124.070	118.270
ABDULHA ALI			7.300	7.300
ALI SOUMBOULI			2.002	2
ABDI SOULEIMAN			5.100	5.100
AHMED KASSIM			15.600	15.600
ALI SALEH			-	7220
AWAR ABDU				6.500
CHEIKO ALI			3.410	1.900
DAMER ROBLEH			23.775	121.735
DAMER YABAI			8.500	8.500
DARRAR AHMED			26.200	26.200
DARWICH MOHAMMED			23.600	23.600
DARWICH ABDALLAH			23.800	20.880
ELMI AHMED			2.200	2.200
FITINI			43.780	53.880
GAFAR ALI (OBUCK)			60.700	63.000
GAGER YAYA			19.630	29.160
HASSIM ALI GOULAH			2.000	5.500
MOUSSEIN FARAH			12.075	12.075
MOULEIN IBRAHIM			1.200	1.200
IBRAHIM DARWICH			-	8.100
IBRAHIM HASSAN			-	6.400
IBRAHIM MOHAMMED			-	1.050
ISMAEL AEDI			24.675	24.675
IDRISS MOUSSA			2.000	0
ISSA IDRIS			-	22.830
A REPORTER			446.817	615.077

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17	18	19	20	21	22	23	24	25	26	27	28	29	30
RECHERS CLIENT MECANIQUE (CONTIN)			SOLDE 30/9/82				SOLDE 31/12/83						
			GAFAR SALEM	12.253			12.253						
			MOHAMED FITINI	2.400			3.300						
			MOHAMED ABDU BAKER	600			600						
			MOHAMED FARAH	13.200			13.200						
			MOHAMED IBRAHIM (M)	6.665			6.665						
			MULLAH SALEM	2.000			2.600						
			MOHAMED SALEM	8.000			9.400						
			OMAR ABDOURAN	500			500						
			OMAR MOHAMED	7000			9.500						
			SALEM ABDUL	-			22.700						
			SOULIMAN OMAR	7.000			7.000						
			YOUSSEF MOHAMED	7.200			7.200						
			ZED SAID	-			800						
			ZED SAID	3.500			0						
				517.135			710.795						

Mod N° 738.090 A Brevet S.C.C.G

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RECEVUE DEBITEURS
C-FLEX

SOLDE

1982 1983 31/2/83

SULEIMAN OMAK MOHAMMED	1	128.137	73.675
ISMAEL HIDI	2	120.600	120.600
-	3	-	-
MARROUK JENGHAL	4	210.050	210.050
M'OUSSA HASSAN	5	54.270	54.270
GAFFAR SALEM	6	158.287	157.990
-	7	-	-
ALI YOUSSEF MOHAMED	8	176.375	176.375
-	9	-	-
GABER YAHYI	10	188.457	132.860
FITINI MOHAMED	11	129.645	120.425
ABDU SOULEIMAN	12	137.185	123.995
CHEIKO ALI	13	147.735	147.735
IBRISSE MOUSSA MOHAMED	14	233.665	210.605
SULEIMAN CHAR	15	229.140	229.140

248.737 1.664.789 1.757.690
1.913.526

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ASSOCIATION GOUVERNATIVE DE PÊCHE MARITIME (AGPM)

BILAN 31-12-84

ACTIF	1983		1984		PASSIF	1983		1984		
	DEC.31	AGPM	DEC.31	AGPM		DEC.31	AGPM	DEC.31	AGPM	
IMMOBILISATION Reports	10.007.382		10.579.920		COMPTE DE FINANCEMENTS ET DONAIREUX	86.957.575		111.787.175		
21B1-MATERIELE MOBIER BUREAU	2.648.945		2.704.755		5171-SEP	24.871.887	6.850.000	26.570.168	6.850.000	
21B2-BALANCE	1.715.585		2.543.496		5172-FIDA	11.304.530	57.112.000	11.304.530	57.112.000	
21B3-BACS	2.123.051		1.830.469		5173-JSAID	9.454.145	17.325.000	10.377.175	17.325.000	
21B4-OUTILLAGE	1.378.011		1.158.211		5174-FAC.	5.239.310	6.000.000	5.379.845	6.000.000	
21B5-MACHINE D'ATELIER	2.001.750		2.091.750		5176-CRS	9.431.756		9.431.756		
21B6-AGENCEMENT INSTALLATION	4.800		4.800		5180-SCODIN	133.000		133.000		
21B7-MATERIEL ROULANT	120.000		120.000		5177-PROPA/MAGASIN	2.234.745		1.851.275		
21B8-IMMOBILISATION DIVERSES	15.040		16.640		5179-BUDGET NATIONAL 83	24.255.142		24.288.420		
21B9-DEPENSES ET S'OCUS	25.437.087		26.150.660		158-PROVISION POUR CHARGE BV	-		12.451.284		
3350 PRODUITS EN COURS			1.020.000		COMPTE DE CREDITEURS	525.000		2.846.291		
371 STOCK MATERIEL DE PÊCHE	18.511.647		9.277.270		RÉSULTATS	(24050376)		(47.36319)		
372 MOTEURS	2.956.750		2.626.750		1981-BENEFICE	1.842.042		1.842.042		
373 PIÈCES DÉTACHÉES	2.697.215		3.795.858		1982-PERTE	(14.083.866)		(14.083.866)		
3551 POISSON, LANGOUSTE	1.481.100		3.798.765		1983-PERTE	(11.808.552)		(11.808.552)		
2351 DEPOT GÉNÉRAL	64.000		64.000		1984-PERTE			(23.084.943)		
3711 STOCK MATERIEL SECURITE	654.000		623.000							
3715 EMBARCATON	746.000		1.098.000							
3716 MATERIAUX CN	3.294.375		533.400							
3718 ISOTHERMES			3.187.170							
3719 CARBURANT			66.420							
4221-PRINCE AUX PÊCHEURS	213.600	97.287.000	213.630	88.512.000						
4251-ACCOMPTE AU PERSONNEL	209.930									
CLIENTS REPARATION COURTOISIE	6.341.555		2.916.817							
4421-4423 CLIENTS PÊCHEUR SR. 83	6.341.555		2.916.817							
PÊCHEURS DEBITEURS ET CLIENTS MONTÉNEGRO	2.978.045		8.025.760							
4441-PÊCHEURS DEB. MOTEUR ET BATER	7.489.560		4.907.785							
4442-PÊCHEURS CLIENTS MÉCANIQUE	710.395		1.015.738							
4443-PÊCHEURS C-FLEX	1.757.690		2.102.940							
DISPONIBLE	11.264.119		19.64.554							
512-BANQUE	8.772.378		17.981.897							
530-CAISSE	2.491.732		1.624.757							
A Reporter	28.744.139	82.823.000	67.498.47	88.512.000			63.422.139	87.287.000	67.498.47	88.512.000

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ASSOCIATION COOPERATIVE DE PÊCHE MARITIME (ACPM)

COMPTE D'EXPLOITATION 31-12-84

	1983						1984							
	TOTAL	FCR	CN	PÊCHERIE	DÉPENSES COMMUNE		TOTAL	FCR	CN	PÊCHERIE	CARQUENT	GLACE	DÉPENSES COMMUNE	
STOCK INITIAL	22 205 315	14 227 922	7 448 398	25 990			25 372 017	14 468 397	7 733 590	1 481 100				
ACHATS PENDANT L'ANNEE	84 269 565	8 851 692	509 742	75 207 920			70 767 739	7 08 910	1 897 424	7 552 825	608 600			
STOCK A FIN DE L'ANNEE	25 773 082	16 168 322	2 422 590	1 481 100			26 970 220	15 091 190	3 132 158	4 082 475	66 450			
PRIX DE REVIENT DES VENTES	81 698 792	7 111 223	334 760	73 752 810		19	69 720 500	2 084 117	1 190 786	6 435 145	542 440			
VENTES TOTAL	117 302 757	12 792 225	5 317 240	101 198 244		100	95 445 062	2 462 340	2 223 360	87 951 348	603 120	173 400		
BÉNÉFICE BRUT	35 603 966	5 681 002	2 482 560	27 440 944			24 271 565	861 722	72 524	23 599 398	60 970	173 400		
FONDS GÉNÉRAUX														
60 01 ACHATS EMBALLAGE	1 964 400	-	-	1 964 400			550 500	-	-	550 500				
60 02 " COUTEAUX RACLETTES	25 340	-	-	25 340			22 760	-	-	22 760				
60 03 " PETITS OUTILLAGES MARILLONS	1 721 215	-	1 721 215				207 190	-	207 190					
60 04 " FOURNITURES DE REMPLISSAGE	621 230	-	-		621 230		620 575	-	-				620 575	
60 05 " DIVERS	314 990	-	1 721 215	97 100	1 211 320		334 000	-	-				334 000	
60 06 " LOCATION CHAMBRE FROIDE	4 500 000	-	-	4 200 000			4 500 000	-	-	4 800 000				
60 07 " LOCATION VEHICULES	500 000	-	-	600 000			600 000	-	-	600 000				
60 08 " TRAVAIL EN PREPARATION DE LA CHAQUE	4 120	-	-	4 120			12 940	-	-	12 940				
60 09 " AMENAGEMENT	59 585	-	59 585					-	-					
60 10 " SOLAIRE	22 210	-	-		22 210		1 750	-	-	1 750				
60 11 " MATERIEL	22 985	-	-		25 285			-	-					
60 12 " AIGUISAGE COUTEAUX	78 400	-	-	78 400			36 400	-	-	35 400				
60 13 " TRAVAIL ENTRETIEN DE LA CHAMBRE FROIDE		-	-				55 285	-	-	55 285				
60 14 " SAISIES INSTRUMENTS	22 970	-	-		22 970		32 700	-	-				32 700	
60 15 " SAISIES	22 269 99	-	-		22 269 99		22 747 960	-	-				22 747 960	
60 16 " F.S.	2535	-	-		2535			-	-					
60 17 " CONGÉ PAYÉS ET ACCUMULÉS	130 000	-	-		130 000		1 680 741	-	-				1 680 741	
60 18 " ÉLECTRICITÉ	12 512 82	-	-		12 512 82		12 451 284	-	-	12 451 284				
60 19 " CARBURANT, LUBRIFIANT	740 942	-	-		740 043		717 165	-	-				717 165	
60 20 " D.T.T	209 770	-	-		209 770		212 720	-	-				212 720	
60 21 " PUBLICITE INSERTIONS	4 500	-	-		4 500		168 440	-	-				168 440	
60 22 " ANALYSE D'EAU	24 000	-	-		24 000			-	-					
60 23 " ST. TIMBRE FISCALE	10 300	-	-		10 300			-	-					

A Reporter

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ASSOCIATION COOPERATIVE DE PÊCHE MARITIME (ACPM)
 COMPTES D'EXPLOITATION 31-12-84 (CONTINUER)

1	1983					7	1984					15	
	TOTAL	FCR	CN	PECHERIE	DEPENSES		TOTAL	FCR	CN	PECHERIE	CARBURANT		GLACE
2	3	4	5	6	8	9	10	11	12	13	14		
Reports													
52 51	FRAIS BANQUE	4750			4750		4		4				
52 52	VERIFICATION INSTR DE MESURES	10200			10200		14500					14500	
64 73	PRIMES PAYEES ET ACCUMULEES						360000					360000	
62 57	TRANSPORTS DE PLACEMENT	14785			14785		18140					18150	
64 77	EXPLOITATION "HORAFIGAL"	124229			124229		(73003)		(73003)				
64 76	"YANIAHA"	-			-		(14170)		(14170)				
52 50	PERTES SUR VENTES IRRECONCILIALES	-			-		756660		756660				
52 75	CHESNES PERDUS	-			-		3852		3852				
52 01	VARIATION DE FICHERS AVEC LIVRES	-			-		(30020)		(30020)				
62 82	EFFETUATION D'INVENTAIRES	422204			422204		347957		347957				
64 72	INDENNITE LICENCIEMENT	-			-		80000					80000	
52 32	DONATION JOUR MONDIAL	-			-		883710		883710				
63 51	TIC	(31500)					3000					3000	
52 51	COMPTES 84						(57000)					(57000)	
52 52	COMPTES 84						(185539)					(185539)	
TOTAL FRAIS GENERAUX		(41028062)				50	17359508		207171	2040899		1573307	
AJUSTEMENT MARS 1983		(278456)			278456								
RESULTAT NET 1984 (PERTE)		(11205502)	568002	2076860	8348683	(2705077)	(23084943)	367223	(134616)	3174999	60770	172400	(6747419)

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RECAPITULATION CLIENTS ET PECHEURS DEBITEURS

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	SOLDE 31-03-84			SOLDE 30-04-84			SOLDE 31-05-84			SOLDE 31-06-84			SOLDE 31-7-84			
Reports	D	C	D	C	D	C	D	C	D	C	D	C	D	C	14	15
4112 - CLIENTS PECHERIE B2	81200			81200			81200		81200							
4113 - CLIENTS PECHERIE B3	3449252	1578455	1295150	3732587	1824823	736050	4857350	3024936	1551812	6322474	3310115	12580	1571001	7072193		
4115 - PECHEURS DEBITEURS	655355		493055	6073300		590170	432170		620350	4802780	381500	337190	4349090			
4114 - PECHEUR DEBITEURS C-FM	1991630	435235	158275	2288590		150060	2118530	138650	160380	2096800	171830	152970	2115660			
4116 - CLIENTS PECHERIE	720373	133900	69480	754692	120150	71530	833513		3400	529712	97300	35000	55350	856863		
	1248770	2147220	200570	1520220	1224720	1547310	1532253	3162580	242912	4051907	3777325	3155496	1457533			

	SOLDE 31-07-84			SOLDE 31-08-84			SOLDE 30-09-84			SOLDE 30-10-84			SOLDE 30-11-84			SOLDE 31-12-84	
	D	C	D	C	D	C	D	C	D	C	D	C	D	C	D	C	
4113 - CLIENTS PECHERIE	2935291	5653381	425557	2384642	11305340	5355724	1754397	1205563	5906100	12249324	709406	2535797	1043564	652634	2710524		
4114 - PECHERIE DES C-FM	393402	204890	204230		71935	2232295		75560	2156735		46570	2110195		7955	2102240		
4115 - PECHERIE DES DEBITEURS	335902	276825	495122		100205	4851020	190520	127345	494195		125955	475524	183500	68955	4907735		
4116 - CLIENTS PECHERIE	815023	19240	921413	53800	38470	366753	4500	17385	953565	10100	5840	978128	63750	6140	1014338		
	3791911	617667	12522435	2165442	1580505	13405792	1949412	1424318	13755535	1249293	455580	5592300	1125911	749054	10941137		

A Reciter

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No	Contract	DATE	AMOUNT	30/09/82	31-12-82
				SALE	SALE
Repos					
1	AMEL KASSIM	00/51	140.000	-	-
2	ABDOU AM ISMA	14/7/81	140.000	-	-
3	MOHAMMED SALEM BARRIC	02/81	140.000	-	-
4	IBRAHIMI ROULEH SAID	30-02-81	100.000	-	-
5	HAMAD MOHAMMED GLENE	21-09-81	140.000	-	-
6	ALI HOJME	24-01-81	50.000	-	-
7	ABDULH DARWICHE	23-06-81	275.000	-	-
8	FITINI MOHAMMED	17-10-81	175.000	-	-
9	ALI HASSAN	05-09-81	175.000	-	-
10	MOUD ALI ADAM	03-07-81	140.000	-	-
11	GAFAR SALEM	09-07-81	175.000	-	-
12	GADAME ABDOL	20-07-81	175.000	-	-
13	IBRAHIM DARWICHE	24-06-81	175.000	-	-
14	MOHAMMED DARWICHE	21-04-81	140.000	-	-
15	ABDOL SOULEIMAN	28-11-81	140.000	-	-
16	AWAD ABOL KARMOUS		120.000	19.900	-
17	MOHAMMED FITINI	20-10-82	140.000	-	-
18	ALI MOHAMMED YOUSSEF		90.000	36.100	-
19	SALEM MOHAMMED SALEM	02-08	140.000	-	-
20	AMAR GABER ALI	3-1-82	175.000	-	-
21	ALI HASSAN MOHAMMED	19-1-82	175.000	-	-
22	MOHAMMED SALEM	3-3-82	175.000	-	-
23	GABER YAMA	28-12-81	175.000	-	-
24	MOHAMMED DARWICHE	24-02-81	175.000	-	-
25	MOHAMMED FITINI MOHAMMED		175.000	58.535	-
26	MOHAMMED ABDALLAH DARWICH		630.000	272.980	-
27	SAID AHMED	1-7-82	650.000	-	-
28	DAHER YABAL	7-4-82	470.000	-	-
29	AL. SOUMBOULI	7-9-82	175.000	-	-
30	ABDULLAH DARWICHE (RE)	10-6-82	140.000	-	-
31	OMAR ABDOLKAR		140.000	29.070	-
32	ALI HASSAN	11-7-82	175.000	-	-
33	IBRAHIM MOHAMMED		175.000	78.000	-
			6.395.000	494.790	

No	Contract	DATE	AMOUNT	30/09/82	31-12-82
				SALE	SALE
Repos					
34	IBRAHIMI DARWICHE		350.000	-	-
35	IBRAHIMI MOH ABULAI		350.000	266.240	-
36	MOHAMMED SALEM	19/6/82	175.000	-	-
37	DAHER ROULEH	31/4/82	22.000	-	-
38	MOH SALEM		145.000	-	-
39	MOH SALEM		145.000	17.500	-
40	MOH IBRAHIMI MOH FARAH		-	-	-
41	HASSAN SENHOR		175.000	11.540	-
42	MOHAMMED GABER HASSAN		175.000	25.000	-
43	KAFAR MOHAMMED		175.000	90.000	-
44	ALI YOUSSEF GARDOL		175.000	108.000	-
45	MOHAMMED DARE FARAH		175.000	107.000	-
46	MOHAMMED DARWICHE		261.500	115.740	-
47	FITINI MOHAMMED		175.000	99.455	-
48	OMAR MOHAMMED IBRAHIM		175.000	25.000	-
49	IBRAHIM DARWICH		175.000	50.980	-
50	OMAR MOHAMMED		140.000	56.540	-
51	SAID AHMED		175.000	98.950	-
52	SALIM MOHAMMED		175.000	130.000	-
53	ABALI HASSAN		577.500	468.700	-
54	HASSAN ALI ADOLA		535.500	455.070	-
55	MOHAMMED SALEM		525.500	409.120	-
56	ALI SALI		525.500	377.800	-
57	ABDULLAH ALI		535.500	415.940	-
58	IDRIS BARAK		535.500	400.220	-
59	YAMA ROULEH		535.500	474.140	-
60	DAHER ROULEH IBRAHIM		535.500	400.310	-
61	IBRAHIM HASSAN MOHAMMED		535.500	364.420	-
62	ZED SAID		90.000	46.500	-
63	SOULEIMAN IDRIS		175.000	124.660	-
64	AHMED KASSIM SAID		175.000	132.140	-
65	MOHAMMED SALEM BARRI		175.000	127.200	-
66	ISSA IDRIS		175.000	117.880	-

APPENDIX P

**IFAD - USAID VESSEL
SPECIFICATIONS**

MINISTERE DE L'AGRICULTURE
ET DU DEVELOPPEMENT RURAL

SERVICE DE L'ELEVAGE
ET DES PECHEES

REPUBLIQUE DE DJIBOUTI
UNITE - EGALITE - PAIX

-- MARQUES, REFERENCES ET CARACTERISTIQUES DES MATERIELS --
MECANIQUES, ELECTRONIQUES COMMUNS AUX NAVIRES DE PECHE
DE L'U.S A.I.D ET DU F.I.D.A

JANVIER 1983

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MOTEUR PRINCIPAL

MARQUE PERKINS - V8 540 - 132 KW/177 H.P

Bore/Stroke : 4,25 in (108 mm.) X 4,75 in (120,7 mm.)
N° of cylinders : 8 90° vee form
Cubic capacity : 539,1 in³ (8,83 litres)
Cycle : 4 aspiration : natural
Combustion système: Direct injection
Rotation : LH (gauche)
Fuel pump : CAV minimec in line
Governing : Mechanical
Cooling : Heat exchanger fresh water cooled with Borg Warner
reduction Gearbox
Weight : 889 Kg. (1957 lbs)
Electrical : 24 v.
Power take off : Full engine torque from front end extension shaft
Installation angle: Max. static angle of 17° allowing further 3° rise
underway also 5° nose-down for vee-drive application

SKIFF ANNEXE

Moteur diesel de 20 CV. Dynamo de 5,6 KW - 24 volts

MARQUE FARYMAN

Type R 30
2.500 Tours minute
2 Cylindres
Refroidissement à eau

.../...

6/15

Matériel électronique

RADAR

MARQUE FURUNO (Japon)

Référence : F.R 1.600

Echelles de lecture 0,5/1/2/4/8/16 milles

Puissance 3 KW

Cercles de calibration 1/8,1/4,1/2,1,2,4 milles

Alimentation 11 à 40 Volts

Aérien sous radome

ECHO-SONDEUR

MARQUE FURUNO (Japon)

Référence : FE 600 B

Portée 640 mètres en 9 échelles

Alimentation 24 volts

LOG SPEEDOMETRE

MARQUE ELCOS

Référence ELCOS JUNIOR

Transducer fixe

Vitesse 12 nœuds

RADIO-TELEPHONE

MARQUE ITT (U.S.A)

Référence mobil STR 12

Puissance 25 W.

55 Canaux

Portée 80 à 100 milles

MATERIEL ELECTRIQUE

Pour faciliter les réparations et l'entretien du système électrique ainsi que pour gérer et emmagasiner les pièces détachées (lampes, fusibles, alternateurs etc.) il est indispensable que le bateau de l'U.S AID soit sous une tension de 24 Volts.

ENGINS DE PECHE ELECTRIQUE

Afin d'uniformiser le matériel électrique de pêche, l'adresse du fabricant italien des lamparo sera communiquée prochainement à l'U.S AID.

APPARAUX DE PECHE (U.S. AID)

- 1 Vire ligne - vire casiers
- 1 Enrouleur de filets
- 1 Treuil classique a 2 Bobines, 1 poupée de cabestan verticale et 2 poupées horizontales.
- 2 Lampes lamparo de 1.000 Watts chacune + 3 Feux de lamparo (Skiff annexe)
- 2 Tangons pour la traine aux thons

ENGINS DE PECHE

- 1 Skiff annexe équipé d'un moteur de marque FARYMAN de 20 CV entraînant une dynamo de 5,6 KW alimentant 3 Feux de lamparo de 3 lampes de 500 watts.
Voltage 24 volts
Bouées porteuses
Flotteurs d'origine
Ligne polyamide
Plombs de traine
- 1 Bouée fixe avec système d'ancrage et feu de signalisation
Hameçons à requins
Agraffes de palangre

TECHNIQUE DE PECHE (F.I.D.A)

Senne tournante à sardinelle
Senne tournante à appats
Chalutage de fond et pélagique
Casiers à langoustes

TECHNIQUE DE PECHE (U.S AID)

Palangres de fond à requins
Palangres sur fond rocheux
Filets de fond et de surface (Thazards et thons)
Pêche au filet et lamparo sur bouées fixes

TECHNIQUES DE PECHE COMMUNE AUX 2 NAVIRES

Traine aux thons sur tangons
Nasses à poissons
Pêche de nuit au lamparo (Palangrotte, filet tournant, filet maillant)
Chalutage de fond et pélagique.

Le navire de l'U.S AID, outre le treuil classique à 2 bobines et cabestans horizontaux et vertical devra être équipé de renvoi de cables et potences nécessaires aux techniques de pêche du chalutage pélagique et de fond.

CARACTERISTIQUES ET DESCRIPTIF DES FOURNITURES

- Une Unité de Pêche artisanale moderne (U.P.A.M)

Longueur	15.00 mètres
Largeur	4,26 " "
Tirant d'eau maximum	2,05 " "
Capacité des soutes	4,00 mètres cubes
Puissance du moteur	177 CV. (Marque PERKINS)
Vitesse	9 noeuds
Cale à poisson	15 mètres cubes
Réservoir eau douce	800 litres
Alternateur	980 watts et 3 kw.
Pompe de cale	21 mètres cubes
Groupes de batteries	230 Amp/heure et 460 amp/heure
Deuxième poste de pilotage sur le toit de la cabine	
Echappement des gazs moteur sur le ou les côtés	

- EQUIPEMENT POUR LA RADIO-NAVIGATION

- 1 compas 5", éclairage par rhéostat
- 2 Radio téléphone VHF type ITT, 25 watts, 55 chenaux
- 1 Log speedomètre électronique, type ELCOS junior
- 1 Radar mod. FURUNO FR 1600, portée 24 milles
- 1 Echo sondeur mod. FURUNO FE 600 B
- 20 Rouleaux de papier pour écho sondeur
- 1 Paire de jumelles
- 1 Chronomètre à quartz
- 1 Baromètre

.../...

EQUIPEMENT POUR L'AMARRAGE

- 1 Guindeau hydraulique
- 2 Ancres zinguées de 30 kilos
- 60 mètres de chaîne à mailles de 10 mm.Ø
- 3 Cordes de nylon de 100 mètres chacune, Ø 20 mm.
- 4 Pare battage pneumatique
- 4 Amarres en nylon longueur 50 mètres Ø 15 mm.

MATERIEL DE PECHE

- 2 Lampes lamparo de 1.000 watts
- 1 mat de charge à 2 palans de charge (Allonger de 1 mètre 50 avec 2 emplacements de charge)
- 1 Power block hydraulique type ayello, puissance de virage 20 CV.
- 1 Vire ligne-vire casier hydraulique puissance 1 tonne
- 1 treuil hydraulique à 2 bobines, capacité de 400 mètres de funes de 14 mm.Ø
2 poupées horizontales, 1 poupée verticale.
- 2 bras arrière démontables avec poulies de renvoi pour le chalutage
- 1 Rouleau acier inox pour le virage des filets
- 2 butoirs coques pour les divergents
- 2 Tangons orientables en acier, longueur 10 mètres.
- 1 Vireur à coulisses pour la senne tournante
- 1 Canot auxiliaire en fibre de verre, longueur 4,50 mètres avec moteur diesel de 11 CV. et groupe électrogène de 4,5 KW. et 2 feux de lamparo de 1.000 w.
(le canot auxiliaire sera équipé de deux avirons et dames de nage)

ENGINS DE PECHE

- 1 Senne tournante à sardinelles, longueur 300 X 40 mètres mailles de 20 mm. avec poche renforcée.
- 1 Senne tournante à sardines longueur 150 X 40 mètres mailles de 20 mm.
- 1 Chalut pélagique
- 1 Chalut de fond
- 2 Panneaux polyvalents (Pélagique et fond)
- 10 Bouées d'orins volume 20 litres
- 10 Bouées porteuses porte pavillons

.../...

- 10 Manilles en acier de 3 tonnes
- 10 Manilles en acier de 1 tonne
- 5 Poulies coupées de 2,5 tonnes en acier
- 5 Poulies simples de 2,5 tonnes en acier
- 200 Agraffes trot line clips (Palangres de fond)
- 800 Mètres de câble acier \varnothing 14 mm.
- 30 X 100 mètres nylon de \varnothing 12 mm.
- 20 X 100 mètres nylon de \varnothing 8 mm.
- 10 X 100 mètres polypropylène 6 mm.
- 800 Mètres de corde textile \varnothing 14 mm.

MATERIEL DE SECURITE

- 3 Extincteurs
- 1 Canot de sauvetage avec accessoires de survie (Gonflable 10 personnes)
- 12 Gilats de sauvetage homologué
- 1 Jeu des pavillons réglementaires N C (November Charlie)
- 1 Coffret de fusées (fusées parachute, fusées à main)
- 2 Bouées couronnes avec phoscar
- 1 Barre franche de secours
- 1 Jeu de pavillons du code international + 1 aperçu
- 1 Ancre flottante
- 1 Ligne de sonde à main
- 1 Trousse de premier secours
- 2 Boules noires
- 1 Gaffe
- 1 Echelle de coupés à crosses pour fixation sur la liasse
- 1 Torche électrique
- 1 Bouée éclairante à pavillons.

OUTILLAGE ET PIECES DE RECHANGE

- 1 Trousse d'outillage avec notice de conduite du moteur (en français)
- 20 Filtres à huile
- 10 Filtres à gas-oil

.../...

1 Jeu d'injecteur
1 Jeu de tuyauterie alimentation carburant injecteur pompe

1 Jeu de courroie

1 Jeu complet de joints (Culasse, pompe à eau etc)

1 Schéma assèchement

1 Schéma électrique

1 Schéma incendie

1 Schéma circuits hydrauliques

1 Catalogue pièces de rechange moteur et réducteur

Les catalogues pièces de rechange des appareils de pêche (Treuil, vire-ligne, vireur à coulisses, power block, guindeau hydraulique etc) Centrale hydraulique, pompe eau de mer, matériel électronique.

(Tous les documents schémas catalogues devront être rédigés en français)

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APPENDIX Q

VESSEL RFP

APPENDIX Q

VESSEL RFP

RESOURCES DEVELOPMENT ASSOCIATES

REQUEST FOR PROPOSAL

MULTI PURPOSE FISHING VESSEL

RFP Issue Date: 12 May 1983

Proposal Due Date: 26 May 1983

Number of Copies Requested: Four (4) Copies of Complete Proposal

Issued By: Resources Development Associates, Inc.
P.O. Box 407

Diamond Springs, CA 95619

Telex # 181149 West LSA

Attn: Res Dev Assoc

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RDA REQUEST FOR PROPOSAL
MULTI-PURPOSE FISHING VESSEL

1.0 SUMMARY

Resources Development Associates, Inc. (RDA) is presently under contract to the U.S. Agency for International Development (USAID) to provide technical assistance services and commodity procurement to the Government of the Republic of Djibouti in the field of artisanal fisheries development. As part of this contract, RDA will be procuring a 40-foot multipurpose fishing vessel for use in an exploratory fishing survey of the coastal waters of Djibouti. The vessel will be equipped with specified fishing gear fully installed.

RDA will procure this vessel under a fixed-price subcontract to an American firm. This RFP covers instructions for preparation of proposals, specifications for this vessel, and proposed contractual arrangements.

2.0 PROPOSAL PREPARATION

2.1 Proposal Preparation

All proposals must be received at the office of RDA no later than 3:00 PM, Thursday, 26 May 1983. The address for mailed proposals is:

Resources Development Associates, Inc.

P.O. Box 407

Diamond Springs, CA 95619

Attn: Robert Campbell, Vice President, Operations

The address for hand-delivered or courier-delivered proposals is:

Resources Development Associates, Inc.

570 Main Street

Diamond Springs, CA 95619

Attn: Robert Campbell, Vice President, Operations

Four complete copies of each offeror's proposal shall be submitted.

2.2 Telegraphic Proposals

Telegraphic proposals will not be considered although proposals may be modified by telegraphic notice provided such notice is received prior to the time set for the receipt of proposals.

2.3 Late Proposals

Proposals and modifications received at the office designated in the RFP after 3:00 PM local time of 26 May 1983 will not be considered.

2.4 Offeror's Qualifications

The fact that an offeror has received this Request for Proposals is not determinative of his qualification for award. A determination by RDA that the prospective contractor is fully qualified and responsible is a prerequisite to the award of any contract resulting from this RFP. It is mandatory that a prospective contractor's proposal demonstrate his capability to perform successfully the contract and representations made in his proposal. If an offeror, in response to this RFP, is comprised of more than one legal entity, then each such legal entity shall be jointly and severally liable for any contract that may be awarded to that offeror hereunder.

2.5 Examination of RFP

Offerors are expected to reach a reasonable understanding of the requirements of the Request for Proposals by careful study and by the application of qualified knowledge and experience. If such a review establishes the need for correction or clarification, such information should immediately be brought to the attention of RDA so that the matter can be resolved and so that, if necessary, official dissemination of such information to all offerors may be made a part of this RFP prior to the submission of proposals.

2.6 Request for Information

Request for official information concerning this RFP shall be made by writing or telephoning (collect calls will not be accepted) only to Mr. Robert Campbell, or Mr. Dee McFadden at (916) 622-8841.

2.7 Cost of Preparing Proposal

The cost of preparing proposals will not be allowable as a direct charge to this contract.

2.8 Certificate of Current Cost or Pricing Data

The offeror shall be prepared to submit, if requested, the Certificate of Current Cost or Pricing Data. (Copy attached as Attachment A).

2.9 Executed Contract to Constitute Entire Agreement

In the event of contract award, the definitive contract will constitute the entire agreement of the parties and will supersede any representations, commitments, conditions or agreements made orally or in writing prior to execution of the contract.

RDA may discuss all aspects of a proposal with the firm submitting it. Firms submitting proposals shall be prepared to meet with RDA Representatives to provide further amplifications of their proposals, as needed.

2.10 Style of Proposal

Elaborate brochures or other presentations beyond that sufficient to present a complete and effective proposal are not desired, and may be construed as an indication of the offeror's lack of cost consciousness. Elaborate art work, expensive paper and bindings, and expensive visual and other presentation aids are neither necessary nor wanted.

2.11 Procurement

It is anticipated that a firm-fixed-price (FFP) contract will be negotiated as a result of this solicitation. Proposals shall, therefore, be responsive to this type of contractual arrangement. The

contract clauses required by USAID procurement regulations, for fixed price subcontracts shall be made a part of any resultant contract. RDA reserves the right to award multiple and/or reduced scope contracts as a result of this RFP.

2.12 Proposal Contents

Section 3 of this RFP contains a technical description of commodities to be purchased under this contract. All proposals shall contain, at a minimum, the following components:

- a. General description of the vessel as proposed. Included shall be plan-view and longitudinal cross-section drawings of vessel, description of construction, manufacturer of vessel and model number, photos of vessel (if possible).
- b. Specific description of all line item requirements. Included shall be make and model of each proposed piece of gear and peripheral equipment.
- c. Statement regarding proposed warranty policies for basic vessel, engine, electronics, and peripheral gear.
- d. Proposed delivery schedule.
- e. Pricing breakdown by line-item as described in Section 3.
- f. Statements regarding history and qualifications of each proposer and of the manufacturer of the vessel. These statements should include type of organization (manufacturer, broker, etc.), length of time in business, number of similar vessels constructed in the past.

3.0 TECHNICAL REQUIREMENTS

3.1 Design Philosophy & Objectives

The system design should emphasize utmost simplicity and maximum reliability, consistent with the state of the art, the technical specifications, and the limitations specified herein. General ease of operation shall be considered in the design of the system including accessibility of controls, accessibility of fusing and circuit breakers, and logical simplicity of operational processes. Workmanship shall conform to the highest standards of commercial practice in all cases. This specification has been written with the intention that it be satisfied by off-the-shelf equipment with a minimum of modifications.

3.1 Deliverable Items

The deliverable items for this procurement include the basic vessel, deck equipment, specified interior, specified exterior, specified engine, electronics and navigational equipment, safety equipment, fishing gear (fully-installed), documentation, warranties, and delivery to specified port of embarkation.

Vessel must have U.S. Coast Guard Standard Certification. All machinery, electrical components, electronic equipment, and safety equipment must be installed to conform to standard marine practice. Vessel must be complete and ready for operation with exception of linen and other personal effects. Any omissions in the RFP pertaining to the above items will not affect the supplier's responsibility to meet these requirements.

Because of severe limitations on maintenance and repair capabilities in the country of Djibouti, the Government of Djibouti has requested that certain components of this vessel be identical to those being supplied on another vessel provided by another donor agency. These components include the engine (Item 3), depth recorders (Items 7 and 8), radar (Item 9), and the radio transceiver (Item 10). Offerors must bid these specific items. No alternate makes or models will be acceptable.

Offerors are requested to address each deliverable item separately and thoroughly. Costs shall be specified for each deliverable item.

3.2.1 Item 1 - Basic Vessel

The vessel shall be constructed from fiberglass with appropriate cores in house, deck, bulkheads and other necessary areas. All deck surfaces will be coated with non-skid material. The approximate deminsions of the vessel will be:

Length overall	40'
Length at waterline	36'
Draft	3'
Beam	15'
Freeboard forward	6'
Freeboard aft	5'
Minimum fuel capacity	500 U.S. gallons
Fresh water capacity	200/300 U.S. gallons

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The vessel will be designed to have the wheelhouse forward with a minimum afterdeck work area of 275 square feet. The vessel will be equipped with a flying bridge with complete engine instrumentation, and controls, one compass (see Item 11), ladder, rails and helmseat.

3.2.2 Item 2 - Interior Accommodations

The wheelhouse will be enclosed with appropriate doors and sliding windows and capable of being locked and secured. Crew accommodations will include:

- (1) Minimum of 4 bunks
- (2) Manual marine toilet
- (3) Shower
- (4) Galley with LPG gas stove, stainless steel sink, manual water system, ice box, formica countertops and cabinets.
- (5) Settee with table
- (6) Chart table (fold-down) in wheelhouse

3.2.3 Item 3 - Engine

The main engine will be a diesel Perkins naturally-aspirated V8.540 with Borg Warner 2.5:1 reduction gear box with full instrumentation and equipped with factory recommended fuel and lube oil filters. Full specifications for the engine are as follows:

Make:	PERKINS - V8 540 - 132 KW/177 H.P.
Bore/Stroke:	4.25 in (108 mm.) X 4.75 in (120.7 mm.)
No. of cylinders:	8 90° vee form
Cubic capacity:	539.1 in ³ (8.83 liters)
Cycle:	4 aspiration : natural

Combustion System: Direct injection
Rotation: LH
Fuel pump: CAV minimec in line
Governing: Mechanical
Cooling: Heat exchanger fresh water cooled with Borg Warner reduction Gearbox
Weight: 889 Kg. (1957 lbs)
Electrical: 24 v.
Power take off: Full engine torque from front and extension shaft.
Installation angle: Max. static angle of 17° allowing further 3° rise underway also 5° nose-down for vee-drive application.
Required Options: High output alternators; power take-off extension shaft; dry exhaust; dual station electrical instruments (wheelhouse and flying bridge); audible/visual alarm system for high water temperature/low oil pressure/low coolant level; tool kit; fuel pre-filter.

Two complete sets of spare filters shall be provided. Shaft will be stainless steel through bronze stuffing box and cutlass bearing. The engine compartment will be insulated for noise and heat.

3.2.4 Item 4 - Refrigerated Hold

The hold will contain a minimum of 400 cubic feet of usable area. The hold will be insulated with 3" of urethane foam (or approved equivalent). The trunk hatch will be approximately 4' X 6' X 6" with a small access hatch. Both hatches will be able to be locked. An automatic electric sump pump, RULE or approved equal, with 1700 gallon per hour capacity will be installed in the hold. Bin and bin boards will conform to standard marine practice.

The type of hold refrigeration system to be proposed is optional. The ability to either manufacture salt water flake ice or to chill fish using refrigerated sea water will be considered. One sea water chilling unit to consider is the "Bristol Bay Baby" from TMC, P.O. Box 396, Denton, Texas 76201. Telephone 817/387-4301. On-board freezing is not required.

3.2.5 Item 5 - Exterior

If applicable, a molded pull-out transom door will be incorporated in hull construction. Two towing bits aft and one forward will be installed.

3.2.6 Item 6 - Auxiliary Power

An auxiliary engine will be provided to power both a generator and hydraulic pump. The auxiliary generator will be a 5KW 24V DC Onan diesel Model 5.0 MDGB or approved equal. A 24 GPM hydraulic pump will also be driven from this unit and integrated into the main hydraulic system.

3.2.7 Items 7 through 11 - Electrical System,
Electronics and Navigational Equipment

All electric and electronic gear will be 24 volt DC. The electrical storage system will be 24 volt DC and consist of two (2) complete sets of heavy-duty marine-grade batteries. This system will be equipped with crossover and isolation switches and connected into both the auxiliary and main engine charging systems. The auxiliary generator will be equipped with an independent starting battery system. All wiring and fittings will be approved marine grade. All electrical and electronic leads will be routed through a central control panel and be adequately protected with fuses and/or circuit breakers. Three complete sets of spare fuses will be provided. The control panel will have a minimum of three (3) spare circuits. All cabin lights, deck lights, navigation and anchor lights will be 24 volt DC.

All electronic and navigation gear will be fully installed in the wheelhouse and operable for acceptance testing. In the cases where gear is removable from fixed brackets, it shall, upon delivery, be removed, packed in appropriate shipping containers and stored in the hold for transport. Provision of appropriate packing crates is required.

- Item 7 (1) Furuno 502D paper depth recorder
- Item 8 (2) Furuno 600 B paper depth recorder
- Item 9 (3) Furuno 1600 radar with radome
- Item 10 (4) ITT marine radio transceiver VHF, Model STR 12,
25 watt, 55 channel.

Item 11 (5) 2 ea magnetic compasses - Ritchie dn-46 or approved equal. Both compasses will be compensated and a compensation card will be furnished with each compass. Both will be equipped with compass lights

3.2.8 Items 12 through 21 - Deck Equipment and Fishing Gear

The hydraulic power system will consist of two(2) pumps, 24 GPM, GRESEN TC24 or approved equal. One pump will be driven from the main engine and one pump will be driven from the auxiliary generator engine. Each pump will be equipped with manual clutches. The system will be designed so that all hydraulic machinery can be operated from either pump. The system shall be installed with all appropriate tanks, oil coolers, filters, relief valves, control valves, crossover valves and located in accessible and workable positions. All hoses, plumbing and fittings must be approved for use in marine hydraulic systems.

All deck equipment and fishing gear should be fully installed and ready for use for acceptance testing. In the cases where gear is removable from fixed brackets, the gear shall be removed upon delivery and packed in shipping containers for storage in the hold during transport. Provision of appropriate shipping containers is required.

Item 12 Wash down pump - Hydraulically operated from integrated hydraulic system, approved equal to system on page 88 of Atlantic and Gulf Catalog. Alternate system could be crossover valves in bilge pump system to utilize bilge pumps for sea water.

packed in shipping containers for storage in the hold during transport. Provision of appropriate shipping containers is required. Safety equipment will include:

- Item 22 (1) 1 ea Coast Guard approved 6-man life raft
- Item 23 (2) 6 ea Coast Guard approved life jackets with 1 cell waterproof light.
- Item 24 (3) 4 ea Fire extinguishers Coast Guard approved types
- Item 25 (4) 1 ea semi-automatic Halon 1301 fire extinguisher in engine room with manual release cable in wheelhouse - must have sufficient capacity to flood engine room with gas.
- Item 26 (5) Medical Kit
- Item 27 (6) Emergency Tiller
- Item 28 (7) 1 ea Bilge pump 1500 - 1750 GPH driven from main engine.
- Item 29 (8) 1 ea Bilge pump 1500 - 1750 GPH driven from auxiliary power. (hydraulic, electric or PTO with clutch)
- Item 30 (9) Search light, marine model with approximately 200,000 CP. All lights, horns, signals to conform with Coast Guard regulations.
- Item 31 Manual windshield wiper - Bosch H.D. or approved equal

3.2.10 Item 32 - Technical Manuals

A minimum of three (3) copies each of an operator's manual and a repair/maintenance manual shall be provided for the vessel, the engine, and for each piece of peripheral gear (electronics, deck

gear, fishing gear). Where appropriate, detailed schematics, plans, and drawings should also be provided. In addition, the supplier shall provide a detailed list of recommended spare parts for the engine and for major pieces of gear. No procurement of major spares is anticipated at this time.

3.2.11 Item 33 - Warranties

All commodities procured under this contract (vessel, engine, electronics, fishing gear, etc.) shall be warranted against defects in workmanship or premature failure for a period of not less than one year or the standard warranty period provided by the manufacturer, whichever is greater. Repair of failed components including parts and labor within this period shall be the responsibility of the supplier. Transportation charges for warranty repair on small items (less than 100 pounds in weight) such as electronics, small fishing gear, etc. will be borne by RDA. Warranty repairs including necessary transportation costs, on the hull, engine, and major deck and fishing gear will be the responsibility of the supplier.

It is the understanding of RDA that Perkins has an arrangement with a local Djiboutian firm for maintenance and repair of Perkins marine diesel engines. The name of their local representative is:

Etablissements Marill
8, Rue Marchand
Djibouti, Republic of Djibouti
Telex: 5827 DJ
Telephone: 35-11-50
35-36-16 (Res.)
Mr. Michel Izzo, Directeur Commercial

It is the responsibility of the supplier to insure that warranty service is available.

3.2.12 Item 34 - Delivery

It is anticipated that the vessel will be transported to Djibouti via U.S. Navy surface transport. At this time, no firm commitment can be obtained relating to the port of embarkation. It is the responsibility of the supplier to transport the vessel to the port of embarkation. Responsibility for the vessel shall rest solely with the supplier until it has been delivered to the port of embarkation. Final acceptance of the vessel by RDA will occur at the port of embarkation.

It is anticipated that the port of embarkation will be one of four locations. The offeror shall bid a separate delivery price for each location. The locations are the U.S. Navy facilities at:

- Item 34a Miami, Florida
- Item 34b Jacksonville, Florida
- Item 34c Charleston, South Carolina
- Item 34d Norfolk, Virginia

Transport to the port of embarkation shall take place after the acceptance testing described in Section 4.0.

3.2.13 Item 35 - Shipping Cradle

The supplier shall supply a shipping cradle capable of adequately supporting and protecting the vessel during deck transport on a U.S. Navy vessel. The shipping cradle shall also be delivered to the port of embarkation.

4724

4.0 ACCEPTANCE TESTING

Upon completion of construction of the vessel and installation of all required equipment and gear, RDA representatives will travel to the manufacturer's facility to perform acceptance testing of the vessel and gear. During this time, the vessel will be taken to sea for sea trials. All gear will be tested for proper functioning. It is anticipated that this testing may continue for a period of up to five days. During this time, the supplier will make available the services of a qualified captain/pilot to pilot the vessel. In addition, the supplier will have obtained any necessary temporary permits, licenses and insurance for vessel operations.

During this time, responsibility for safe operations and all liabilities associated with the vessel will rest with the supplier. All costs for vessel operation during acceptance testing will be borne by the supplier.

At the conclusion of acceptance testing, any discrepancies found by the acceptance team will be corrected by the supplier. The vessel will then be made ready for transport to the specified port of embarkation. Removable equipment (see sections 3.2.7, 3.2.8, and 3.2.9) shall be packed in shipping containers and stored in the hold. An RDA representative will make final acceptance of the vessel upon safe delivery to the port of embarkation.

5.0 DELIVERY

Delivery of the completed vessel shall occur no later than five (5) months after date of contract signature. Delivery in less than five months is highly desirable and will be considered in proposal evaluation. Offerors should propose their best delivery schedule.

5.1 Late delivery

Should the delivery be delayed beyond five months from date of contract signature, the supplier will be assessed a late delivery penalty of \$100/calender day.

7/2/16

6.0 CONTRACTUAL ARRANGEMENTS

6.1 Contract Provisions

The contract to be negotiated will be a Firm-Fixed-Price contract between the supplier and RDA, Inc. It will be governed by those USAID "General Provisions" and "Additional General Provisions" pertaining to subcontracts and subcontractors. Attachment B contains those provisions. Particular attention should be drawn to the following clauses:

- | | |
|-----------|---|
| Clause 16 | Subcontractor Cost or Pricing Data |
| Clause 18 | Source and Nationality Requirements for Procurement of Goods and Services |
| Clause 19 | Subcontracts |

6.2 Payment

Although the contract will be between RDA, Inc. and the supplier, payment will be made to the supplier directly by the U.S. Government through an AID Direct Letter of Commitment. Attachment C is an example of such a Letter of Commitment. USAID has agreed to a two-week turnaround on invoices submitted under this Letter of Commitment.

Progress payments will be allowed under this Letter of Commitment. No more than 3 total payments will be allowed (2 during course of construction and 1 upon final delivery and acceptance). The final payment shall be no less than 20% of the total contract price. Progress payments will be contingent upon completion of specified stages of construction. Offerors should specify the payment schedule desired.

ATTACHMENT A

ATTACHMENT B

ATTACHMENT C

ATTACHMENT C

Draft USAID Letter of Commitment

RFMC Letterhead

Date

Business Name
Business Address

Re: A.I.D. Letter of Commitment No. _____
PIO/C No. _____
Value: \$ _____

Gentlemen:

1. At the request of Resources Development Associates, Inc., (hereinafter RDA), the Administrator, Agency for International Development (hereinafter A.I.D.), acting for the United States of America, hereby guarantees, subject to compliance with conditions hereinafter set forth, to make payments to you in amounts not to exceed a total U.S. \$ _____ to cover the U.S. dollar costs of the contract (or purchase order or PIO/C) No. _____ of _____ (Date) _____, between yourselves and RDA. A.I.D. will make every effort to effect payments to you within fourteen calendar days after actual receipt of documents required for payments hereinafter set forth in the designated paying office (see paragraph 2 below) or fourteen calendar days after a designated AID official or authorized representative (see paragraph 2 below) accepted the goods or services, whichever is later.

2. Payments shall be made hereunder in accordance with the payment schedule and/or upon compliance with the documentation requirements set forth in paragraph 3 below and/or as set forth in section _____ of the contract (or purchase order), which by way of reference is hereby incorporated into the terms of this Letter of Commitment. Upon receipt of the required documentation, reviewed and administratively approved by the USAID/Djibouti Project Officer, the Regional Financial Management Center, Nairobi, Kenya will arrange for payment to be made by a U.S. Treasury check payable to the (contractor/supplier) issued and mailed directly to you (or by a U.S. Treasury check payable to the (contractor/supplier) issued and mailed to your U.S. bank for credit to your account).

3. The following documentation is to be submitted to the Regional Financial Management Center, P.O. Box 30261, Nairobi, Kenya to receive the payment:

- (a) U.S. Government Standard Form 1034 properly completed and executed by yourselves and citing this Letter of Commitment and the contract (or purchase order or PIO/C) number.
- (b) Your detailed invoice describing the goods or services delivered or agent's fees earned.
- (c) Evidence of shipment for each shipment of commodities within the delivery period set forth in paragraph 5 below. Such evidence of shipment shall consist of a copy of photostat of the bill of lading (ocean, airway, railway, or truck). The bill of lading shall indicate the carrier's complete statement of charges including all relevant weights, cubic measurements, rates, and additional charges.
- (d) "Supplier's Certificate and Agreement with AID", Form AID 1440-3, prepared by yourselves in accordance with the instructions thereon.
- (e) Approval of Invoice by authorized RDA representative.

4. The items to be financed hereunder are:

- (a) Commodities as listed in Section of _____ of the contract (or purchase order or PIO/C).
- (b) Commodity-related services: Freight (ocean, air, or truck), packing, insurance, inland transportation, and delivery charges.
- (c) Agent's Fee: Handling fee shall consist of a procurement fee assessed on a FAS value shown in each commodity supplier's invoice at the rate of _____ percent.

5. Expiration: All goods must be delivered, and service performed hereunder on or before ___ (Date) ___, and all requests for payment supported by the required documentation must be received by USAID/Djibouti not later than ___ (Date) ___.

6. Amendments: Payment hereunder is contingent upon written approval by A.I.D. of any amendment of the contract (or purchase order or PIO/C) being financed hereunder negotiated after the effective date of the contract (or purchase order or PIO/C). Approval by A.I.D. will be indicated by the issuance of an amendment to this Letter of Commitment.

7. Assignment: Funds due or to become due from A.I.D. under this Letter of Commitment may be assigned only in accordance with the provisions of the Assignment of Claims Act of 1940 (31 U.S.C. s205, 41 U.S.C. 215).

8. Pursuant to authority granted to A.I.D. under Section (640A(B) of the Foreign Assistance Act of 1968 (22 USC Section 2399b), A.I.D. may deduct from and set off against payment specified in Paragraph 1 above any amounts owed by you to A.I.D. and covered by A.I.D. bills for collection.

9. All communications regarding this Letter of Commitment shall be addressed to:

Regional Financial Management Center
P.O. Box 30261
Nairobi, Kenya

Copies of all such communications shall also be furnished to the following offices:

Regional Supply Management Officer
REDSO/EA
P.O. Box 30261
Nairobi, Kenya

and

U.S. AID Mission to Djibouti
c/o American Embassy
Djibouti, Republic of Djibouti

10. Acceptance: This Letter of Commitment shall become effective upon your acceptance of the terms and conditions set forth above and those as set forth in the contract (or purchase order or PIO/C), which acceptance shall be indicated by your signing and returning the enclosed copy hereof to the address indicated in Paragraph 9 above.

Sincerely yours,

Administrator, Agency for
International Development
under Foreign Assistance
Act of 1961, as amended

By _____
Robert L. Bourquein, Director
Regional Financial Management
Center, Nairobi, Kenya
(Authorized Representative)

Name of Contractor/Supplier	Acceptance	Date
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APPENDIX R

**LETTER FROM SEP ON VESSEL
ACQUISITION**

734

LIVESTOCK SERVICE

N°. 311 /ELEVAGE

Djibouti 7/16/83

TO : Director of AID - in Djibouti

Subject : Fishing boat acquiring

Reference : Amendment N°. 3 to the Grant Agreement 83-02
dated April 20, 1983.

In response to your letter dated July 6, 1983 concerning the boat acquiring planned in the referenced project, I have the honour to inform you about the following remarks :

1) After the study of this boat characteristics it appears that certain equipments are different from those of boat financed by FIDA while during several meetings with USAID and RDA representatives it was agreed that equipments would be the same on the two boats to facilitate maintenance. The differences noted are the following :

- refrigeration system of the fish hold
- hydraulic station and machines dependent on
- trademark and type of transmitting/receiving sets
- trademark and type of generator.

Consequently I request you to re-examine the order of this material so that standardization will be as perfect ~~with~~ possible.

2) I notice that in this boat equipment there is no annexed small boat which will allow to go ashore when the boat cannot accost like in Obock. In addition, in certain fishing technics this small boat is essential. This small boat should be added to the equipment list.

Please accept the assurances of my highest esteem.

Chief of Livestock and
Fisheries Service

M. Boulesteix

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APPENDIX S

**RDA - USAID MEMO ON VESSEL
SPECIFICATIONS**

Resources Development Associates

A California Corporation

M E M O: Aug. 4, 1983

TO: Mr. W.E. Popp

This spring, prior to my departure from Djibouti to the U.S., a series of boat conferences were held. These meetings were attended by all interested parties. Definite plans were made at that time concerning the outfitting of the IFAD and USAID boats. The only equipment agreed upon to be identical in both boats was:

1. Main engine
2. Radar
3. Depth finder
4. Radio transmitter
5. DC voltage to be 24 volt

As far as I know, no discussions were held between IFAD and AID representatives in these selections, and the choice of the main engine and electronic gear, as well as the determination to use 24 volt DC was an IFAD decision.

1. The main engine is the same even though the unit is not considered desirable in the US markets and is not available through normal channels. It was emphatically recommended by the Miami Perkins factory distributor and the boat builder that this particular model not be considered for use in the AID boat. After a great deal of trouble, the factory representative and boat builder found that this motor equipped with 24 volt (a voltage not often used aboard US fishing boats) could be imported by special order. As a result, the AID boat will have a less desirable engine at a considerably greater cost, but it will be the same engine as installed in the IFAD boat.

2. The radar specified by IFAD is no longer available. A later model of the same brand will be in both boats as agreed.

3. Although the AID boat will be equipped with two depth finders, one is the exact model as on the IFAD boat and the other one is the same brand.

4. The radio specified is a discontinued model and the boat builder as well as RDA was unable to find one of these sets. There seems to be no

Office: 570 Main Street, Diamond Springs, CA
Mail: P.O. Box 407, Diamond Springs, CA 95619
(916) 622-8841

way that the AID boat can conform to this particular item.

5. The AID boat will be equipped with 24 volt DC. As this voltage is rarely used in the US, the generating machinery and starter for the main engine had to be a special order. The electrical system will also furnish other voltage, giving more versatility.

Several areas of difference have subsequently been pointed out between the IFAD and USAID boats by the Fisheries Service.

1. The refrigeration systems are different. The IFAD boat, at the time of the gear conference, was not going to be refrigerated. The refrigeration system that was later installed is an ice holding unit only. To be of any value, the boat must take on ice to operate. RDA's solution was to specify a refrigerated seawater system. The reasons for this choice should be obvious. The main deciding factor was the transporting of ice from the fishery plant to the boat, and the enormous amount of labor that it would take to move the ice and load it aboard the boat. Equally important is the fact that to properly ice the boat it would use a major portion of the already inadequate supply of ice at the fishery. Refrigerated sea water systems are installed in the majority of fishing boats in the US. This system is used on the largest tuna clippers to the small day boats. The system is economical to operate, simple to maintain and eliminates dependence on shore ice. The quality of the fish handled is superior to conventionally iced fish and the labor involved is a great deal less. Maintaining vessel sanitation is easier also. Another important factor is the unusable area in the hold of a boat with ice holding coils. These coils must be kept clear of ice and fish, and adequate air space must be allowed for the coils to operate and chill the ice. The entire volume of the hold in a RSW system is usable. As in the case of these two boats with limited hold space, this factor can be of great importance.

2. Differences in the fishing gear. At the time of the conference it was decided that the IFAD boat would be rigged to engage in certain types of fishing and the AID boat would be rigged to engage in other methods. The IFAD boat is equipped for trawl fishing, purse seining, gill netting and trap hauling. The first two methods require a great deal of power to operate the machinery. As a result, the hydraulic equipment must be heavy duty. These fishing methods are not adaptable to the artisanal fleet and fall outside the aims of the AID program. The AID boat is equipped to fish gear that could be utilized by the artisanal fishermen with only modest

modifications to their boats. Because of this, hydraulic equipment on the AID boat will be much lighter duty. All brands of hydraulic pumps and motors perform the same functions. With Caterpillar, John Deere and many other dealers established in Djibouti, it would seem that replacement of hydraulic equipment in case of failure would not prove difficult.

3. The electrical system is 24 volt and operated from the main engine. Another source of power will be obtained from a generator run by the auxiliary engine. This will be AC voltage and converted to 24 volt DC. This system allows the use of various electrical equipment readily available in AC, but either unavailable or extremely expensive in DC. This type of system has been widely used aboard US fishing boats for many years. I was personally in charge of a California Fish and Game research boat for several years that had a similar dual voltage system. No problems were ever encountered, but the benefits were many. The IFAD boat has no auxiliary engine.

These two boats are designed and built by people who have different concepts in what is important and desirable in a fishing boat. The design and construction of a US fishing boat is closely controlled by the US Coast Guard and other governmental agencies.

The aid boat in all respects (with the exception of the obsolete radio transmitter) conforms to the agreements reached at the gear and boat conference held in Djibouti before the specifications were written for the AID boat.



Dee McFadden

Master Fisherman

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APPENDIX T

RDA VESSEL SUBCONTRACT

APPENDIX T

RDA VESSEL SUBCONTRACT

SUBCONTRACT NO. P114-CWB

Between

**RESOURCES DEVELOPMENT ASSOCIATES, INC
("Prime Contractor")**

and

**C.W.B. ENTERPRISES, INC.,
dba COMMERCIAL WORK BOATS
("Subcontractor")**

to construct and provide

One 40-foot Multipurpose Fishing Vessel

Resources Development Associates, Inc., (RDA) is presently under contract to the U.S. Agency for International Development (USAID) to provide technical assistance services and commodity procurement to the Government of the Republic of Djibouti in the field of artisanal fisheries development. As part of this contract, RDA is procuring a 40-foot multipurpose fishing vessel for use in an exploratory fishing survey of the coastal waters of Djibouti. The vessel will be equipped with specified fishing gear fully installed.

With this Subcontract Agreement, made this 29th day of December, 1983, between RESOURCES DEVELOPMENT ASSOCIATES, INC., of Diamond Springs, California, (hereinafter called the "Prime Contractor") which expression shall include his/its heirs, or personal representative and assigns, of the one part; and C.W.B. ENTERPRISES, INC., dba COMMERCIAL BOAT WORKS of Miami, Florida, (hereinafter called the "Subcontractor"), which expression shall include its successors and assigns,

WHEREAS, the Prime Contractor desires to have a vessel built for him in accordance with the plans and specifications, herein referenced and described, and made a part hereof; and

WHEREAS, the Subcontractor is desirous of constructing said vessel for said Prime Contractor.

CLAUSE 1: The Subcontractor agrees to furnish all labor, tools, yard building facilities and skill, and to construct said vessel in his yard at Miami, Florida, in strict accordance with said plans and specifications, and will deliver said vessel to the Prime Contractor free from all encumbrances made or suffered by him. The vessel shall be delivered as specified herein, unless prevented by fires, strikes, Acts of

God, or other causes beyond its reasonable control, for the Firm Fixed Price of \$154,238. and when ordered by or requested by the Prime Contractor. It is further agreed that when material is supplied by Prime Contractor used on construction, the Subcontractor shall not be responsible for the quality and quantity of said material.

CLAUSE 2: The Subcontractor to provide a vessel constructed and outfitted in strict conformance to the requirements of the RDA Request for Proposal for a Multipurpose Fishing Vessel issued on 12 May 1983 (Reference A), as modified by the Commercial Work Boat quotation of 24 May 1983 (Reference B), as further modified by mutual agreement between RDA, Inc., and Commercial Work Boats in verbal negotiation during the period of 15-17 June 1983, as modified by the Commercial Work Boat Quotation of 28 October 1983, (Reference C), and as modified in subsequent telephone negotiations, the details of which are as follows:

RFP Item #1

- a. Basic vessel cost quote is increased \$2,000 to \$60,000. The flying bridge will have only steering and engine controls and will be constructed with only a pipe railing and ladder. The instrumentation, compass, and helmseat are deleted. The flying bridge cost quotation is changed from \$4,000 to \$1,500. Revised Item #1 quote = \$61,500.

RFP Item #2

- b. A dry stack engine exhaust will be provided. The exhaust outlet will be positioned a minimum of seven (7) feet above the deck of the flying bridge. This is a no-cost change. Revised Item #2 quote = \$4,590.

RFP Item #3

- c. Delete reference to Borg Warner 2.5:1 reduction gearbox. Required transmission is Twin Disc Model No. 506 with 3:1 reduction. Cost quote for transmission change is increased \$1,200. Generator for main engine will be CAV Origen Model Type AC 203R-120-24-5 and will produce 24 VDC. Hydraulics and accessory pumps will be by Vickers English Hose with Standard couplings. Cost quote for change to Vickers increases \$1,300. Delete "Two sets of spare filters" and replace with "Twenty sets of spare filters shall be provided." Filters are costed under Item #39. Revised Item #3 quote = \$15,150.

RFP Item #4 and RFP Item #6

- d. Hold remains the same. Replace Bristol Bay Baby chilled seawater spray system with Denis Pommeret chilled seawater spray system. Integrate refrigeration compressor with auxiliary power system. Add air conditioning to main cabin. Auxiliary engine will be Perkins 4108 and will power a hydraulic system (Vickers English Hose) which in turn will power the refrigeration compressor, the refrigerated water circulation pump and the deck reels. The auxiliary engine will also power, with belts, a small alternator, to charge the auxiliary engine's batteries, and a large (3.5KW minimum) generator which will produce both 110 VAC and 220 VAC. The 110 VAC will power the cabin air conditioning unit. In addition, the 110 VAC will be used to recharge the main 24 V batteries with use of a 110 VAC/24 VDC converter and to provide 24 VDC to the exterior junction boxes. This results in total cost for Item #4, Item #6, and airconditioning of \$32,500.

RFP Item #5

Quote = \$1,110.

RFP Item #7 and #8

- e. A minimum of 20 rolls of depth recorder paper shall be provided for each depth recorder. This results in an increase of \$60.
revised items 7/8 quote = \$3,650.

RFP Item #9

- f. Change Furuno 1600 to Furuno 2400. This results in an increase of \$200. Item #9 quote = \$4,150.

RFP Item #10

- g. Delete Item #10. This results in a cost reduction of \$1,155.
Item #10 quote = -0-

RFP Item #11

- h. Change two compasses to one compass. The cost quote is changed from \$500 to \$250.

RFP Item #12

Revised quote included in Item #28

RFP Item #13

Revised quote = \$700.

RFP Item #14

Revised quote = \$2,160.

RFP Item #15

Revised quote = \$960.

RFP Item #16

- i. Delete hydraulic trap hauler. Provide swinging davit and open block on davit. Position to integrate with Item #18. Change cost quotation from \$1,950 to \$350.

746

RFP Item #17

- j. Delete Power Block. Change cost quote from \$11,225 to \$8,150.

RFP Item #18

- k. Delete roller davit. Change cost quote from \$5,085 to \$4,150.

RFP Item #19

- l. Add additional 600 feet 3/4" strand standard lay nylon rope. Cost quote increases \$300 to \$960.

RFP Item #20

Cost quote = \$3,500.

RFP Item #21

- m. Thirty foot trolling poles will be built and installed as a requirement of this contract. However, the costs for this will be covered outside this subcontract.

RFP Item #22

- n. Change to "1 each Coast Guard approved 12-man life raft". Cost quote increases \$370 to \$750.

RFP Item #23

- o. Change to "12 each Coast Guard approved life jackets...". Cost quote increases \$240 to \$480.

RFP Item #24

Cost quote = \$560.

RFP Item #25

Cost quote = \$450.

RFP Item #26

- p. Upgrade medical kit. Change cost quote from \$35 to \$135.

RFP Item #27

Cost quote = \$200.

RFP Item #28 and RFP Item #29

- q. Add "Whale" manual bilge pump on deck. Change cost quote from "std." to \$210. Water and bilge pumps, other than the manual pump, will be from Idromecanica Forani and Pecorari Italian. Revised quote = \$1,060.

RFP Item #30

- r. Add two deck lights and junction box at exterior rear of cabin. Junction box has wiring for two one thousand watt 24 VAC fishing lights and wiring for 110 VAC. This results in increase of \$85 to \$520.

RFP Item #31

Revised quote = \$30.

RFP Item #32

Revised quote = \$180.

RFP Item # 33

Revised quote = included

RFP Item #34

- s. Subcontractor remains responsible for delivery of vessel. However, all costs for delivery shall remain outside this Subcontract and shall be borne separately by RDA, Inc. See Clause 4.

RFP Item #35

Cost Quote = \$1,800.

ADD Item #36 - Skiff

- t. Fiberglass skiff - 12 to 14 foot overall length with transom mount for outboard motor. This results in a cost quote of \$755.

ADD Item #37 - Speed Indicator

- u. Cabin instrumentation will include speed indicator (impeller type) with 10,000 nautical mile distance log. Increase cost by \$650 to \$650.

ADD Item #38 - Additional Safety Equipment

- v. The following additional safety equipment shall be provided:

- 1 each "N" and "C" Distress Flags
- 1 Set international signal flags
- 1 Sea Anchor
- 2 life ring - Coast Guard approved
- 1 buoy with light - for "man overboard"
- 1 boarding ladder
- 1 lead sounding line - 10 pound

Increase cost \$728 to total of \$728.

Add Item #39 - Mandatory Spare Parts

- w. The following spare parts will be provided:

- 1 complete set of all V-belts
- 1 set of injectors for main engine
- 1 set of injectors for auxiliary engine
- 1 set of gaskets - for everything requiring gaskets
- 1 set of hydraulic fittings and replacement hydraulic hoses
- 20 oil filters for main engine
- 20 oil filters for auxiliary engine
- 20 fuel filters for main engine
- 20 fuel filters for auxiliary engine
- 6 raw water impellers for main engine water pump
- 1 rebuild kit for main engine cooling pump

Total cost for item #39 is \$2,110.

CLAUSE 3: All payments for this vessel shall be made directly by the U. S. Government under a USAID Direct Letter of Commitment, a draft copy of which is attached to this Subcontract (Attachment 1). The Subcontractor may submit three (3) vouchers directly to USAID during the course of this Subcontract. The first voucher, will be submitted for twenty-five percent (25%) of the total price, or \$38,560, upon completion of laying of the hull. The second voucher, for thirty-five percent (35%) of the total price, or \$53,983, will be submitted upon receipt of the main engine. The third and final voucher, for forty percent (40%) or \$61,695, will be submitted upon delivery of the vessel to the port as specified by the Prime Contractor, except that, should delivery be delayed beyond ten (10) days after satisfactory completion of acceptance testing due to delays brought about by either RDA or USAID, the Subcontractor may submit his final voucher at ten (10) days after satisfactory completion of acceptance testing. See Clause 4 for delivery details.

CLAUSE 4: The vessel will be completed and delivered to the port specified by the Prime Contractor on/before one hundred-twenty (120) days after Subcontract signature unless its construction shall be delayed by any act or neglect of the Prime Contractor or its employees, or by any other contract or agent of the Prime Contractor or by changes ordered in the work, or by Acts of God, or by strikes, lockouts, fires, unusual delays by common carriers, unavoidable casualties, or any causes beyond Subcontractor's control. A cause beyond the Subcontractor's control may include unforeseen delays in delivery of the main engine or delivery of the Italian water/bilge pumps. The one hundred twenty (120) day delivery time in this subcontract is predicated on receipt by the Subcontractor of the main engine within 60 days after signature of the subcontract and receipt

of the Italian water/bilge pumps within 75 days after signature of the subcontract. Should delivery of these parts to the Subcontractor be delayed beyond the above-referenced time, (excessive delay) then the Subcontractor may, without penalty, delay final delivery of the vessel for a time not to exceed the excessive delay for these parts. In order to be granted this exception to the delivery time, the Subcontractor must place documented orders for these parts within four (4) days after subcontract signature. The parties agree that any delay not occasioned by the foregoing causes shall subject the Subcontractor to damages of \$500.00/day as liquidated damages, provided that the Prime Contractor is in compliance with all terms and conditions of this Subcontract.

Furthermore, the vessel shall be made available for sea trials and acceptance testing within one hundred-five (105) days after Subcontract signature. Such testing will take no more than five (5) days. The vessel will be available for delivery no later than one hundred-ten (110) days after Subcontract signature. Should final delivery be delayed more than ten (10) days after this time (120 days after Subcontract signature) due to a request of the Prime Contractor of of USAID, the Subcontractor may submit his Final Voucher (See Clause 3). However, the Subcontractor shall maintain all responsibility for and liability for the vessel until final delivery can be effected. The Subcontractor will remain fully responsible for final delivery. During this time of delay, the Prime Contractor will be responsible for payment of any dockage fees or special security which may be required.

CLAUSE 5: Subcontractor agrees to carry and pay for full insurance coverage on the said vessel, and the materials for the account of the Prime Contractor and the Subcontractor. The insurance shall commence with the arrival and storage of the first items of material and equipment, increasing in value with progress of construction until delivery of the vessel.

CLAUSE 6: The Prime Contractor agrees that any changes in the plans or specifications made after the date of this Subcontract, shall be considered as extras, the additional cost of which shall be added to the Subcontract price as above agreed. In all cases of alterations, additions, or other change in the said plans and specifications, the Subcontractor shall, at the request of Prime Contractor, compute the cost of such changes, additions, or alterations, submit same in writing to the Prime Contractor or his authorized representative. The Prime Contractor and the Subcontractor shall negotiate the cost of any changes. Implementation of any such changes shall occur only after mutual written agreement between both parties.

CLAUSE 7: It is agreed by both parties that time is of the essence of this Subcontract, and that the Subcontractor will not assign the same without the consent in writing of the Prime Contractor. It is also agreed that if, before the completion of this Subcontract, the Subcontractor is adjudicated insolvent or bankrupt by any court of competent jurisdiction, or makes any assignment for the benefit of creditors, or if for any other reason (the Prime Contractor having done all things required to be done by him up to that time) prosecution of the work of construction shall be suspended for forty-five (45) consecutive whole days or for thirty (30) whole days in all, Sundays and legal holidays

excluded, the Prime Contractor may forthwith terminate this Subcontract, and with his agents, servants and employees enter upon and into said yard and buildings of the Subcontractor and make such use of the same as they deem necessary to complete this Subcontract, without being deemed guilty in any manner of trespass and without waiving any remedies the Prime Contractor may have. The Subcontractor agrees that all such material shall be segregated from other material and supplies of like nature in the Subcontractor's yard and kept separate so that the same may be identified at all times.

CLAUSE 8: In all cases of necessary alterations in plans or specifications due to unforeseen conditions, such alterations or changes shall be considered in the nature of extras. In all such cases, the Subcontractor agrees to furnish the Prime Contractor, or his authorized representative, within a reasonable time, with a complete estimate of such additional costs and charges as may be necessary, for approval.

CLAUSE 9: The Subcontractor agrees that the Prime Contractor and his authorized representative, shall have free right of access to the yard and vessel at all reasonable times, for examination and inspection by the Prime Contractor during the course of its construction.

CLAUSE 10: The Subcontractor warrants all fiberglass hull and all installations of other component fiberglass parts, manufactured by Commerical Work Boats, to be free of defective workmanship and materials. Said warranty shall extend to the original purchases for a period of one year from the date of delivery thereof, and to be subject to the following requirements:

- a. A written notice of claim must be submitted to Commercial Work Boats within twenty (20) days from discovery of any defect.
- b. The fiberglass hull or component fiberglass part(s) shall be made available for inspection by Commercial Work Boats representative, and such representative shall determine the existence of any defect.
- c. The vessel and all extras must be paid for in full.

Upon determination of the existence of a defect in workmanship and material in any fiberglass hull or component fiberglass part, Commercial Work Boats shall have the option to repair or replace such defective hull or component part, or to authorize Resources Development Associates, Inc., to repair the vessel, the costs of said repair to be borne by Commercial Work Boats. This warranty does not apply to and specifically excludes:

- a. The color fastness of any material or finish used.
- b. Any Commercial Work Boats vessel or part manufactured by Commercial Work Boats which has been altered outside of the factory of Commercial Work Boats.
- c. Abnormal use or service.
- d. Bottom paint or application thereof.

Furthermore, warranties on equipment manufactured by companies other than the Subcontractor shall be governed by those warranty terms and conditions normally granted by those companies, except that the Subcontractor, shall, for a period of one year after delivery of the vessel, act as an agent of the Prime Contractor to handle and expedite any warranty work required. All transportation charges related to warranty repair or replacement shall be allocated as specified in the RDA RFP (Reference A).

CLAUSE 11: All other clauses of this Subcontract notwithstanding, the Prime Contractor and Subcontractor agree to be bound by all clauses of the USAID "General Provisions" and "Additional General Provisions" pertaining to subcontracts and subcontractors as applicable, a copy of which is attached and hereby made a part of this Subcontract (Attachment 2).

IN WITNESS WHEREOF, the parties hereto have set their hands and seals to this and another instrument of like tenor, on the day and year first above written.

WITNESSES

Mary Ferguson

~~NOTARY PUBLIC STATE OF FLORIDA AT LARGE
MY COMMISSION EXPIRES MAR 27, 1984
BONDED THRU GENERAL INS. UNDERWRITERS~~

[Signature]

SUBCONTRACTOR

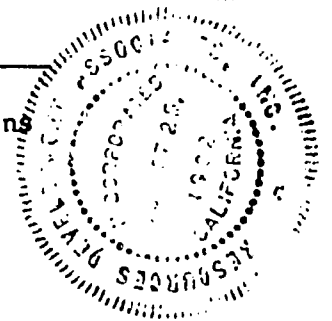
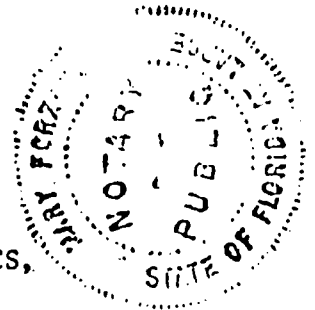
C.W.B. ENTERPRISES, INC.

By: Willard A. Burpee
Willard A. Burpee,
President

PRIME CONTRACTOR

RESOURCES DEVELOPMENT ASSOCIATES,
INC.

By: Robert W. Campbell
Robert W. Campbell,
Vice President, Operations



ATTACHMENT 1

Commercial Work Boats
10650 NW South River Drive
Miami, FL 33178

Re: AID Letter of Commitment No.
Contract No. AID/AFR-C-1630
Value: \$154,238.00

Gentlemen:

1. At the request of Resources Development Associates, Inc., of Diamond Springs, Ca., (hereinafter called RDA), and in accordance with the terms of Contract No. AID/AFR-C-1630 between RDA and the Agency for International Development, (hereinafter called AID), the Administrator, AID, acting for the United States of America, hereby guarantees, subject to compliance with conditions hereinafter set forth, to make payments to you in amounts not to exceed a total U.S. \$154,238.00, to cover the U.S. dollar costs of Subcontract No. P-114-CWB of 29 December, 1983, between yourselves and RDA, Inc. AID will make every effort to effect payments to you within twenty-one (21) calendar days after actual receipt of documents required for payment hereinafter set forth in the designated paying office (see Paragraph #2 below) or twenty-one (21) calendar days after a designated AID official or authorized representative's acceptance of goods or services, whichever is later. The authorized representative is Resources Development Associates, Inc.

2. Payments shall be made hereunder in accordance with the payment schedule and/or upon compliance with the documentation requirements set forth in Paragraph #3 below and/or as set forth in Clauses #3 and #4, of the Subcontract, which by way of reference is hereby incorporated into the terms of this Letter of Commitment. Upon receipt of the required documentation, reviewed and administratively approved by the RDA Representative, the Regional Financial Management Center, Nairobi, Kenya will arrange for payment to be made by a U.S. Treasury check payable to Commercial Work Boats, issued and mailed directly to you (or by a U.S. Treasury check payable to Commercial Work Boats, issued and mailed to your U.S. bank for credit to your account).

3. The following documentation is to be submitted to the Regional Financial Management Center, P.O. Box 30261, Nairobi, Kenya to receive payment:

- a. U.S. Government standard Form 1034 properly completed and executed by yourselves and citing this Letter of Commitment and the contract number.
- b. Your detailed invoice describing the goods of services delivered.
- c. Evidence of shipment for each shipment of commodities within the delivery period set forth in Paragraph #5 below. Such evidence of shipment shall consist of a copy of photostat of the Bill of Lading (ocean, airway, railway, or truck), or an attestation by an authorized representative of RDA, Inc. The Bill of Lading shall indicate the carrier's complete statement of charges including all relevant weights, cubic measurements, rates, and additional charges.
- d. "Supplier's Certificate and Agreement with AID," Form AID 1440-3, prepared by yourselves in accordance with the instructions thereon.
- e. Approval of invoice by authorized RDA representative.

4. The items to be financed hereunder are:

- a. One fully-equipped 40' multipurpose fishing vessel as specified in the Subcontract;
- b. Vessel-related services and costs: Packing, insurance warranty, and acceptance testing as specified in the Subcontract.

5. Expiration: All goods must be delivered, and service performed hereunder on/before one hundred-twenty (120) days after contract signature, and all requests for payment supported by the required documentation must be received by RFMC/Nairobi not later than one hundred-fifty (150) days after subcontract signature.

6. Amendments: Payment hereunder is contingent upon written approval by AID of any amendment of the subcontract. Approval by AID will be indicated by the issuance of an amendment to the Letter of Commitment.

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Commercial Work Boats

Page Three

7. Assignment: Funds due or to become due from AID under this Letter of Commitment may be assigned only in accordance with the provisions of the Assignment of Claims Act of 1940 (31 U.S.C. s205, 41 U.S.C. s15).

8. Pursuant to authority granted to AID under Section 640A(B) of the Foreign Assistance Act of 1968 (22 U.S.C. Section 2399b), AID may deduct from and set off against payment specified in Paragraph #1 above, any amounts owed by you to AID and covered by AID bills for collection.

9. All communications regarding this Letter of Commitment shall be addressed to:

Regional Financial Management Center
P.O. Box 30261
Nairobi, Kenya

Copies of all such communications shall also be furnished to the following offices:

Regional Contracting Officer
REDSO/EA
P.O. Box 30261
Nairobi, Kenya

and

Resources Development Associates, Inc.
P.O. Box 407
Diamond Springs, CA 95619

and

AID Affairs Office
c/o American Embassy
Djibouti, Republic of Djibouti

10. Acceptance: This Letter of Commitment shall become effective upon your acceptance of the terms and conditions set forth above and those as set forth in the subcontract, which acceptance shall be indicated by your signing and returning the enclosed copy hereof to the address indicated in Paragraph #9 above.

Sincerely yours,

Administrator, Agency for
International Development
Under Foreign Assistance
Act of 1961, as amended

By: _____
Robert L. Bourquein, Director
Regional Financial Management
Center, Nairobi, Kenya
(Authorized Representative)

Name of Contractor/Supplier	Acceptance	Date
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ATTACHMENT 2
USAID GENERAL PROVISIONS
AND
ADDITIONAL GENERAL PROVISIONS

Alterations in Contract (AIDPR 7-7)

The following three clauses are added to this contract (or purchase order):

1. INTEREST ON OVERDUE PAYMENTS (Oct. 1982)

(a) The Prompt Payment Act, Public Law 97-177 (96 Stat. 85, 31 USC 1801) is applicable to payments under this contract and requires the payment to contractors of interest on overdue payments and improperly taken discounts.

(b) Determinations of interest due will be made in accordance with the provisions of the Prompt Payment Act and Office of Management and Budget Circular A-125.

2. PAYMENT DUE DATES (Oct. 1982)

(a) Payments under this contract will be due as follows:

(1) When the designated paying office identified in the contract or purchase order is located in the U.S.: 30 calendar days after the date of actual receipt of a proper invoice in the designated paying office or 30 days after a designated AID official or authorized representative accepts the property or services, whichever is later.

(2) When the designated paying office identified in the contract or purchase order is at a foreign location: 45 calendar days after the date of actual receipt of a proper invoice in the designated paying office or 45 days after a designated AID official or authorized representative accepted the property or services, whichever is later.

(b) For definition of the term "proper invoice", see the clause of this contract entitled "Invoice Requirements".

(c) The date of the check issued in payment shall be considered to be the date payment is made.

3. INVOICE REQUIREMENTS (Oct. 1982)

Invoices shall be submitted in an original and 3 copies to the Government office designated in this contract or on the delivery order to receive invoices. To constitute a proper invoice, the invoice must include the following information and/or attached documentation:

(a) Name of the business concern and invoice date.

(b) Contract number, or other authorization for delivery of property or services.

(c) Description, price, and quantity of property and services actually delivered or rendered.

(d) Shipping and payment terms.

(e) Name (where practicable), title, phone number, and complete mailing address of responsible official to whom payment is to be sent.

(f) Other payment documentation required by the contract.

GENERAL PROVISIONS

Cost Reimbursement Type Contract

INDEX OF CLAUSES

1. Definitions
2. Changes
3. Biographical Data
4. Leave and Holidays
5. Travel and Transportation Expenses
6. Standards of Work
7. Inspection
8. Limitation of Cost
9. Allowable Cost, Fee, and Payment
10. Documentation for Payment
11. Negotiated Overhead Rates
12. Assignment of Claims
13. Examination of Records by Comptroller General
14. Price Reduction for Defective Cost or Pricing Data
15. Audit
16. Subcontractor Cost or Pricing Data
17. Reports
18. Source and Nationality Requirements for Procurement of Goods and Services
19. Subcontracts
20. Government Property
21. Utilization of Small Business Concerns and Small Business Concerns Owned and Controlled by Socially and Economically Disadvantaged Individuals
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23. Insurance-Liability to Third Persons
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26. Stop Work Order
27. Disputes
28. Authorization and Consent
29. Notice and Assistance Regarding Patent and Copyright Infringement
30. Patent Rights
31. Rights in Data
32. Release of Information
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34. Convict Labor
35. Walsh-Healy Public Contracts Act
36. United States Officials Not to Benefit
37. Covenant Against Contingent Fees
38. Language, Weights and Measures
39. Security Requirements
40. Utilization of Women-Owned Business Concerns
41. Disabled Veterans and Veterans of the Vietnam Era
42. Clean Air and Water
43. Employment of the Handicapped
44. Notices
45. Use of Government Facilities or Personnel
46. Limitation of Funds
47. Organizational Conflicts of Interest
48. Personnel Compensation

1. DEFINITIONS (AIDPR 7-7.5001-1)

(a) "Administrator" shall mean the Administrator or the Deputy Administrator of the Agency for International Development.

(b) "AID" shall mean the Agency for International Development.

(c) "Consultant" shall mean any especially well qualified person who is engaged, on a temporary or intermittent basis to advise the Contractor and who is not an officer or employee of the Contractor who performs other duties for the Contractor.

(d) "Contracting Officer" shall mean the person executing this contract on behalf of the United States Government, and any other Government employee who is a properly designated Contracting Officer; and the term includes, except as otherwise provided in this contract, the authorized representative of a Contracting Officer acting within the limits of his authority.

(e) "Contractor Employee" shall mean an employee of the Contractor assigned to work under this contract.

(f) "Cooperating country or countries" shall mean the foreign country or countries in or for which services are to be rendered hereunder.

(g) "Cooperating Government" shall mean the government of the Cooperating Country.

(h) "Economy Class" air travel (also known as jet economy, air coach, tourist class, etc.) shall mean a class of air travel which is less than first class.

(i) "Federal Procurement Regulations" (FPR), when referred to herein shall include Agency for International Development Procurement Regulations (AIDPR).

(j) "Government" shall mean the United States Government.

(k) "Mission" shall mean the United States AID Mission to, or principal AID office in, the Cooperating Country.

(l) "Mission Director" shall mean the principal officer in the Mission in the Cooperating Country, or his designated representative.

2. CHANGES (AIDPR 7-7.5001-2)

(a) The Contracting Officer may at any time, by a written order, and without notice to the sureties, if any, make changes, within the general scope of this contract, in any one or more of the following:

- (i) Drawings, designs, or specifications;
- (ii) Method of shipment or packing; and
- (iii) Place of inspection, delivery, or acceptance.

(b) If any such change causes an increase or decrease in the estimated cost of, or the time required for the performance of any part of the work under this contract, whether changed or not changed by any such order, or otherwise affects any other provision of this contract, an equitable adjustment shall be made:

- (i) In the estimated cost or delivery schedule, or both;
- (ii) In such other provisions of the contract as may be affected, and the contract shall be modified in writing accordingly.

Any claim by the Contractor for adjustment under this clause must be asserted within thirty (30) days from the date of receipt by the Contractor of the notification of change; *Provided, however,* That the Contracting Officer, if he decides that the facts justify such action, may receive and act upon any such claim asserted at any time prior to final payment under this contract. Failure to agree to any adjustment shall be a dispute concerning a question of fact within the meaning of the clause of this contract entitled "Disputes." However, except as provided in paragraph (c) below, nothing in this clause shall excuse the Contractor from proceeding with the contract as changed.

(c) Notwithstanding the provisions of paragraphs (a) and (b) above, the estimated cost of this contract and, if this contract is incrementally funded, the funds allotted for the performance thereof, shall not be increased or deemed to be increased except by specific written modification of the contract indicating the new contract estimated cost and, if this contract is incrementally funded, the new amount allotted to the contract. Until such modification is made, the Contractor shall not be obligated to continue performance or incur costs beyond the point established in the clause of this contract entitled "Limitation of Cost" or "Limitation of Funds."

(d) If this contract is executed by an AID/Washington Contracting Officer, valid change orders may be issued only by the AID/Washington Contracting Officer, or such person as he or she may designate in writing for such purposes.

3. BIOGRAPHICAL DATA (AIDPR 7-7.5001-3)

(a) Contractor agrees to furnish to the Contracting Officer, on forms provided for that purpose, biographical information on the following individuals to be employed in the performance of the contract: (1) All individuals to be sent outside of the United States, (2) key personnel. Biographical data on the other individuals employed under the contract shall be available for review by AID at the Contractor's principal place of business.

4. LEAVE AND HOLIDAYS (AIDPR 7-7.5001-4)

Contractor employees shall be entitled to such leave and holidays while serving in the United States as are provided in accordance with the Contractor's established policy and practice, but in no event shall vacation leave be earned at a rate exceeding 25 working days per annum, or sick leave be earned at a rate exceeding 13 working days per annum.

5. TRAVEL AND TRANSPORTATION EXPENSES (AIDPR 7-7.5001-5)

(a) *United States Travel.* The Contractor shall be reimbursed for actual transportation costs and travel allowances of travelers in accordance with the established practice of the Contractor for travel within the United States directly referable to the contract and not continuous with travel to and from the Cooperating Country. Such transportation costs shall not be reimbursed in an amount greater than the cost of, and time required for economy class commercial scheduled air travel by the most expeditious route unless economy air travel or economy air travel space are not available and the Contractor certifies to the facts in the voucher or other documents retained as part of his contract records to support his claim for post-audit. Such travel allowances shall be in accordance with the established practice of the Contractor for travel within the United States provided that it shall not exceed the rates and basis for computation of such rates as provided in the Federal Travel Regulations, as from time to time amended.

(b) *Actual Expense Basis.* Travel on an actual expense basis may be authorized or approved by the Contractor's Chief Executive Officer, or equivalent official, when it is determined that unusual circumstances of the assignment will require expenditures greatly in excess of the maximum per diem allowance provided herein. Payment on an actual expense basis is limited to specific travel assignments and should be used only in exceptional cases and not merely to cover a small amount of costs in excess of per diem. Normally, the authorization will be limited to cases where the cost of lodging (exclusive of meals) at available hotels absorbs practically all of the per diem allowance. In no event, however, shall the amount authorized exceed the applicable maximum amount allowable under section 7.2 of the Federal Travel Regulations, as from time to time amended. Receipts covering all expenses claimed hereunder shall be filed by the traveler with his voucher and shall be retained as a part of the Contractor's records to support the Contractor's claim for reimbursement, or for post-audit.

6. STANDARDS OF WORK (AIDPR 7-7.5001-6)

The Contractor agrees that the performance of work and services, pursuant to the requirements of this contract, shall conform to high professional standards.

7. INSPECTION (AIDPR 7-7.5001-7)

The Government, through any authorized representatives, has the right at all reasonable times, to inspect,

or otherwise evaluate the work performed or being performed hereunder and the premises in which it is being performed. If any inspection, or evaluation is made by the Government on the premises of the Contractor or a subcontractor, the Contractor shall provide and shall require his subcontractors to provide all reasonable facilities and assistance for the safety and convenience of the Government representatives in the performance of their duties. All inspections and evaluations shall be performed in such a manner as will not unduly delay the work.

8. LIMITATION OF COST (AIDPR 7-7.5001-8(a))

(This provision is applicable if this contract is fully funded; if it is incrementally funded, General Provision #46 is applicable)

(a) It is estimated that the total cost to the Government for the performance of this contract, exclusive of any fee, will not exceed the estimated cost set forth in the Schedule, and the Contractor agrees to use his best efforts to perform the work specified in the Schedule and all obligations under this contract within such estimated cost. If, at any time, the Contractor has reason to believe that the costs which he expects to incur in the performance of this contract in the next succeeding 60 days, when added to all costs previously incurred, will exceed 75 percent of the estimated cost then set forth in the Schedule, or if, at any time, the Contractor has reason to believe that the total cost to the Government for the performance of this contract, exclusive of any fee, will be greater or substantially less than the then estimated cost hereof, the Contractor shall notify the Contracting Officer in writing to that effect, giving the revised estimate of such total cost for the performance of this contract.

(b) Except as required by other provisions of this contract specifically citing and stated to be an exception from this clause, the Government shall not be obligated to reimburse the Contractor for costs incurred in excess of the estimated cost set forth in the Schedule, and the Contractor shall not be obligated to continue performance under the contract (including actions under the Termination clause) or otherwise to incur costs in excess of the estimated cost set forth in the Schedule, unless and until the Contracting Officer shall have notified the Contractor in writing that such estimated cost has been increased and shall have specified in such notice a revised estimated cost which shall thereupon constitute the estimated cost of performance of this contract. No notice, communication, or representation in any other form or from any person other than the Contracting Officer shall affect the estimated cost of this contract. In the absence of the specified notice, the Government shall not be obligated to reimburse the Contractor for any costs in excess of the estimated cost set forth in the Schedule, whether those excess costs were incurred during the course of the contract or as a result of termination. When and to the extent that the estimated cost set forth in the Schedule has been increased, any costs incurred by the Contractor in excess of the estimated cost prior to such increase shall be allowable to the same extent as if such costs had been incurred after the increase; unless the Contracting Officer

issues a termination or other notice and directs that the increase is solely for the purpose of covering termination or other specified expenses.

(c) Change orders issued pursuant to the Changes clause of this contract shall not be considered an authorization to the Contractor to exceed the estimated cost set forth in the Schedule in the absence of a statement in the change order, or other contract modification, increasing the estimated cost.

(d) In the event that this contract is terminated or the estimated cost not increased, the Government and the Contractor shall negotiate an equitable distribution of all property produced or purchased under the contract based upon the share of costs incurred by each.

9. ALLOWABLE COST, FEE AND PAYMENT (AIDPR 7-7.5001-9)

(a) For the performance of this contract, the Government shall pay to the Contractor:

(1) The cost thereof (hereinafter referred to as "allowable cost") determined by the Contracting Officer to be allowable in accordance with:

(i) Subpart 1-15.2 of the Federal Procurement Regulations (41 CFR 1-15.2, as in effect on the date of this contract; and

(ii) The terms of this contract; and

(2) Such fixed-fee, if any, as may be provided for in the Schedule.

(b) Payments shall be made to the Contractor when requested as work progresses; but not more frequently, than once each month, in amounts approved by the Contracting Officer or his/her authorized representative, as designated in the clause of this contract entitled "Documentation for Payment". The Contractor may submit to an authorized representative of the Contracting Officer, in such form and reasonable detail as such representative may require (see the clause of this contract entitled "Documentation for Payment"), an invoice or public voucher supported by a statement of cost for the performance of this contract and claimed to constitute allowable cost. For this purpose, except as provided herein with respect to pension contributions, the term "costs" shall include only those recorded costs which result, at the time of the request for reimbursement, from payment by cash, check, or other form of actual payment for items or services purchased directly for the contract, together with (when the Contractor is not delinquent in payment of costs of contract performance in the ordinary course of business) costs incurred, but not necessarily paid, for materials which have been issued from the Contractor's stores inventory and placed in the production process for use on the contract, for direct labor, for direct travel, for other direct in-house costs, and for properly allocable indirect costs, as is shown by records maintained by the Contractor for purposes of obtaining reimbursement under Government contracts plus the amount of progress payments which have been paid to the Contractor's subcontractors under similar cost standards. In addition, when pension contributions are paid by the Contractor to the retirement fund less frequently than quarterly, accrued costs therefore shall be excluded from indirect costs for payment purposes until such costs are paid. If pension contributions are paid on a quarterly or more frequent

basis, accruals therefore may be included in indirect costs for payment purposes provided that they are paid to the fund within 30 days after the close of the period covered. If payments are not made to the fund within such 30-day period, pension contribution costs shall be excluded from indirect cost for payment purposes until payment has been made. The restriction on payment more frequently than once each month and the requirement of prior payment for items or services purchased directly for the contract shall not apply when the Contractor is a small business concern.

(c) Promptly after receipt of each invoice or voucher and statement of cost, the Government shall, except as otherwise provided in this contract subject to the provisions of (d), below, make payment thereon as approved by the Contracting Officer or his/her authorized representative. Payment of the fixed-fee, if any, shall be made to the Contractor as specified in the Schedule: *Provided, however, That after payment of 85 percent of the fixed-fee set forth in the Schedule, the Contracting Officer or his/her authorized representative may withhold further payment of fee until a reserve shall have been set aside in an amount which he considers necessary to protect the interests of the Government, but such reserve shall not exceed 15 percent of the total fixed-fee, or \$100,000, whichever is less.*

(d) At any time or times prior to final payment under this contract the Contracting Officer may have the invoices or vouchers and statements of cost audited. Each payment theretofore made shall be subject to reduction for amounts included in the related invoice or voucher which are found by the Contracting Officer, on the basis of such audit, not to constitute allowable cost. Any payment may be reduced for overpayments, or increased for underpayments, on preceding invoices or vouchers.

(e) On receipt and approval of the invoice or voucher designated by the Contractor as the "completion invoice" or "completion voucher" and upon compliance by the Contractor with all the provisions of this contract (including, without limitation, the provisions relating to patents and the provisions of (f), below), the Government shall promptly pay to the Contractor any balance of allowable cost, and any part of the fixed-fee, which has been withheld pursuant to (c), above, or otherwise not paid to the Contractor. The completion invoice or voucher shall be submitted by the Contractor promptly following completion of the work under this contract but in no event later than 1 year (or such longer period as the Contracting Officer may in his discretion approve in writing) from the date of such completion.

(f) The Contractor agrees that any refunds, rebates, credits, or other amounts (including any interest thereon) accruing to or received by the Contractor or any assignee under this contract shall be paid by the Contractor to the Government, to the extent that they are properly allocable to costs for which the Contractor has been reimbursed by the Government under this contract. Reasonable expenses incurred by the Contractor for the purpose of securing such refunds, rebates, credits, or other amounts shall be allowable costs hereunder when approved by the Contracting Officer.

Prior to final payment under this contract, the Contractor and each assignee under this contract whose assignment is in effect at the time of final payment under this contract shall execute and deliver:

(1) An assignment to the Government, in form and substance satisfactory to the Contracting Officer, of refunds, rebates, credits, or other amounts (including any interest thereon) properly allocable to costs for which the Contractor has been reimbursed by the Government under this contract; and

(2) A release discharging the Government its officers, agents, and employees from all liabilities, obligations, and claims arising out of or under this contract, subject only to the following exceptions:

(i) Special claims in stated amounts or in estimated amounts where the amounts are not susceptible of exact statement by the Contractor.

(ii) Claims, together with reasonable expenses incidental thereto, based upon liabilities of the Contractor to third parties arising out of the performance of this contract: *Provided, however, That such claims are not known to the Contractor on the date of the execution of the release; and provided further, that the Contractor gives notice of such claims in writing to the Contracting Officer not more than 6 years after the date of the release or the date of any notice to the Contractor that the Government is prepared to make final payment, whichever is earlier; and*

(iii) Claims for reimbursement of costs (other than expenses of the Contractor by reason of its indemnification of the Government against patent liability), including reasonable expenses incidental thereto, incurred by the Contractor under the provisions of this contract relating to patents.

(g) Any cost incurred by the Contractor under the terms of this contract which would constitute allowable cost under the provisions of this clause shall be included in determining the amount payable under this contract, notwithstanding any provisions contained in the specifications or other documents incorporated in this contract by reference, designating services to be performed or materials to be furnished by the Contractor at his expense or without cost to the Government.

10. DOCUMENTATION FOR PAYMENT (AIDPR 7-7.5001-47)

(a) Claims for reimbursement under this Contract shall be submitted to the Paying Office indicated on the Cover Page of this Contract. The authorized Certifying Officer of the Paying Office is the designated representative of the Contracting Officer, authorized to approve vouchers under this Contract. The Contractor shall submit a Voucher Form SF-1034 (original) and SF-1034(a) in three copies. Each voucher shall be identified by the appropriate AID contract number, properly executed, in the amount of dollar expenditures made during the period covered. The voucher forms shall be supported by:

(1) Original and three copies of a certified fiscal report rendered by the Contractor in a form and manner satisfactory to AID substantially as follows:

TOTAL EXPENDITURES

Category	Budget Amount	To Date	This Period (indicate dates)
Salaries and wages:			
Home Office	\$XXX	\$XXX	\$XXX
Field office	XXX	XXX	XXX
Indirect costs:			
Home office	XXX	XXX	XXX
Field office	XXX	XXX	XXX
Consultant fees	XXX	XXX	XXX
Allowances	XXX	XXX	XXX
Travel and transportation	XXX	XXX	XXX
Expendable equipment and materials	XXX	XXX	XXX
Non-expendable property	XXX	XXX	XXX
Participant costs	XXX	XXX	XXX
Other direct costs	XXX	XXX	XXX
Grand Total	\$XXX	\$XXX	\$XXX

(2) The fiscal report shall include a certification, signed by an authorized representative of the Contractor, as follows:

The undersigned hereby certifies that (i) the fiscal report and any attachments have been prepared from the books and records of the Contractor in accordance with the terms of this Contract, and to the best of my knowledge and belief, that they are correct, that the sum claimed under this Contract is proper and due, that all the costs of contract performance (except as herewith reported in writing) have been paid or will be paid currently by the Contractor when due in the ordinary course of business, that the work reflected by the costs above has been performed, that the quantities and amounts involved are consistent with the requirements of this Contract, that all required Contracting Officer approvals have been obtained, and (ii) appropriate refund to AID will be made promptly upon request in the event of disallowance of costs not reimbursable under the terms of this Contract.

BY: _____

TITLE: _____

DATE: _____

(3) Unless otherwise provided in this Contract, the Contractor shall submit a vendor's invoice detailing the quantity, description, and price for each individual item purchased, as follows:

(i) Expendable equipment, supplies, or commodities — for transactions totaling more than \$2,500.

(ii) Non-expendable property — for every purchase. Non-expendable property is property which is complete in itself, does not lose its identity or become a component part of another article when put into use; is durable, with an expected service life of two years or more; and which has a unit cost of more than \$500. This definition applies only to personal property purchased by the Contractor or delivered directly to the Contractor from the vendor. Personal property issued to the Contractor in the host country by the USAID Mission accountable officer and listed as non-expendable is report-

able to the USAID Mission accountable officer regardless of its value.

(iii) The bill of lading or airway bill as evidence of shipment by U.S.-flag carrier.

(b) *Local currency payment.* The Contractor is fully responsible for the proper expenditure and control of local currency, if any, provided under this Contract. Local currency will be provided to the Contractor in accordance with written instructions provided by the Mission Director. The written instructions will also include accounting, vouchering, and reporting procedures. A copy of the instructions shall be provided to the Contractor's Chief of Party and to the Contracting Officer. The costs of bonding personnel responsible for local currency are reimbursable under this Contract.

(c) Upon compliance by the Contractor with all the provisions of this Contract, acceptance by the Government of the work and final report, and a satisfactory accounting by the Contractor of all Government-owned property for which the Contractor had custodial responsibility, the Government shall promptly pay to the Contractor any moneys (dollars or local currency) due under the completion voucher. The Government will make suitable reduction for any disallowance or indebtedness by the Contractor by applying the proceeds of the voucher first to such deductions and next to any unliquidated balance of advance remaining under this Contract.

(d) The Contractor agrees that all approvals of the Mission Director and the Contracting Officer which are required by the provisions of this Contract shall be preserved and made available as part of the Contractor's records which are required to be preserved and made available by the clauses of this Contract entitled "Examination of Records by Comptroller General" and "Audit".

11. NEGOTIATED OVERHEAD RATES (AIDPR 7-7.5001-10)

(a) Notwithstanding the provisions of the clause of this contract entitled "Allowable Cost, Fee, and Payment", the allowable indirect costs under this contract shall be obtained by applying negotiated overhead rates to bases agreed upon by the parties as specified below.

(b) The Contractor, as soon as possible but not later than ninety (90) days after the close of each of his fiscal years during the term of this Contract, shall submit to the Contracting Officer, with copies to the cognizant audit activity, the AID Inspector General, and the AID Overhead and Special Cost Branch, a proposed final overhead rate or rates for that period based on the Contractor's actual cost experience during that period, together with supporting cost data. Negotiation of final overhead rates by the Contractor and the Contracting Officer shall be undertaken as promptly as practicable after receipt of the Contractor's proposal.

(c) Allowability of costs and acceptability of cost allocation methods shall be determined in accordance with Subpart 1-15.2 (Contracts With Commercial Organizations) of the Federal Procurement Regulations as in effect on the date of this Contract.

(d) The Results of each negotiation shall be set forth in a written overhead rate agreement, executed by both parties. Such agreement is automatically incorporated

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in this Contract upon execution and shall specify (1) the agreed final rates, (2) the bases to which the rates apply, (3) the periods for which the rates apply, and (4) the items treated as direct costs. The overhead rate agreement shall not change any monetary ceiling, contract obligation, or specific cost allowance or disallowance provided for in this Contract.

(e) Pending establishment of final overhead rates for any period, the Contractor shall be reimbursed either at negotiated provisional rates as provided in the Contract or at billing rates acceptable to the Contracting Officer, subject to appropriate adjustment when the final rates for that period are established. To prevent substantial over or under payment, and to apply either retroactively or prospective, (1) provisional rates may at the request of either party be revised by mutual agreement and (2) billing rates may be adjusted by the Contracting Officer. Any such revision of negotiated provisional rates specified in the Contract shall be set forth in a modification to this Contract.

(f) Any failure by the parties to agree on any final rate or rates under this clause shall be considered a dispute within the meaning of the "Disputes" clause of this contract and shall be disposed of in accordance therewith.

12. ASSIGNMENT OF CLAIMS (AIDPR 7-7.5001-II)

(a) Pursuant to the provisions of the Assignment of Claims Act of 1940, as amended (31 U.S.C. 203, 41 U.S.C. 15), if this contract provides for payments aggregating \$1,000 or more, claims for monies due or to become due the Contractor from the Government under this contract may be assigned to a bank, trust company, or other financing institution, including any Federal lending agency, and may thereafter be further assigned and reassigned to any such institution. Any such assignment or reassignment shall cover all dollar amounts payable under this contract and not already paid, and shall not be made to more than one party, except that any such assignment or reassignment may be made to one party as agent or trustee for two or more parties participating in such financing.

(b) In no event shall copies of this contract or of any plans, specifications, or other similar documents relating to work under this contract, if marked "Top Secret," "Secret," or "Confidential" be furnished to any assignee of any claim arising under this contract or to any other person not entitled to receive the same. However, a copy of any part or all of this contract so marked may be furnished, or any information contained therein may be disclosed, to such assignee upon the prior written authorization of the Contracting Officer.

13. EXAMINATION OF RECORDS BY COMPTROLLER GENERAL (AIDPR 7-7.5001-12)

(a) This clause is applicable if the amount of this contract exceeds \$10,000 and was entered into by means of negotiation, including small business restricted advertising, but is not applicable if this contract was entered into by means of formal advertising.

(b) The Contractor agrees that the Comptroller General of the United States or any of his duly authorized

representatives shall, until the expiration of 3 years after final payment under this contract or such lesser time specified in either Appendix M of the Armed Services Procurement Regulation or the Federal Procurement Regulations Part 1-20, as appropriate, have access to and the right to examine any directly pertinent books, documents, papers, and records of the Contractor involving transactions related to this contract.

(c) The Contractor further agrees to include in all his subcontracts hereunder a provision to the effect that the subcontractor agrees that the Comptroller General of the United States or any of his duly authorized representatives shall, until the expiration of 3 years after final payment under the subcontract or such lesser time specified in either Appendix M of the Armed Services Procurement Regulation or the Federal Procurement Regulations Part 1-20, as appropriate, have access to and the right to examine any directly pertinent books, documents, papers, and records of such subcontractor, involving transactions related to the subcontract. The term "subcontract" as used in this clause excludes (1) purchase orders not exceeding \$10,000 and (2) subcontracts or purchase orders for public utility services at rates established for uniform applicability to the general public.

(d) The periods of access and examination described in (b) and (c), above, for records which relate to (1) appeals under the "Disputes" clause of this contract, (2) litigation or the settlement of claims arising out of the performance of this contract, or (3) costs and expenses of this contract as to which exception has been taken by the Comptroller General or any of his duly authorized representatives, shall continue until such appeals, litigation, claims, or exceptions have been disposed of.

14. PRICE REDUCTION FOR DEFECTIVE COST OR PRICING DATA (AIDPR 7-7.5001-13)

If any price, including profit or fee, negotiated in connection with this contract or any cost reimbursable under this contract was increased by any significant sums because:

(a) The Contractor furnished cost or pricing data which was not accurate, complete and current as certified in the Contractor's Certificate of Current Cost or Pricing Data;

(b) A subcontractor, pursuant to the clause of this contract entitled "Subcontractor Cost or Pricing Data" or "Subcontractor Cost or Pricing Data—Price Adjustments" or any subcontract clause therein required, furnished cost or pricing data which was not accurate, complete and current as certified in the subcontractor's Certificate of Current Cost or Pricing Data;

(c) A subcontractor or prospective subcontractor furnished cost or pricing data which was required to be accurate, complete and current and to be submitted to support a subcontract cost estimate furnished by the Contractor but which was not accurate, complete and current as of the date certified in the Contractor's Certificate of Current Cost or Pricing Data, or

(d) The Contractor or a subcontractor or prospective subcontractor furnished any data, not within (a), (b) or (c) above, which was not accurate as submitted; the price or cost shall be reduced accordingly and the contract shall be modified in writing as may be necessary to

reflect such reduction. However, any reduction in the contract price due to defective subcontract data of a prospective subcontractor when the subcontract was not subsequently awarded to such subcontractor, will be limited to the amount (plus applicable overhead and profit markup) by which the actual subcontract, or actual cost to the Contractor if there was no subcontract, was less than the prospective subcontract cost estimate submitted by the Contractor: *Provided*, The actual subcontract price was not affected by defective cost or pricing data.

(NOTE: Since the contract is subject to reduction under this clause by reason of defective cost or pricing data submitted in connection with certain subcontracts, it is expected that the Contractor may wish to include a clause in each such subcontract requiring the subcontractor to appropriately indemnify the Contractor. It is also expected that any subcontractor subject to such indemnification will generally require substantially similar indemnification for defective cost or pricing data required to be submitted by his lower tier subcontractors.)

15. AUDIT (AIDPR 7-7.5001-14)

(a) *General*. The Contracting Officer or his representatives shall have the audit and inspection rights described in the applicable paragraphs (b), (c) and (d) below.

(b) *Examination of costs*. If this is a cost-reimbursement type, incentive, time and materials, labor hour, or price redeterminable contract, or any combination thereof, the Contractor shall maintain, and the Contracting Officer or his representatives shall have the right to examine books, records, documents, and other evidence and accounting procedures and practices, sufficient to reflect properly all direct and indirect costs of whatever nature claimed to have been incurred and anticipated to be incurred for the performance of this contract. Such right of examination shall include inspection at all reasonable times of the Contractor's plants, or such parts thereof, as may be engaged in the performance of this contract.

(c) *Cost or pricing data*. If the Contractor submitted cost or pricing data in connection with the pricing of this contract or any change or modification thereto, unless such pricing was based on adequate price competition, established catalog or market prices of commercial items sold in substantial quantities to the general public, or prices set by law or regulation, the Contracting Officer or his representatives who are employees of the United States Government shall have the right to examine all books, records, documents and other data of the Contractor related to the negotiation, pricing or performance of such contract, change or modification, for the purpose of evaluating the accuracy, completeness and currency of the cost or pricing data submitted. Additionally, in the case of pricing any change or modification exceeding \$100,000 to formally advertised contracts, the Comptroller General of the United States or his representatives who are employees of the United States Government shall have such rights. The right of examination shall extend to all documents necessary to permit adequate evaluation of the cost or pricing data submitted, along with the computations and projections used therein.

(d) *Availability*. The materials described in (b) and (c) above, shall be made available at the office of the Contractor, at all reasonable times, for inspection, audit or reproduction, until the expiration of 3 years from the date of final payment under this contract or such lesser time specified in Part 1-20 of the Federal Procurement Regulations (41 CFR Part 1-20) and for such longer period, if any, as is required by applicable statute, or by other clauses of this contract, or by (1) and (2) below:

(1) If this contract is completely or partially terminated, the records relating to the work terminated shall be made available for a period of 3 years from the date of any resulting final settlement.

(2) Records which relate to appeals under the "Disputes" clause of this contract, or litigation or the settlement of claims arising out of the performance of this contract, shall be made available until such appeals, litigation, or claims have been disposed of.

(e) The Contractor shall insert a clause containing all the provisions of this clause, including this paragraph (e), in all subcontracts hereunder except altered as necessary for proper identification of the contracting parties and the Contracting Officer under the Government prime contract.

16. SUBCONTRACTOR COST OR PRICING DATA (AIDPR 7-7.5001-15)

(a) The Contractor shall require subcontractors hereunder to submit, actually or by specific identification in writing, cost or pricing data under the following circumstances:

(1) Prior to the award of any subcontract the amount of which is expected to exceed \$100,000 when entered into;

(2) Prior to the pricing of any subcontract modification which involves aggregate increases and/or decreases in costs plus applicable profits expected to exceed \$100,000; except where the price is based on adequate price competition, established catalog or market prices of commercial items sold in substantial quantities to the general public, or prices set by law or regulation.

(b) The Contractor shall require subcontractors to certify, in substantially the same form as that used in the certificate by the Prime Contractor to the Government, that to the best of their knowledge and belief, the cost and pricing data submitted under (a) above is accurate, complete, and current as of the date of agreement on the negotiated price of the subcontract or subcontract change or modification.

(c) The Contractor shall insert the substance of this clause including this paragraph (c) in each subcontract hereunder which exceeds \$100,000 when entered into except where the price thereof is based on adequate price competition, established catalog or market prices of commercial items sold in substantial quantities to the general public, or prices set by law or regulation. In each such excepted subcontract hereunder in excess of \$100,000, the Contractor shall insert the substance of the following clause:

SUBCONTRACTOR COST OR PRICING DATA—PRICE ADJUSTMENTS

(a) Paragraphs (b) and (c) of this clause shall become operative only with respect to any modification made pursuant to one or more provisions of this contract which involves aggregate increases and/or decreases in cost plus applicable profits expected to exceed \$100,000. The requirements of this clause shall be limited to such contract modifications.

(b) The Contractor shall require subcontractors hereunder to submit, actually or by specific identification in writing, cost or pricing data under the following circumstances:

(1) Prior to award of any subcontract, the amount of which is expected to exceed \$100,000 when entered into;

(2) Prior to the pricing of any subcontract modification which involves aggregate increases and/or decreases in costs plus applicable profits expected to exceed \$100,000; except where the price is based on adequate price competition, established catalog or market prices of commercial items sold in substantial quantities to the general public, or prices set by law or regulation.

(c) The Contractor shall require subcontractors to certify, in substantially the same form as that used in the certificate by the Prime Contractor to the Government, that to the best of their knowledge and belief the cost and pricing data submitted under (b) above is accurate, complete, and current as of the date of agreement on the negotiated price of the subcontract or subcontract change or modification.

(d) The Contractor shall insert the substance of this clause including this paragraph (d) in such subcontract hereunder which exceeds \$100,000 when entered into.

17. REPORTS (AIDPR 7-7.5001-16)

(a) Unless otherwise provided in the Schedule of this contract, the Contractor shall prepare and submit to the Contracting Officer three (3) copies of a semiannual report which shall include the following:

(1) A substantive report covering the status of the work under the Contract, indicating progress made with respect thereto, setting forth plans for the ensuing period, including recommendations covering the current needs in the fields of activity covered under the terms of this contract.

(2) An administrative report covering expenditures and personnel employed under the contract.

(b) Contractor shall prepare and submit to the Contracting Officer such other report as may be specified in the Schedule.

(c) Unless otherwise provided in the Schedule of this contract, at the conclusion of the work hereunder, the Contractor shall prepare and submit to the Contracting Officer three (3) copies of a final report which summarizes the accomplishments of the assignment, methods of work used, and recommendations regarding unfinished work and/or program continuation. The final report shall be submitted within 45 days after completion of the work hereunder unless this period is extended in writing by the Contracting Officer.

(d) Contractor shall submit two copies of each report dealing with technical matters (e.g., progress and final reports) prepared pursuant to this clause, or a clause of

the Schedule of this contract to the Development Information Utilization Service, Bureau for Science and Technology (S&T/DIU), Agency for International Development, Washington, D.C. 20523. The title page of all reports forwarded to the AID Reference Center pursuant to this paragraph (d) shall include the contract number, project number, and project title as set forth in the schedule of this contract.

18. SOURCE AND NATIONALITY REQUIREMENTS FOR PROCUREMENT OF GOODS AND SERVICES (AIDPR 7-7.5001-17)

(a) *General.* Except as may be specifically approved or directed in advance by the contracting officer, or as provided in paragraph (h) below, all goods (e.g., equipment, vehicles, materials and supplies), and services which will be financed under this contract with United States dollars shall be procured in and shipped from the U.S. (Code 000) and from any other countries within the authorized geographic code specified in the Schedule of this contract.

(b) *Procurement of goods.* In order to be eligible under this contract, goods purchased under this contract must be of eligible source and origin, and must satisfy AID's componentry requirements. In addition, the supplier of commodities must meet the nationality requirements specified in paragraph (d)(1) of this clause.

(1) *Source.* Source means the country from which a commodity is shipped to the Cooperating Country or the Cooperating Country itself if the commodity is located therein at the time of purchase. However, where a commodity is shipped from a free port or bonded warehouse in the form in which received therein, source means the country from which the commodity was shipped to the free port or bonded warehouse.

(2) *Origin.* The origin of a commodity is the country or area in which a commodity is mined, grown, or produced. A commodity is produced when through manufacturing, processing, or substantial and major assembling of components, a commercially recognized new commodity results that is substantially different in basic characteristics, or in purpose or utility, from its components.

(3) *Componentry.* Components are the good that go directly into the production of a produced commodity. AID componentry rules are as follows:

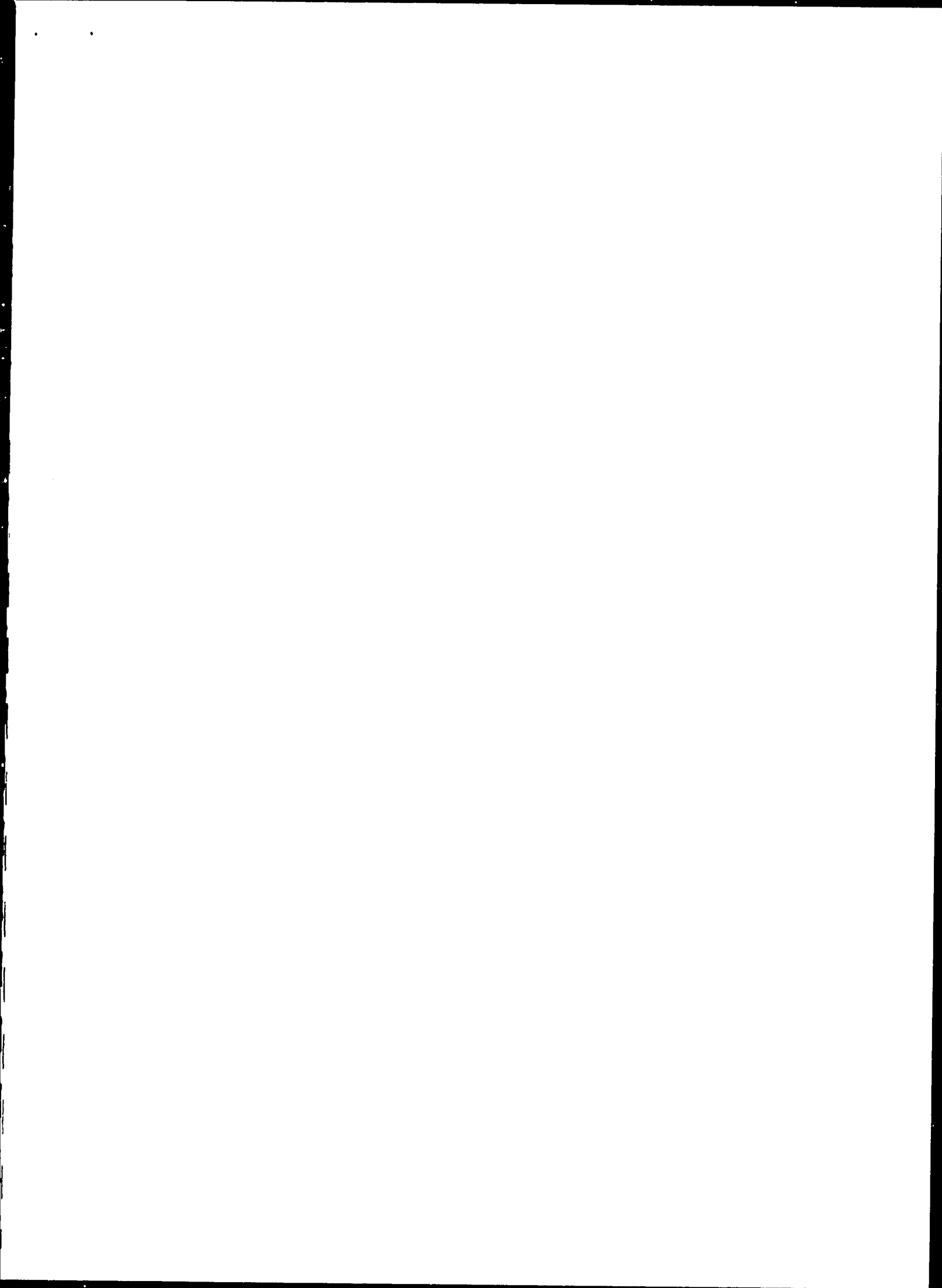
(i) If a commodity produced in an eligible source country contains no imported component, it is eligible for AID financing.

(ii) Unless otherwise specified by the contracting officer, components from the U.S., the Cooperating Country, and any other countries included in Geographic Code 941 may always be utilized in unlimited amounts regardless of the geographic code authorized.

(iii) Unless procurement is authorized from countries included in Code 899, components from free world countries not included in Code 941 are limited according to the following rules:

(A) They are limited only if they are acquired by the producer in the form in which they were imported.

(B) The total cost to the producer of such components (delivered at the point of production) may not



area included in the authorized geographic code or a non-U.S. citizen lawfully admitted for permanent residence in the United States whose principal place of business is in the United States.

(ii) The supplier is a privately owned commercial (i.e., for profit) corporation or partnership that is incorporated or legally organized under the laws of a country or area included in the authorized geographic code, has its principal place of business in a country or area included in the authorized geographic code, and meets the criteria set forth in either subparagraph (A) or (B) below:

(A) The corporation or partnership is more than 50% beneficially owned by individuals who are citizens of a country or area included in the authorized geographic code. In the case of corporations, "more than 50% beneficially owned" means that more than 50% of each class of stock is owned by such individuals; in the case of partnerships, "more than 50% beneficially owned" means that more than 50% of each category of partnership interest (e.g., general, limited) is owned by such individuals. (With respect to stock or interest held by companies, funds or institutions, the ultimate beneficial ownership by individuals is controlling.)

(B) The corporation or partnership:

(1) Has been incorporated or legally organized in the United States for more than 3 years prior to the issuance date of the invitation for bids or request for proposals, and

(2) Has performed within the United States similar administrative and technical, professional, or construction services under a contract or contracts for services and derived revenue therefrom in each of the 3 years prior to the issuance date of the invitation for bids or request for proposals, and

(3) Employs United States citizens in more than half its permanent full-time positions in the United States, and

(4) Has the existing capability in the United States to perform the contract.

(iii) The supplier is a joint venture or unincorporated association consisting entirely of individuals, corporations, partnership, or nonprofit organizations which are eligible under paragraphs (d)(2)(i), (d)(2)(ii), or (d)(3) of this clause.

(iv) A duly authorized officer of a firm or nonprofit organization shall certify that the participating firm or non-profit organization meets either the requirements of paragraphs (d)(2)(ii) or (d)(3) of this clause. In the case of corporations, the certifying officer shall be the corporate secretary. With respect to the requirements of paragraph (d)(2)(ii)(A), the certifying officer may presume citizenship on the basis of the stockholder's record address, provided the certifying officer certifies, regarding any stockholder (including any corporate fund or institutional stockholder) whose holdings are material to the corporation's eligibility, that the certifying officer knows of no fact which might rebut that presumption.

(3) *Nonprofit organizations.* Nonprofit organizations, such as educational institutions, foundations, and associations, are eligible for financing by AID under this contract as subcontractors for services if they meet all of the criteria listed in paragraphs (d)(3)(i), (ii), and (iii) below, and the certification requirement in

paragraph (d)(2)(iv) of this clause is met. (International agricultural research centers and such other international research centers as may be, from time to time, formally listed as such by the Senior Assistant Administrator, Bureau for Science and Technology, are considered to be of U.S. nationality.) Any such organizations must:

(i) Be organized under the laws of a country or area included in the authorized geographic code; and

(ii) Be controlled and managed by a governing body, a majority of whose members are citizens of countries or areas included in the authorized code; and

(iii) Have its principal facilities and offices in a country or area included in the authorized geographic code.

(4) *Government-owned organizations.* Firms operated as commercial companies or other organizations (including nonprofit organizations other than public educational institutions) which are wholly or partially owned by governments or agencies thereof are not eligible for financing by AID as subcontractors.

(5) *Joint ventures.* A joint venture or unincorporated association is eligible only if each of its members is eligible in accordance with paragraphs (d)(2), (3), or (4) of this clause.

(6) *Construction services from local firms.* When the host country is an authorized source for services, and the estimated cost of the construction services is \$5 million or less, a corporation or partnership which is determined by AID to be an integral part of the local economy is eligible. A corporation or partnership is an integral part of the local economy provided:

(i) It has done business in the host country on a continuing basis for not less than three years prior to the issuance date of invitations for bids or requests for proposals;

(ii) It has a demonstrated capability to undertake the proposed activity;

(iii) All, or substantially all, of its directors of local operations, senior staff and operating personnel are resident in the host country;

(iv) Most of its operating equipment and physical plant are in the host country.

(7) *Ineligible suppliers.* Citizens of any country or area, and firms and organizations located in or organized under the laws of any country or area, which is not included in Geographic Code 935 are ineligible for financing by AID as suppliers of services or commodities or as agents acting in connection with the supply of services or commodities, except that non-U.S. citizens lawfully admitted for permanent residence in the United States are eligible regardless of such citizenship.

(8) *Special restrictions on procurement of construction or engineering services.* Section 604(g) of the Foreign Assistance Act provides that AID funds may not be used for "procurement of construction or engineering services from advanced developing countries, eligible under the Geographic Code 941, which have attained a competitive capability in international markets for construction services or engineering services." In order to insure eligibility of a Code 941 subcontractor for construction or engineering services, obtain the AID contracting officer's approval for any such subcontract.

(e) *Nationality of employees under contracts and subcontracts for services.* The nationality policy of subparagraph (d)(2) of this clause does not apply to the employees of contractors or subcontractors, but all contractor and subcontractor employees engaged in providing services under AID-financed contracts must be citizens of countries included in AID Geographic Code 935 or non-U.S. citizens lawfully admitted for permanent residence in the United States.

(f) *The Cooperating Country as a source.* With certain exceptions, the Cooperating Country is not normally an eligible source for procurement to be paid in U.S. dollars. The exceptions are for ocean freight and marine insurance (see paragraphs (c)(2) and (c)(3) of this clause.) The Cooperating Country may be an eligible source if local cost financing is approved either by specific action of the contracting officer, or in the Schedule of the contract. In such cases, the General Provision entitled "Local Cost Financing With U.S. Dollars", as required by AIDPR 7-6.5104, will apply.

(g) *Ineligible goods and services.* The following goods or services shall not be procured under this contract:

- (1) Military equipment,
- (2) Surveillance equipment,
- (3) Commodities and services for support of police or other law enforcement activities,
- (4) Abortion equipment and services,
- (5) Luxury goods and gambling equipment, or
- (6) Weather modification equipment.

If AID determines that the Contractor has procured any of these specific ineligible goods and services under this contract and has received payment therefor, the Contractor agrees to refund to AID the entire amount of the purchase.

(h) *Restricted goods.* The Contractor shall not procure any of the following goods or services without the prior written approval of the contracting officer:

- (1) Agricultural commodities,
- (2) Motor vehicles,
- (3) Pharmaceuticals,
- (4) Pesticides,
- (5) Plasticizers,
- (6) Used equipment,
- (7) U.S. government-owned excess property, or
- (8) Fertilizer.

If AID determines that the Contractor has procured any of these specified restricted goods under this contract without the prior written authorization of the contracting officer, and has received payment for such purposes, the Contractor agrees to refund to AID the entire amount of the purchase.

(i) *Printed or audio-visual teaching materials.* If the effective use of printed or audio-visual teaching materials depends upon their being in the local language and if such materials are intended for technical assistance projects or activities financed by AID in whole or in part and if other funds, including U.S.-owned or U.S.-controlled local currencies are not readily available to finance the procurement of such materials, local language versions may be procured from the following sources, in order of preference:

- (1) Code 000, United States,
- (2) Code —, Cooperating Country,
- (3) Code 941, Selected Free World,

(4) Code 899, Free World.

(j) *Ineligible suppliers.* Funds provided under this contract shall not be used to procure any commodity or commodity-related services furnished by any supplier whose name appears on the List of Ineligible Suppliers under AID Regulation 8, "Suppliers of Commodities and Commodity-Related Services Ineligible for AID Financing" (22 CFR 208). The Contractor agrees to review said list prior to undertaking any procurement the cost of which is to be financed under this contract. The contracting officer will provide the Contractor with this list.

19. SUBCONTRACTS (AIDPR 7-7.5001-18)

(a) The Contractor shall notify the Contracting Officer reasonably in advance of entering into any subcontract which (1) is cost-reimbursement type, time and materials, or labor-hour, or (2) is fixed-price type and exceeds in dollar amount either \$25,000 or 5 percent of the total estimated cost of this contract, or (3) provides for the fabrication, purchase, rental, installation, or other acquisition of special test equipment having a value in excess of \$1,000 or of any items of industrial facilities, or (4) has experimental, developmental, or research work as one of its purposes.

(b) In the case of a proposed subcontract which is (1) cost-reimbursement type, time and materials, or labor-hour which would involve an estimated amount in excess of \$10,000 including any fee, (2) is proposed to exceed \$100,000, or (3) is one of a number of subcontracts under this contract with a single subcontractor for the same or related supplies or services which, in the aggregate are expected to exceed \$100,000, the advance notification required by (a), above, shall include:

(1) A description of the supplies or services to be called for by the subcontract;

(2) Identification of the proposed subcontractor and an explanation of why and how the proposed subcontractor was selected, including the degree of competition obtained;

(3) The proposed subcontract price, together with the Contractor's cost or price analysis thereof;

(4) The subcontractor's current, complete, and accurate cost of pricing data and Certificate of Current Cost or Pricing Data when such data and certificate are required by other provisions of this contract to be obtained from the subcontractor;

(5) Identification of the type of subcontract to be used;

(6) A memorandum of negotiation which sets forth the principal elements of the subcontract price negotiations. A copy of this memorandum shall be retained in the Contractor's file for the use of Government reviewing authorities. The memorandum shall be in sufficient detail to reflect the most significant considerations controlling the establishment of initial or revised prices. The memorandum should include an explanation of why cost or pricing data was, or was not required, and, if it was not required in the case of any price negotiation in excess of \$100,000, a statement of the basis for determining that the price resulted from or was based on adequate price competition, established catalog or market prices of commercial items sold in substantial quantities to the general public, or prices set by law or regulation.

If cost or pricing data was submitted and a certificate of cost or pricing data was required, the memorandum shall reflect the extent to which reliance was not placed upon the factual cost or pricing data submitted and the extent to which reliance was not placed upon the factual cost or pricing data submitted and the extent to which this data was not used by the Contractor in determining the total price objective and in negotiating the final price. The memorandum shall also reflect the extent to which it was recognized in the negotiation that any cost or pricing data submitted by the subcontractor was not accurate, complete, or current; the action taken by the Contractor and the subcontractor as a result; and the effect, if any, of such defective data on the total price negotiated. Where the total price negotiated differs significantly from the Contractor's total price objective, the memorandum shall explain this difference;

(7) When incentives are used, the memorandum of negotiation shall contain an explanation of the incentive fee/profit plan identifying each critical performance element, management decisions used to quantify each incentive element, reasons for incentives on particular performance characteristics, and a brief summary of trade-off possibilities considered as to cost, performance, and time; and

(8) The subcontractor's Disclosure Statement or Certificate relating to Cost Accounting Standards when such data are required by other provisions of this contract to be obtained from the subcontractor.

(c) The Contractor shall obtain the written consent of the Contracting Officer prior to placing any subcontract for which advance notification is required under (a) above. The Contracting Officer may, in his discretion, ratify in writing any such subcontract; such action shall constitute the consent of the Contracting Officer as required by this paragraph (c).

(d) The Contractor agrees that no subcontract placed under this contract shall provide for payment on a cost-plus-a-percentage-of-cost basis.

(e) The Contracting Officer may, in his discretion, specifically approve in writing any of the provisions of a subcontract. However, such approval or the consent of the Contracting Officer obtained as required by this clause shall not be construed to constitute a determination of the allowability of any cost under this contract, unless such approval specifically provides that it constitutes a determination of the allowability of such cost.

(f) The Contractor shall give the Contracting Officer immediate notice in writing of any action or suit filed, and prompt notice of any claim made against the Contractor by any subcontractor or vendor which in the opinion of the Contractor, may result in litigation, related in any way to this contract, with respect to which the Contractor may be entitled to reimbursement from the Government.

(g) Notwithstanding (c) above, the Contractor may enter into subcontracts within (1) or (2) of (a) above, without the consent of the Contracting Officer, if the Contracting Officer has approved in writing the Contractor's procurement system and the subcontract is within the scope of such approval. (This subparagraph (g) however, shall not be applicable to those subcontracts subject to subparagraph (j) below, if any.)

(h) To facilitate small business participation in subcontracting under this contract, the Contractor agrees

to provide progress payments on the fixed-price types of subcontracts of those subcontractors which are small business concerns, in conformity with the standards for customary progress payments stated in the Federal Procurement Regulations, Subpart 1-30.5, as in effect on the date of this contract. The Contractor further agrees that the need for such progress payments will not be considered as a handicap or adverse factor in the award of subcontracts.

20. GOVERNMENT PROPERTY (AIDPR 7-7.5001-19)

"Government property" or "Government furnished property" as used in the following clause, means non-expendable property owned by or leased to the U.S. Government and furnished to the contractor, or non-expendable property acquired by the contractor under the contract and titled to the U.S. Government. Non-expendable property is property which is complete in itself, does not lose its identity or become a component part of another article when put into use; is durable, with an expected service life of two years or more; and which has a unit cost of more than \$500. This definition applies only to personal property purchased by the contractor or delivered directly to the contractor from the vendor. Personal property issued to the contractor in the host country by the mission accountable officer and listed as non-expendable is reportable to the mission accountable officer regardless of its value.

(a) The Government shall deliver to the Contractor, for use in connection with and under the terms of this contract, the property described as Government-furnished property in the Schedule or specifications, together with such related data and information as the Contractor may request and as may reasonably be required for the intended use of such property (hereinafter referred to as "Government-furnished Property"). The delivery or performance dates for the supplies or services to be furnished by the Contractor under this contract are based upon the expectation that Government-furnished property suitable for use will be delivered to the Contractor at the times stated in the Schedule or, if not so stated, in sufficient time to enable the Contractor to meet such delivery or performance dates. In the event that Government-furnished property is not delivered to the Contractor by such time or times, the Contracting Officer shall, upon timely written request made by the Contractor make a determination of the delay, if any, occasioned the Contractor and shall equitably adjust the estimated cost, fixed fee, or delivery or performance dates, or all of them, and any other contractual provisions affected by any such delay, in accordance with the procedures provided for in the clause of this contract entitled "Changes." In the event that Government-furnished property is received by the Contractor in a condition not suitable for the intended use, the Contractor shall, upon receipt thereof notify the Contracting Officer of such fact and, as directed by the Contracting Officer, either (1) return such property at the Government's expense or otherwise dispose of the property, or (2) effect repairs or modifications. Upon completion of (1) or (2), above, the Contracting Officer upon written request of the Contractor shall equitably adjust the estimated cost, fixed fee, or delivery or performance

dates, or all of them, and any other contractual provision affected by the return or disposition, or the repair or modification in accordance with the procedures provided for in the clause of this contract entitled "Changes." The foregoing provisions for adjustment are exclusive and the Government shall not be liable to suit for breach of contract by reason of any delay in delivery of Government-furnished property or delivery of such property in a condition not suitable for its intended use.

(b)(1) By notice in writing, the Contracting Officer may (i) decrease the property furnished or to be furnished by the Government under this contract, or (ii) substitute other Government-owned property for property to be furnished by the Government, or to be acquired by the Contractor for the Government, under this contract. The Contractor shall promptly take such action as the Contracting Officer may direct with respect to the removal and shipping of property covered by such notice.

(2) In the event of any decrease in or substitution of property pursuant to paragraph (1), above, or any withdrawal of authority to use property provided under any contract or lease, which property the Government had agreed in the Schedule to make available for the performance of this contract, the Contracting Officer, upon the written request of the Contractor (or, if the substitution of property causes a decrease in the cost of performance, on his own initiative), shall equitably adjust such contractual provisions as may be affected by the decrease, substitution, or withdrawal, in accordance with the procedures provided for in the "Changes" clause of this contract.

(c) Title to all property furnished by the Government shall remain in the Government. Title to all property purchased by the Contractor, for the cost of which the Contractor is entitled to be reimbursed as a direct item of cost under this contract, shall pass to and vest in the Government upon delivery of such property by the vendor. Title to other property, the cost of which is reimbursable to the Contractor under the contract, shall pass to and vest in the Government upon (1) issuance for use of such property in the performance of this contract, or (2) commencement of processing or use of such property in the performance of this contract, or (3) reimbursement of the cost thereof by the Government in whole or in part, whichever first occurs. All Government-furnished property, together with all property acquired by the Contractor title to which vests in the Government under this paragraph, are subject to the provisions of this clause and are hereinafter collectively referred to as "Government property." Title to the Government property shall not be affected by the incorporation or attachment thereof to any property not owned by the Government, nor shall such Government property, or any part thereof, be or become a fixture or lose its identity as personalty by reason of affixation to any realty.

(d) The Contractor shall be directly responsible for and accountable for all Government property provided under this contract. The contractor shall establish and maintain a system to control, protect, preserve, and maintain all Government property. This system shall, upon request by the Contracting Officer, be submitted for review and, if satisfactory, approved in writing by

the Contracting Officer. The Contractor shall maintain and make available such records as are required by the approved system and must account for all Government property until relieved of responsibility therefor in accordance with the written instructions of the Contracting Officer. To the extent directed by the Contracting Officer, the Contractor shall identify Government property by marking, tagging, or segregating in such manner as to clearly indicate its ownership by the Government.

(e) The Government property shall, unless otherwise provided herein or approved by the Contracting Officer, be used only for the performance of this contract.

(f) The Contractor shall maintain and administer, in accordance with sound industrial practice, a program for the utilization, maintenance, repair, protection, and preservation of Government property so as to assure its full availability and usefulness for the performance of this contract. The Contractor shall take all reasonable steps to comply with all appropriate directions or instructions which the Contracting Officer may prescribe as reasonably necessary for the protection of Government property.

(g)(1) The Contractor shall not be liable for any loss of or damage to the Government property, or for expenses incidental to such loss or damage, except that the Contractor shall be responsible for any such loss or damage (including expenses incidental thereto):

(i) Which results from willful misconduct or lack of good faith on the part of any one of the Contractor's directors or officers, or on the part of any of his managers, superintendents, or other equivalent representatives, who has supervision or direction of:

(A) All or substantially all of the Contractor's business; or

(B) All or substantially all of the Contractor's operations at any one plant or separate location in which this contract is being performed; or

(C) A separate and complete major industrial operation in connection with the performance of this contract.

(ii) Which results from a failure on the part of the Contractor, due to the willful misconduct or lack of good faith on the part of any of his directors, officers, or other representatives mentioned in subparagraph (i), above:

(A) To maintain and administer, in accordance with sound industrial practice, the program for utilization, maintenance, repair, protection, and preservation of Government property as required by paragraph (f) hereof, or to take all reasonable steps to comply with any appropriate written direction of the Contracting Officer under paragraph (f) hereof; or

(B) To establish, maintain, and administer in accordance with paragraph (d) hereof a system for control of Government property.

(iii) For which the Contractor is otherwise responsible under the express terms of the clause or clauses designated in the Schedule.

(iv) Which results from a risk expressly required to be insured under this contract, but only to the extent of the insurance so required to be procured and maintained, or to the extent of insurance actually procured and maintained, whichever is greater; or

(v) Which results from a risk which is in fact covered by insurance or for which the Contractor is otherwise

reimbursed, but only to the extent of such insurance or reimbursement.

Any failure of the Contractor to act, as provided in subparagraph (ii), above, shall be conclusively presumed to be a failure resulting from willful misconduct, or lack of good faith on the part of such directors, officers, or other representatives mentioned in subparagraph (i), above, if the Contractor is notified by the Contracting Officer by registered or certified mail addressed to one of such directors, officers, or other representatives, of the Government's disapproval, withdrawal of approval, or nonacceptance of the Contractor's program or system. In such event it shall be presumed that any loss or damage to Government property resulted from such failure. The Contractor shall be liable for such loss or damage unless he can establish by clear and convincing evidence that such loss or damage did not result from his failure to maintain an approved program or system, or occurred during such time as an approved program or system for control of Government property was maintained.

If more than one of the above exceptions shall be applicable in any case, the Contractor's liability under any one exception shall not be limited by any other exception. If the Contractor transfers Government property to the possession and control of a subcontractor, the transfer shall not affect the liability of the Contractor for loss or destruction of or damage to the property as set forth above. However, the Contractor shall require the subcontractor to assume the risk of, and be responsible for, any loss or destruction of or damage to the property while in the latter's possession or control, except to the extent that the subcontract, with the prior approval of the Contracting Officer, provides for the relief of the subcontractor from such liability. In the absence of such approval, the subcontract shall contain appropriate provisions requiring the return of all Government property in as good condition as when received, except for reasonable wear and tear or for the utilization of the property in accordance with the provisions of the prime contract.

(2) The Contractor shall not be reimbursed for, and shall not include as an item of overhead, the cost of insurance, or any provisions for a reserve, covering the risk of loss of or damage to the Government property, except to the extent that the Government may have required the Contractor to carry such insurance under any other provisions of this contract.

(3) Upon the happening of loss or destruction of or damage to the Government property, the Contractor shall notify the Contracting Officer thereof, and shall communicate with the loss and salvage organization, if any, now or hereafter designated by the Contracting Officer, and with the assistance of the loss and salvage organizations so designated (unless the Contracting Officer has designated that no such organization be employed), shall take all reasonable steps to protect the Government property from further damage, separate the damaged and undamaged Government property, put all the Government property in the best possible order, and furnish to the Contracting Officer a statement of:

(i) The lost, destroyed, and damaged Government property;

(ii) The time and origin of the loss, destruction, or damage;

(iii) All known interests in commingled property of which the Government property is a part; and

(iv) The insurance, if any, covering any part of or interest in such commingled property.

The Contractor shall make repairs and renovations of the damaged Government property or take such other action as the Contracting Officer directs.

(4) In the event the Contractor is indemnified, reimbursed, or otherwise compensated for any loss or destruction of or damage to the Government property, he shall use the proceeds to repair, renovate, or replace the Government property involved, or shall credit such proceeds against the cost of the work covered by the contract, or shall otherwise reimburse the Government, as directed by the Contracting Officer. The Contractor shall do nothing to prejudice the Government's right to recover against third parties for any such loss, destruction, or damage and, upon the request of the Contracting Officer, shall, at the Government's expense, furnish to the Government all reasonable assistance and cooperation (including the prosecution of suit and the execution of instruments of assignment in favor of the Government) in obtaining recovery. In addition, where the subcontractor has not been relieved from liability for any loss or destruction of or damage to Government property, the Contractor shall enforce the liability of the subcontractor for such loss or destruction of or damage to the Government property for the benefit of the Government.

(h) The Government, and any persons designated by it, shall at all reasonable times have access to the premises where any of the Government property is located, for the purpose of inspecting the Government property.

(i) Upon the completion of this contract, or at such earlier dates as may be fixed by the Contracting Officer, the Contractor shall submit to the Contracting Officer in a form acceptable to him, inventory schedules covering all items of the Government property not consumed in the performance of this contract, or not theretofore delivered to the Government, and shall deliver or make such other disposal of such Government property as may be directed or authorized by the Contracting Officer. The net proceeds of any such disposal shall be credited to the cost of the work covered by the contract or shall be paid in such manner as the Contracting Officer may direct. The foregoing provisions shall apply to scrap from Government property: *Provided, however,* That the Contracting Officer may authorize or direct the Contractor to omit from such inventory schedules any scrap consisting of faulty castings or forgings, or cutting and processing waste, such as chips, cuttings, borings, turnings, short ends, circles, trimmings, clippings, and remanants, and to dispose of such scrap in accordance with the Contractor's normal practice and account therefor as a part of general overhead or other reimbursable cost in accordance with the Contractor's established accounting procedures.

(j) Unless otherwise provided herein the Government:

(1) May abandon any Government property in place, and thereupon all obligations of the Government regarding such abandoned property shall cease; and

(2) Has no obligation to the Contractor with regard to restoration or rehabilitation of the Contractor's premises, neither in case of abandonment (paragraph (j)(1), above), disposition on completion of need or of the contract (paragraph (i), above), nor otherwise, except for restoration or rehabilitation costs caused by removal of Government property pursuant to paragraph (b), above.

(k) All communications issued pursuant to this clause shall be in writing.

(l) Reporting requirements. The contractor will submit an annual report on all non-expendable property in a form and manner acceptable to AID substantially as follows:

**Annual Report of AID Owned Non-expendable Property
in Contractor's Custody**

(Name of Contractor)

As of (End of Contract Year), 19xx

	Furniture and Furnishings Motor Vehicles	Living Quarters	Other Nonexpendable Property
A. Value of property as of last report			
B. Transactions during this reporting period			
1. Acquisitions (add):			
a. Purchased by contractor			
b. Transferred from AID			
c. Transferred from other without reimbursement ¹			
2. Disposals (deduct)			
a. Returned to AID			
b. Transferred to AID-contractor purchased			
c. Transferred to other Government agencies ¹			
d. Other disposals ¹			
C. Value of property as of reporting date			
D. Estimated average age of contractor-held property			
	Years	Years	Years

¹Explain if transactions were not processed through or otherwise authorized by AID.

Property Inventory Verifications

I attest that (1) physical inventories of AID owned nonexpendable property are taken not less frequently than annually; (2) the accountability records maintained for AID owned property in our possession are in agreement with such inventories; and (3) the total of the detailed accountability records maintained agrees with the property value shown opposite line C above, and the estimated average age of each category of property is as cited opposite line D above.

Authorized Signature

21. UTILIZATION OF SMALL BUSINESS CONCERNS AND SMALL BUSINESS CONCERNS OWNED AND CONTROLLED BY SOCIALLY AND ECONOMICALLY DISADVANTAGED INDIVIDUALS (AIDPR 7-7.5001-20)

(This clause is applicable to all contracts over \$10,000, except contracts for personal services and con-

tracts which will be performed entirely (including all subcontracts) outside any State, territory, or possession of the United States, the District of Columbia, or the Commonwealth of Puerto Rico.)

(a) It is the policy of the United States that small business concerns and small business concerns owned and controlled by socially and economically disadvantaged individuals shall have the maximum practicable opportunity to participate in the performance of contracts let by any Federal agency.

(b) The contractor hereby agrees to carry out this policy in the awarding of subcontracts to the fullest extent consistent with the efficient performance of this contract. The contractor further agrees to cooperate in any studies or surveys as may be conducted by the Small Business Administration or the contracting agency which may be necessary to determine the extent of the contractor's compliance with this clause.

(c)(1) As used in this contract, the term "small business concern" shall mean a small business as defined pursuant to section 3 of the Small Business Act and relevant regulations promulgated pursuant thereto.

(2) The term "small business concern owned and controlled by socially and economically disadvantaged individuals" shall mean a small business concern—

(i) which is at least 51 per centum owned by one or more socially and economically disadvantaged individuals; or in the case of any publicly owned business, at least 51 per centum of the stock of which is owned by one or more socially and economically disadvantaged individuals; and

(ii) whose management and daily business operations are controlled by one or more of such individuals.

The contractor shall presume that socially and economically disadvantaged individuals include Black Americans, Hispanic Americans, Native Americans, Asian-Pacific Americans, and other minorities, or any other individual found to be disadvantaged by the Small Business Administration pursuant to section 8(a) of the Small Business Act.

(d) Contractors acting in good faith may rely on written representations by their subcontractors regarding their status as a small business concern or a small business concern owned and controlled by socially and economically disadvantaged individuals.

(e) Small Business Provision. To permit AID in accordance with the Small Business Provisions of the Foreign Assistance Act, to give United States Small Business firms an opportunity to participate in supplying equipment supplies and services financed under this contract, the Contractor shall, to the maximum extent possible, provide the following information to the Office of Small and Disadvantaged Business Utilization, AID, Washington, D.C. 20523, at least 45 days prior to placing any order in excess of five thousand dollars (\$5,000), except where a shorter time is requested of, and granted by the Small Business Office:

(1) Brief general description and quantity of commodities or services;

(2) Closing date for receiving quotations or bids; and

(3) Address where invitations or specifications may be obtained.

22. UTILIZATION OF LABOR SURPLUS AREA CONCERNS (AIDPR 7-7.5001-21)

The following clause is applicable if this contract exceeds \$10,000.)

(a) It is the policy of the Government to award contracts to labor surplus area concerns that agree to perform substantially in labor surplus areas, where this can be done consistent with the efficient performance of the contract and at prices no higher than are obtainable elsewhere. The Contractor agrees to use his best efforts to place his subcontracts in accordance with this policy.

(b) In complying with paragraph (a) of this clause and with paragraph (b) of the clause of this contract entitled "Utilization of Small Business Concerns," the Contractor in placing his subcontracts shall observe the following order of preference: (1) Small business concerns that are labor surplus area concerns, (2) other small business concerns, and (3) other labor surplus area concerns.

(c)(1) The term "labor surplus area" means a geographical area identified by the Department of Labor as an area of concentrated unemployment or underemployment or an area of labor surplus.

(2) The term "labor surplus area concern" means a concern that together with its first-tier subcontractors will perform substantially in labor surplus areas.

(3) The term "perform substantially in a labor surplus area" means that the costs incurred on account of manufacturing, production, or appropriate services in labor surplus areas exceed 50 percent of the contract price.

23. INSURANCE—LIABILITY TO THIRD PERSONS (AIDPR 7-7.5001-22)

(a) The Contractor shall procure and thereafter maintain workmen's compensation, employer's liability, comprehensive general liability (bodily injury), and comprehensive automobile liability (bodily injury and property damage) insurance, with respect to performance under this contract, and such other insurance as the Contracting Officer may from time to time require with respect to performance under this contract; *Provided*, That the Contractor may with the approval of the Contracting Officer, maintain a self-insurance program: *And provided further*, That with respect to workmen's compensation the Contractor is qualified pursuant to statutory authority. All insurance required pursuant to the provisions of this paragraph shall be in such form, in such amounts, and for such periods of time, as the Contracting Officer may from time to time require or approve, and with insurers approved by the Contracting Officer.

(b) The Contractor agrees, to the extent and in the manner required by the Contracting Officer, to submit for the approval of the Contracting Officer any other insurance maintained by the Contractor in connection with the performance of this contract and for which the Contractor seeks reimbursement hereunder.

(c) The Contractor shall be reimbursed (1) for the portion allocable to this contract of the reasonable cost

of insurance as required or approved pursuant to the provisions of this clause; and (2) without regard to and as an exception to the "Limitation of Cost" or the "Limitation of Funds" clause of this contract, for liabilities to third persons for loss of or damage to property (other than property (i) owned, occupied, or used by the Contractor or rented to the Contractor, or (ii) in the care, custody, or control of the Contractor,) or for death or bodily injury, not compensated by insurance or otherwise, arising out of the performance of this contract, whether or not caused by the negligence of the Contractor, his agents, servants, or employees: *Provided*, Such liabilities are represented by final judgements or by settlements approved in writing by the Government, and expenses incidental to such liabilities, except liabilities (A) for which the Contractor is otherwise responsible under the express terms of the clause of clauses, if any, specified in the Schedule, or (B) with respect to which the Contractor has failed to insure as required or maintain insurance as approved by the Contracting Officer, or (C) which results from willful misconduct or lack of good faith on the part of any of the Contractor's directors or officers, or on the part of any of his managers, superintendents or other equivalent representatives, who has supervision or direction of (aa) all or substantially all of the Contractor's business, or (bb) all or substantially all of the Contractor's operations at any one plant or separate location in which this contract is being performed, or (cc) a separate and complete major industrial operation in connection with the performance of this contract. The foregoing shall not restrict the right of the Contractor to be reimbursed for the cost of insurance maintained by the Contractor in connection with the performance of this contract, other than insurance required to be submitted for approval or required to be procured and maintained pursuant to the provisions of this clause, *Provided*, Such cost would constitute allowable cost under the clause of the contract entitled 'Allowable Cost, Fixed Fee, and Payment.'

(d) The Contractor shall give the Government or its representatives immediate notice of any suit or action filed, or prompt notice of any claim made, against the Contractor arising out of the performance of this contract, the cost and expense of which may be reimbursable to the Contractor under the provisions of this contract and the risk of which is then uninsured or in which the amount claimed exceeds the amount of coverage. The Contractor shall furnish immediately to the Government copies of all pertinent papers received by the Contractor. If the amount of the liability claimed exceeds the amount of coverage, the Contractor shall authorize representatives of the Government to collaborate with counsel for the insurance carrier, if any, in settling or defending such claim. If the liability is not insured or covered by bond, the Contractor shall, if required by the Government, authorize representatives of the Government to settle or defend any such claim and to represent the Contractor in or take charge of any litigation in connection therewith: *Provided, however*, That the Contractor may, at his own expense, be associated with the representatives of the Government in the settlement or defense of any such claim or litigation.

**24. TERMINATION FOR DEFAULT OR FOR
CONVENIENCE OF THE GOVERNMENT
(AIDPR 7-7.5001-23)**

(a) The performance of work under the contract may be terminated by the Government in accordance with this clause in whole, or from time to time in part:

(1) Whenever the Contractor shall default in performance of this contract in accordance with its terms (including in the term "default" any such failure by the Contractor to make progress in the prosecution of the work hereunder as endangers such performance), and shall fail to cure such default within a period of ten days (or such longer period as the Contracting Officer may allow) after receipt from the Contracting Officer of a notice specifying the default; or

(2) Whenever for any reason the Contracting Officer shall determine that such termination is in the best interest of the Government.

Any such termination shall be effected by delivery to the Contractor of a Notice of Termination specifying whether termination is for the default of the Contractor or for the convenience of the Government, the extent to which performance of work under the contract is terminated, and the date upon which such termination becomes effective. If, after notice of termination of this contract for default under (1) above, it is determined for any reason that the Contractor was not in default pursuant to (1), or that the Contractor's failure to perform or to make progress in performance is due to causes beyond the control and without the fault or negligence of the Contractor pursuant to the provisions of the clause of this contract relating to excusable delays, the Notice of Termination shall be deemed to have been issued under (2) above, and the rights and obligations of the parties hereto shall in such event be governed accordingly.

(b) After receipt of a Notice of Termination and except as otherwise directed by the Contracting Officer, the Contractor shall:

(1) Stop work under the contract on the date and to the extent specified in the Notice of Termination;

(2) Place no further orders or subcontracts for materials, services, or facilities, except as may be necessary for completion of such portion of the work under the contract as is not terminated;

(3) Terminate all orders and subcontracts to the extent that they relate to the performance of work terminated by the Notice of Termination;

(4) Assign to the Government, in the manner and to the extent directed by the Contracting Officer, all of the right, title, and interest of the Contractor under the orders or subcontracts so terminated, in which case the Government shall have the right, in its discretion, to settle or pay any or all claims arising out of the termination of such orders and subcontracts;

(5) With the approval or ratification of the Contracting Officer, to the extent he may require, which approval or ratification shall be final and conclusive for all purposes of this clause, settle all outstanding liabilities and all claims arising out of such termination of orders and subcontracts, the cost of which would be reimbursable in whole or in part, in accordance with the provisions of this contract;

(6) Transfer title to the Government (to the extent that title has not already been transferred) and deliver in the

manner, at the times, and to the extent directed by the Contracting Officer, (i) the fabricated or unfabricated parts, work in process, completed work, supplies, and other material produced as a part of, or acquired in respect to the performance of, the work terminated by the Notice of Termination; (ii) the completed or partially completed plans, drawings, information, and other property which, if the contract had been completed, would be required to be furnished to the Government; and (iii) the jigs, dies, and fixtures, and other special tools and tooling acquired or manufactured for the performance of this contract for the cost of which the Contractor has been or will be reimbursed under this contract;

(7) Use his best efforts to sell, in the manner, at the times, to the extent, and at the price or prices directed or authorized by the Contracting Officer, any property of the types referred to in (6) above: *Provided, however*, That the Contractor (i) shall not be required to extend credit to any purchaser, and (ii) may acquire any such property under the conditions prescribed by and at a price or prices approved by the Contracting Officer: *And provided further*, That the proceeds of any such transfer or disposition shall be applied in reduction of any payments to be made by the Government to the Contractor under this contract or shall otherwise be credited to the price or cost of the work covered by this contract or paid in such other manner as the Contracting Officer may direct;

(8) Complete performance of such part of the work as shall not have been terminated by the Notice of Termination; and

(9) Take such action as may be necessary, or as the Contracting Officer may direct, for the protection and preservation of the property related to this contract which is in the possession of the Contractor and in which the Government has or may acquire an interest. The Contractor shall proceed immediately with the performance of the above obligations notwithstanding any delay in determining or adjusting the amount of the fee, or any item of reimbursable cost, under this clause. At any time after expiration of the plant clearance period, as defined in Subpart 1-8.1 of the Federal Procurement Regulations (41 CFR 1-8.1), as the definition may be amended from time to time, the Contractor may submit to the Contracting Officer a list, certified as to quantity and quality, of any or all items or termination inventory not previously disposed of, exclusive of items the disposition of which has been directed or authorized by the Contracting Officer, and may request the Government to remove such items or enter into a storage agreement covering them. Not later than fifteen (15) days thereafter, the Government will accept such items and remove them or enter into a storage agreement covering the same: *Provided*, That the list submitted shall be subject to verification by the Contracting Officer upon removal of the items or, if the items are stored, within forty-five (45) days from the date of submission of the list, and any necessary adjustment to correct the list as submitted shall be made prior to final settlement.

(c) After receipt of a Notice of Termination, the Contractor shall submit to the Contracting Officer his termination claim in the form and with the certification prescribed by the Contracting Officer. Such claim shall be submitted promptly but in no event later than one year from the effective date of termination, unless one or more extensions in writing are granted by the Con-

tracting Officer upon request of the Contractor made in writing within such one-year period or authorized extension thereof. However, if the Contracting Officer determines that the facts justify such action, he may receive and act upon any such termination claim at any time after such one-year period or any extension thereof. Upon failure of the Contractor to submit his termination claim within the time allowed, the Contracting Officer may, subject to any review required by the contracting agency's procedures in effect as of the date of execution of this contract, determine, on the basis of information available to him, the amount, if any, due to the Contractor by reason of the termination and shall thereupon pay to the Contractor the amount so determined.

(d) Subject to the provisions of paragraph (c), and subject to any review required by the contracting agency's procedures in effect as of the date of execution of this contract, the Contractor and the Contracting Officer may agree upon the whole or any part of the amount or amounts to be paid (including an allowance for the fee) to the Contractor by reason of the total or partial termination of work pursuant to this clause. The contract shall be amended accordingly, and the Contractor shall be paid the agreed amount.

(e) In the event of the failure of the Contractor and the Contracting Officer to agree in whole or in part, as provided in paragraph (d), as to the amounts with respect to costs and fee, or as to the amount of the fee, to be paid to the Contractor in connection with the termination of work pursuant to this clause, the Contracting Officer shall, subject to any review required by the contracting agency's procedures in effect as of the date of execution of this contract, determine, on the basis of information available to him, the amount, if any, due to the Contractor by reason of the termination and shall pay to the Contractor the amount determined as follows:

(1) If the settlement includes cost and fee—

(i) There shall be included therein all costs and expenses reimbursable in accordance with this contract, not previously paid to the Contractor for the performance of this contract prior to the effective date of the Notice of Termination, and such of these costs as may continue for a reasonable time thereafter with the approval of or as directed by the Contracting Officer; *Provided, however,* That the Contractor shall proceed as rapidly as practicable to discontinue such costs:

(ii) There shall be included therein so far as not included under (i) above, the cost of settling and paying claims arising out of the termination of work under subcontracts or orders, as provided in paragraph (b)(5) above, which are properly chargeable to the terminated portion of the contract;

(iii) There shall be included therein the reasonable costs of settlement, including accounting, legal, clerical, and other expenses reasonably necessary for the preparation of settlement claims and supporting data with respect to the terminated portion of the contract and for the termination and settlement of subcontracts thereunder, together with reasonable storage, transportation, and other costs incurred in connection with the protection or disposition of termination inventory; *Provided, however,* That if the termination is for default of the Contractor there shall not be included any amounts for the preparation of the Contractor's settlement proposal; and

(iv) There shall be included therein a portion of the fee payable under the contract determined as follows—

(A) In the event of the termination of this contract for the convenience of the Government and not for the default of the Contractor, there shall be paid a percentage of the fee equivalent to the percentage of the completion of work contemplated by the contract, but exclusive of subcontract effort included in subcontractors' termination claims, less fee payments previously made hereunder; or

(B) In the event of the termination of this contract for the default of the Contractor, the total fee payable shall be such proportionate part of the fee (or, if this contract calls for articles of different types, of such part of the fee as is reasonably allocable to the type of article under consideration) as the total number of articles delivered to and accepted by the Government bears to the total number of articles of a like kind called for by this contract. If the amount determined under this subparagraph (1) is less than the total payment theretofore made to the Contractor, the Contractor shall repay to the Government the excess amount.

(2) If the settlement includes only the fee, the amount thereof will be determined in accordance with subparagraph (1)(iv) above.

(f) Costs claimed, agreed to, or determined pursuant to paragraphs (c), (d), and (e) of this clause shall be in accordance with the contract cost principles and procedures in Part 1-15 of the Federal Procurement Regulations (41 CFR 1-15) in effect on the date of this contract.

(g) The Contractor shall have the right of appeal, under the clause of this contract entitled "Disputes" from any determination made by the Contracting Officer under paragraph (c) or (e) above, except that, if the Contractor has failed to submit his claim within the time provided in paragraph (c) above and has failed to request extension of such time, he shall have no such right of appeal. In any case where the Contracting Officer has made a determination of the amount due under paragraph (c) or (e) above, the Government shall pay to the Contractor the following: (1) If there is no right of appeal hereunder or if no timely appeal has been taken, the amount so determined by the Contracting Officer, or (2) if an appeal has been taken, the amount finally determined on such appeal.

(h) In arriving at the amount due the Contractor under this clause there shall be deducted (1) all unliquidated advance or other payments theretofore made to the Contractor, applicable to the terminated portion of this contract, (2) any claim which the Government may have against the Contractor in connection with this contract, and (3) the agreed price for, or the proceeds of sale of, any materials, supplies, or other things acquired by the Contractor or sold pursuant to the provisions of this clause and not otherwise recovered by or credited to the Government.

(i) In the event of a partial termination, the portion of the fee which is payable with respect to the work under the continued portion of the contract shall be equitably adjusted by agreement between the Contractor and the Contracting Officer, and such adjustment shall be evidenced by an amendment to this contract.

(j) The Government may from time to time, under such terms and conditions as it may prescribe, make partial payments and payments on account against costs incurred by the Contractor in connection with the ter-

minated portion of the contract whenever in the opinion of the Contracting Officer the aggregate of such payments shall be within the amount to which the Contractor will be entitled hereunder. If the total of such payments is in excess of the amount finally determined to be due under this clause, such excess shall be payable by the Contractor to the Government upon demand together with interest computed at the rate established by the Secretary of the Treasury pursuant to Pub. L. 92-41 (50 U.S.C. App. 1215(b)(2)) for the Renegotiation Board, for the period from the date such excess payment is received by the Contractor to the date on which such excess is repaid to the Government: *Provided, however,* That no interest shall be charged with respect to any such excess payment attributable to a reduction in the Contractor's claim by reason of retention or other disposition of termination inventory until 10 days after the date of such retention or other disposition, or such later date as determined by the Contracting Officer by reason of the circumstances.

(k) The provisions of this clause relating to the fee shall be inapplicable if this contract does not provide for payment of a fee.

25. EXCUSABLE DELAYS (AIDPR 7-7.5001-24)

Except with respect to defaults of subcontractors, the contractor shall not be in default by reason of any failure in performance of this contract in accordance with its terms (including any failure by the Contractor to make progress in the prosecution of the work hereunder which endangers such performance) if such failure arises out of causes beyond the control and without the fault or negligence of the Contractor. Such causes may include, but are not restricted to, acts of God or of the public enemy, acts of the Government in either its sovereign or contractual capacity, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes, and unusually severe weather, but in every case the failure to perform must be beyond the control and without the fault or negligence of the Contractor. If the failure to perform is caused by the failure of a subcontractor to perform or make progress, and if such failure arises out of causes beyond the control of both the Contractor and subcontractor, and without the fault or negligence of either of them the Contractor shall not be deemed to be in default, unless (a) the supplies or services to be furnished by the subcontractor were obtainable from other sources, (b) the Contracting Officer shall have ordered the Contractor in writing to procure such supplies or services from such other sources, and (c) the Contractor shall have failed to comply reasonably with such order. Upon request of the Contractor, the Contracting Officer shall ascertain the facts and extent of such failure and, if he shall determine that any failure to perform was occasioned by any one or more of the said causes, the delivery schedule shall be revised accordingly, subject to the rights of the Government under the clause hereof entitled "Termination for Default or for Convenience of the Government." (As used in this clause, the terms "subcontractor" and "subcontractors" mean subcontractor(s) at any tier.)

26. STOP WORK ORDER (AIDPR 7-7.5001-25)

(a) The Contracting Officer may, at any time, by written order to the Contractor, require the Contractor to stop all, or any part, of the work called for by the contract for a period of ninety (90) days after the order is delivered to the Contractor, and for any further period to which the parties may agree. Any such order shall be specifically identified as a Stop Work Order issued pursuant to this clause. Upon receipt of such an order, the Contractor shall forthwith comply with its terms and take all reasonable steps to minimize the incurrence of costs allocable to the work covered by the order during the period of work stoppage. Within a period of ninety (90) days after a stop work order is delivered to the Contractor, or within any extension of that period to which the parties shall have agreed, the Contracting Officer shall either—

(i) Cancel the stop work order; or

(ii) Terminate the work covered by such order as provided in the clause of this contract entitled "Termination for Default or for Convenience of the Government."

(b) If a stop work order issued under this clause is canceled or the period of the order or any extension thereof expires, the Contractor shall resume work. An equitable adjustment shall be made in the delivery schedule, the estimated cost, the fee, or a combination thereof, and in any other provisions of the contract that may be affected, and the contract shall be modified in writing accordingly, if:

(i) The stop work order results in an increase in the time required for, or in the Contractor's cost properly allocable to, the performance of any part of this contract; and

(ii) The Contractor asserts a claim for such adjustment within thirty (30) days after the end of the period of work stoppage; provided that, if the Contracting Officer decides the facts justify such action, he may receive and act upon any such claim asserted at any time prior to final payment under this contract.

Failure to agree to any adjustment shall be a dispute concerning a question of fact within the meaning of the "Disputes" clause of this contract.

(c) If a stop work order is not canceled and the work covered by such order is terminated for the convenience of the Government, the reasonable costs resulting from the stop work order shall be allowed in arriving at the termination settlement.

27. DISPUTES (AIDPR 7-7.5001-26)

(a) This contract is subject to the Contract Disputes Act of 1978 (Pub. L. 95-563).

(b) Except as provided in the Act, all disputes arising under or relating to this contract shall be resolved in accordance with this clause.

(c)(i) As used herein, "claim" means a written demand or assertion by one of the parties seeking, as a legal right, the payment of money, adjustment or interpretation of contract terms, or other relief, arising under or relating to this contract.

(ii) A voucher, invoice, or request for payment that is not in dispute when submitted is not a claim for the purposes of the Act. However, where such submission is

subsequently not acted upon in a reasonable time, or disputed either as to liability or amount, it may be converted to a claim pursuant to the Act.

(iii) A claim by the contractor shall be made in writing and submitted to the contracting officer for decision. A claim by the Government against the contractor shall be subject to a decision by the Contracting Officer.

(d) For contractor claims of more than \$50,000, the contractor shall submit with the claim a certification that the claim is made in good faith; the supporting data are accurate and complete to the best of the contractor's knowledge and belief; and the amount requested accurately reflects the contract adjustment for which the contractor believes the Government is liable. The certification shall be executed by the contractor if an individual. When the contractor is not an individual, the certification shall be executed by a senior company official in charge at the contractor's plant or location involved, or by an officer or general partner of the contractor having overall responsibility for the conduct of the contractor's affairs.

(e) For contractor claims of \$50,000 or less, the Contracting Officer must render a decision within 60 days. For contractor claims in excess of \$50,000, the Contracting Officer must decide the claim within 60 days or notify the contractor of the date when the decision will be made.

(f) The Contracting Officer's decision shall be final unless the Contractor appeals or files a suit as provided in the Act.

(g) The authority of the Contracting Officer under the Act does not extend to claims or disputes which by statute or regulation other agencies are expressly authorized to decide.

(h) Interest on the amount found due on a contractor claim shall be paid from the date the claim is received by the Contracting Officer until the date of payment.

(i) Except as the parties may otherwise agree, pending final resolution of a claim by the contractor arising under the contract, the contractor shall proceed diligently with the performance of the contract in accordance with the contracting officer's decision.

28. AUTHORIZATION AND CONSENT (AIDPR 7-7.5001-27)

The Government hereby gives its authorization and consent for all use and manufacture of any invention described in and covered by a patent of the United States in the performance of this contract or any part hereof or any amendment hereto or any subcontract hereunder (including any lower tier subcontractor).

29. NOTICE AND ASSISTANCE REGARDING PATENT AND COPYRIGHT INFRINGEMENT (AIDPR 7-7.5001-28)

(a) The contractor shall report to the Contracting officer, promptly and in reasonable written detail, each notice or claim of patent or copyright infringement based on the performance of this contract of which the contractor has knowledge.

(b) In the event of any claim or suit against the Government on account of any alleged patent or

copyright infringement arising out of the performance of this Contract or out of the use of any supplies furnished or work or services performed hereunder, the contractor shall furnish to the Government, when requested by the contracting officer, all evidence and information in possession of the contractor pertaining to such suit or claim. Such evidence and information shall be furnished at the expense of the Government except where the contractor has agreed to indemnify the Government.

(c) This clause shall be included in all subcontracts.

30. PATENT RIGHTS (AIDPR 7-7.5001-29)

For large businesses, insert the appropriate clause set forth in FPR 1-9.107-5 or 1-9.107-6 under the conditions stated in FPR 1-9.107-4. NOTE: For Small Businesses or Non-Profit Organizations, insert the clause required by OMB Circular A-124.

31. RIGHTS IN DATA (AIDPR 7-7.5001-30)

(a) The term "Subject Data" as used herein includes writings, sound recordings, pictorial reproductions, drawings or other graphical representations, and works of any similar nature (whether or not copyrighted) which are specified to be delivered under this contract. The term does not include financial reports, cost analyses, and other information incidental to contract administration.

(b) All Subject Data first produced in the performance of this contract shall be the sole property of the Government. The Contractor agrees not to assert any rights at common law or equity and not to establish any claim to statutory copyright in such Data. The Contractor shall not publish or reproduce such Data in whole or in part or in any manner or form, nor authorize others to do so, without the written consent of the Government until such time as the Government may have released such Data to the public.

(c) The Contractor agrees to grant and does hereby grant to the Government and to its officers, agents, and employees acting within the scope of their official duties, a royalty-free, nonexclusive, and irrevocable license throughout the world (i) to publish, translate, reproduce, deliver, perform, use, and dispose of, in any manner, any and all Data not first produced or composed in the performance of this contract but which is incorporated in the work furnished under this contract; and (ii) to authorize others to do so.

(d) The Contractor shall indemnify and save and hold harmless the Government, its officers, agents, and employees acting within the scope of their official duties against any liability including costs and expenses (i) for violation of proprietary rights, copyright, or right of privacy, arising out of the publication, translation, reproduction, delivery, performance, use or disposition of any Data furnished under this contract; or (ii) based upon any libelous or other unlawful matter contained in such Data.

(e) Nothing contained in this clause shall imply a license to the Government under any patent or be construed as affecting the scope of any license or other right otherwise granted to the Government under any patent.

(f) Paragraphs (c) and (d) of this section are not applicable to material furnished to the Contractor by the Government and incorporated in the work furnished under the contract; provided, such incorporated material is identified by the Contractor at the time of delivery of such work.

32. RELEASE OF INFORMATION (AIDPR 7-7.5001-31)

All information gathered under this contract by the Contractor and all reports and recommendations hereunder shall be treated as confidential by the Contractor and shall not, without the prior written approval of the Contracting Officer, be made available to any person, party, or government other than AID except as otherwise expressly provided in this contract.

33. EQUAL OPPORTUNITY (AIDPR 7-7.5001-32)

(The following clause is applicable unless this Contract is exempt under the rules, regulations, and relevant orders of the Secretary of Labor (41 CFR, Ch. 60).)

During the performance of this Contract, the Contractor agrees as follows:

(a) The Contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, or national origin. The Contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, color, religion, sex, or national origin. Such action shall include, but not be limited to the following: Employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided by the Contracting Officer setting forth the provisions of this Equal Opportunity clause.

(b) The Contractor will, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, or national origin.

(c) The Contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other Contract or understanding, a notice, to be provided by the Agency Contracting Officer, advising the labor union or workers' representative of the Contractor's commitments under this Equal Opportunity clause, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

(d) The Contractor will comply with all provisions of Executive Order No. 11246 of September 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.

(e) The Contractor will furnish all information and reports required by Executive Order No. 11246 of September 24, 1965, and by the rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and accounts by the contracting agency and the Secretary of

Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.

(f) In the event of the Contractor's noncompliance with the Equal Opportunity clause of this Contract or with any of the said rules, regulations, or orders, this Contract may be canceled, terminated, or suspended in whole or in part and the Contractor may be declared ineligible for further Government Contracts in accordance with procedures authorized in Executive Order No. 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order No. 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.

(g) The Contractor will include the provisions of paragraphs (a) through (f) in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to Section 204 of Executive Order No. 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The Contractor will take such action with respect to any subcontract or purchase order as the contracting agency may direct as a means of enforcing such provisions including sanctions for non-compliance; provided, however, that in the event the Contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the contracting agency, the Contractor may request the United States to enter into such litigation to protect the interests of the United States.

34. CONVICT LABOR (AIDPR 7-7.5001-33)

In connection with the performance of work under this Contract, the Contractor agrees not to employ any person undergoing sentence of imprisonment except as provided by Public Law 89-176, September 10, 1965 (18 U.S.C. 4082 (c)(2)) and Executive Order 11755, December 29, 1973.

35. WALSH-HEALEY PUBLIC CONTRACTS ACT (AIDPR 7-7.5001-34)

If this contract is for the manufacture or furnishing of materials, supplies, articles, or equipment in an amount which exceeds or may exceed \$10,000 and is otherwise subject to the Walsh-Healey Public Contracts Act, as amended (41 U.S. Code 35-45), there are hereby incorporated by reference all representations and stipulations being subject to all applicable rulings and interpretations of the Secretary of Labor which are now or may hereafter be in effect.

36. UNITED STATES OFFICIALS NOT TO BENEFIT (AIDPR 7-7.5001-35)

No member of or delegate to the Congress of the United States of America, or resident commissioner of the United States of America shall be admitted to any share or part of this contract, or to any benefit that might arise therefrom, but this provision shall not be construed to extend to this contract if made with a corporation for its general benefit.

**37. COVENANT AGAINST CONTINGENT FEES
(AIDPR 7-7.5001-36)**

The Contractor warrants that no person or selling agency has been employed or retained to solicit or secure this Contract upon an agreement or understanding for a commission, percentage, brokerage, or contingent fee, excepting bona fide employees or bona fide established commercial or selling agencies maintained by the Contractor for the purpose of securing business. For breach or violation of this warranty, the Government shall have the right to annul this Contract without liability or in its discretion to deduct from the Contract price or consideration, or otherwise recover, the full amount of such commission, percentage, brokerage, or contingent fee.

**38. LANGUAGE, WEIGHTS, AND MEASURES
(AIDPR 7-7.5001-37)**

The English language shall be used in all written communications between the parties under this contract with respect to services to be rendered and with respect to all documents prepared by the Contractor except as otherwise provided in the contract or as authorized by the Contracting Officer. Wherever weights and measures are required or authorized, all quantities and measures shall be made, computed, and recorded in the metric system, unless specified otherwise in the schedule of the contract.

**39. SECURITY REQUIREMENTS
(AIDPR 7-7.5001-38)**

(a) The provisions of the following paragraphs of this clause shall apply to the extent that this contract involves access to classified information ("Confidential," "Secret," or "Top Secret") or administratively designated information ("Limited Official Use").

(b) Whenever the Contracting Officer or his authorized representative has assigned a security classification ("Confidential," "Secret," or "Top Secret") or administrative designation ("Limited Official Use") to the Contract or any of the items handled under the Contract, the Contracting Officer or his authorized representative shall notify the Contractor (1) in writing of administrative designations and of any subsequent revisions in such designation, or (2) by use of "Security Requirements Check List" (Form DD 254) for classified information and any subsequent revisions in such classification.

(c) To the extent the Contracting Officer or his authorized representative has indicated as of the date of this Contract, or thereafter indicates security classification or administrative designation under this Contract, as provided in paragraph (b) of this section, the Contractor shall safeguard all classified and administratively designated items handled under this Contract and shall provide and maintain a system of security controls within his own organization. For classified information the system of security controls shall be in accordance with Department of Defense Security Agreement (DD Form 441), including the DOD Industrial Security Manual for Safeguarding Classified Information (DOD 5220.22-M).

Instructions for safeguarding of administratively designated information are provided in Uniform

State/AID/USIA Regulations (Volume 5, Foreign Affairs Manual, Chapter 900), a copy of which will be furnished by the Contracting Officer or Mission Director.

(d) Representatives of the Department of Defense and/or AID having security cognizance over the facility shall have the right to inspect at reasonable intervals the procedures, methods, and facilities utilized by the Contractor in complying with the security requirements under this Contract. Should the Government, through these representatives, determine that the Contractor is not complying with the security requirements of this Contract, the Contractor shall be informed in writing by the cognizant Security Office of the Department of Defense and/or AID of the proper action to be taken in order to effect compliance with such requirements. The Contractor shall not be entitled to an adjustment in contract price, delivery schedule or both for required changes to his security procedures, methods, or facilities in order that such procedures, methods, and facilities be in compliance with the contract security requirements.

(e) If, subsequent to the date of this Contract, the security classifications or security requirements under this Contract are changed by the Government as provided in this clause and the security costs or time required for delivery under this Contract are thereby increased or decreased, the contract price, delivery schedule, or both and any other provision of the Contract that may be affected shall be subject to an equitable adjustment by reason of such increased or decreased costs. Any claim for adjustment under this clause must be asserted to the Contracting Officer within sixty (60) days from the date of receipt by the Contractor of the notification of change in security classification or security requirements unless extended in writing by the Contracting Officer.

(f) The Contractor shall not permit any alien access to classified or administratively controlled information.

(g) The Contractor agrees to insert, in all subcontracts hereunder which involve access to classified or administratively designated information, provisions which shall conform substantially to the language of this Clause, including this paragraph (g).

(h) The Contractor also agrees that he shall determine that any subcontractor proposed by him for the furnishing of supplies and services which will involve access to classified or administratively designated information in the Contractor's custody has been granted an appropriate facility security clearance, which is still in effect, prior to being accorded access to such classified or administratively designated information.

(i) The Contractor agrees to notify the Contracting Officer in writing after completion of the work under this Contract that (1) all classified or administratively designated information which was in his possession during the performance of the Contract has been disposed of in accordance with existing DOD and/or AID security requirements, or (2) no classified or administratively designated information came into his possession or any of his employees' possession during the performance of the Contract.

**40. UTILIZATION OF WOMEN-OWNED BUSINESS CONCERNS (OVER \$10,000)
(AID 7-7.5001-48)**

(The following clause shall be included in all contracts expected to exceed \$10,000 except (i) contracts which, including all subcontracts thereunder, are to be per-

formed entirely outside the United States, its possessions, Puerto Rico and the Trust Territory of the Pacific Islands; and (ii) contracts for personal services.)

(a) It is the policy of the United States Government that women-owned businesses shall have the maximum practicable opportunity to participate in the performance of contracts awarded by any Federal agency.

(b) The Contractor agrees to use his best efforts to carry out this policy in the award of subcontracts to the fullest extent consistent with the efficient performance of this contract. As used in this contract, a "woman-owned business" concern means a business that at least 51% owned by a woman or women who also control and operate it. "Control" in this context means exercising the power to make policy decisions. "Operate" in this context means being actively involved in the day-to-day management. "Women" mean all women business owners.

41. DISABLED VETERANS AND VETERANS OF THE VIETNAM ERA (AIDPR 7-7.5001-41)

(This clause shall be included in all contracts exceeding \$10,000).

(a) The Contractor will not discriminate against any employee or applicant for employment because he or she is a disabled veteran or veteran of the Vietnam era in regard to any position for which the employee or applicant for employment is qualified. The Contractor agrees to take affirmative action to employ, advance in employment, or otherwise treat qualified disabled veterans and veterans of the Vietnam era without discrimination based upon their disability or veterans status in all employment practices such as the following: employment upgrading, demotion or transfer, recruitment, advertising, layoff or termination, rates of pay or other forms of compensation, and selection for training, including apprenticeship.

(b) The Contractor agrees that all suitable employment openings of the contractor which exist at the time of the execution of this contract and those which occur during the performance of this contract, including those not generated by this contract and including those occurring at an establishment of the contractor other than the one wherein the contract is being performed but excluding those of independently operated corporate affiliates, shall be listed at an appropriate local office of the State employment service system wherein the opening occurs. The contractor further agrees to provide such reports to such local office regarding employment openings and hires as may be required.

State and local Government agencies holding Federal contracts of \$10,000 or more shall also list all their suitable openings with the appropriate office of the State employment service, but are not required to provide those reports set forth in paragraphs (d) and (e).

(c) Listing of employment openings with the employment service system pursuant to this clause shall be made at least concurrently with the use of any other recruitment source or effort and shall involve the normal obligations which attach to the placing of a bona fide job order, including the acceptance of referrals of veterans and nonveterans. The listing of employment openings does not require the hiring of any particular job applicant or from any particular group of job ap-

plicants, and nothing herein is intended to relieve the contractor from any requirements in Executive Orders or regulations regarding nondiscrimination in employment.

(d) The reports required by paragraph (b) of this clause shall include, but not be limited to, periodic reports which shall be filed at least quarterly with the appropriate local office or, where the contractor has more than one hiring location in a State, with the central office of that State employment service. Such reports shall indicate for each hiring location (1) the number of individuals hired during the reporting period, (2) the number of nondisabled veterans of the Vietnam era hired, (3) the number of disabled veterans of the Vietnam era hired, and (4) the total number of disabled veterans hired. The reports should include covered veterans hired for on-the-job training under 38 U.S.C. 1787. The Contractor shall submit a report within 30 days after the end of each reporting period wherein any performance is made on this contract identifying data for each hiring location. The contractor shall maintain at each hiring location copies of the reports submitted until the expiration of one year after final payment under the contract, during which time these reports and related documentation shall be made available, upon request, for examination by any authorized representatives of the contracting officer or of the Secretary of Labor. Documentation would include personnel records respecting job openings, recruitment, and placement.

(e) Whenever the contractor becomes contractually bound to the listing provisions of this clause, it shall advise the employment service system in each State where it has establishments of the name and location of each hiring location in the State. As long as the contractor is contractually bound to these provisions and has so advised the State system, there is no need to advise the State system of subsequent contracts. The contractor may advise the State system when it is no longer bound by this contract clause.

(f) This clause does not apply to the listing of employment openings which occur and are filled outside the 50 States, The District of Columbia, Puerto Rico, Guam, and the Virgin Islands.

(g) The provisions of paragraphs (b), (c), (d), and (e) of this clause do not apply to openings which the contractor proposes to fill from within his own organization or to fill pursuant to a customary and traditional employer-union hiring arrangement. This exclusion does not apply to a particular opening once an employer decides to consider applicants outside of his own organization or employer-union arrangement for that opening.

(h) As used in this clause: (1) "All suitable employment openings" includes, but is not limited to, openings which occur in the following job categories: production and non-production; plant and office; laborers and mechanics; supervisory and nonsupervisory; technical, and executive, administrative, and professional openings that are compensated on a salary basis of less than \$25,000 per year. This term includes full-time employment, temporary employment of more than 3 days' duration, and part-time employment. It does not include openings which the contractor proposes to fill from within his own organization or to fill pursuant to a customary and traditional employer-union hiring ar-

arrangement nor openings in an educational institution which are restricted to students of that institution. Under the most compelling circumstances an employment opening may not be suitable for listing, including such situations where the needs of the Government cannot reasonably be otherwise supplied, where listing would be contrary to national security, or where the requirement of listing would otherwise not be for the best interest of the Government.

(2) "Appropriate office of the State employment service system" means the local office of the Federal/State national system of the public employment offices with assigned responsibility for serving the area where the employment opening is to be filled, including the District of Columbia, Guam, Puerto Rico, and the Virgin Islands.

(3) "Openings which the Contractor proposed to fill from within his own organization" means employment openings for which no consideration will be given to persons outside the contractor's organization (including any affiliates, subsidiaries, and the parent companies) and includes any openings which the contractor proposes to fill from regular established "recall" lists.

(4) "Openings which the contractor proposes to fill pursuant to a customary and traditional employer-union hiring arrangement" means employment openings which the contractor proposes to fill from union halls, which is part of the customary and traditional hiring relationship which exists between the contractor and representatives of his employees.

(i) The Contractor agrees to comply with the rules, regulations, and relevant orders of the Secretary of Labor issued pursuant to the Act.

(j) In the event of the Contractor's noncompliance with the requirements of this clause, actions for non-compliance may be taken in accordance with the rules, regulations, and relevant orders of the Secretary of Labor issued pursuant to the Act.

(k) The contractor agrees to post in conspicuous places available to employees and applicants for employment notices in a form to be prescribed by the Director, provided by or through the contracting officer. Such notices shall state the contractor's obligations under the law to take affirmative action to employ and advance in employment qualified disabled veterans and veterans of the Vietnam era for employment, and the rights of applicants and employees.

(l) The contractor will notify each labor union or representative of workers with which it has a collective bargaining agreement or other contract understanding that the contractor is bound by terms of the Vietnam Era Veteran's Readjustment Assistance Act and is committed to take affirmative action to employ and advance in employment qualified disabled veterans and veterans of the Vietnam era.

(m) The contractor will include the provisions of this clause in every subcontract or purchase order of \$10,000 or more unless exempted by rules, regulations, or orders of the Secretary issued pursuant to the Act, so that such provisions will be binding upon each subcontractor or vendor. The contractor will take such action with respect to any subcontract or purchase order as the Director of the Office of Federal Contract Compliance Programs may direct to enforce such provisions, including action for non-compliance.

42. CLEAN AIR AND WATER (AIDPR 7-7.5001-44)

(Applicable only if the contract exceeds \$100,000, or the contracting officer has determined that orders under an indefinite quantity contract in any one year will exceed \$100,000, or a facility to be used has been the subject of a conviction under the Clean Air Act (42 U.S.C. 1857c-8(c)(1)) or the Federal Water Pollution Control Act (33 U.S.C. 1319(c)) and is listed by EPA, or the contract is not otherwise exempt.)

(a) The Contractor agrees as follows:

(1) To comply with all the requirements of section 114 of the Clean Air Act, as amended (42 U.S.C. 1857, et seq., as amended by Pub. L. 91-604) and section 308 of the Federal Water Pollution Control Act (33 U.S.C. 1251 et seq., as amended by Pub. L. 92-500), respectively, relating to inspection, monitoring, entry, reports, information, as well as other requirements specified in section 114 and section 308 of the Air Act and the Water Act, respectively, and all regulations and guidelines issued thereunder before the award of this contract.

(2) That no portion of the work required by this prime contract will be performed in a facility listed on the Environmental Protection Agency List of Violating Facilities on the date when this contract was awarded unless and until the EPA eliminates the name of such facility or facilities from such listing.

(3) To use his best efforts to comply with clean air standards and clean water standards at the facility in which the contract is being performed.

(4) To insert the substance of the provisions of this clause into any nonexempt subcontract, including this paragraph (a)(4).

(b) The terms used in this clause have the following meanings:

(1) The term "Air Act" means the Clean Air Act, as amended (42 U.S.C. 1857 et seq., as amended by Pub. L. 91-604).

(2) The term "Water Act" means Federal Water Pollution Control Act, as amended (33 U.S.C. 1251 et seq., as amended by Pub. L. 92-500).

(3) The term "clean air standards" means any enforceable rules, regulations, guidelines, standards, limitations, orders, controls, prohibitions, or other requirements which are contained in, issued under, or otherwise adopted pursuant to the Air Act or Executive Order 11738, an applicable implementation plan as described in section 110(d) of the Clean Air Act (42 U.S.C. 1857c-5(d)), an approved implementation procedure or plan under section 111(c) or section 111(d), respectively of the Air Act (42 U.S.C. 1857c-6(c) or (d)), or an approved, implementation procedure under section 112(d), of the Air Act (42 U.S.C. 1857c-7(d)).

(4) The term "clean water standards" means any enforceable limitation, control, condition, prohibition, standard, or other requirement which is promulgated pursuant to the Water Act or contained in a permit issued to a discharger by the Environmental Protection Agency or by a State under an approved program, as authorized by section 402 of the Water Act (33 U.S.C. 1342), or by local government to ensure compliance with pretreatment regulations as required by section 307 of the Water Act (33 U.S.C. 1317).

(5) The term "compliance" means compliance with clean air or water standards. Compliance shall also mean compliance with a schedule or plan ordered or approved by a court of competent jurisdiction, the Environmental Protection Agency or an air or water pollution control agency in accordance with the requirements of the Air Act or Water Act and regulations issued pursuant thereto.

(6) The term "facility" means any building, plant, installation, structure, mine, vessel or other floating craft, location, or site of operations, owned, leased, or supervised by a contractor or subcontractor to be utilized in the performance of a contract or subcontract. Where a location or site of operations contains or includes more than one building, plant, installation, or structure, the entire location or site shall be deemed to be a facility except where the Director, Office of Federal Activities, Environmental Protection Agency, determines that independent facilities are collocated in one geographical area.

43. EMPLOYMENT OF THE HANDICAPPED (AIDPR 7-7.5001-43)

(a) The contractor will not discriminate against any employee or applicant for employment because of physical or mental handicap in regard to any position for which the employee or applicant for employment is qualified. The contractor agrees to take affirmative action to employ, advance in employment and otherwise treat qualified handicapped individuals without discrimination based upon their physical or mental handicap in all employment practices such as the following: employment, upgrading, demotion or transfer, recruitment, advertising, layoff or termination, rates of pay or other forms of compensation, and selection for training, including apprenticeship.

(b) The contractor agrees to comply with the rules, regulations, and relevant orders of the Secretary of Labor issued pursuant to the Rehabilitation Act of 1973, as amended.

(c) In the event of the contractor's noncompliance with the requirements of this clause, actions for non-compliance may be taken in accordance with the rules, regulations and relevant orders of the Secretary of Labor issued pursuant to the Act.

(d) The contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices in a form to be prescribed by the Director, Office of Federal Contractor Compliance Programs, Department of Labor, provided by or through the contracting officer. Such notices shall state the contractor's obligation under the law to take affirmative action to employ and advance in employment qualified handicapped employees and applicants for employment, and the rights of applicants and employees.

(e) The contractor will notify each labor union or representative of workers with which it has a collective bargaining agreement or other contract understanding, that the contractor is bound by the terms of section 503 of the Act and is committed to take affirmative action to employ and advance in employment physically and mentally handicapped individuals.

(f) The contractor will include the provisions of this clause in every subcontract or purchase order of \$2,500 or more unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to section 503 of the Act, so that such provisions will be binding upon each subcontractor or vendor. The contractor will take such action with respect to any subcontract or purchase order as the Director, Office of Federal Contract Compliance Programs, may direct to enforce such provisions, including action for noncompliance.

44. NOTICES (AIDPR 7-7.5001-39)

Any notice given by any of the parties hereunder shall be sufficient only if in writing and delivered in person or sent by telegraph, cable, or registered or regular mail as follows:

To AID: Administrator, Agency for International Development, Washington, D.C. 20523. Attention: Contracting Officer (the name of the cognizant Contracting Officer with a copy to the appropriate Mission Director).

To Contractor: At Contractor's address shown on the Cover Page of this Contract, or to such other address as either of such parties shall designate by notice given as herein required. Notices hereunder shall be effective when delivered in accordance with this clause or on the effective date of the notice, whichever is later.

45. USE OF GOVERNMENT FACILITIES OR PERSONNEL (AIDPR 7-7.5001-45)

(a) The Contractor and any employee or consultant of the Contractor is prohibited from using U.S. Government facilities (such as office space or equipment) or U.S. Government clerical or technical personnel in the performance of the services specified in the Contract, unless the use of Government facilities or personnel is specifically authorized in the Contract, or is authorized in advance, in writing, by the contracting officer.

(b) If at any time it is determined that the Contractor, or any of its employees or consultants have used U.S. Government facilities or personnel without authorization either in the Contract itself, or in advance, in writing, by the contracting officer, then the amount payable under the Contract shall be reduced by an amount equal to the value of the U.S. Government facilities or personnel used by the Contractor, as determined by the contracting officer.

(c) If the parties fail to agree on an adjustment made pursuant to this clause, it shall be considered a dispute, and shall be dealt with under the terms of the "Disputes" clause of this Contract.

46. LIMITATION OF FUNDS (AIDPR 7-7.5001-8(c))

(This provision is applicable if this contract is incrementally funded; if it is fully funded, General Provision #8 is applicable)

(a) It is estimated that the cost to the Government for the performance of this contract will not exceed the estimated cost set forth in the Schedule, and the Contractor agrees to use his best efforts to perform the work

specified in the Schedule and all obligations under this contract within such estimated cost.

(b) The amount presently available for payment and allotted to this contract, the items covered thereby, the period of performance which it is estimated the allotted amount will cover, are specified in the Schedule. It is contemplated that from time to time additional funds will be allotted to this contract up to the full estimated cost set forth in the Schedule, exclusive of any fee. The Contractor agrees to perform or have performed work on this contract up to the point at which the total amount paid and payable by the Government pursuant to the terms of this contract approximates but does not exceed the total amount actually allotted to the contract.

(c) If at any time the Contractor has reason to believe that the costs which he expects to incur in the performance of this contract in the next succeeding 60 days, when added to all costs previously incurred, will exceed 75 percent of the total amount then allotted to the contract, the Contractor shall notify the Contracting Officer in writing to that effect. The notice shall state the estimated amount of additional funds required to continue performance for the period set forth in the Schedule. Sixty days prior to the end of the period specified in the Schedule the Contractor will advise the Contracting Officer in writing as to the estimated amount of additional funds, if any, that will be required for the timely performance of the work under the contract or for such further period as may be specified in the Schedule or otherwise agreed to by the parties. If, after such notification, additional funds are not allotted by the end of the period set forth in the Schedule or an agreed date substituted therefor, the Contracting Officer will, upon written request by the Contractor, terminate this contract pursuant to the provisions of the Termination clause on such date. If the Contractor, in the exercise of his reasonable judgment, estimates that the funds available will allow him to continue to discharge his obligations hereunder for a period extending beyond such date, he shall specify the later date in his request and the Contracting Officer, in his discretion, may terminate this contract on that later date.

(d) Except as required by other provisions of this contract specifically citing and stated to be an exception from this clause, the Government shall not be obligated to reimburse the Contractor for costs incurred in excess of the total amount from time to time allotted to the contract, and the Contractor shall not be obligated to continue performance under the contract (including actions under the Termination clause) or otherwise to incur costs in excess of the amount allotted to the contract, unless and until the Contracting Officer has notified the Contractor in writing that such allotted amount has been increased and has specified in such notice an increased amount constituting the total amount then allotted to the contract. To the extent the amount allotted exceeds the estimated cost set forth in the Schedule, such estimated cost shall be correspondingly increased. No notice, communication, or representation in any other form or from any person other than the Contracting Officer shall affect the amount allotted to this contract. In the absence of the specified notice, the Government shall not be obligated to reimburse the Contractor for any costs in excess of the total amount

then allotted to the contract, whether those excess costs were incurred during the course of the contract or as a result of termination. When and to the extent that amount allotted to the contract has been increased, costs incurred by the Contractor in excess of the amount previously allotted shall be allowable to the same extent as if such costs had been incurred after such increase in the amount allotted; unless the Contracting Officer issues a termination or other notice and directs that such increase is solely for the purpose of covering termination or other specified expenses.

(e) Change orders issued pursuant to the Change clause of this contract shall not be considered an authorization to the Contractor to exceed the amount allotted in the Schedule in the absence of a statement of the change order, or other contract modification, increasing the amount allotted.

(f) Nothing in this clause shall affect the right of the Government to terminate this contract. In the event this contract is terminated, the Government and the Contractor shall negotiate an equitable distribution of property produced or purchased under the contract based upon the share of costs incurred by each.

(g) In the event that sufficient funds are not allotted to this contract to allow completion of the work contemplated by this contract, the Contractor shall be entitled to that percentage of the fee set forth in the Schedule equivalent to the percentage of completion of the work contemplated by this contract.

47. ORGANIZATIONAL CONFLICTS OF INTEREST (AIDPR 7-7.5003-12)

(a) The contractor warrants that, to the best of its knowledge and belief, and except as otherwise set forth in this contract, it does not have any organizational conflicts of interest.

(1) The term "organizational conflict of interest" means that a relationship exists whereby an offeror or contractor (including chief executives, directors, proposed consultants or subcontractors) has interests which (i) may diminish its capacity to give impartial, technically sound, objective assistance and advice or may otherwise result in a biased work product or, (ii) may result in an unfair competitive advantage. It does not include the "normal flow of benefits" from the performance of a contract.

(2) The term "contractor" means any person, firm, unincorporated association, joint venture, partnership, corporation or affiliate thereof, which is a party to a contract with the United States of America. As used in this definition, the term "affiliate" has the same meaning provided in FPR 1-1.601-1(e).

(b) The contractor agrees that, if after award it discovers an organizational conflict of interest with respect to this contract, it shall make an immediate and full disclosure in writing to the Contracting Officer which shall include a description of the action which the contractor has taken or proposes to take to avoid, eliminate or neutralize the conflict. The Government may, however, terminate the contract for the convenience of the Government if it would be in the best interest of the Government.

(c) The contractor agrees further that if the award follows a formally advertised solicitation and a conflict

of interest was identified prior to award, it will adequately avoid, eliminate or neutralize the conflict in a manner satisfactory to the contracting officer.

(d) In the event that the contractor was aware of an organizational conflict of interest prior to the award of this contract and intentionally did not disclose the conflict to the Contracting Officer, the Government may terminate the contract at no cost to the Government.

**48. PERSONNEL COMPENSATION
(AIDPR 7-7.5001-42)**

Direct compensation of the contractor's personnel will be in accordance with the contractor's established

policies, procedures, and practices, and the cost principles applicable to this Contract. Compensation (the employee's base salary plus overseas recruitment incentive, if any) which exceeds the maximum payable annual or daily rate for a Foreign Service Officer Class FS-1, as set forth in the payment schedule of the Uniform State/AID/USIA Regulation, as from time to time amended, must be specifically approved in writing by the Contracting Officer in order to be reimbursed under this Contract.

ADDITIONAL GENERAL PROVISIONS
COST REIMBURSEMENT TYPE CONTRACT

(Additional General Provisions for Overseas Cost Type Contract are also attached hereto, and except for the clauses omitted as specified on the preceding pages, such Additional General Provisions are incorporated in this contract)

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1. DEFINITIONS (AIDPR 7-7.5002-1)

(a) "Dependents" shall mean:

- (1) Spouse.
- (2) Children (including step and adopted children) who are unmarried and under 21 years of age or, regardless of age, are incapable of self support.
- (3) Parents (including step and legally adoptive parents) of the employee (including TCN employees) or of the spouse, when such parents are at least 51 percent dependent on the employee for support.
- (4) Sisters and Brothers (including step or adoptive sisters or brothers) of the employee (including TCN employees), or of the spouse, when such sisters and brothers are at least 51 percent dependent on the employee for support, unmarried and under 21 years of age, or regardless of age, are incapable of self support.

(b) "Local Currency" shall mean the currency of the Cooperating Country.

(c) "Regular Employee" shall mean a Contractor employee appointed to serve one year or more in the Cooperating Country.

(d) "Short-Term Employee" shall mean a Contractor employee appointed to serve less than one year in the Cooperating Country.

(e) "Traveler" shall mean Contractor's Regular Employees, Dependents of the Contractor's Regular Employees, the Contractor's Short-Term Employees, Consultants and, as authorized by the Contracting Officer, the Contractor's Officers and Executives, or other persons.

(f) "Contractor's Chief of Party" shall mean the representative of the Contractor in the Cooperating Country who shall be responsible for supervision of the performance of all duties undertaken by the Contractor in the Cooperating Country.

(g) "Third country national (TCN) employee" means an individual who meets the citizenship requirements of AIDPR 7-1.260 and is hired while residing outside the United States for work in a cooperating country.

(h) "Cooperating country national (CCN) employee" means an individual who meets the citizenship requirements of AIDPR 7-1.261 and is hired while residing outside the United States for work in a cooperating country.

2. LEAVE AND HOLIDAYS (AIDPR 7-7.5002-2)

(a) *Vacation leave overseas.*

(1) The Contractor may grant to his employees working overseas under this Contract, vacations of reasonable duration in accordance with the contractor's practice for his employees, but in no event shall such vacation leave be earned at a rate exceeding twenty-six (26) work days per annum. Vacation leave is provided under this Contract primarily for purposes of affording necessary rest and recreation to regular employees during their tour of duty in the Cooperating Country. The Contractor's Chief of Party, the employee and the Cooperating Country institution associated with this project shall develop vacation leave schedules early in

the employee's tour of duty taking into consideration project requirements, employee preference and other factors.

(2) Leave taken during the concluding weeks of an employee's tour shall be included in the established leave schedule and be limited to that amount of leave which can be earned during a twelve month period unless approved in accordance with paragraph (a)(3) of this section.

(3) Vacation leave earned but not taken by the end of the employee's tour pursuant to paragraphs (a)(1) and (2) of this section will be forfeited, unless the requirements of the project precluded the employee from taking such leave and the Contracting Officer, with the endorsement of the Mission, approves one of the following as an alternative:

(i) Taking, during the concluding weeks of the employee's tour, leave not permitted under (a)(2) of this section, or

(ii) Lump-sum payment for leave not taken provided such leave does not exceed the number of days which can be earned by the employee during a twelve month period.

(b) *Sick Leave.* Sick leave is earned by regular and short-term employees in accordance with the contractor's usual practice but not to exceed 13 work days per annum or 4 hours every 2 weeks. Additional sick leave after use of accrued vacation leave may be advanced in accordance with contractor's usual practice, if in the judgment of the contractor's chief of party it is determined that such additional leave is in the best interest of the project. In no event shall such additional leave exceed 30 days. The contractor agrees to reimburse AID for leave used in excess of the amount earned during the employee's assignment under this contract. Sick leave earned and unused at the end of a regular tour of duty may be carried over to an immediately succeeding tour of duty under this contract. The taking of authorized home leave shall not constitute a break in service for the purpose of sick leave carry-over. Contractor employees will not be compensated for unused sick leave at the completion of their duties under this Contract.

(c) *Home leave.*

(1) Home leave is leave earned for service abroad for use only in the United States, in the Commonwealth of Puerto Rico, or in the possessions of the United States.

(2) A regular employee who is a U.S. citizen or resident and has served at least 2 years overseas, as defined in paragraph (c)(4) of this section, under this contract and has not taken more than 30 workdays leave (vacation, sick, or leave without pay) in the United States, may be granted home leave of not more than 15 calendar days for each such year of service overseas; *Provided*, That such regular employees agree to return overseas upon completion of home leave under an additional 2 year appointment, or for such shorter period of not less than 1 year of overseas service under the contract as the Mission Director may approve in advance. Home leave must be taken in the United States, the Commonwealth of Puerto Rico, or the possessions of the United States and any days spent elsewhere will be charged to vacation leave or leave without pay.

(3) Notwithstanding the requirement in paragraph (c)(2), of this section, that the contractor's regular employee must have served 2 years overseas under this contract to be eligible for home leave, contractor may

grant advance home leave to such regular employee subject to all of the following conditions:

(i) Granting of advance home leave would in each case serve to advance the attainment of the objectives of this contract;

(ii) The regular employee shall have served a minimum of 18 months in the cooperating country on his current tour of duty under this contract; and

(iii) The regular employee shall have agreed to return to the Cooperating Country to serve out the remainder of his current tour of duty and an additional 2 year appointment under this contract, or such other additional appointment of not less than 1 year of overseas service as the Mission Director may approve.

(4) The period of service overseas required under paragraph (c)(2), or paragraph (c)(3) of this section, shall include the actual days in orientation in the United States (less language training) and the actual days overseas beginning on the date of departure from the United States port of embarkation on international travel and continuing, inclusive of authorized delays en route, to the date of arrival at the United States port of debarkation from international travel. Allowable vacation and sick leave taken while overseas, but not leave without pay, shall be included in the required period of service overseas. An amount equal to the number of days vacation and sick leave taken in the United States, the Commonwealth of Puerto Rico, or the possessions of the United States will be added to the required period of service overseas.

(5) Salary during travel to and from the United States for home leave will be limited to the time required for travel by the most expeditious air route. The contractor will be responsible for reimbursing AID for salary payments made during home leave, if in spite of the undertaking of the new appointment, the regular employee, except for reasons beyond his control as determined by the Contracting Officer, does not return overseas and complete the additional required service. Unused home leave is not reimbursable under this contract.

(6) To the extent deemed necessary by the contractor, regular employees in the United States on home leave may be authorized to spend not more than 5 days in work status for consultation at home office or at AID/Washington before returning to their post of duty. Consultation at locations other than AID/Washington or home office, as well as any time in excess of 5 days spent for consultation, must be approved by the Mission Director or the Contracting Officer.

(7) Except as provided in the schedule or approved by the Mission Director or the Contracting Officer, home leave is not authorized for TCN or CCN employees.

(d) *Holidays.* Holidays for contractor employees serving overseas should take into consideration local practices and shall be established in collaboration with the Mission Director.

(e) *Military leave.* Military leave of not more than 15 calendar days in any calendar year may be granted in accordance with the Contractor's usual practice to each regular employee whose appointment is not limited to 1 year or less and who is a reservist of the United States Armed Forces, provided that such military leave has been approved in advance by the cognizant Mission Director or Assistant Administrator. A copy of any such approval shall be provided to the Contracting Officer.

3. TRAVEL EXPENSES (AIDPR 7-7.5002-3)

(a) *International Travel.*

Prior written approval by the Contracting Officer is required for all international travel directly and identifiably funded by AID under this Contract. The Contractor shall therefore present to the Contracting Office an itinerary for each planned international trip, showing the name of the traveler, purpose of the trip, origin/destination (and intervening stops), and dates of travel, as far in advance of the proposed travel as possible, but in no event less than three weeks before travel is planned to commence. The contracting officer's prior written approval may be in the form of a letter or telegram or similar device, or may be specifically incorporated into the Schedule of the Contract. At least one week prior to commencement of approved international travel, the Contractor shall notify the cognizant Mission, with a copy to the contracting officer, of planned travel, identifying the travellers and the dates and times of arrival.

The Contractor shall be reimbursed for actual travel costs and travel allowances of travelers from place of residence in the United States (or other location provided that the cost of such travel does not exceed the cost of travel from the employee's residence in the United States) to the post of duty in the Cooperating Country and return to place of residence in the United States (or other location): *Provided*, That the cost of such travel does not exceed the cost of travel from the post of duty in the Cooperating Country to the employee's residence) upon completion of services by the individual. Such travel costs and travel allowances shall not be reimbursed in an amount greater than economy class commercially scheduled air travel by the most expeditious route, except as otherwise provided in paragraph (g) of this section, and unless economy air travel or economy air travel space are not available and the Contractor certifies to this in the voucher documents retained as part of his Contract records. When travel is by economy class accommodations, the Contractor will be reimbursed for the cost of transporting up to twenty-two (22) pounds of accompanied personal baggage per traveler in addition to that regularly allowed with the economy ticket provided that the total number of pounds of baggage does not exceed that regularly allowed for first-class travelers. If the cost of economy class accommodations plus the cost of transporting twenty-two pounds of additional accompanied personal baggage equals or exceeds the cost of first class accommodations, first class accommodations may be used. Travel allowances for travelers shall not be in excess of six dollars (\$6) per day for persons eleven (11) years of age, or over, or three dollars (\$3) per day for persons under eleven (11) years of age, for not more than the travel time required by scheduled economy class commercial air carrier using the most expeditious route and computed in accordance with the Federal Travel Regulations as from time to time amended. One (1) stopover en route for a period of not to exceed twenty-four hours is allowable when the traveler uses economy class accommodations for a trip of fourteen (14) hours or more of scheduled duration. Such stopover shall not be authorized when travel is by indirect route or is delayed for the convenience of the traveler. Per diem during such stopover shall be paid in accordance with the established practice of the Contractor

but not to exceed the amounts stated in the Federal Travel Regulations, as from time to time amended.

(b) *Local travel.*

Reimbursement for local travel shall not be in excess of the rates established by the Mission Director for the travel costs of travelers in the Cooperating Country in connection with duties directly referable to the Contract. In the absence of such established rates, the Contractor shall be reimbursed for actual travel costs of travelers in the Cooperating Country, if not provided by the Cooperating Government or the Mission, in connection with duties directly referable to the Contract, including travel allowances at rates not in excess of those prescribed by the Federal Travel Regulations as from time to time amended.

(c) *Travel for consultation.*

The Contractor shall be reimbursed for the round trip of the Contractor's Chief of Party in the Cooperating Country or other designated Contractor employee or consultant in the Cooperating Country performing services required under this Contract, for travel from the Cooperating Country to the Contractor's office in the United States or to AID/Washington for consultation and return on occasions deemed necessary by the Contractor and approved in advance, in writing, by the Contracting Officer or the Mission Director.

(d) *Special international travel and third country travel.*

For special travel which advances the purpose of the contract, which is not otherwise provided by the Cooperating Government, and with the prior written approval of the Contracting Officer or the Mission Director, the Contractor shall be reimbursed for (i) the travel cost of travelers other than between the United States and the Cooperating Country and for local travel within other countries and (ii) travel allowance for travelers while in travel status and while performing services hereunder in such other countries at rates not in excess of those prescribed by the Federal Travel Regulations, as amended.

(e) *Indirect travel for personal convenience.*

When travel is performed by an indirect route for the personal convenience of the traveler, the allowable costs of such travel will be computed on the basis of the cost of economy class air fare via the direct usually traveled route. If such costs include fares for air or ocean travel by foreign flag carriers, approval for indirect travel by such foreign flag carriers must be obtained from the Contracting Officer or the Mission Director before such travel is undertaken, otherwise only that portion of travel accomplished by United States-flag carriers will be reimbursable within the above limitation of allowable costs.

(f) *Limitation on travel by dependents.*

Travel costs and allowances will be allowed only for dependents of regular employees and such costs shall be reimbursed for travel from place of abode to assigned station in the Cooperating Country and return, only if dependent remains in the Country for at least nine (9) months or one-half of the required tour of duty of the regular employee responsible for such dependent, whichever is greater.

If the dependent is eligible for educational travel pursuant to the General Provision entitled "Differential and Allowances", time spent away from post resulting from educational travel will be counted as time at post.

(g) Delays en route.

The Contractor may grant to travelers under this Contract reasonable delays en route, not circuitous in nature, while in travel status, caused by events beyond the control of such traveler or Contractor. It is understood that if delay is caused by physical incapacitation, personnel shall be eligible for such sick leave as is provided under paragraph (b) of the clause of this Contract entitled "Leave and Holidays".

(h) Travel by privately owned automobile.

The Contractor shall be reimbursed for the cost of travel performed by a regular employee in his privately owned automobile at rate not to exceed fifteen cents (15¢) per mile plus authorized per diem for the employee and for each of the authorized dependents traveling in the automobile if the automobile is being driven to or from the Cooperating Country as authorized under the Contract; *Provided*, That the total cost of the mileage and the per diem paid to all authorized travelers shall not exceed the total constructive cost of fare and normal per diem by all authorized travelers by (1) surface common carrier or (2) less than first-class air, whichever is the lesser.

(i) Emergency and irregular travel and transportation.

Actual transportation costs and travel allowances while en route, as provided in this section will also be reimbursed under the following conditions:

(1) The costs of going from post of duty in the Cooperating Country to the employee's permanent, legal place of residence at the time he or she was employed for work under this contract or other location for Contractor employees and dependents and returning to the post of duty, when the Contractor's Chief of party makes a written determination that such travel is necessary for one of the reasons specified in paragraph (i) (1) (i) and (ii) of this section. A copy of the written determination shall be furnished to the Contracting Officer.

(i) Need for medical care beyond that available within the area to which the employee is assigned, or serious effect on physical or mental health if residence is continued at assigned post of duty, subject in either case, to the limitations stated in the provision of this Contract entitled "Physical Fitness of Employee and Dependents." The Mission Director may authorize a medical attendant to accompany the employee at contract expense if, based on medical opinion, such an attendant is necessary.

(ii) Death, or serious illness or injury of a member of the immediate family of the employee or the immediate family of the employee's spouse. "Serious illness or injury" and "immediate family" are defined in accordance with Section 699.5 of the Uniform State/AID/USIA Regulations, as in effect on the date of such travel.

(2) When, for any reason, the Mission Director determines it is necessary to evacuate the Contractor's entire team (i.e., employees and dependents or dependents only), the Contractor will be reimbursed for actual travel and transportation expenses and travel allowance while en route, for the cost of the individuals going from post of duty in the Cooperating Country to the employee's permanent, legal place of residence at the time he or she was employed for work under this contract or other approved location. The return of such

employees and dependents may also be authorized by the Mission Director when, in his discretion, he determines it is prudent to do so.

(3) The Mission Director may also authorize emergency or irregular travel and transportation in other situations, when in his opinion, the circumstances warrant such action. The authorization shall include the kind of leave to be used and appropriate restrictions as to time away from post, transportation of personal and/or household effects, etc. Requests for such emergency travel shall be submitted through the Contractor's Chief of Party.

(4) If a regular employee does not complete one full year at post of duty (except for reasons beyond his control), the costs of going to and from the post of duty are not reimbursable hereunder. If the employee serves more than one year but less than the required service in the cooperating country (except for reasons beyond his control) the costs of going to the post of duty are reimbursable hereunder but the costs of going from post of duty to the employee's permanent, legal place of residence at the time he or she was employed for work under this contract or other location are not reimbursable under this contract.

(j) Home leave travel.

TCN and CCN employees are not eligible for home leave unless authorized in advance by the cognizant Mission Director, and consequently are not eligible for home leave travel unless authorized in advance by the cognizant Mission Director. A copy of any such authorization shall be provided to the Contracting Officer. The Contractor shall be reimbursed for the cost of travel performed by regular employees and dependents for purposes of home leave provided that such reimbursement does not exceed that authorized by the Uniform State/AID/USIA Foreign Service Travel Regulations.

(k) Rest and recuperation travel.

The Contractor shall be reimbursed for the cost of travel performed by regular employees and dependents for purposes of rest and recuperation; *Provided*, That, such reimbursement does not exceed that authorized Mission employees, e.g., required length of service at the post of assignment unbroken by home leave; *And provided further*, That no reimbursement will be made unless approval is given by the Contractor's Chief of party.

4. TRANSPORTATION AND STORAGE EXPENSES (AIDPR 7-7.5002-15)

(a) Transportation of Motor Vehicles, Personal Effects and Household Goods.

Transportation, including packing and crating costs, will be paid for shipping from the point of origin in the United States (or other location as approved by the Contracting Officer) to post of duty in the Cooperating Country and return to point of origin in the United States (or other location as approved by the Contracting Officer):

(1) Of one privately-owned vehicle for each regular employee,

(2) Of personal effects of travelers, and

(3) Of household goods of each regular employee not to exceed the following limitations:

property which is complete in itself, does not lose its identity or become a component part of another article when put into use; is durable, with an expected service life of two years or more; and which has a unit cost of \$500 or more. This definition applies only to personal property purchased by the contractor or delivered directly to the contractor from the vendor. Personal property issued to the Contractor in the host country by the mission accountable officer and listed as non-expendable is reportable to the mission accountable officer regardless of its value.)

(b) Contractor shall prepare and establish a program, to be approved by the Mission, for the receipt, use, maintenance, protection, custody, and care of non-expendable property for which it has custodial responsibility, including the establishment of reasonable controls to enforce such program.

(c)(1) For non-expendable property to which title is reserved to the U.S. Government under provisions set forth in the schedule of this contract, contractors shall submit an annual report on all non-expendable property under his custody as required in the Government Property clause of this contract.

(2) For non-expendable property titled to the Cooperating Government, the Contractor shall, within 90 days after completion of this contract, or at such other date as may be fixed by the contracting officer, submit an inventory schedule covering all items of non-expendable property under his custody, which have not been consumed in the performance of this contract. The Contractor shall also indicate what disposition has been made of such property.

6. MARKING (AIDPR 7-7.5002-5)

(a) It is AID policy that AID-financed commodities and shipping containers, and project construction sites and other project locations be suitably marked with the AID red, white, and blue handclasp emblem. Shipping containers are also to be marked with the last five digits of the AID financing document number. As a general rule, marking is not required for raw materials shipped in bulk (such as coal, grain, etc.), or for semifinished products which are not packaged.

(b) Specific guidance on marking requirements should be obtained prior to procurement of commodities to be shipped, and as early as possible for project construction sites and other project locations. This guidance will be provided through the cognizant technical office indicated on the Cover Page of this contract, or by the Mission Director in the Cooperating Country to which commodities are being shipped, or in which the project site is located.

(c) Authority to waive marking requirements is vested with the Regional Assistant Administrators, and with Mission Directors.

(d) A copy of any specific marking instructions or waivers from marking requirements is to be sent to the Contracting Officer; the original should be retained by the Contractor.

7. PERSONNEL (AIDPR 7-7.5002-6)

(a) Clearance.

(1) *Individuals Engaged or Assigned Within the United States.*

The Contractor will obtain written notification from the Contracting Officer of cooperating country clearance of any employee sent outside the United States to perform duties under this contract.

(2) *Individuals Engaged or Assigned When Outside the United States.*

No individual shall be engaged or assigned when outside the United States to perform work outside the United States under this contract unless authorized in the schedule or otherwise approved by the Contracting Officer or Mission Director. However, when services are performed in the cooperating country on a casual or irregular basis or in an emergency, exception to this provision can be made in accordance with instruction or regulations established by the Mission Director.

(b) *Duration of appointments.*

(1) Regular employees will normally be appointed for a minimum of 2 years, which period includes orientation (less language training), in the United States and authorized international travel under the contract except:

(i) An appointment may be made for less than 2 years if the contract has less than 2 years but more than 1 year to run; provided, that if the Contract is extended the appointment shall also be extended to the full 2 years. This provision shall be reflected in the employment agreement prior to employment under this Contract.

(ii) When a 2-year appointment is not required, appointment may be made for less than 2 years but in no event less than 1 year.

(iii) When the normal tour of duty established for AID personnel at a particular post is less than 2 years, then a normal appointment under this contract may be of the same duration; or

(iv) When the contractor is unable to make appointments of regular employees for a full 2 years, the contractor may make appointments of less than 2 but not less than 1 year, provided that such appointment is approved by the Contracting Officer.

(2) Services required for less than 1 year will be considered short term appointments and the employee will be considered a short term employee.

(c) *Employment of dependents.*

If any person who is employed for services in the cooperating country under this Contract is either (1) a dependent of an employee of the Government working in the cooperating country, or (2) a dependent of a Contractor employee working under a contract with the Government in the cooperating country, such person shall continue to hold the status of a dependent and be entitled and subject to the Contract provisions which apply to dependents except as they apply to employees. He or she shall be entitled to salary for the time services are actually performed in the cooperating country, and differential and allowances as established by the Standardized Regulations (Government Civilians, Foreign Areas).

(d) *Physical fitness of employees and dependents.*

(1) *Predeparture.*

For all employees (other than those hired in the cooperating country) and their authorized dependents, it shall be certified by a licensed doctor of medicine that in his opinion the employee is physically qualified to engage in the type of activity for which he is to be employed and that he and his dependents are physically able to reside in the country to which he is assigned. If

	Basic household furniture not supplied (pounds net weight)	Basic household furniture supplied (pounds net weight)
Regular employee with dependents in Cooperating Country	7,500	2,500
Regular employee without dependents in Cooperating Country	4,500	1,500

NOTE: For the purpose of this clause "net weight" and "gross weight" are defined and determined in accordance with the provisions of § 162.1 of the Uniform State/AID/USIA Foreign Service Travel Regulations.

The cost of transporting motor vehicles and household goods shall not exceed the cost of packing, crating and transportation by surface. In the event that the carrier does not require boxing or crating of motor vehicles for shipment to the Cooperating Country, the cost of boxing or crating is not reimbursable. The transportation of a privately-owned motor vehicle for a regular employee may be authorized by the Contractor, as replacement of the last such motor vehicle shipped under this Contract for such employee when the Mission Director or his designee determines in advance and so notifies the Contractor in writing, that the replacement is necessary for reasons not due to the negligence or malfeasance of the regular employee. The determination shall be made under the same rules and regulations that apply to Mission employees.

(b) *Unaccompanied baggage.*

The Contractor will be reimbursed for costs of shipment of unaccompanied baggage (in addition to the weight allowance above for household effects) not to exceed the following:

	Gross weight (pounds)
Employee.....	250
First dependent travelling.....	200
Second dependent travelling.....	150
Each additional dependent travelling.....	100

This unaccompanied baggage may be shipped as air freight by the most direct route between authorized points of origin and destination regardless of the modes of travel used.

Unaccompanied baggage is considered to be those personal belongings needed by the traveler immediately upon arrival at destination. To permit the arrival of effects to coincide with the arrival of regular employees and dependents, consideration should be given to advance shipments of unaccompanied baggage.

The foregoing provision concerning "unaccompanied baggage" is also applicable to home leave travel. The foregoing provision "unaccompanied baggage" is also applicable to short-term employees when these are authorized by the terms of this Contract.

(c) *Storage of household effects.*

The cost of storage charges (including packing, crating, and drayage costs) in the U.S. of household goods of regular employees will be permitted in lieu of

transportation of all or any part of such goods to the Cooperating Country under paragraph (a) above: *Provided*, That the total amount of household goods shipped to the Cooperating Country and stored in the U.S. shall not exceed 4,500 pounds net for each regular employee without dependents in the Cooperating Country and 7,500 pounds net for each regular employee with dependents in the cooperating country.

(d) *International ocean transportation.*

(1) Flag eligibility requirements for ocean carriage is covered by paragraph (c)(2) of the General Provision entitled "Source and Nationality Requirements" of this contract.

(i) *Transportation of things.*

Where U.S. flag vessels are not available, or their use would result in a significant delay, the Contractor may obtain a release from this requirement from the Transportation Support Division Office of Commodity Management, Agency for International Development, Washington, D.C. 20523, or the Mission Director, as appropriate, giving the basis for the request.

(ii) *Transportation of persons.*

Where U.S. flag vessels are not available, or their use would result in a significant delay, the Contractor may obtain a release from this requirement from the Contracting Officer or the Mission Director, as appropriate.

(2) *Transportation of foreign-made vehicles.*

Reimbursement of the costs of transporting a foreign (non-U.S.) made motor vehicle will be made in accordance with the provisions of the Uniform State/AID/USIA Foreign Service Travel Regulations, as from time to time amended.

(3) *Reduced rates on U.S. flag carriers.*

Reduced rates on United States flag carriers are in effect for shipments of household goods and personal effects of AID contract personnel. These reduced rates are available provided the shipper states on the bill of lading that the cargo is "Personal property-not for resale-payment of freight charges is at U.S. Government (AID) expense and any special or diplomatic discounts accorded this type cargo are applicable." The Contractor will not be reimbursed for shipments of household goods or personal effects in amount in excess of the reduced rates rates available in accordance with the foregoing.

5. TITLE TO AND CARE OF PROPERTY (AIDPR 7-7.5002-4)

(a) Title to all non-expendable property purchased with contract funds under this contract and used in the Cooperating Country, shall at all times be in the name of the Cooperating Government, or such public or private agency as the Cooperating Government may designate, unless title to specified types or classes of non-expendable property is reserved to AID under provisions set forth in the Schedule of this contract, but all such property shall be under the custody and control of contractor until the owner of title directs otherwise, or completion of work under this contract or its termination, at which time custody and control shall be turned over to the owner of title or disposed of in accordance with its instructions. All performance guaranties and warranties obtained from suppliers shall be taken in the name of the title owner. (Non-expendable property is

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the Contractor has no such medical certificate on file prior to the departure for the cooperating country of any employee or authorized dependent and such employee is unable to perform the type of activity for which he is employed and complete his tour of duty because of any physical disability (other than physical disability arising from an accident while employed under this contract) or such authorized dependent is unable to reside in the cooperating country for at least 9 months or one-half the period, whichever is greater, of the related employee's initial tour of duty because of any physical disability (other than physical disability arising from an accident while a dependent under this contract), the contractor shall not be reimbursed for the return transportation of the physically disabled employee or dependent required to return because of such disability.

(2) *End of tour.*

The contractor is authorized to provide its regular employees and dependents with physical examinations within 60 days after completion of their regular tours of duty.

(3) The Contractor is encouraged to establish its own policy of pre- and post-tour medical examinations. As a contribution, AID shall reimburse the Contractor for physical examinations authorized in paragraphs (d)(1) and (2) of this section as follows:

(i) For the employee and dependents 12 years of age and over: Not to exceed \$100 for the physical examination plus reimbursement of charges for immunizations.

(ii) For dependents under 12 years of age: Not to exceed \$40 for each child plus reimbursement of charges for immunizations.

(e) *Importation, purchase, or sale of personal property or automobiles.*

To the extent permitted by cooperating country laws and regulations, the importation, purchase, and sale of personal property or automobiles by contractor employees and their dependents in the cooperating country shall be subject to the same limitations and prohibitions which apply to Mission employees and their dependents.

(f) *Economic and financial activities.*

Other than work to be performed under this contract for which an employee is assigned by the contractor, no regular or short term employee of the contractor shall engage, directly or indirectly, either in his own name or in the name or through the agency of another person, in any business, profession, or occupation in the cooperating country or other foreign countries to which he is assigned, nor shall he make loans or investments to or in any business, profession, or occupation in the cooperating country or the foreign countries to which he is assigned.

8. DIFFERENTIAL AND ALLOWANCES (AIDPR 7-7.5002-7)

(This clause does not apply to TCN or CCN employees. TCN and CCN employees are not eligible for differentials and allowances, unless specifically authorized by the cognizant Assistant Administrator or Mission Director. A copy of any such authorization shall be provided to the Contracting Officer.)

(a) *Post differential.*

Post differential is an additional compensation for service at places in foreign areas where conditions of en-

vironment differ substantially from conditions of environment in the continental United States and warrant additional compensation as a recruitment and retention incentive.

In areas where post differential is paid to AID direct-hire employees, post differential not to exceed the percentage of salary as is provided such AID employees in accordance with the Standardized Regulations (Government Civilians, Foreign Areas), Chapter 500 (except the limitation contained in Section 552, "Ceiling on Payment") Tables-Chapter 900, as from time to time amended, will be reimbursable hereunder for employees in respect to amounts earned during the time such employees actually spend overseas on work under this Contract. When such post differential is provided to contractor employees, it shall be payable beginning on the date of arrival at the post of assignment and continue, including periods away from post on official business, until the close of business on the day of departure from post of assignment en route to the United States. Sick or vacation leave taken at or away from the post of assignment will not interrupt the continuity of the assignment or require a discontinuance of such post differential payments, provided such leave is not taken within the United States or the territories of the United States. Post differential will not be payable while the employee is away from his post of assignment for purposes of home leave. Short-term employees shall be entitled to post differential beginning with the forty-third (43rd) day at post.

(b) *Living quarters allowance.*

Living quarters allowance is an allowance granted to reimburse an employee for substantially all of his cost for either temporary or residence quarters whenever Government-owned or Government-rented quarters are not provided to him at his post without charge. Such costs are those incurred for temporary lodging (temporary lodging allowance) or one unit of residence quarters (living quarters allowance) and include rent, plus any costs not included therein for heat, light, fuel, gas, electricity and water. The temporary lodging allowance and the living quarters allowance are never both payable to an employee for the same period of time.

The Contractor will be reimbursed for payments made to employees for a living quarters allowance for rent and utilities if such facilities are not supplied. Such allowance shall not exceed the amount paid AID employees of equivalent rank in the Cooperating Country, in accordance with either the Standardized Regulations (Government Civilians, Foreign Areas), Chapter 130, as from time to time amended, or other rates approved by the Mission Director. Subject to the written approval of the Mission Director, short-term employees may be paid per diem (in lieu of living quarters allowance) at rates prescribed by the Federal Travel Regulations, as from time to time amended, during the time such short-term employees spend at posts of duty in the Cooperating Country under this Contract. In authorizing such per diem rates, the Mission Director shall consider the particular circumstances involved with respect to each such short-term employee including the extent to which meals and/or lodging may be made available without charge or at nominal cost by an agency of the United States Government or of the Cooperating Government, and similar factors.

(c) Temporary lodging allowance.

Temporary lodging allowance is a quarters allowance granted to an employee for the reasonable cost of temporary quarters incurred by the employee and his family for a period not in excess of (i) three months after first arrival at a new post in a foreign area or a period ending with the occupation of residence (permanent) quarters, if earlier, and (ii) one (1) month immediately preceding final departure from the post subsequent to the necessary vacating of residence quarters.

The Contractor will be reimbursed for payment made to employees and authorized dependents for temporary lodging allowance, in lieu of living quarters allowance, not to exceed the amount set forth in the Standardized Regulations (Government Civilians, Foreign Areas), Chapter 120, as from time to time amended.

(d) Post allowance.

Post allowance is a cost-of-living allowance granted to an employee officially stationed at a post where the cost of living, exclusive of quarters cost, is substantially higher than in Washington, D.C.

The Contractor will be reimbursed for payments made to employees for post allowance not to exceed those paid AID employees in the Cooperating Country, in accordance with the Standardized Regulations (Government Civilians, Foreign Areas), Chapter 220, as from time to time amended.

(e) Supplemental post allowance.

Supplemental post allowance is a form of post allowance granted to an employee at his post when it is determined that assistance is necessary to defray extraordinary subsistence costs.

The Contractor will be reimbursed for payments made to employees for supplemental post allowance not to exceed the amount set forth in the Standardized Regulations (Government Civilians, Foreign Areas), Chapter 230, as from time to time amended.

(f) Educational allowance.

Educational allowance is an allowance to assist an employee in meeting the extraordinary and necessary expenses, not otherwise compensated for, incurred by reason of his service in a foreign area in providing adequate elementary and secondary education for his children.

The contractor will be reimbursed for payments made to regular employees for educational allowances for their dependent children in amounts not to exceed those set forth in the Standardized Regulations (Government Civilians, Foreign Areas), Chapter 270, as from time to time amended.

(g) Educational travel.

Educational travel is travel to and from a school in the United States for secondary education (in lieu of an educational allowance) and for college education.

The Contractor will be reimbursed for payments made to regular employees for educational travel for their dependent children provided such payment does not exceed that which would be payable in accordance with the Standardized Regulations (Government Civilians, Foreign Areas), Chapter 280, as from time to time amended. Educational travel shall not be authorized for regular employees whose assignment is less than two years.

(h) Separate maintenance allowance.

Separate maintenance allowance is an allowance to assist an employee who is compelled, by reason of

dangerous, notably unhealthful, or excessively adverse living conditions at his post of assignment in a foreign area, or for the convenience of the Government, to meet the additional expense of maintaining his dependents elsewhere than at such post.

The contractor will be reimbursed for payments made to regular employees for a separate maintenance allowance not to exceed that made to AID employees in accordance with the Standardized Regulations (Government Civilians, Foreign Areas), Chapter 260, as from time to time amended.

(i) Payments during evacuation.

The Standardized Regulations (Government Civilians, Foreign Areas) provide the authority for efficient, orderly, and equitable procedure for the payment of compensation, post differential and allowances in the event of an emergency evacuation of employees or their dependents, or both, from duty stations for military or other reasons or because of imminent danger to their lives.

If evacuation has been authorized by the Mission Director the Contractor will be reimbursed for payments made to employees and authorized dependents evacuated from their post of assignment in accordance with the Standardized Regulations (Government Civilians, Foreign Areas), Chapter 600, and the United States Federal Travel Regulations, as from time to time amended.

9. CONVERSION OF UNITED STATES DOLLARS TO LOCAL CURRENCY (AIDPR 7-7.5002-8)

Upon arrival in the Cooperating Country, and from time to time as appropriate, the Contractor's Chief of Party shall consult with the Mission Director who shall provide, in writing, the procedure the Contractor and his employees shall follow in the conversion of United States dollars to local currency. This may include, but is not limited to, the conversion of said currency through the cognizant United States Disbursing Officer or Mission Controller, as appropriate.

10. ORIENTATION AND LANGUAGE TRAINING (AIDPR 7-7.5002-9)

(a) Regular employees shall receive a maximum of two weeks AID orientation before travel overseas. The dates of orientation shall be selected by the Contractor and approved by the Contracting Officer from the orientation schedule provided by AID.

(b) As either set forth in the Contract Schedule, or provided in writing by the Contracting Officer, the following may be authorized taking into consideration specific job requirements, an employee's prior overseas experience, or unusual circumstances, in connection with orientation of individual Contractor employees:

- (1) Modified orientation.
- (2) Language training.
- (3) Orientation for regular employee's dependents at Contract expense.
- (4) Contractor-sponsored orientation program.
- (5) Waiver of orientation for individual Contractor employees.

(c) Transportation costs and travel allowances not to exceed one round trip from regular employee's residence to place of orientation and return will be

bursed, pursuant to the provisions of the clause of this Contract entitled "Travel and Transportation Expenses," if the orientation is more than 50 miles from the regular employee's residence. Allowable salary costs during the period of orientation are also reimbursable.

(d) Contractor employee participation in AID orientation does not in any way relieve the Contractor of his responsibility for assuring that the employee is properly oriented in all matters related to the administrative, logistical, and technical aspects of his movement to, and tour of duty in, the Cooperating Country as provided for elsewhere in this Contract.

11. INSURANCE - WORKMEN'S COMPENSATION PRIVATE AUTOMOBILES, MARINE, AND AIR CARGO (AIDPR 7-7.5002-10)

(a) *Workmen's compensation insurance.*

(1) The Contractor before commencing performance under this contract shall provide and thereafter maintain such workmen's compensation insurance or security as is required by the Defense Base Act (DBA) as amended (42 USC 1651 et seq.).

(2) The contractor agrees to procure DBA insurance coverage requirements pursuant to a contract between AID and its insurance carrier unless: The contractor has a DBA self insurance program approved by the Department of Labor; has an approved retrospective rating plan for DBA; or has entered into a long term agreement for DBA coverage with an underwriter or agent prior to November 14, 1977. However, if it would be economical to cancel the long-term coverage and pay short-term rates, contractor is required to do so.

(3) If the Contractor secures a waiver of DBA coverage for its employees who are not citizens of the United States, residents of, or hired in the United States, or, AID has secured such a waiver, the contractor agrees to comply with the conditions of such waiver.

(4) The Contractor further agrees to insert in all subcontracts hereunder to which the DBA is applicable, a clause similar to this clause, including this sentence, imposing on all such subcontractors a like requirement to provide overseas workers' compensation insurance coverage and obtain DBA coverage under the AID requirements contract.

(b) *Insurance on private automobiles.* If Contractor or any of its employees or their dependents transport or cause to be transported (whether or not at contract expense) privately owned automobiles to the Cooperating Country, or they or any of them purchase an automobile within the Cooperating Country, Contractor agrees to make certain that all such automobiles during such ownership within the Cooperating Country will be covered by a paid-up insurance policy issued by a reliable company providing the following minimum coverages, or such other minimum coverages as may be set by the Mission Director payable in United States dollars or its equivalent in the currency of the Cooperating Country: injury to persons, \$10,000/\$20,000; property damage, \$5,000. Contractor further agrees to deliver or cause to be delivered to the Mission Director, the insurance policies required by this clause or satisfactory proof of the existence thereof, before such automobiles are operated within the Cooperating Country. The premium costs for such insurance shall not be a reimbursable cost under this contract.

(c) *Marine and air cargo insurance.* Contractor may obtain cargo insurance on equipment, materials, and supplies procured under this contract only after obtaining the prior written approval of the Contracting Officer.

12. SERVICES PROVIDED TO CONTRACTOR (AIDPR 7-7.5002-11)

In the event the United States Government or Cooperating Government has furnished the Contractor free of charge with items or services which are covered herein as allowable costs, whether direct or indirect, reimbursement may not be claimed for such items or services.

13. POST PRIVILEGES (AIDPR 7-7.5002-12)

(a) Health room services of the same type that are normally provided to AID direct-hire U.S. citizen employees are generally available only for U.S. citizen contractor or subcontractor employees and their authorized dependents (regardless of citizenship) at the post of duty. These services do not include hospitalization, or predeparture or end of tour medical examinations. The services do include such medications as may be available; immunizations and preventive health measures; diagnostic examinations and advice; emergency treatment; and home visits as medically indicated.

(b) Privileges such as the use of APO, PX's, commissaries and officer's clubs are established at posts abroad pursuant to agreements between the U.S. and cooperating governments. These facilities are intended for and usually are limited to members of the official U.S. establishment including the Embassy, AID Mission, U.S. Information Service and the Military. Normally, the agreements do not permit these facilities to be made available to non-official Americans.

14. CONTRACTOR-MISSION RELATIONSHIPS (AIDPR 7-7.5002-13)

(a) The contractor acknowledges that this contract is an important part of the United States Foreign Assistance Program and agrees that his operations and those of his employees in the cooperating country will be carried out in such a manner as to be fully commensurate with the responsibilities which this entails.

(b) The Mission Director is the chief representative of AID in the cooperating country. In this capacity, he is responsible for the total AID program in the cooperating country including certain administrative responsibilities set forth in this contract and for advising AID regarding the performance of the work under the contract and its effect on the United States Foreign Assistance program. Although the contractor will be responsible for all professional, technical, and administrative details of the work called for by the contract, he shall be under the guidance of the Mission Director in matters relating to foreign policy. The chief of party shall keep the Mission Director currently informed of the progress of the work under the contract.

(c) In the event the conduct of any contractor employee is not in accordance with the preceding paragraphs, the contractor's chief of party shall consult

with the Mission Director and the employee involved and shall recommend to the contractor a course of action with regard to such employee.

(d) The parties recognize the right of the U.S. Ambassador to direct the removal from a country of any U.S. citizen or the discharge from this contract of any third country national or cooperating country national when, in the discretion of the Ambassador, the interests of the United States so require.

(e) If it is determined that the services of such employee shall be terminated, the contractor shall use his best efforts to cause the return of such employee to the United States, or point of origin, as appropriate.

15. NOTICE OF CHANGES IN REGULATIONS (AIDPR 7-7.5002-14)

Changes in allowances shall be effective 30 days after the effective date of such changes for AID direct-hire employees or on the date of notice, whichever is later. Notice of changes shall be sufficient as provided in the Clause of this contract entitled "Notices."

16. PARTICIPANT TRAINING (AIDR 7-7.5003-11)

(a) *Definitions.*

(1) Participant training is the training of any foreign national outside of his or her home country, using AID funds.

(2) A Participant is any foreign national being trained under this contract outside of his or her home country.

(b) *Applicable regulations.*

Participant training is to be conducted according to the policies established in AID Handbook 10 - Participant Training, except to the extent that specific exceptions to AID Handbook 10 have been provided in this contract. (Handbook 10 may be obtained by submitting a request to the Office of International Training, at the address specified in paragraph (c) of this section.)

(c) *Reporting requirement.*

Once each month the Contractor shall submit three copies of form AID 1380-9, "Monthly Report of Participants Under Grant, Loan or Contract Programs" to the Office of International Training, AID, Washington, D.C. 20523.

17. HEALTH AND ACCIDENT COVERAGE FOR AID PARTICIPANT TRAINEES (AIDPR 7-7.5003-9)

(a) The Contractor shall enroll all non-U.S. participants (hereinafter referred to as "participants"), whose training in the U.S. is financed by AID under this Contract, in the Agency for International Development's Health and Accident Coverage (HAC) program.

(b) The Contractor shall, prior to the initiation of travel by each participant financed by AID under this Contract, fill out and mail to AID a self-addressed, postage prepaid, HAC Program Participant Enrollment Card (form AID 1380-98). The Contractor can obtain a supply of these cards and instructions for completing them, from the Office of International Training, AID, Washington, D.C. 20523.

(c) The Contractor shall assure that enrollment shall begin immediately upon the participant's departure for the United States for the purpose of participating in a training program financed by AID and that enrollment shall continue in full force and effect until the participant returns to his/her country of origin, or is released from AID's responsibility, whichever is the sooner. The Contractor shall continue enrollment for participants whose departure is delayed due to medical or other compelling reasons, with the written concurrence of the AID Project Manager and subject to the requirements of paragraph (d).

(d) The Contractor shall submit the HAC Program Participant Enrollment Card to AID, as specified in paragraph (b) of this section, to enable the participant(s), or the provider of medical services, to submit bills for medical costs resulting from illness and accident to the HAC Administrator, Trust Fund Administrators, Inc., 1030 15th Street, N.W., Suite 500, Washington, D.C. 20005. The HAC Administrator, not the Contractor, shall be responsible for paying all reasonable and necessary charges, not otherwise covered by student health service or other insurance programs (see paragraphs (e) and (f)), subject to the availability of funds for such purposes, in accordance with the standards of coverage established by AID under the HAC program, and subject to the payment of the fee specified in paragraph (d)(1), of this section.

(1) Within thirty (30) days after enrollment, the Contractor shall send an enrollment fee computed on the basis of the fixed rate per participant per month* (the minimum period for calculation of fee is one month—that is, one participant month, 30 days, not one calendar month—premiums may not be prorated for fractional periods of less than 30 days); to: Agency for International Development, Office of Financial Management, Program Accounting Division, Non-Project Assistance, Washington, D.C. 20523.

The enrollment fee should cover a minimum period of up to one year or the current training period for which funds are obligated under this Contract, whichever is less. As applicable, payments for additional periods of enrollment shall be made 30 days prior to the beginning of each new enrollment period or new period of funding of this Contract (the monthly enrollment fee for succeeding fiscal years may be obtained by calling the AID Office of International Training). All such fee payments shall be made by check, payable to the "Agency for International Development (HAC)". If payments are not made within 30 days, a late payment charge shall apply at a percentage rate based on the current value of funds to the Treasury for each 30 day period; the full charge shall also be applicable to periods of less than 30 days. The percentage rate will be calculated by the Treasury for a recent three month period and will be transmitted to AID in TFRM Bulletins.

The late payment charge shall be applied to any portion of the fees in arrears and be remitted together with the fees as a separately identified item on the covering memorandum.

*The rate is \$25 per participant-month. Information regarding the current rate is available from the AID Office of International Training, or the HAC Administrator named in paragraph (b) of this clause.

(2) Whenever possible, fee payments for groups of several participants entering the HAC Program within the thirty-day reporting period shall be consolidated and covered by a single check. Participants covered by the fee payment shall be listed individually in a covering letter, identifying each participant (the name reported must be identical to that on the HAC enrollment card), showing period of enrollment (or period of coverage for which payment is renitted if this is different from the enrollment period), fee amount paid, Contract number, and U.S. Government appropriation number (as shown under the "Accounting and Appropriation Data" block of the Contract).

(e) The Contractor, to the extent that it is an educational institution with a student health service program, shall also enroll all participants in their institution's student health service program. Medical costs which are covered under the institution's student health service shall not be eligible for payment under AID's HAC program. The Contractor shall provide the HAC Administrator with a copy of information showing what medical costs are covered by the institution's student health service program; medical costs that are not covered by the institution's student health service program shall be submitted to the HAC Administrator.

(f) If the Contractor has a mandatory, non-waivable health and accident insurance program for students, the costs of such insurance will be allowable under this Contract. Any claims eligible under such insurance will not be payable under AID's HAC plan or under this Contract. Even though the participant is covered by the Contractor's mandatory, non-waivable health and accident insurance program, the participant MUST be enrolled in AID's more comprehensive HAC program, and HAC payments MUST be made to AID as provided in above. In addition, a copy of the mandatory insurance policy must be forwarded to the HAC Administrator.

(g) Any payments for medical costs not covered by the Contractor's student health service program, or mandatory, non-waivable health and accident insurance program, or AID's HAC program shall be reimbursable under this Contract only with specific written approval of the Contracting Office and subject to the availability of funds.

(h) The HAC Administrator, for the period February

(and their personal effects) or property to the extent service by such carriers is available.

(c) In the event that the contractor selects a carrier other than a U.S. flag air carrier for international air transportation, he will include a certification on vouchers involving such transportation which is essentially as follows:

CERTIFICATION OF UNAVAILABILITY OF U.S. FLAG AIR CARRIERS

I hereby certify that transportation service for personnel (and their personal effects) or property by certificated air carrier was unavailable for the following reasons:
(state reasons)¹

(d) The terms used in this clause have the following meanings:

(1) "International air transportation" means transportation of persons (and their personal effects) or property by air between a place in the United States and a place outside thereof or between two places both of which are outside the United States.

(2) "U.S. flag air carrier" means one of a class of air carriers holding a certificate of public convenience and necessity issued by the Civil Aeronautics Board, approved by the President, authorizing operation between the United States and/or its territories and one or more foreign countries.

(3) The term "United States" includes the fifty states, Commonwealth of Puerto Rico, possessions of the United States, and the District of Columbia.

¹FPR 1-1.323-3, requires that expenditures for service furnished by a noncertificated air carrier generally will be allowed only when service by a certificated air carrier or carriers is "unavailable" as indicated by the June 17, 1975, Comptroller General's memorandum (B-138942) entitled "Guidelines for Implementation of Section 5 of the International Air Transportation Fair Competitive Practices Act of 1974", as amended on October 20, 1981. The criteria contained in the amended memorandum are reproduced below:

(a) Passenger or freight service by a certificated air carrier is considered "available" even though:

(1) Service by a noncertificated air carrier can be paid for in excess foreign currency, or

(2) Service by a noncertificated air carrier is preferred by the same-

(e) The contractor shall include the substance of this clause, including this paragraph (e), in each subcontract or purchase hereunder which may involve international air transportation.

19. LOCAL COST FINANCING WITH U.S. DOLLARS (AIDPR 7-7.5003-7)

(a) Local cost financing is the use of U.S. dollars to obtain local currency for the procurement of goods and services in the Cooperating Country in furtherance of the purpose of the contract. Local cost financing must be specifically authorized in the Schedule of the contract. The amount of U.S. dollars which may be used must be specified in the authorization, together with any special restrictions on their use.

(b) Procurement of goods and services under local cost financing is subject to the following restrictions:

(1) *Ineligible goods and services.* The following goods or services shall not be procured under this contract:

- (i) Military equipment,
- (ii) Surveillance equipment,
- (iii) Commodities and services for support of police or other law enforcement activities,
- (iv) Abortion equipment and services,
- (v) Luxury goods and gambling equipment, or
- (vi) Weather modification equipment.

If AID determines that the Contractor has procured any of these specified ineligible goods and services under this contract, and has received payment therefore, the Contractor agrees to refund the entire amount of the purchase.

(2) *Restricted goods.* The Contractor shall not procure any of the following goods or services without the prior written approval of the contracting officer:

- (i) Agricultural commodities,
- (ii) Motor vehicles,
- (iii) Pharmaceuticals,
- (iv) Pesticides,
- (v) Plasticizers,
- (vi) Used equipment,
- (vii) U.S. government-owned excess property, or
- (viii) Fertilizer.

If AID determines that the Contractor has procured any of these specified restricted goods under this contract, without the prior written authorization of the contracting officer, and has received payment for such purposes, the Contractor agrees to refund to AID the entire amount of the purchase.

(3) Any component from a non-free world country makes the commodity ineligible for AID financing.

(4) *Nationality requirements.*

(i) Citizens or firms of any country not included in AID Geographic Code 935 are ineligible as suppliers, contractors, subcontractors, or agents in connection with AID-financed contracts for goods or services.

(ii) Local cost financing is the use of appropriated U.S. dollars to obtain local currency for the payment for goods and services purchased in the Cooperating Country. Authorization of local cost financing makes the Cooperating Country, in addition to the United States and any other country included in the authorized geographic code for the project, an eligible source for the purchase of goods or services in the Cooperating

Country. Goods or services purchased under local cost financing must be located in the Cooperating Country at the time they are purchased; they cannot be imported specifically for the project being implemented by this contract. The supplier from which goods or services are purchased under local cost financing must also be in the Cooperating Country. Suppliers of goods or services under local cost financing must meet the nationality eligibility tests prescribed in paragraph (d) of the clause of this contract entitled "Source and Nationality Requirements for Procurement of Goods and Services" (AIDPR 7-6.5103). When local cost financing has been authorized, the Cooperating Country is deemed to be included in the "authorized geographic code" for purposes of determining nationality eligibility pursuant to paragraph (d) of the clause entitled "Source and Nationality Requirements for the Procurement of Goods and Services."

(c) *General principles.* Under local cost financing, the Contractor shall follow sound procurement policies, utilizing competition to the maximum practical extent, obtaining the lowest available price, and documenting such procurements to justify the method used and the price established.

(d) *Procurement of goods.* In order to be eligible under local cost financing, goods are subject to the following specific requirements:

(1) *Indigenous goods.* Goods which have been mined, grown, or produced in the Cooperating Country through manufacture, processing, or assembly are eligible for local cost financing under this contract. Goods produced with imported components must result in a commercially recognized new commodity that is substantially different in basic characteristics or in purpose or utility from its components in order to qualify as indigenous; such goods may not contain components from any non-free world country.

(2) *Imported shelf items.* Imported shelf items are goods that are normally imported and kept in stock, in the form in which imported, for sale to meet a general demand in the country for the item; they are not goods which have been specifically imported for use in an AID-financed project.

(i) Shelf items are eligible for local cost financing in unlimited quantities up to the total amount available for local cost financing if they have their source in the Cooperating Country, and their origin in a country included in AID Geographic Code 941.

(ii) Shelf items having their origin in any country included in Code 899, but not in Code 941 are eligible if the price of one unit does not exceed \$5,000. For goods sold by units of quantity; e.g., tons, barrels, etc. the unit to which the local currency equivalent of \$5,000 is applied is that which is customarily used in quoting prices. The total amount of imported shelf item purchases from countries included in Code 899, but not in Code 941 may not exceed \$25,000 or 10% of the total local costs financed by AID for the project whichever is higher; however, in no case may the total amount of such purchases exceed \$250,000 without first obtaining a specific geographic source waiver.

(3) *Goods imported specifically for the project.* Goods imported specifically for the project being implemented by this contract are not eligible for local cost financing; they are subject to the clause of this contract entitled "Source and Nationality Requirements for Procurement of Goods and Services" (AIDPR 7-6.5103).

**20. USE OF POUCH FACILITIES
(AIDPR 7-7.5002-17)**

(a) Use of diplomatic pouch is controlled by the Department of State. The Department of State has authorized the use of pouch facilities for AID contractors and their employees as a general policy, as detailed in paragraphs (a)(1) through (a)(7) of this section; however, the final decision regarding use of pouch facilities rests with the Embassy or AID Mission. In consideration of the use pouch facilities as hereinafter state, the contractor and its employees agree to indemnify and hold harmless the Department of State and AID against loss or damage occurring in pouch transmission.

(1) Contractors and their employees are authorized use of the pouch for transmission and receipt of up to a maximum of 2 pounds per shipment of correspondence and documents needed in the administration of foreign assistance programs.

(2) U.S. citizen employees are authorized use of the pouch for personal mail up to a maximum of one pound per shipment (but see paragraph (a)(3) of this section).

(3) Merchandise parcels, magazines, or newspapers are not considered to be personal mail for purposes of this clause, and are not authorized to be sent or received by pouch.

(4) Official mail pursuant to paragraph (a)(1) of this section sent by pouch should be addressed as follows:

Name of individual or organization
(followed by letter symbol "C"), Name of post
(USAID/ _____), Agency for International
Development, Washington, D.C. 20523.

(5) Personal mail pursuant to paragraph (a)(2) of this section should be sent to the address specified in paragraph (a)(4) of this section, but without the name of the organization.

(6) Mail sent via the diplomatic pouch may not be in violation of U.S. Postal laws and may not contain material ineligible for pouch transmission.

(7) AID contractor personnel are *not* authorized use of military postal facilities (APO/FPO). This is an Adjutant General's decision based on existing laws and regulations governing military postal facilities and is being enforced worldwide. Posts having access to APO/FPO facilities and using such for diplomatic pouch dispatch, may, however, accept official mail from contractors and letter mail from their employees for the pouch, provided of course, adequate postage is affixed.

(b) The contractor shall be responsible for advising its employees of this authorization and these guidelines and limitations on use of pouch facilities.

(c) Specific additional guidance on use of pouch facilities in accordance with this clause is available from the Post Communication Center at the Embassy or AID Mission.

PPENDIX U

BOAT OPERATIONS MEMO

Resources Development Associates

A California Corporation

MEMO:

To: W.E. Popp, Acting AID/Rep., Djibouti
Re: Boat Operations

The grant agreement states the Government of Djibouti will finance the total operation of the USAID fishing vessel. In a letter to USAID/Djibouti, the Government stated it had requested in it's 1984 budget 3 positions (2 mates and 1 mechanic). The 1983 budget has positions for 1 pilot, 1 mechanic, 1 mate and 2 biologists. None of these 1983 positions have been filled to date and all are available for boat operations. They have not requested any other operating funds. The Government of Djibouti has indicated that it would like the fishing fleet comprising the USAID, IFAD and Yamaha project boat to be self managing, that is to cover all of it's operating costs excluding personnel. It would use the Fisheries Cooperative as purchasing agent, with a special account created to pay expenses.

The following is the estimated yearly operating expenses for the USAID fishing vessel: (Based on 180 days operation per year)

Fuel, lube oil and filters	\$ 21,000
2 haul outs per year	3,000
Outside maintenance	2,000
Crew provisions	5,500
	<hr/>
	31,000
10% Contingency	3,150
	<hr/>
Total	\$ 34,650

The IFAD boat expenses should be about the same. Utilizing the type of fishing gear installed aboard (purse seine and bottom trawls), it could land a substantially greater tonnage than either of the two other boats. The breakeven point for the USAID/IFAD vessels would be an average catch of 150 Kg per trip, based on \$1.30 per Kg. purchase price.

Major maintenance for the IFAD boat will be covered by the Djibouti supplier. This covers warranties for the Perkins power train and major electronic equipment. The USAID boat will have the same engine and electronic equipment. It is planned that RDA arrange a side agreement with the Djibouti supplier for warranty work.

The Yamaha project boat will be used for fishermen training and production fishing starting the beginning of August. The estimated catch should be at least equal to the highest average catch of operating artisanal fishermen. Much better catches can be expected because the ice hold aboard the project boat allows for longer periods to be spent in productive fishing.

The estimated monthly expenses for the Yamaha project boat are as follows:

wages (4 fishermen)	\$ 1,485
Fuel and lube oil	300
Maintenance	300
Gear replacement	225
	<hr/>
Total	\$ 2,310

Office: 570 Main Street, Diamond Springs, CA
Mail: P.O. Box 407, Diamond Springs, CA 95619
(916) 622-8841

An estimated catch of 300 Kg. per trip can be expected for 15 trips per month. This translates into \$5,850 based on a purchase price of \$1.30 per Kg., or a net monthly income of 3,000-3,500 per month. After the arrival of the new boat, a fully trained crew of Djiboutian fishermen will be able to continue operating the project boat. A crew share of the catch could be an incentive to do much better than described.

The continued commercial operation of the Yamaha project boat should generate sufficient funds to pay for itself, as well as defray the majority of the costs for the operation of the new USAID boat. Since August of last year the Fisheries Cooperative has been funding all operating cost of the Yamaha boat. It was loaned out to the fishermen with the Cooperative receiving a share of their catch. The shares covered all costs plus a major overhaul done in January/February of this year.

It is the intention that the 3 boats will contribute to a special account. The Fisheries Cooperative will purchase the catch and credit that amount to the boat operations account. The boats then can draw on that account to fund their operating costs.

The breakeven tonnage for the 3 boats for one year (credit generated through the Cooperative purchase of it's catch to at least meet all operating expenses for 1 year) is 75 tons. A contribution breakdown based on planned utilization could look as follows:

USAID	(Stock assessment & Exploratory fishing)	13.5
IFAD	(Production fishing, training & transport)	27
Yamaha Boat	(Production fishing)	<u>34.5</u>
Total		75 Tons

Asking the USAID vessel to contribute 13.5 tons of fish to the operations pool should not impede its stock assessment and exploratory fishing program. That amount of tonnage can be generated by a 2 man artisanal boat in 1 year.

It is estimated that the market will need minimally an additional 100 tons of fish when all the IFAD outlets are operational. This is based on an average of 250 Kg. of sales per week for the 9 markets. Two markets will be opened in July and thereafter 2 each month. By the end of the year, all will be operational. The breakeven tonnage will be easily absorbed by the increased market demand.

Anything produced in excess of the breakeven tonnage is pure profit after sales for the Fisheries Cooperative. Production less than breakeven tonnage represents less profit. The estimated breakeven point after sales for the Fisheries Cooperative is around 58 tons. That is if all 3 boats generate only 58 tons of fish, the Cooperative could still pay all boat expenses and realize no profit.

A worse case scenario of the USAID vessel not contributing to the operations pool would bring the tonnage generated to 60. In effect, the Cooperative would be financing, albeit at no loss, a research program. Is it a function of the Cooperative or Government to do research? In this case the Government has not the infrastructure to do so and the Cooperative does. The benefits from a stock assessment/exploratory fishing program are long term, benefiting the Cooperative and fishermen both.

Paul DeRito
Chief of Project

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APPENDIX V

VESSEL SUBCONTRACT CHANGES

9304

Resources Development Associates

A California Corporation

20 March 1984

Mr. Willard A. Burpee, President
Commercial Work Boats
10650 N.W. South River Drive
Miami, FL 33178

Dear Bill:

As you know, the 40 foot boat which you are constructing for RDA for eventual shipment to Djibouti, Republic of Djibouti, must meet not only the requirements of our specification but must also eventually be able to be licensed to operate as a Government vessel in Djiboutian waters. Since initiation of our contract, it has been brought to my attention that the Djiboutian Government has certain requirements for such licensing that they did not overtly specify when they approved the original specifications. Some of these requirements may indeed have been passed along as requirements of their prime insurance carrier, Lloyd's of London.

Following is a list of requirements which the vessel must meet in order to be licensed to operate.

- 1.) Schematic drawings must be provided which illustrate the layout and operation of the following systems:
 - a) hydraulic system
 - b) electrical system
 - c) bilge pump system
 - d) fire extinguishing system
- 2.) Provide certification from engine manufacturer that representative has checked out operation of main engine after installation.
- 3.) Provide certification of Coast Guard approval for the specific vessel (included in basic subcontract).
- 4.) Provide stability Certificate for vessel with all deck gear installed.

Office: 570 Main Street, Diamond Springs, CA
Mail: P.O. Box 407, Diamond Springs, CA 95619

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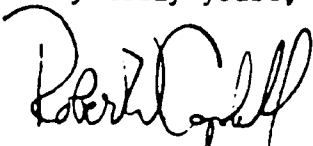
Mr. Willard A. Burpee, President
20 March 1984
Page Two

- 5.) Hull must be compartmentalized with watertight bulkheads, hatches, and doors. Watertight bulkheads shall be placed in the following locations:
 - a) between chain locker and cabin
 - b) between cabin and engine compartment
 - c) between cabin and fishhold
 - d) between fishhold and lazarette
- 6.) Bilge pump system shall be designed so that each compartment may be pumped out separately.
- 7.) Wheelhouse must have two (2) exit ways (doors?).

I believe that none of these requirements will cause any basic problems. However, before we formally commit to including them, I would appreciate an estimate from you regarding any change to the subcontract cost or period of performance which inclusion of these additional items might necessitate.

Thank you for your assistance in this matter.

Very truly yours,



Robert W. Campbell
Vice President, Operations
RWC:pb

cc: Paul Derito, Project Manager
John Lundgren, AID Representative
Laura McGhee, Contracting Officer

APPENDIX W

**INSURANCE CERTIFICATION
INQUIRY**

Resources Development Associates

A California Corporation

08 June 1984

Mr. Roy Curtis
Bahamas Development Bank
P.O. Box N3034
Nassau, Bahamas

Dear Mr. Curtis:

Mr. Bill Burpee of Commercial Work Boats of Miami informed me that you were the Florida representative of Lloyds of London and that you had, on previous occasions, conducted insurance certifications of vessels being constructed by Commercial Work Boats. My firm, Resources Development Associates, Inc., is presently having a 40-foot multipurpose fishing vessel being constructed by CWB. This vessel will be delivered to the Republic of Djibouti in east Africa for eventual use as a fishing research vessel by the Government of Djibouti. As a general rule, the Government of Djibouti insures vessels of this type through Lloyds of London.

Since we have an obligation to provide a vessel meeting certain minimum standards of safety and thus, insurability, we would like to provide to the Government of Djibouti a statement or certification that this vessel, as constructed, meets the standards of Lloyds of London for insurability. Obviously, before specific insurance would be obtained, the vessel would undoubtedly have to be inspected by a local (east African) representative. However, to forestall any potential problems with basic acceptability and to avoid possible and costly retrofit, we would like to have this vessel inspected during the course of construction and upon acceptance by RDA (now estimated in July 1984).

Can you provide this service during the course of construction? Can you eventually provide us with a letter or certificate stating that this vessel meets the insurability standards of Lloyds? We will be pleased to compensate you for appropriate expenses and consultancy time. Could you give me an idea of your estimate of these costs? The vessel's hull has been completed at this date and the main engine is due to be installed in several weeks. If you have any questions regarding the basic design or construction standards, you are free to contact Mr. Burpee directly.

Office: 570 Main Street, Diamond Springs, CA
Mail: P.O. Box 407, Diamond Springs, CA 95619

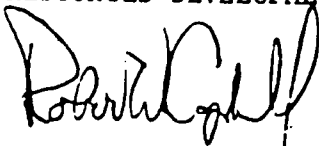
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Mr. Roy Curtis
08 June 1984
Page Two

I would appreciate your prompt consideration of this offer. If you can provide us with this service, I would like to formalize an arrangement as soon as possible. Thank you for your consideration.

Very truly yours,

RESOURCES DEVELOPMENT ASSOCIATES



Robert W. Campbell
Vice President, Operations

APPENDIX X

**PRELIMINARY VESSEL
INSPECTION REPORT**

Resources Development Associates

A California Corporation

12 September 1984

Mr. Willard A. Burpee, President
Commercial Work Boats
10650 N.W. South River Drive
Miami, FL 33178

Dear Bill:

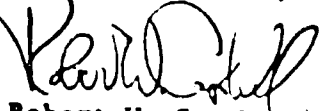
Attached is a copy of a letter from Roy Curtis documenting his recommendations regarding possible minor modifications to the Djibouti 40-footer. Most seem reasonable and should probably be implemented.

Please give me a quote covering any increase in cost which these changes might entail. Also, please provide an estimate of any impact upon delivery schedule.

I will be out of town until the middle of the week of 17 September and will call you upon my return. I have heard that your check was supposed to have left Paris on 9 September 1984. Hopefully, you will have it by the end of this week.

Thanks for your assistance.

Very truly yours,



Robert W. Campbell
Vice President, Operations

cc: Paul DeRito
John Lundgren
Laura McGee

ROY CURTIS M.I. MAR. ENG., CHARTERED ENG.

MARINE CONSULTANT SHIP & MACHINERY SURVEYOR

24, Harbour Mews Club, P.O. Box N-4812, Nassau, Bahamas.
Tel. 809-32-77520

August 22, 1984

Mr. Robert W. Campbell,
Vice-President, Operations,
Resources Development Associates,
570, Main Street,
Diamond Springs, CA,
CA95619,
USA.

Dear Mr. Campbell,

Re: 40' Multi-Purpose Fishing Vessel

In reference to our recent telephone conversation regarding the initial inspection visit I made to Commercial Boatworks in Miami, I mentioned a number of recommendations which I feel would benefit the vessel, both from a safety and operational standpoint; the recommendations are as follows:-

1. Forward most bulkhead to be strengthened by doubling the thickness or fitting vertical stiffeners.
2. Hand doors to be fitted to the fuel tanks for access for cleaning.
3. Non-return valves to be fitted in the bilge suction lines to prevent possible feed back of sea water if valves are accidentally left open.
4. High level bilge alarm to be installed at stringer height in the engine compartment.
5. An EPIRB to be on board.
6. Isolating valve to be fitted adjacent to the gas cooker.
7. "Halonite" automatic fire extinguisher to be mounted above the main engine. Capacity of extinguisher to be not less than 60 percent of the machinery space volume.
8. Independant grounding plate to be provided for the electronic equipment.

Mr. Robert W. Campbell

August 22, 1984

I discussed the above recommendations with Mr. Burpee on August 17th, and apart from item 2 there is no difficulty in meeting the changes. Apparently the fitting of hand doors in the fuel tanks at this stage is difficult, especially as the tank is baffled into several compartments. However, Mr. Burpee has agreed to fit drain cocks at the lower most corner of each tank. This will provide a facility for flushing through the tanks if the vessel takes on contaminated fuel.

The stage of the construction is as follows:-

- Hull laid up and removed from the mould.
- Four internal stringers fitted.
- Four bulkheads in position and temporarily secured.
- Fuel tanks completed, but not installed.

No cut-outs were available to evaluate the fibreglass laminates of the hull.

Mr. Burpee stated that the main engine had arrived at the Perkins agents in Miami, but had not been delivered to the boatyard.

Although my initial visit was not wasted, I do feel that the timing for a stage construction inspection was early, and I do not believe a full consultancy fee is justified, therefore I am enclosing a request for half of the agreed service fee plus expenses.

I anticipate a further visit to the vessel at the end of August.

Yours sincerely,


Roy Curtis

RC/ms

Enc.

APPENDIX Y

**FINAL VESSEL INSPECTION
REPORT**



, Harbour Mews Club, P.O. Box N-4812, Nassau, Bahamas.
T. 809-32-77520

Acceptance Trials of Multi-Purpose Fishing Vessel

1.0 Introduction

Under an agreement with Resources Development Associates (RDA) a visit was made to Miami, Florida, on Tuesday, February 5th 1985, to monitor acceptance trials of a 40 feet multi-purpose fishing vessel built for the Republic of Djibouti, East Africa.

In Attendance:

Mr. W. Burpee, President of Commercial Workboats Inc.
Mr. D.W. McFadden, RDA
Mr. R. Curtis, Marine Consultant.

It must be emphasized that the vessel was not on dry-dock when inspected, and that the underwater gear has not been seen by the undernoted surveyor.

2.0 Description of Vessel

The vessel is a 40 feet LOA solid fibreglass multi-purpose commercial fishing boat built by Commercial Workboats Inc., of Miami, and completed in February 1985.

The vessel's hull is of a hard chine, deep vee design with a raked stem and transom stern. The hull is sub-divided into five (5) compartments by four (4) marine plywood/fibreglass bulkheads. The compartments are as follows:-

- Forward rope locker
- Crews Accommodation
- Engine compartment
- Insulated fish hold
- Aft compartment.

The vessel's cockpit is of moulded fibreglass with plywood core and equipped with a steering station forward; a galley area comprising twin ring gas cooker, single sink unit and a domestic refrigerator; a mess table on the port side and a drop leaf single berth. Dual steering station and engine controls are located on the vessel's flybridge.

Domestic air conditions unit installed in wheelhouse.

The following navigational aids and radios are on board:-

- Furuno FE 600 depth recorder
- Furuno FE 502 depth recorder MK II
- Furuno radar, Model 2400
- Standard Horizon ship/shore VHF radio
- Datamarine digital speed log
- Searchlight
- Ritchie compass

The vessel is powered by a single Perkins diesel engine, type V8-540, developing 132KW/177HP at 2800 RPM, driving a 30"x 26" phosphor bronze propeller via a 3:1 MG-507 reduction gearbox. The exhaust is of the dry stack type. Main engine serial #XE15725U528908L.

A 30 gpm Vickers variable displacement hydraulic pump is driven directly off the main engine PTO shaft via a flexible coupling providing deck machinery power.

A Perkins diesel auxiliary engine, type 4.108, drives a second 30 gpm Vickers variable displacement hydraulic pump for deck machinery power and a belt driven 110V AC 5 KW Lehman generator. DC power (24V & 12V) for navigational aids, engine start and DC lighting is provided by heavy duty marine batteries. Charging for the batteries is by engine driven alternators and AC/DC converter.

The vessel's fuel oil capacity is 500 gallons.

On deck the vessel is equipped with a longline winch, transom net roller

seine winch and two snapper reels. Two hand operated snapper reels are mounted on the starboard bulwark rail.

The forward crews accommodation is fitted with 4 berths, Raritan marine toilet and shower cubicle.

The vessel's fish hold is fitted with a refrigerated sea water spray system custom manufactured by Mr. Dennis Pommerret Refrigeration.

Hydraulic steering with an emergency hand tiller arrangement is fitted.

Bilge pumping facilities are provided by an engine driven centrifugal pump, a Whale 10 gpm hand pump located on deck, and a Rule 1750 electric automatic bilge pump located in the shaft well. A deckwash system is piped into the main engine cooling water discharge line.

3.0 Inspection Details

3.1 Sea Trials

Sea trials were carried out on the vessel within the inner harbour of Miami, and the following engine parameters were recorded:

Main Engine

Tachometer	2200 RPM
Engine oil pressure	70 PSi
Transmission oil pressure	350 PSi
Cooling water temperature	(Port) 190 ^o F (Stbd.) 190 ^o F
Voltmeter	27 volts

Auxiliary Engine

Tachometer	2300 RPM
Engine oil pressure	65 PSi
Cooling water temperature	180 ^o F
Voltmeter	13 volts.

The above readings are satisfactory.

Ahead and astern manoeuvring trials satisfactory.

Full circle steering trials carried out and found to be satisfactory.

Vessel run at full engine speed over the measured mile and average speed calculated at 9.9 Kts.

During sea trials the machinery was found to be free of oil leaks, fuel leaks and water leaks. Engine vibration was normal and exhaust gases clear. Engines found tight on bedplates.

3.2 Port Trials

- Deck machinery test run and found to be satisfactory. Hydraulic stall test carried to determine maximum system pressure. Relief valves lifting at 1500 PSI and satisfactory.
- All bilges test pumped and found to be satisfactory. Suction valve in the aft compartment suspect, and should be changed. Water leak in pipeline above auxiliary engine racor filter. There is no protection for the engine compartment when the vessel is unattended in port. Recommend a Rule auto/manual pump be installed. High level bilge alarm tested and found in working order.
Bilge manifold suction valves not labelled.
- Windows, hatches and portholes hose tested, and leak found where the searchlight electric cables pass through the cockpit deckhead.
- Excessive vertical movement on the rudder. The weight of the rudder is taken by the skeg, and not considered good marine practice. Recommend fitting a support collar under the tiller arm boss in the aft compartment.

- Fish hold refrigerated spray system tested and found to be satisfactory. Temperature of refrigerated water recorded at 55°F and dropping. Discharge system tested and found to be satisfactory.
- No LPG on board to test galley stove. Isolating valve not sighted.
- Electronic equipment allegedly tested to the satisfaction of Mr. McFadden during the vessel's voyage from Fort Lauderdale to Miami.

3.3 Safety Equipment

The following lifesaving and fire fighting equipment was sighted on board:-

- 6-man Jim Buoy rigid liferaft (USCG approved)
- 6 lifejackets (USCG approved)
- 2 x 24" liferings
- 1 auto-waterlight for lifering
- 4 mounted 10 lb. dry powder fire extinguishers
- Automatic 'Halon' fire extinguisher (500 cu.ft. capacity) mounted above the aft end of the main engine.
- First aid kit.

EPIRB and Olin flare kit not on board.

4.0 Recommendations

- 4.1 Rule 1750 automatic bilge pump to mount in the engine compartment.
- 4.2 Bilge manifold valves to label.
- 4.3 Lock-nuts to be fitted to the main engine holding down bolts and ground plate securing bolts.
- 4.4 Reposition the hydraulic oil return filter for easier dismantle.
- 4.5 Water leaks above the auxiliary engine Racor filter to make good.
- 4.6 Support collar to be fitted under the rudder stock tiller arm.
- 4.7 Bilge suction valve in the aft compartment to renew.

420

- 4.8 Inlet and outlet hoses for the toilet to be double clamped.
- 4.9 Hydraulic selector valves for net reel and seine winch to free.
- 4.11 Hole under the port engine compartment box on deck to seal.
- 4.12 EPIRB and Olin flare kit to be on board.
- 4.13 Main engine oil light cap on instrument panel to repair.
- 4.14 Protection guards to fit around main engine drive belts and coupling.
- 4.15 Protection guard to fit around main engine exhaust piping on deck.
- 4.16 Isolating valve for gas supply line to stove to be on board.

5.0 Standards

- All fuel hosing is 2651 aeroflex and accepted by the USCG as type 'A' hosing.
- Fuel oil tank ventilator hoses are of 2651 aeroflex, looped to the deckhead and discharging through the shipside, and fitted with flame arrestors to USCG requirements.
- Racor filters fitted to comply with USCG requirements.
- All electric cables are rated at 600V UL 105°C, and conform with USCG requirements.
- The vessel's bulkheads are not watertight for one compartment floodability.
- Fuel tanks fitted with hand doors and drains.
- Non-return valves fitted in bilge suction lines.
- Navigation lights and horn to USCG regulations.
- Two anchors and rodes on board of appropriate weight and size for a 40 feet commercial fishing vessel.

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6.0 Surveyors Notes

6.1 Hydraulic System

The hydraulic system on the vessel is considered too sophisticated for a vessel operating from a developing country.

6.2 Bilge Pumping System

A back-up bilge pump driven off the auxiliary engine should have been included.

In the event of the main engine driven pump failing the vessel is left with a 10 gpm hand pump for pumping bilges.

The hand bilge pump is considered too small to cope with a serious intake of water.

6.3 Shaft Log Access

Access to the shaft log, gland and bearing is by removing a screwed down plug. This is considered a poor design, however owing to the fish hold and spray system an alternative design was apparently not possible. It is essential that the shaft, gland and bearing be inspected at regular intervals, and a routine inspection must be made when the spray system is not in use.

6.4 Deckwash

Main engine driven bilge pump should have been designed to include deck washdown facilities, including fire fighting.

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6.5 Electrical System

Owing to the unavailability of 24 volt electronic equipment and auxiliary engine starting motors, and the requirement for 12 volt solenoids, 24 and 12 volt DC electrical systems were installed. This has resulted in some complications, especially battery charging systems. The alternator on the auxiliary engine is the only charging facility for the 12 volt system whereas, a 24 volt charging is from a converter and main engine driven alternator.

7.0 Conclusion

USCG standards have been attained wherever possible, and the lifesaving and fire fighting equipment on board is in excess of those required for a 40 feet commercial fishing vessel, and on completion of the recommendations in section 4, the vessel will be considered a sound insurance risk.



Roy Curtis.

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