


NO. 29

SOMALI DEMOCRATIC REPUBLIC
BASIC DESIGN SURVEY REPORT
OF
FISH MARKETING FACILITIES PROJECT

October 1980

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PREFACE

In response to the request of the Government of the Somali Democratic Republic, the Japanese Government decided to conduct a basic survey on a Fisheries Development Project and entrusted the Japan International Cooperation Agency (JICA) with the survey.

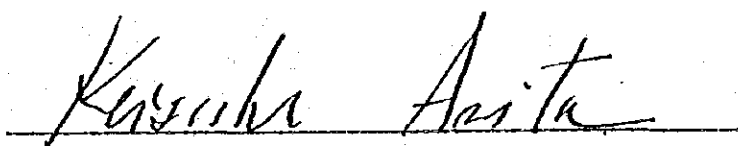
The JICA sent to the Somali Democratic Republic a survey team headed by Mr. Masao Akai from August 15 to August 31, 1980. The team exchanged views with the officials concerned of the Somali Government and conducted a field survey in Mogadishu, Brava, El-Ahmed and Adale areas.

After the team returned to Japan, further studies were made and the present report has been prepared.

I hope that this report will serve for the development of the Project and contribute to the promotion of friendly relations between our two countries.

I wish to express my deep appreciation to the officials concerned of the Somali Government for their close cooperation extended to the team.

October, 1980

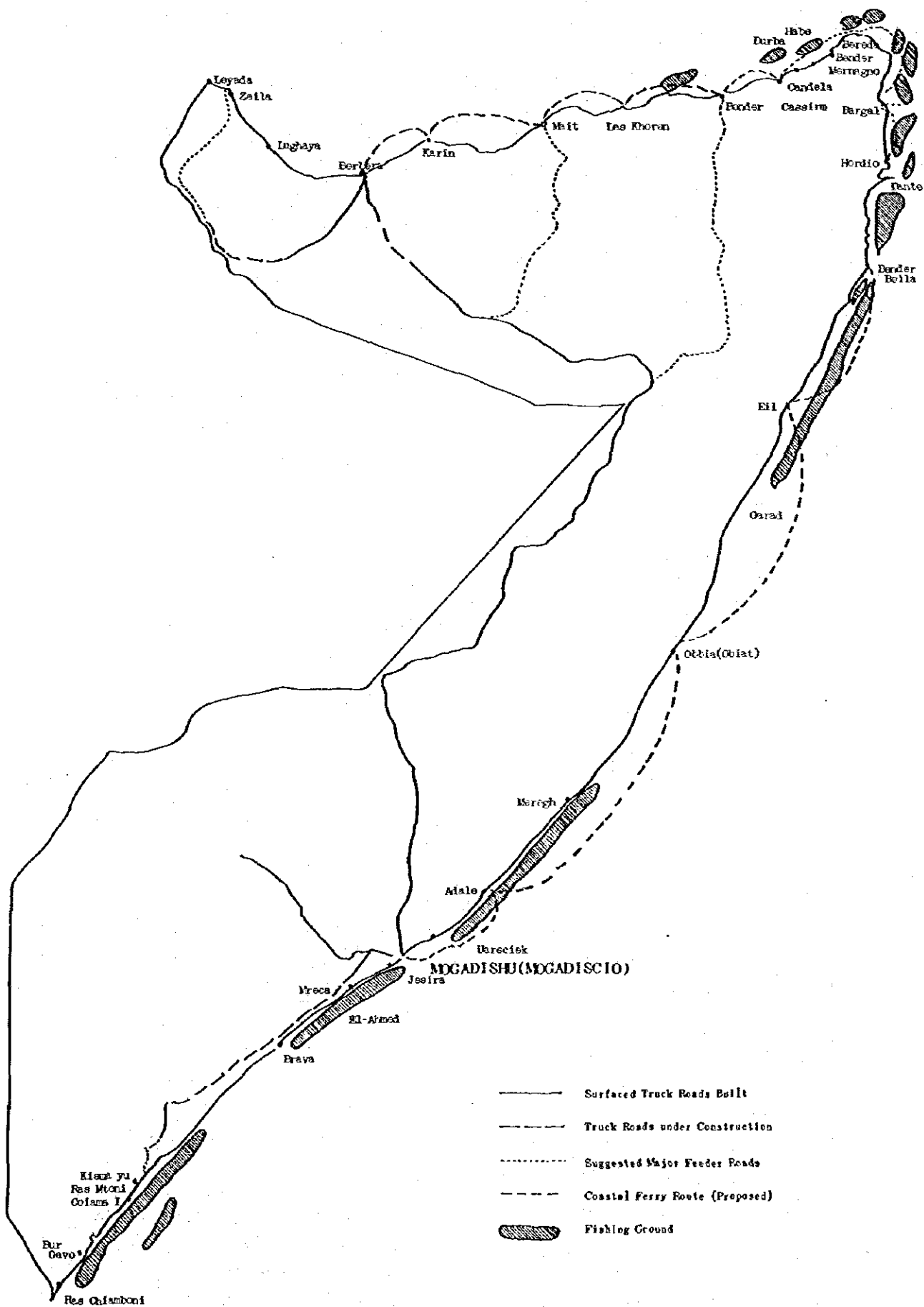
A handwritten signature in black ink, reading "Keisuke Arita", is written over a horizontal line.

Keisuke Arita

President

Japan International Cooperation
Agency

SOMALI DEMOCRATIC REPUBLIC



CONTENTS

PREFACE

CHART

SUMMARY	1
Chapter I: Outline of Survey	4
I-1. Aim of Survey	4
I-2. Members of the mission	4
I-3. Schedule of Survey	5
I-4. List of Somali Government's Officials	10
I-5. Minutes of the Discussions on the Basic Design for Fish Marketing Facilities	11
Chapter II: Background of Project	15
II-1. Outlook	15
1) National Economic Development Plan	15
2) Administration	16
3) Outline of Fishing Industry	22
4) People's Nutrition Level and Fishery Product Consumption Situation	27
II-2. Situation of Survey Area	30
1) Mogadishu	30
2) Locations and Local Conditions of Brava, Eil, El Ahmed and Adale	37
Chapter III: Outline and Appraisal of the Request ..	51
III-1. Background of the Request	51
III-2. Outline of Request and Appraisal	52
Chapter IV: Basic Design	57
IV-1. Basic Plan	57
IV-2. Concept of the Basic Plan	57
IV-3. Model Distribution System of Marine Products	58
IV-4. Necessity of Facilities	62
IV-5. Capacity of Facilities	64
IV-6. Locations of Facilities and Details of Specification	67
IV-7. Implementation Procedures	78
IV-8. Precautions for Project Implementation....	78
Appendix:	
1. Statistics	
2. Bibliography	
3. Photograph	

SUMMARY

The Somali Democratic Republic, hit by a series of droughts between 1973 and 1975, has made a number of its nomadic people settle down in its fishing communities.

In recent years, the increased exports of livestock have resulted in a rise of cost of meat in the domestic market, making it difficult for the purchases by the general public.

Meanwhile, the nutritional intake of the Somali people has been low with shortages in caloric value and protein supply.

Under the circumstances, the national government launched on its policy to stabilize the living standard of the nomads by promoting coastal fisheries in the country's "nomad resettlement" areas, and, at the same time, to improve the dietary level of the people by increasing the supply of fishery products.

In view of the above, the government requested for the co-operation of the Japanese government in attaining its project, including the construction of a model fishery product consumers' market in the capital, Mogadishu, building of a cryogenic fishery product transport system, and providing consumers' education programme to promote the habit of eating fish among consumers in general.

The Japanese government decided to study the request as a case for international cooperation under the grant aid and dispatched a survey team for basic design on fish marketing facilities through Japan International Cooperation Agency to Somalia.

The mission, during the period between August 15 and August 31, 1980, visited Mogadishu, Brava, El-Ahmed and Adale and made a survey on the local conditions, and had consultation talks with the Somali national authorities. It appraised the requested project, and drafted a basic design plan for the cooperation of the Japanese government. The outline of the plan is as follows.

- 1) Construction of a fishery product consumers' market (consisting of one main market place and one branch) in Mogadishu.

The main marketplace is to be built at El-Gab, the center of Mogadishu and the branch market place at Wadajir in the periphery of Mogadish.

Building of the branch market place was specifically requested by the Somali Minister of Fisheries.

In the main market place, processing facilities should also be set up to ensure effective utilization of fishery products.

- 2) Establishment of a cryogenic fishery product transport system.

At Brava and El-Ahmed, the sites for the planned project, ice-making, chilled-storage and freezer facilities are to be constructed in order to supply frozen products, etc. to the above market places. Chilled trucks are to be used for the purpose of transportation.

Although Adale was also mentioned as a possible site by the Somali government official, it was excluded because the road between Adale and Mogadish was found to be in very poor conditions.

- 3) Providing of consumers' education program concerning fish consumption.

This project is to be excluded because it is unfit for the cooperation under the grant aid, and unacceptable in terms of cost and efficiency.

- 4) The organization responsible for administration and operation of the project will be CDP (referred to later).

Chapter I: Outline of Survey

1-1. Aim of Survey

The Government of Somalia, as a part of its current three-year national development plan, is promoting the coastal fishery development project. As a part of the working plan, the Somali government requested the Japanese government to provide a grant aid cooperation to help realize the project of building fishery product marketing facilities in and around the capital, Mogadishu, and also a cryogenic fishery product transport system.

The Japanese government, upon receiving the request, decided to study the feasibility of such project as the subject of the cooperation. As a result it sent a survey mission through the Japan International Cooperation Agency for the field survey required for the study of the possible items of the cooperation. The purpose of the mission included consultation talks with the Government of Somalia, and the drafting of a basic design plan.

1-2. Members of the mission

Leader	: Masao Akai	The Overseas Fishery Cooperation Foundation
Coordinator:	Keiichi Aragane	First Training Division of the Training Affairs Department, Japan International Cooperation Agency
Marketing	: Kazuo Inoue	Fisheries Development Department, Hoko Fishing Co., Ltd.
Processing	: Mitsuhide Kondo	Fisheries Development Department, Hoko Fishing Co., Ltd.
Facilities and Machinery	: Kiyoshi Sasaki	Engineering Section, Maritime Department, Hoko Fishing Co., Ltd.

1-3. Schedule of Survey

Month	Day	day of Week	Outline of Activities
Aug.	15	Fri	Arrived at Mogadishu 20:10 by HH Flight 317.
Aug.	16	Sat.	Made arrangements with a JICA fishery expert. Visited the Ministry of Fisheries. Paid a courtesy call to the Minister of Fisheries, and the Director general of Fishery Department.
Aug.	17	Sun.	Paid a courtesy call to CDP and explained the purpose of survey. Adjusted the survey schedule. Started the survey through questions and answers. Joined by Mission leader, and Mr. Sasaki, Secretary of the Japanese Embassy in Sudan.
Aug.	18	Mon.	<ol style="list-style-type: none">1. Inoue, Kondo and Sasaki carried out the survey in Brava, and stayed there overnight.2. Akai and Aragane (accompanied by Mr. Sasaki, Embassy Secretary) paid courtesy call to the Minister of Fisheries, Director general of Fisheries Department, CDP, the Ministry of Foreign Affairs and the Ministry of National Planning.

Month	Day	day of Week	Outline of Activities
Aug.	19	Tues.	<ol style="list-style-type: none"> 1. Inoue, Kondo and Sasaki carried out the survey in El-Ahmed. 2. Akai and Aragane carried out the survey at CDP.
Aug.	20	Wed	Mr. Sasaki, Embassy Secretary, returned to Khartoum. The members of the mission left for Adale, and stayed there overnight.
Aug.	21	Thurs.	Carried out the survey in the fishing village of Adale, and left for Mogadishu in the afternoon.
Aug.	22	Fri.	Carried out the market survey in Mogadishu, and checked on three possible sites for consumers' marketplaces.
Aug.	23	Sat.	<p>Made arrangements with CDP on the plan of facilities and collected information.</p> <p>Made arrangements with the Somali governmental authorities in the evening (at Juva Hotel)</p>
Aug.	24	Sun.	Paid a courtesy call to Mayor of Mogadishu. Carried out the survey on marketplaces (cooperative union) in the city.
Aug.	25	Mon..	<p>Examined collected data.</p> <p>Discussed the contents of the minutes plan among the members of the mission.</p> <p>Commenced drafting of the plan.</p>

Month	Day	day of Week	Outline of Activities
Aug.	26	Tues.	Discussed the minutes plan among the members of the mission. Carried out the survey through questionnaire to consumers in the city of Mogadishu
Aug.	27	Wed.	Made arrangements with the Mayor and the Deputy Minister of Fisheries, and explained to the Ministry of Fisheries concerning the rule and procedure of Japan's grant aid programme. Continued the survey to consumers with questionnaire in the city of Mogadishu. Made the final choice of the best eligible sites for building the consumers' marketplaces. Akai and Aragane carried out the survey in El-Ahmed.
Aug.	28	Thurs.	Held a study meeting with the CDP authorities on the drafted minutes plan. Made arrangements with the Minister of Fisheries on the drafted minutes plan in the evening. Revised the plan partially.
Aug.	29.	Fri.	Carried out trial production of processed foodstuff and provided suggestions on the method of productions. Made the final arrangements with CDP on the revised minutes plan. Made the survey on a proposed site in the city for construction of the branch consumers' marketplace.

Month	Day	day of Week	Outline of Activities
Aug.	30	Sat.	<p>Worked out the final minutes plan. Signed the minutes</p> <p>Carried out an aerial survey over Brava, El-Ahmed and Adale.</p> <p>Made arrangements with the Government of Somalia in the evening.</p>
Aug.	31	Sun.	<p>Made preparations to leave Somalia. Left Mogadishu 18:00 (by HH Flight 500)</p>

1-4 List of Somali government's officials

Ministry of Fisheries

1. Minister: Osman Jama Ali
2. Deputy Minister: Shire Suudi Mohamoud
3. Director General: Mohamed Omar Asad
4. Director of Finance: Mire Suji Jumale
5. Head of Marine Research Department: Yusuf Abdillaai Nur
6. Representative Party: Aden Hussein Haile
7. First Secretary to the Minister: Hassan Abdulka Dir

Costal Development Project

1. General Manager: Hassan Mohamad Sabiye
2. Director: Salah Abdirahma
3. Assistant Manager: Mohamed Haje Mumin

Ministry of Planning

1. Director General: Hussein Elabe Fahiye

Ministry of Foreign Affairs

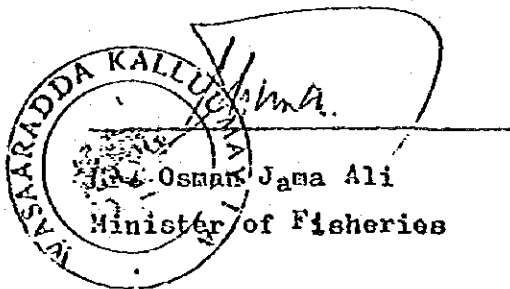
1. Director of Asian Bureau: Dahir Yusuf
2. Economic Department: Ahmed Sheikh

1 - 5 MINUTES OF THE DISCUSSIONS ON THE BASIC DESIGN
FOR FISH MARKETING FACILITIES

In response to the request of the Government of Somali Democratic Republic for assistance in fish marketing facilities as a part of the Coastal Fisheries Development Programme, the Government of Japan through Japan International Cooperation Agency has sent a team headed by Mr. Masao Akai to study a basic design on the subject from 16th to 31st August, 1980.

On the basis of on-the-spot survey, the team held a series of active discussions and exchanged views with the Somali Authorities concerned and both parties have agreed to recommend to their respective Governments to take the necessary measures.

Minutes of the discussions are attached herewith.



Masao Akai

Mr. Masao Akai
Team Leader for the
Japanese Basic Design
Study Team

Mogadishu, Somalia
August 30, 1980

M I N U T E S

1. In connection with the fish marketing facilities and their project sites, both parties have fully understood and agreed on the basic design proposed by the team.

A fish consumer's market and its branch with necessary equipment listed in Annex I of the Minutes may be constructed individually at El-Gab(next to the Youth Building) and Wadajir(Madina), Mogadishu.

Cold Storage plants listed in Annex I also may be constructed in Brava and El-Ahmed.

Furthermore, the Government of Somali Democratic Republic may not have objection to the amendments of the draft which may be caused due to budget and techniques.

2. In connection with the contribution of the project, the Government of Somali Democratic Republic may take the necessary measures to prepare the project sites with its own expenses and complete the construction mentioned in Annex 2 of the Minutes so as to smooth the implementation of project.

As regards the electricity & water supply, the Government of Somali Democratic Republic may be requested to take the most appropriate measures in line with the progress of the work.

3. The team expressed deep appreciation for close cooperation and warm assistance during the period of the study extended by the Government of Somali Democratic Republic and the Authorities concerned.

Annex I.

Equipment and facilities to be provided by the Government of Japan.

A. Fish consumer's market in Mogadishu

Main store (El-Gab)

1. Ice making machine
2. Chill room, cold storage and contact freezer
3. Ice storage
4. Display cases with refrigerator
5. Fish processing equipment
6. Miscellaneous accessories
7. Sewage disposal tank
8. Refrigerated trucks
9. Electrical generator for emergency
10. Retail store combined with plant house

Branch store (Wadajir)

1. Display cases with refrigerator
2. Miscellaneous accessories
3. Retail store.

B. Cold storage plants respectively to be installed in Brava and El-Ahmed.

1. Ice making machine
2. Ice storage
3. Chill room, cold storage and contact freezer
4. Electrical generators for alternative operations
5. Miscellaneous accessories
6. Plant house.

Annex 2.

Contribution to be borne by the Government of Somali Democratic Republic.

1. Site reclamation and clearance
2. Foundation works of plant houses except design, supervision, procurement of cement and reinforced iron bar.
3. Electrical & water works to in-take point on the site (Mogadishu).
4. Water supply to in-take point on the site (Brava and ElAhmed).
5. Access road to the site.
6. External drainage works.
7. Wall work of perimeters on the site.
8. Expenses necessary for custom's clearance of unloaded equipment and other materials required for installation and their domestic transport from disembarkation to the sites.

Chapter II: Background of Project

II-1. Outlook

1) National Economic Development Plan:

During the course of its 5-year economic development plan through 1974 - 1978, the Somali Democratic Republic, faced a variety of crises caused by drought, fluctuation of international money markets, trade friction and energy crunch. Finding it necessary to review the plan, the Republic, since 1979, has been carrying out a new three-year economic development plan. (1979 - 1981)

This plan is aimed at achieving self-sufficient production of foodstuff by increased production of crops, livestock, fishery products and mineral resources for domestic and export markets and ensuring a sustained economic growth.

Agriculture, livestock farming, fishery and forestry are the basic supporting sectors of the Somali national economy. These sectors have been providing means of livelihood for over 80 percent of the country's total working force. They also account for almost all of the nation's earnings from international trade and provide the farming product processing industry with increasingly larger amounts of raw materials.

In terms of intake of foods, the average annual consumption of the Somali people consists of approximately 45 percent for cereals, 25 percent for milk, 10 percent for meat and other livestock products, except milk, and a small fraction of sugar, oil fat, beans, fruits and root crops.

These percentages may vary substantially, depending on season, rainfall, and life style adopted by nomads, farmers or urban dwellers.

The Somali population is increasing by 2.6 percent a year.

In order to maintain the aforementioned level of food consumption, the total volume of food supply will have to be increased at the same rate as the increase in population.

For building up the domestic food production in compliance with the demand, a great deal of exertion will be required on the part of the national government as well as the food producers.

In view of the fact, the new 3-year national economic development plan features, as its focal policy measures, attainment of production goals by both large-scale and small-scale agricultural producers, promotion of livestock production, increasing the number of livestock to be slaughtered, and expansion of the fishery product consumption.

2) Fisheries Administration:

The Ministry of Fisheries was created in January 1977 by detaching the fisheries service from the Ministry of Marine Transport and Fisheries.

The Ministry of Fisheries has five departments (fiscal control, cooperative union development, research, planning, labor and training). Each department has two

to four sections, each of which in turn is divided into two to four subsections. (See attached reference data.)

The Government of Somalia, in carrying out its 3-year economic development plan as referred to above, has set the following objectives for developing the country's fishing industry:

- (1) Expansion of the fishery production and incomes through sound management of fishing activities;
- (2) Increase of employment in the fishing industry;
- (3) Building up of the nation's foreign exchange earnings through exports of fishery products;
- (4) Expansion of the consumption of fishery products as common foodstuff for the people; and
- (5) Uplifting of the social and economic positions of the Somali people in general, especially the resettled fishermen.

The fourth item of the above objectives, the expansion of the consumption of fishery products as common foodstuff for the people, is designed to cope with rising cost of livestock meat caused by the growth in the export of livestock products in recent years, and, to improve the dietary level of the growing population. The Government has already started a campaign encouraging people to eat fish by setting up "meatless days."

The Ministry of Fisheries, under the three-year plan, has earmarked a total of So,sh 5.8 million in its

budgetary expenditures for improvement of the distribution system of fishery products and the promotion of fish-consumption as part of important administrative measures.

The fifth item of the objectives, uplifting of the social and economic positions of the Somali people in general, especially the resettled fishermen, is an extremely important problem for the Somali government because it concerns the policy to stabilize the living standards of ex-nomads living in resettlement areas.

After the ex-nomads were deprived of their means of livelihood by droughts, the CDP (Coastal Development Project) was created to provide them with relief measures.

CDP is a self-governing organization set up in 1977 under the National Law No. 36. It has its headquarters in Mogadishu. Its functions are:

- (1) Putting into practice the measures and platforms of the government and the Somali Revolutionary Socialist Party in the operation of cooperative unions and the development of the resettlements;
- (2) Putting into practice plans to organize the nomad resettlements and to implement the activities of such resettlements;
- (3) Resettlement and training of nomads as fishermen;
- (4) Construction of offices of CDP and cooperative unions, hospitals, schools, piers and other required facilities; and

- (5) Construction or production of fishing vessels and fishing gear.

In performing such functions, CDP must faithfully follow decisions made by the SRSP central committee, laws and regulations concerned, the Ministry of Fisheries' guidance and decisions of fishery cooperative unions.

Also, CDP's budget and annual operation programs are subject to approval by the Minister of Fisheries.

CDP's headquarter is headed by the Director General and composed of six departments. The name, functions and work force of these departments are as shown below.

Similar organizations are found in the resettlement areas of Eil, El-Ahmed, Brava, and Adale.

<u>Department</u>	<u>Work Force</u>	<u>Functions</u>
(1) Administration & Finance	86	Personnel and financial affairs
(2) Social Affairs	32	Social adjustment of resettlers, control of food-stuffs and other allocated goods
(3) Transport & Supply	20	Transportation, purchasing of facilities, and control of materials in the headquarter's reserve stockpiles

(4) Construction	55	Construction of facilities
(5) Planning & Budget	---	Construction planning, etc.
(6) Fisheries	91	Fishery production, fishing gear production, maintenance and repair

As mentioned above CDP is in charge of all affairs concerning the fostering and guidance of all the fishermen's cooperative unions.

But, up to now, CDP has been concentrating its attention on the four settlement areas as referred to above.

The establishment of cooperative unions is governed by the Law of Cooperative Development, which is intended for the establishment and strengthening of cooperative unions to promote collectivization in all sectors of the Somali economy, especially in the agricultural and fishery industries.

The law provides:

- (1) A legal enforcing power for ensuring monopolization by cooperative unions, and giving priority rights to cooperative unions in purchasing of marketable fish and selling of such fish;
- (2) Government subsidies for construction of buildings, storehouses, processing factories, offices etc., and the payment of administrative costs and wages for Managing Director, clerical workers and drivers;

(3) Placing of trucks, fishing vessels and fishing gear;

(4) Government subsidies for operation costs.

The law specifically provides that whenever fishermen organize a cooperative union, catches are to be sold to the cooperative union at fixed prices by grade. (See attached table 2-1-1.), and that powered fishing boats assigned to the cooperative union are to be common property of its members.

The Somali fishing industry had owed much of its development to the assistance of Soviet Union. But the aid was cut off in 1977.

At present, several other countries are extending their aid to Somalia, of which that of West Germany appears to be the largest in scale.

The United Kingdom has dispatched four specialists on long-term assignments to El-Ahmed for guidance of local people in the maintenance and repair of fishing-boat engines.

With the assistance of FAO it has also held a short-term (40-day) training course on the control of fisheries and processing of fishery products at Mogadishu.

Japan has dispatched a marketing specialist and an engineer to work for the Ministry of Fisheries.

Sweden provided Somalia with fishing gear including nets, and China with parts for housing construction.

FAO is assisting the development of fisheries mainly in areas south of Kismayu, by assigning six experts to Mogadishu for a long period.

3) Outline of Fishing Industry:

(1) Natural Environments and Fishery Resources:

The Somalia Democratic Republic is a land shaped like the letter "V" laid side ways. Located in the northeastern tip of the African Continent, the country lies across the equator between S1° and N12°. Facing the Gulf of Aden in the north and the Indian Ocean in the northeast and south, the country borders on the Republic of Djibouti at its northern end, Socialist Ethiopia at its western end, and the Republic of Kenya to the south.

Its population is 3.3 million, and the land space is 637,657 Km², about 1.7 times that of Japan.

The country has only two rivers — the Juba and Shevele — both flowing out of the highlands of Ethiopia, and the areas between the two rivers make up the country's sole fertile farming zone.

The total coastline is about 3,000 Km (1,000 Km in the north and 2,000 Km in the northeast and south.)

However, the continental shelf spreading from its coastline is generally narrow, measuring merely 10 to 15 kilometers, except for those extending 50 to 60 Km off its northeastern shoreline.

The country is annually visited by two monsoons (northeasterly winds between December and March and southwesterly ones between June and September.) These monsoons are cited as one of the greatest deterrents to the development of the Somali fishing industry.

According to the surveys conducted so far fish resources are reported to be abundant, especially in the northern waters where a number of migrating shoals of bonito, tuna, mackerel, and sardine are found. In the northeastern and southern waters, yellowfins, mackerels, king mackerels and sharks are caught.

As for demersal fish resources, snappers, scavengers (Lethrinidae), groupers, and sea breams are caught, chiefly in the northeastern waters.

Among other fish resources caught in a substantial volume are spiny lobsters off Eil and prawns off Kismayu in the northeastern and southern areas.

Generally, Somalia's fish resources are said to be "medium in abundance", but "very rich" in the Gulf of Aden, due to the fact that upwelling currents occur in the nearby waters. (See attached table 2-1-2.)

(2) Fishermen, Fishing Boats and Fishing Gear:

Along the coastline as stated above, many fishing villages are scattered, including Ras Chiamboni, Kismayu, brava, El-Ahmed, Merca, Mogadishu, Adale, Eil, Bender Bella, Obia, Alula, Habo, Candala, Bosaso, and Khoreh.

Fishermen inhabiting these villages consist of about 4,000 specializing in fisheries and about 18,000 seasonally engaging in fisheries. At present, a total of 20 fishermen's cooperative unions are organized.

A total of 450 powered fishing vessels have been allocated to these cooperative unions by the government.

The number of vessels by type and by engine are as follows:

Type	Engine	Number of Cylinders	Horse Power	RPM	Number of boats
Soviet Union	Soviet	4	25	1,800	150
Sweden	Volvo Penta	2	8	2,200	100
Kenya	Yanmar	2	8	2,000	60
Kenya	Yanmar	4	18	2,000	40
Greece	Petter	4	22	1,800	25
Italy	Slanza	2	8	2,200	10
Italy	Slanza	4	20	2,200	5
Sri Lanka	Yanmar	4	22	2,000	30
Somalia	Yanmar	4	18	2,000	15
" (Soviet Union)	Yanmar	4	18	2,000	15
Total					450

Source: Explanatory data obtained from the Chief of Fisheries Cooperative Unions

Of these fishing vessels, 150 are allocated to El-Ahmed, Brava, Adale and Eil.

However, except Kishmayu, Mogadishu and Berbera, fishing villages lack proper facilities as a fishing port (like breakwaters, piers, and slipways), and also facilities to repair fishing boats and spare parts. Under the circumstances, the operation rate of the fishing boats are currently very low (25%).

To provide guidance on the handling of fishing-boat and engines, four British and one Japanese experts are on assignments.

Apart from such powered boats, every fishing village has their traditional canoes chiefly engaged in fishing with gillnet, long-line and hooks. In the northern water, trolling lines, purse seines and set nets are being used, and in the northeastern and southern waters, beach seines are used.

(3) Offshore and Pelagic Fisheries:

Currently offshore and deepsea fisheries are very limited as follows.

1 Somali Fisheries Company:

In 1974, "Somali Soviet Co., a joint fishery company with the Soviet Union, started deepsea trawling with a fleet of five trawlers provided by the Soviet Union and five other Soviet trawlers. But by November 1977, these trawlers and all Soviet fishery instructors were repatriated.

Thereafter, Somali Fisheries Co. purchased two trawlers (of 300-ton class each) from Australia, and remodelled them into deepsea trawlers. The Company also acts as the exporter of salted and/or dried processed fish products and shark fins of the fishery cooperative unions.

In place of the withdrawn Soviet trawlers, Italian trawlers started entering the Somali water in May 1978. At present, seven vessels of three companies are said to be in operation. Frozen fish produced and sold by these vessels are landed in Mogadishu exactly like fresh fish caught locally.

2 SIADCO:

In 1977, the Somali government agreed with the Government of Iraq to set up a joint enterprise called SIADCO for the purpose of development of the production, processing, marketing and sales of Somalia's crop, livestock farming and fishing industries.

(4) Processing and Marketing

As land facilities to process the fish caught, there are canning and fish meal factories and cold storages built in Las Khoreh, Candala, Habo and Bolimoog along the northern coast under Soviet, American and Italian investments. But all these factories are dependent on local small fishing vessels for the supply of materials, so it is said that the volume of supply is insufficient.

Furthermore, in Kishmayu in the south, there is a processing factory built by the United States which is processing and exporting shrimps.

Other than these facilities are salting and processing facilities in coastal fishing villages to process mainly sharks and other large fish into salted or sun-dried products. But these products are poor in quality due to inadequate skill in processing and/or storage. Some fishing villages have smoking facilities, but they are rarely utilized.

Those landing places located close to the consuming centers with good roads are few (Berbera in the north, Merca and Mogadishu in the northeast) where fresh fishes are sold at high prices. But in most of other landing places, catches are salted and sold at low prices, due to lack of good road facilities to consuming centers.

In estimating Somalia's annual catch, the only data available are those provided by Somali Fisheries Company and those on export (table 2-1-3). Putting together these data, fishery production in recent years is estimated between 6,000 and 11,000 tons (attached table 2-1-4).

4) People's Nutrition Level and Fishery Product Consumption Situation

According to FAO's food consumption survey carried out in 1964, caloric intake of the urban and rural people was found to be about 10 percent short of the adequate level.

Somali people, deriving about 80 percent of their caloric intake from cereals, sugar, oil and fat, are clearly on an unbalanced diet. In the case of nomads, caloric

intake was said to be less than 50 percent of the required level.

The level of protein intake as roughly estimated, gets smaller among the urban dweller, rural people and nomads in that order. The eating habits of the urban and rural inhabitants were found to be diversified, but their consumption of fruits and fish was generally low.

There is no accurate statistical data as to the fishery product consumption in Somalia. But it could be figured at around 2,000 tons a year which means an average of 0.6 kilograms per capita.

Such a low level of fishery product consumption could be ascribed to the fact that:

(1) About 70 percent of the Somali people used to be nomads and had been chiefly subsisting on cattle, goats, and camels;

(2) The low rate of fish eating among them is attributed to the poor qualities of salted or salted-dried fish.

However, because of the repeated droughts, the Government of Somalia has been promoting a policy of resettling nomads deprived of their livestock by the droughts and making them take up fishery jobs.

Besides, the prices of goat and camel meat and beef in the country in recent years have gone up due to a significant growth in the export of meat which replaced bananas as the mainstay of export. Because of these developments, there are now new demands for fresh fish

from among the urban dwellers including those of Mogadishu and the inhabitants of the sugar-refining and textile industry zones.

There are now 20 fishery cooperative unions in the country. The sales of their catch is given in Table 2-1-2.

During 1976, the sales of fresh fish totaled 760.8 tons, which accounted for 52.5 percent of all domestic fishery product sales, followed by salted and dried shark and shark fins in the share of sales.

Fresh fish are sold by fishery cooperative unions located close to the cities like Candela and Berbera in the north on the Arabian Sea, those close to the border with Kenya in the south, and those of large cities like Mogadishu and Merca.

By contrast, the northeastern areas like Adale and Eil are inconveniently located for shipping out their catch as fresh fish due to bad traffic conditions, and only salted dried fish, including dry salted sharks and shark fins, are produced there.

In the light of the actual situation, it can be said that Somalia will be able to expand its consumption of fishery products, and in its turn accelerate the development of its coastal fisheries, if it could improve its fishery product marketing system, including distribution facilities, in such a way as to carry fresh or frozen fishes to cities.

2-1-2

SALE OF CATCH BY FISHERMEN'S COOPERATIVE, 1976

(M. TON)

NAME OF COOPERATIVES	FRESH FISH	SHRIMP	DRY SALT -ED SHARK	SHARK FIN	OTHER SALTED	TOTAL
RAS CHIAMBONI	35.2	7.5				42.7
CULMIS	56.7	5.6	10.2			72.5
KISMAYO	32.7	7.8				40.5
BRAVA	112.8					112.8
MERKA	45.7	3.8				49.5
MOGADISHU	240.7	2.4				243.1
ADALE			28.8	1.0	5.6	35.4
EIL DHEER			15.5	0.8		16.3
HOBBIYA			32.2	1.1		33.3
GARAAC			49.5			49.5
EYL			32.4	2.5		34.9
B/BEILA			75.3	10.3	15.0	100.6
BAAR GAAL			80.0	5.6		85.6
HURDIA			39.3	4.5	8.8	52.6
ALULA			92.3	9.0	2.5	103.8
CANDALA	190.3		22.9	3.5		216.7
BOSASO	2.6		18.0	4.6		25.2
LAS QOREY			71.2	4.9		76.1
MAYOH			12.5	1.0		13.5
BERBERA	44.1					44.1
TOTAL	760.8	27.1	580.1	48.8	31.9	
(%)	(52.5)	(1.9)	(40.0)	(3.4)	(2.2)	

SOURCE: NATIONAL UNIVERSITY REPORT, 1980

II-2. Situation of Survey Area

1) Mogadishu:

According to the Ministry of National Planning, government of Somalia Mogadish's population is estimated at 470,000 in 1980.

Somalia's population, as a whole, is said to be growing by 2.6 percent a year. But Mogadishu's population, during the three-year period from 1976 through 1979, increased by 76,400, and the annual increasing rate of population was estimated to be 5.5 percent. This is because, in addition to the natural growth in population, there were such social types of migration as seeking job and education.

(1) Fishery Cooperative Union:

Mogadishu's fishery cooperative union has its facilities located outside the breakwater of the city's old harbor, facing the open sea. Coral reefs range a short way off the shore, and moorage of the fishing boats is protected from the rough waves of the Indian Ocean.

The cooperative union's facilities consist of a fishing boat repair yard, a cold-storage, a fish-processing factory, and a fish marketing store.

The cooperative union is organized and operated as follows:

- Membership:** 300 fishermen (up from 65 at the time of the cooperative union's establishment as of Dec. 4, 1973)
- Fishing vessels:** A fleet of 39 powered ships (Swedish-built 8 HP each.)
Fishing vessels and fishing gear are the property of the cooperative union.
- Fishing gear:** Six sets of gill nets of 45 meters in length. Meshes vary, coming in 6, 23, and 30 centimeters. The nets with the mesh of 23 and 30cm are for catching sharks.
- Principal species:** Mackerel, king mackerel, yellowfin, tuna, and shark, etc.
- Fishing season:** The principal fishing season is the 6-month period from September up to February.
- Way of sale:** The union members are obligated to sell their catch to the cooperative union. Current prices are as follows:

<u>Species</u>	<u>Producer's Price</u>	<u>Selling Price</u>
A	So. sh 4 per kg	So. sh 6.5 per kg
B	So. sh 3 per kg	So. sh 5.5 per kg
C	So. sh 2 per kg	So. sh 4.5 per kg

Note: A King mackerel; B Sea bream and tuna;
C Shark and small fishes.

Operation control: The government of Somalia provides free of charge vessels and gear required for production.

The cooperative union provides fishing vessels with fuels, and deducts 10 percent from the income of the producer.

Qualifications for membership:

- (1) The member should be a fisherman
- (2) The payment of So. sh 100 is made as admission fee, and
- (3) If a would-be member owns a canoe, he should provide such craft to the cooperative union which will in turn pay him a rental fee.

Fish Supplies in Mogadishu:

At present, almost all the fish supplies to the city will be products coming from the Mogadish fishery cooperative unions. During the fishing season, an average catch of two tons per day is landed.

But, during the monsoon season, between June and September, the conditions of the seas are too bad for fishing operation. Consequently the supply of fresh fish might be stopped.

This year in order to secure the supply of fish for Mogadishu, as required by the instruction given by the Minister of Fisheries, 100 tons of fish, including snappers, sea breams, red pandora, groupers, barracudas and king mackerels, have been purchased from Italian trawlers operating in nearby seas. Such fish are being

marketed at a price of So. sh 4 per kilogram. Part of it is cut into round slices and fried, partly minced, and mixed with sliced vegetables and red pepper, is wrapped in a thin crust and fried. The latter is priced at 50 Somali cents a piece.

There are seven shops in the city selling products supplied by the cooperative union. But these shops are said to be mostly closed not only because of their small scale, but of inadequate locations, shortage of supply, etc.

The cooperative union's shop along the shore is visited by neighborhood housewives, retailers, and hotel and snack bar operators. The retailers are divided into fish-mongers and fish processors. The cooperative union also receives orders from hotels and delivers fish to them.

Consumers' Opinion Survey.

The Somalians have traditionally been known as the people who do not eat fish. Upon setting up this project, we considered it necessary to confirm, how much consumers will like to eat fish.

Thus, two days were spent for the limited survey for carrying out an interview opinion survey.

The survey was conducted at two places, one in front of the meat section of the city's vegetable marketplace, and the other in front of the cooperative union.

In the former survey, a clear contrast was found between men and women as to their preference for fish.

Three men said they like meat better because fish comes from unknown origins; and that they are more familiar with meat, and meat is always available, but fish is not. But three women said they like fish because it is cheaper and tastes good.

In the latter survey, the respondents told that they were fond of fish and would buy 1 to 2 kg of fish three or four times a week. One housewife who buys 5 kgs. with a family of 14 members said fish was cheap and of nice taste.

As for preferences among different species of fish, many people favored king mackerel though not so selective as the Japanese. But they did not like smaller types of fish because they have many bones and are not safe for children to eat. This was apparently the reason why smaller fish are sold at a low price of So. sh 4.5 .

One man, who said he was buying fish once or twice a week, complained of inconvenience in shopping and unstable supply, pointing out that fish were not always available.

As to how they cook fish, they mentioned frying, baking, soup making, and blending with rice and boil.

At the cooperative union's shop, minced fish meat with vegetable and cayenne pepper for seasoning in thin crust was being sold well. The members of the mission produced trial products of fried fish cake on the spot, which were accepted favorably by the officials concerned and a number of consumers,

As the result of the interview survey, it has been confirmed that fish is generally accepted by the people of Mogadishu as a low-priced and tasty kind of food.

But there is a seasonal imbalance in fish supplies and lack of freshness poses a bottleneck.

The findings of the survey are given in the attached table 2-2-1.

2-2-1 Consumer Opinion Poll Findings

Sex	Age	Occupation	Income (average per month)	Like fish or not (reason)	Times of fish buying last week	Kg. per purchase	Cooking method	Is price high or low?
m.	47 (5)	Mechanic	60 - 70/day	Like fish. Good for health	Once a week	1 kg	Roast	Slightly high. No difference with species.
f.	32	Housewife (wife of driver)	No ans.	Like fish. Taste good, good for health	Buy every other day	1.5 kg	Fry with onions, soup & roast	Cheap compared with meat
m.	29	Snack bar owner	No ans.	Like fish. Nutritious, taste good.	Buy daily	20 kg	Fry	Don't think it high.
f.	25 (6)	Housewife (wife of tobacco worker)	800	Like fish. Nurtitious, taste good.	Buy every other day	2 kg	Fry with onions, soup, palayjor style	Cheap
f.	40 (11)	Housewife	1,200	Like fish Good for health.	4 times a week	2 kg	Fry, roast, soup etc.	Cheap
f.	36 (7)	Housewife (shop proprietor)	Unknown	Like fish. Taste good.	Buy every other day.	1.5 kg	Fry, soup	High
f.	24 (8)	Wife of policeman	500	Like fish. Taste good.	Once a week.	2 kg	Soup, roast	Not high. Don't like small fish.
m.	33	Mechanic	No ans.	Like fish. Taste good.	Every 2 days.	2 kg	Wife cooks.	Good
f.	32	Unknown	Unknown	Like fish. Taste good.	Buy every 2-3 days.	2 kg	Fry etc.	Good
m.	58 (6)	Port Authority	Unknown	Like fish. Taste good.	Once a month	1 kg	Fry etc.	Good. Always many people. Not easy to buy.
m.	35 (5)	Seaman	Unknown	Like fish. Taste good.	About every 2 days.	2 kg	Pilaf style	High.
m.	14 (7)	Student	Unknown	Like fish. Taste good	4 times a week	1 kg	Fry, soup	Don't know.
m.	37 (7)	Mechanic	Unknown	Like fish.	Every day.	2 kg	Fry and eat with bread.	Good.
f.	28 (14)	Housewife	Unknown	Like fish Good for health.	Every day.	5 kg	Unknown	Unknown

Source: Interview opinion poll of the survey group. 16 persons in front of the cooperative union's shop.

Encircled figures show the number of household members.

2) Locations and local conditions of Brava, Eil, El Ahmed and Adale:

When nomads lost their livestock due to the droughts occurring in the northern area in 1974 and 1975, the Government of Somalia, as an emergency measure, transferred a total of about 17,000 nomads of different ages and sexes by military aircraft to Brava, Adale, and Eil. At first, 6,479 people were sent to Brava, but of these, 373 people of 63 households were moved to El Ahmed, which thus has become a sort of branch village.

Located on the sea coast about 220 kilometers south of Mogadishu, Brava is one of the oldest towns in the Somali history. The Government is now building a highway between Mogadishu and Kishmayu, and a temporary paved road is available between Mogadishu and Brava, except for only 16 kilometers in the vicinity of Brava. Before the coming year-end, the highway approaching Brava is expected to be completed, and it will become possible to ship out fresh fish by refrigerated trucks.

El Ahmed, located about 130 kilometers south of Mogadishu, is accessible by a temporary paved roads. Roads to the village are also good.

Adale is situated north of Mogadishu, about 210 kilometers by an inland route via Joher and about 175 kilometers along the coast. But the roads are very bad on both routes, being so bumpy that a four wheel-driven Jeep can barely run along them. In the rainy season, the inland route is impassable, and in the dry season, the coastal route is unusable.

Population:

Settlers of the each settlement areas as of 1979 are as given in Table 2-2-(2) below. The population is about the same as that in 1974. The table excludes those indigenous inhabitants of Brava and Adale who had been traditionally living in the two places and engaged in non-fishing jobs.

2-2-(2)

NO. OF POPULATION BY AGE GROUP AND NO. OF HOUSEHOLDS IN EACH SETTLEMENT

AGE	SEX	BRAVA	EL-AHMED	ADALE	EIL	TOTAL
0 - 5	M	297	17	256	110	680
	F	262	17	253	80	612
6 -14	M	1,259	47	1,045	870	3,221
	F	899	33	803	640	2,375
15-50	M	945	148	1,458	548	3,099
	F	1,220	98	1,233	802	3,353
50-	M	135	7	32	92	266
	F	160	5	24	68	257
TOTAL	M	2,636	219	2,791	1,620	7,266
	F	2,541	153	2,313	1,590	6,697
	total	5,177	372	5,104	3,210	13,863
NO. OF HOUSEHOLDS		1,167	63	890	600	2,720
AVERAGE HOUSE-HOLD MEMBER		4.4	5.9	5.7	5.4	5.1

SOURCE: CDP REPORT

M: MALE

F: FEMALE

Working Conditions of Settlers:

Working conditions of the labor force of the each area are shown in the table 2-2-(3).

These people are engaged chiefly in fishing, and also in such jobs as repair of fishing nets, repair of fishing-boat and engines, handling and processing of fish, distribution of goods, housing construction, and distribution of food.

Of the working-age (15 to 50-year-old) population, those directly engaged in fishing are 133 in Brava, 66 in El Ahmed, and 204 in Adale. The percentage in each area is as low as around 10 percent except that of 33 percent in El Ahmed. This is because many male workers are engaged in housing construction jobs. Cement and materials required for housing construction are supplied by China as its aid.

The wage level differs according to the kind of jobs. The fishery instructors of CDP are paid So. Sh.450 a month. The fishermen are paid, at the highest, So. sh.150 a month. But, since last year, for the purpose of encouraging fish production, a bonus of 80 cent per kilogram of their catches are paid to a fishing boat. At Brava, due to shortage of operating vessels, each vessel is manned by an average of eight crewmen, and the bonus is divided into 11 shares, and the navigator and the engineer are given 1.5 of the shares respectively.

CDP is supplying settlers with foods, clothing, medical goods and educational expenses. Such expenses are borne entirely by the Government of Somalia, which means a heavy burden for the government.

2-2-(3)

NO.OF WORKERS BY TYPE OF JOB IN EACH SETTLEMENT, 1979

	BRAVA CDP. NOMAD		EL-AHMED CDP. NOMAD		ADALE CDP. NOMAD		EIL CDP. NOMAD		TOTAL CDP. NOMAD	
FISHERMEN	20	133	3	66	16	204	23	94	62	497
NET MEND- ING		53		54		126		66		299
BOAT ENGINE REPAIRS		47		5		71				123
FISH PROCESSING		74		32		132		70		308
TRANSPORT	2	53	2	10	5	33	12	24	21	120
GUARD MAN		30		9				25		64
CONSTRUC- TION		350	7	123		648	9	132	16	1,253
FOOD DISTRI- BUTION		236				270				506
ADMINISTRA- TION	59		9	6			8	41	76	47
VILLAGE CLEAN UP						54		273		327
WATER SUPPLY					1			16	1	16
TEACHER, RELIGION	48				16		17	20	81	20
HEALTH, MANAGEMENT	2	53	3	4	3	4		24	8	85
OTHERS		205		10				70		285
TOTAL	131	1,234	24	319	41	1,542	69	855	265	3,950

SOURCE: A REPORT ON THE PRESENT STATUS, AND 5 YEAR PERSPECTIVE PLAN FOR FISHERY RESETTLEMENT LOCATIONS, ADMINISTARTED BY THE COASTAL DEVELOPMENT PROJECT. 1980, Jan.

NOTE: OTHERS INCLUDING THE FOLLOWING TYPE OF WORKS
i, e, STORE KEEPER, DRAINAGE, POULTRY FARMING, MAT
MAKING AND EMBROIDERY.

Fishing Vessels:

The number of fishing vessels belonging to each area is shown in Table 2-2-(4).

Many of these ships are out of operation. This is because, generally speaking, the ships and their engines are not properly operated, maintained or repaired, and parts are not sufficiently supplied. Thus, a new ship is likely to become out of use within a few years.

2-2-(4)

NO. OF FISHING VESSELS BELONGED IN EACH SETTLEMENT
IN SEPT. 1979

TYPE	BRAVA			EL-AHMED			ADALE		
	OPERAT- -ING	UNOPE- -RATING	TOTAL	OPERAT- -ING	UNOPE- -RATING	TOTAL	OPERAT- -ING	UNOPE- -RATING	TOTAL
USSR		24	24		12	12		25	25
SRILANKA	13		13	11	1	12	12	1	13
KENYA		12	12				3	11	14
SWEDEN	2	11	13	2	3	5	1	17	18
GREECE	2	1	3		2	2		3	3
ITALY	1		1		2	2			
TOTAL	18	48	66	13	20	33	16	57	73

SOURCE: CDP REPORT

THE SIZE OF BOATS ARE ABOUT 6-9m, H.P 8-30

Fishing Effort and Catch:

Detailed statistics of the fishing effort and catch in various districts are not available. The figures in List 2-2-(5) were processed from materials provided by CDP and will be used as tentative yardsticks.

There are many days when fishermen cannot go out fishing during the southwest monsoon period of June through September and northeast monsoon period of December through January. According to the landing records, the number of days of operation in a year is 146 days at Eil, 259 days at Brava, 239 days at El-Ahmed and 283 days at Adale. The average number of fishing boats mobilized per day is small and the volume of catch per day of a fishing boat falls far short of the target of 100kg. This is attributed to the immobility of fishing boats, short supply of engine parts and unskilled fishing technique, as mentioned before.

The average catch per day of a fishing boat in 1979 differs from one place to another, for example, 110kg at Brava and 39kg at Adale. This is said to be affected by the number of fishing experts and the level of fishing technique.

Harbours and Berths:

The southwest portion of the Brava beach forms a natural berth, protected by a coral reef. The depth is about 2 meters. Before the war, Italy built a bridge connecting the lighthouse with land, but the bridge has been left unused after it was bombed and destroyed by the British Royal Air Force during World War II.

2-2-(5)

FISHING EFFORT & CATCH

	BRAVA	EL-AHMED	ADALE	EIL	TOTAL
1978 (JAN.-DEC.)					
CATCH (TON)	122.3	67.5	216.5	211.1	617.4
NO. OF OPERATION DAYS	259	239	283	146	--
ACCUMULATED NO. OF FISHING VESSELS LANDED	2.562	1.794	6.174	883	11.413
AVERAGE NO. OF VESSELS LANDED DAILY	10	7	22	6	45
CATCH PER DAY PER VESSEL IN KG.	48	38	35	239	54
1979					
CATCH (TON)	116	83	148	266	613
NO. OF OPERATION DAYS	221	253	301	183	--
ACCUMULATED NO. OF FISHING VESSELS LANDED	1.057	1.681	3.743	849	7.329
AVERAGE NO. OF VESSELS LANDED DAILY	5	7	12	5	29
CATCH PER DAY PER VESSEL IN KG.	110	50	39	313	84

SOURCE: CDP REPORT

NOTE: CATCH IS MEASURED AFTER EXTRACTION OF INNER ORGAN.

The El-Ahmed beach has an indentation in the south, where the berth is protected against the northeast monsoon, but is hit directly by strong waves from the southwest monsoon, which requires fishing boats to be pulled up on the sands. Considerable time is required for pulling up and down the boats in a day at the sacrifice of operation time.

The Adale beach protrudes in the center and is indented in the south and north. With a vast coral reef right in front, it receives the southwest monsoon directly, which makes anchoring of boats difficult.

As the east coast of Somalia is exposed to the southwest monsoon, it is hard to build mooring facilities for fishing boats such as a breakwater or a pier. As a temporary measure, slipways should be built so that fishing boats may be pulled up on the sands.

Processing Facilities and Others:

The processing facilities at Brava are as follows:

Salting and Drying Plant: Capable of handling 3 to 4 tons of materials per day.

Processing Plant: Designed by Russians and is inconveniently located 3km away from the landing. In addition, there is a building designed by an FAO specialist near the landing place, which has no facilities inside.

Smoking Room: Built by Russians, and not utilized. Smoked products are not favored locally.

Refrigerator: Built by an Italian fish merchant, but has been left unused without any machines and facilities installed.

The processing facilities at El-Ahmed are as follows:

Processing Plant: Built by Russians to be used as an office and a processing plant, but is not currently in use. There is a new processing plant without facilities inside, which is also not utilized.

Refrigerator: Structure only.

The processing facilities at Adale are as follows:

Salting and Drying Plant: Capable of processing 2 to 4 tons of materials per day; sharks, shark fins and sea breams are salted and dried and king mackerels are salt-preserved.

Smoking Room: Built by Russians and is not utilized.

Refrigerator: Built five years ago, but without heat insulating materials and compressors installed.

Processing Method and Quality:

The products processed in the fishing villages include dried shark fins, salted-dried sharks and breams, and salted king mackerels.

Lack of drying time and insufficiency of dryness was observed

on the salted-dried products. The quality of products is not uniform with difference in freshness as well as in dryness depending on the size of fish.

Drain boards are not used in a preserving tank for salt-preserved products. This causes poor drainage in the tank. Lack of preservation time also results in overall poor quality, and particularly poor quality of the fish in the lower layer of the tank.

There are many causes attributable to the poor quality of salt-preserved products. The dehydrating speed for salt-preserved products is slower than that for salted-dried products, which in turn triggers various changes and permits decomposition to progress in the tropical heat. The handling method employed in the cold areas such as the Soviet Union and Northern Europe should not be used in the tropics.

Transportation, Sale and Price of Fish:

A co-operative union buys the fish caught at fixed prices, but in a resettlement area all the landed fish (except small portion consumed for crew's diet) belongs to CDP, which has the right of handling the sale as the fishing boats, fishing gear, fuel and wages are borne by CDP.

The marketing situation by place is as follows:

Brava Area

Of the landed fish catch, 500 to 600kg are sold locally as fresh fish and the balance is sold as salted-dried.

Local merchants buy and ship them to Mogadishu. Sharks are

made into shark fins and salted-dried sharks, which are entirely delivered to Somalfish in Mogadishu, which in turn export shark fins mainly to Singapore and salted-dried sharks to Tanzania and others.

The price of fresh fish is So. sh.6.5 per kg while processed products sell for only So.sh.3 per kg.

As there are no refrigerators available in the producing centers, all the fish caught have to be salted-dried or salt-preserved except for local consumption. The salt-preserved fish, however, is so poor in quality that there is little demand in the domestic and foreign markets.

El-Ahmed Area

King mackerals and sea breams are sold as fresh fish to Merca and other farming villages in the vicinity of El-Ahmed. There are many banana and grape fruit farms in the neighborhood.

The rest of fish for local consumption is shipped to Mogadishu as salted-dried fish.

Adale Area

As it is an isolated place on land, access by truck to Adale is extremely difficult. Therefore all the landed fish should be processed into salted-dried fish or salt-preserved fish except those for local sale. As shark fins are for export, shark nets are mainly used for catching as recommended by the government.

Shark represents the biggest of catch volume by species in 1978, i.e. 102 tons for shark, 77 tons for king mackerel,

35 tons for breams and 0.5 ton for tunas. The roads in this area are so bad that the transportation of marine products, in broiling weather can be disastrous and the transportation of frozen fish by boat is not practical due to lack of good berths and high maintenance cost. At present a third road is said to be under construction. The shipments of fresh fish may be impossible until the roads are improved.

CHAPTER III: Outline and Appraisal of the Request

III-1. Background of the Request

Nomads account for 70 percent of the nation's population. They live in the inland and depend mainly on livestock products for their diet and have developed no habit of eating fish. Fishing villages are scattered in remote places, roads are generally in extremely poor condition and the transportation of fish is difficult. Under such circumstances it is impossible to expect that fisheries could be developed to take full advantage of underdeveloped resources.

After the 1974-1975 drought, however, many nomads who lost their means of living sought refuge in the vicinity of cities. The government deemed the relief of the nomads as the most important policy and organized CDP. 17,000 nomad refugees out of a total of 27,000 were made to settle in the coastal fishing villages in Eil, Adale, El-Ahmed and Brava.

On the other hand, Somalia's principal industry is animal husbandry (cattle, lamb, goat and camel) and farming (banana and sugar cane). As livestock products have taken the place of farming products as the principal products for export in recent years, prices of livestock meat have soared to the level beyond the purchasing power of the general public.

The previous investigation on national nourishment has revealed that the intake of protein is below the required level in addition to the insufficiency of the calorie intake.

The demand for marine products which are relatively cheaper than livestock products has increased as a source of supply

of animal protein.

The circumstances being as such, the Somali government, with a view to promoting the coastal fisheries in the areas settled by nomads and improving the dietary level of people, is anxious for establishing, in the capital city of Mogadishu, a model fish-market for promoting fish eating, and a cryogenic fish transportation system and for providing consumers' education on fish eating, in co-operation with the Japanese government.

III-2. Outline of Request and Appraisal

The projects which the government of Somalia requested the government of Japan to provide co-operation aim at : (1) establishment of a model fish-market for promoting fish eating in Mogadishu, (2) establishment of a cryogenic fish transportation system, and (3) providing consumers' education on fish eating. The outline and evaluation of these projects is described hereunder.

1) Establishment of a Model fish-market Promoting Fish Eating

(1) Outline of the Project

In order to open the way for the improvement of nourishment level of the nation by raising marine product consumption of the citizens of Mogadishu, fresh fish, processed marine products, related supplementary foods (seasonings, etc.) and tablewares shall be supplied at reasonable prices mainly for citizens of the city where the facilities for consumers' marine product market are now quite poor.

The administration and management of the project shall be taken charge by a project agency (not established yet) under the Ministry of Fisheries.

(2) Appraisal of the Project

In the absence of a consumers' modern marine product market in the city of Mogadishu which has a population of approximately 500,000, the need for the establishment of a new market was recognized. But the plan to put up a restaurant in the new consumers' market has been deleted from the list, as it was decided by Japan that the restaurant should not be covered by the cooperation on grant.

In addition, the establishment of branch markets in the city and in three other consuming cities in its vicinity was requested by the Minister of Fisheries of Somalia, but the plan for the establishment of branches in the suburban cities was deleted from the list considering the extent of the project.

Regarding the site of construction of the new market (main market), the original plan to utilize the site of the post-office was cancelled by Somalia, which proposed three sites instead. Following the on-site examination, El-Gab area which is located in the center of Mogadishu and close to the comprehensive retail market was recognized to be the most suitable site.

An on-site examination was made on the site for a branch market, and Wadajir area which is in the environs inhabited by tens of thousands of citizens

was recognized to be the most suitable site. It is considered appropriate that CDP takes charge of the administration and management of the project.

2) Establishment of a Cryogenic Fish Transportation System

(1) Outline of the Project

There is no cryogenic fish transportation system in Somalia. Therefore it is not practicable to ship fish in fresh condition to consuming centers, to a great disadvantage for both producers and consumers. The project calls for establishing ice plants in fishing villages near the capital so that fish catch could be ice-preserved in heat-insulated containers and shipped to the capital by truck.

The project shall cover the fishing villages of Brava, El-Ahmed and Adale.

CDP shall take charge of the administration and management of the project.

(2) Appraisal of the Project

The projected cryogenic fish transportation system in Somalia is composed of facilities indispensable for making fresh fish and processed marine products available for consumption in the capital city of Mogadishu without deteriorating the quality, and the need for this project was recognized.

But the road connecting Adale with Mogadishu is in an extremely bad condition and Adale was excluded

from this project by Japan on grounds that the inclusion of Adale in this project should be considered only after the improvement of the road is ascertained. As the cost of trucking of fish in refrigerated containers is expensive and the rate of incidence of mechanical trouble is high, the use of chilled trucks with ice boxes was decided to be appropriate and the plan was modified accordingly.

Further it was decided that freezing facilities should be added at the landing sites in order to maintain the freshness of fish and ship it to consuming centers without deteriorating the quality, and that the establishment of freezing facilities at Brava and El-Ahmed was put in the plan.

The administration and management of the project are said to be taken charge by CDP which controls the fishing villages (Brava and El-Ahmed) directly, and this is considered appropriate.

3) Implementation of Consumers' Education Programme concerning Fish Consumption

(1) Outline of the Project

A majority of the citizens of Mogadishu still retains the nomad's habit of living, and in order to promote the habit of fish eating among them, a restaurant and a display room shall be established in the above-mentioned model consumers' market promoting fish eating, and, using a set of four buses, propagation and spot sale of marine products and itinerant cooking instruction with audio-visual aids shall be held.

Those shall be held at Mogadishu and the neighboring cities (Afgoe, Merca, Johal, Baaidua and Beletwyn).

The administration and management shall be taken charge by the management of the above-mentioned consumers' market or CDP.

(2) Appraisal of the Project

The appraisal of the establishment of a restaurant and a display room is as stated before.

The effectiveness of two itinerant buses and two accompanying vehicles for the purpose of providing consumers' education was questionable in view of the costs involved. This project was cancelled due to the Japanese decision that establishment of branches of the consumers' modern marine product market would be more effective for the promotion of the habit of fish eating among the people.

If the "basic design" is implemented according to the requested project modified by the above appraisal, it will contribute greatly toward the promotion of coastal fisheries and the improvement of national nourishment level in Somalia.

The findings of the study, particularly from the questionnaire to consumers revealed that fish is strongly favored by citizens of Mogadishu and that frozen fish is consumed as well as fresh fish.

In addition, it was also revealed that there were no incidents of fish poisoning which would affect the consumption of fish among the people.

CHAPTER IV: Basic Design

IV-1. Basic Plan

In framing a basic plan, it was intended to establish a marine product distribution system incorporating an optimum function to accomplish the objectives of the economic development project or fisheries promotion project through the study of the present situation and future outlook of the production, distribution and consumption of marine products in Somalia.

IV-2. Concept of the Basic Plan

The concept of the basic plan framed under the above intention after due appraisal of the Somalia's request is as follows:

1) Construction of a Fishery Product Consumers' Market in Mogadishu

A fishery product consumers' market (main market) shall be constructed at El-Gab in the center of Mogadishu and the branch market at Wadajir which is away from the metropolitan center and inhabited by tens of thousands of people. High quality ice-preserved marine products from Brava and El-Ahmed shall be supplied to citizens of Mogadishu in these markets.

Further, processing facilities shall be installed in the main market in order to promote effective utilization of marine products.

2) Establishment of a Cryogenic Fishery Product System

Facilities for ice making, refrigerating and freezing shall be constructed in Brava and El-Ahmed, the fishing villages near Mogadishu, to ensure maintenance of quality and preservation of marine products for supply to Mogadishu.

These marine products shall be transported to the above markets by chilled trucks.

IV-3. Model Distribution System of Marine Products

In the design of the basic plan, a model distribution system and handling processes are shown in Fig. 4-3-1, 2 and 3. After heads and entrails are removed from the materials delivered by fishing boats at processing plants in fishing villages, optimum preservation and processing are conducted through refrigeration and freezing. The reduction in the cost of storage and transportation will be ensured by this process, and the leftovers such as heads and entrails shall be fully utilized through an intensive processing system.

On the other hand, the handling and processing of fish products shall be performed to meet consumers' demands in the main market in Mogadishu which receives chilled products and frozen products from the refrigeration facilities at Brava and El-Ahmed, reduction in cost shall be ensured by the intensive handling process in the main market which is also expected to play the role of stock point in compliance with sales conditions.

In such markets, the self-service system will be adopted in consideration of the effective use of the floor space and in-store administration.

FLOW OF MARINE PRODUCTS FROM FISHING BOATS TO DISPLAY ROOMS

FACILITIES

FISHING BOATS

PRODUCTION FACILITIES IN BRAVA & EL-AHMED

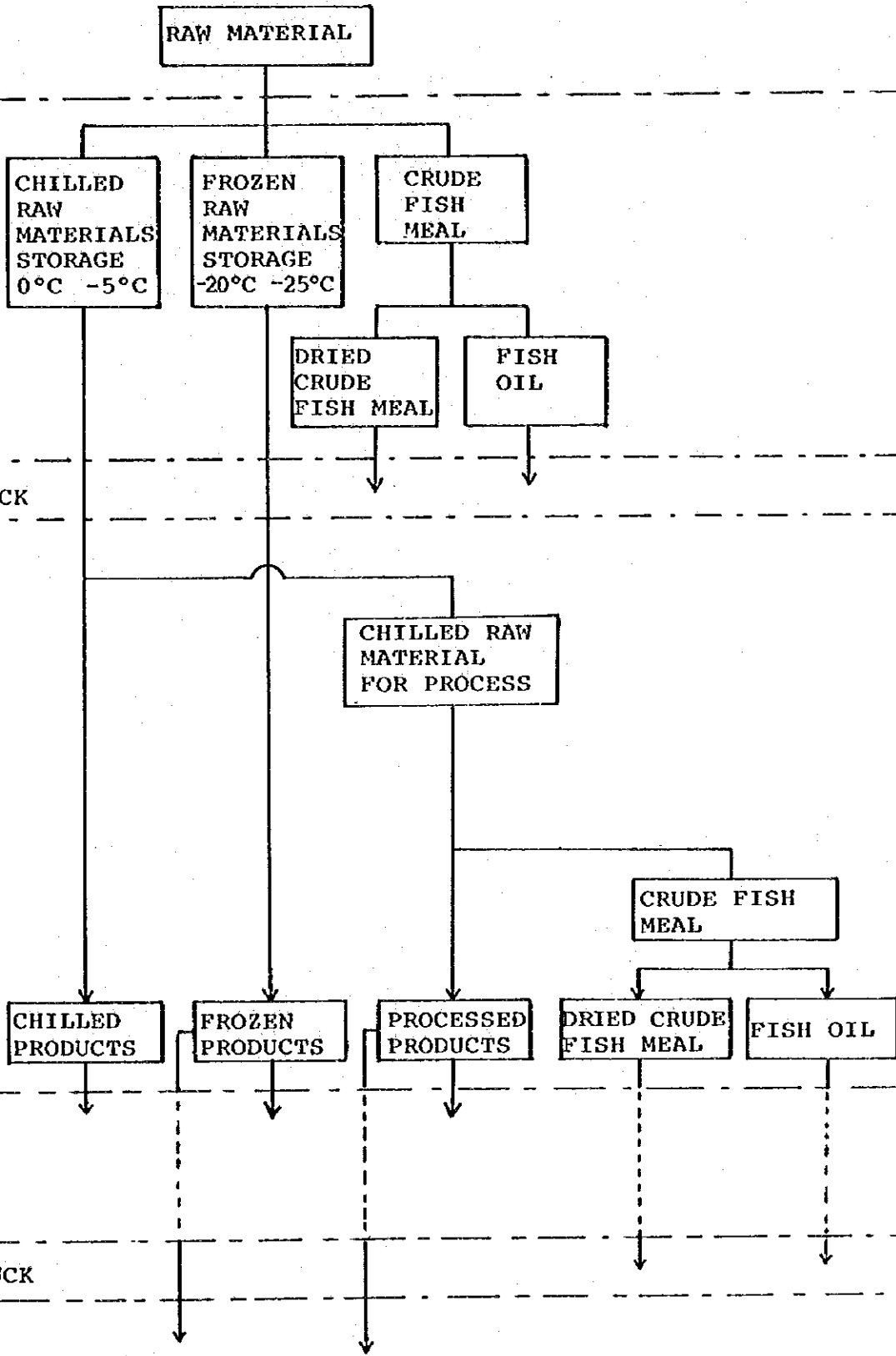
CHILLED TRUCK

PRODUCTION FACILITIES IN EL-GAB

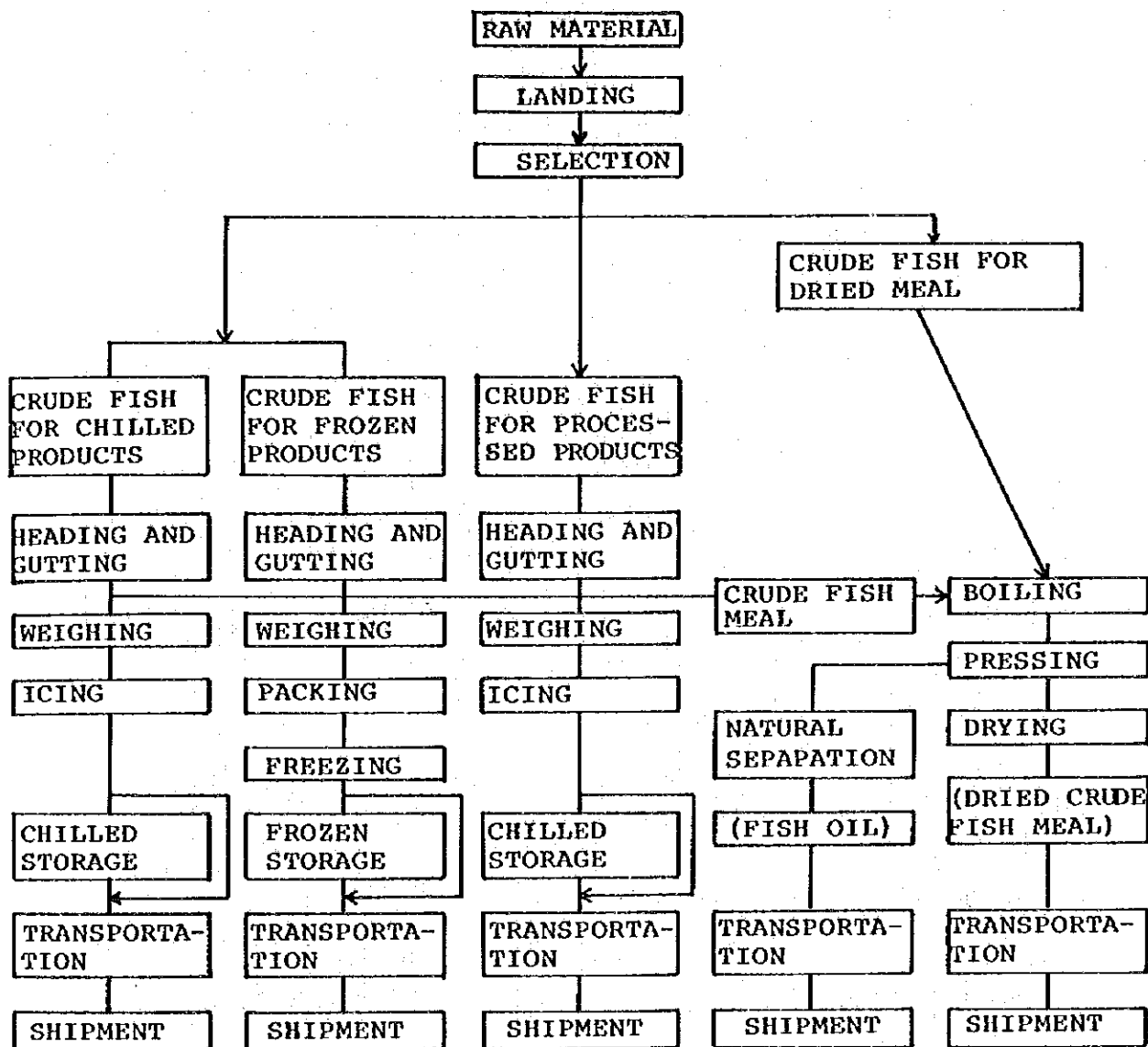
DISPLAY ROOM IN EL-GAB

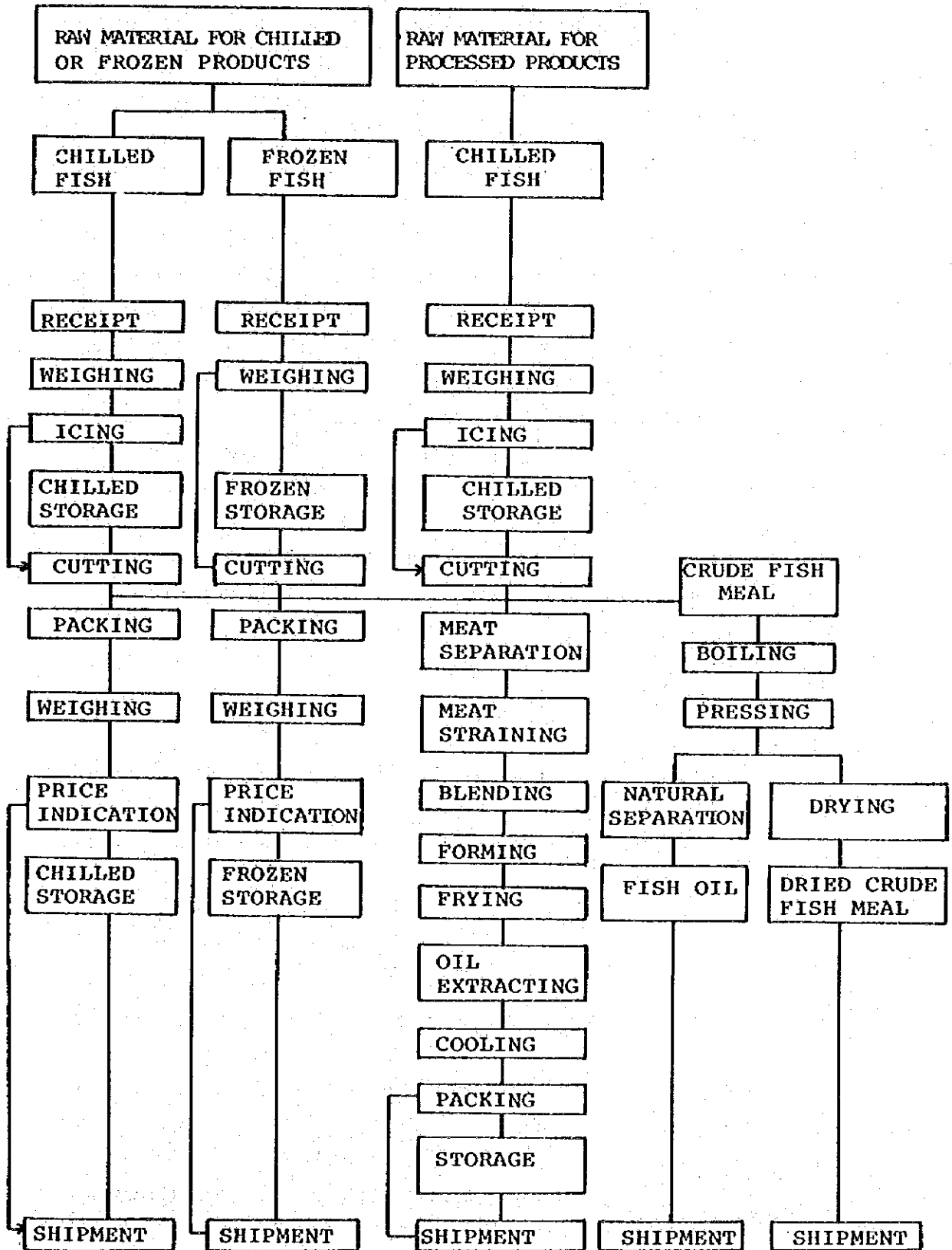
CHILLED TRUCK

DISPLAY ROOM IN WADAJIR



4-3-2 FLOW OF MARINE PRODUCTS IN BRAVA AND EL-AHMED





IV-4. Necessity of Facilities

The necessity of facilities in the above model distribution systems is as follows:

1) Facilities at Producing Centers

Delivery to the Mogadishu markets of marine products landed at Brava and El-Ahmed in ice-preserved condition is the most profitable method.

Due to the higher water temperature in the fishing grounds off Somalia, some of the fish caught by gill nets and long lines are likely to lose freshness quickly and are not suitable for ice-preservation. When the catch volume is too big, the supply of ice-preserved products to consuming centers must be limited in order to avoid deterioration in quality during the storage period in the consuming centers, which sometimes generate surplus of ice-preserved materials at producing centers.

Such being the case, it was decided that freezing facilities must be established in addition to ice-preservation facilities for the handling of fish.

As temperature and humidity are high in the tropics and fish starts deterioration immediately after catch, the establishment of ice facilities is required to maintain the freshness of the fish at producing centers.

In both areas, there are generators to supply electricity to houses at night, but no generators available for making ice and freezing; so two sets of generators are required respectively for each area.

For the effective utilization of the heads and entrails of fish removed after landing, it was deemed desirable to produce crude fish meal products to be fed to chicken by boiling, steaming and pressing of them.

2) Facilities at Consuming Centers

As the existing facilities for the sale of marine products in the capital city of Mogadishu are small in scale and are poorly equipped, it is evident that the establishment of a fishery product consumers' market to cope with the ever-increasing demand for marine products is necessary.

At present frozen fish are imported to meet the demand for fish in Mogadishu. The consumers' preference of frozen fish is similar to that of fresh fish and the consumption tendency of frozen fish does not appear to present any problem. Frozen fish is considered to be more suitable to facilitate the spread of the habit of fish eating in the future.

In Somalia, small fish full of fine bones and sharks are not much favored. They are seldom utilized as fresh fish, but utilized as materials for salted-dried fish. In the future, these fish should be more positively utilized and facilities for the production of fried fish meat considered to meet the taste of Somalians shall be built in the main consumers' market.

The proposed site of the main market is in the upper part of a slope, while in the lower part there are a sundries market, a vegetable and fruit market and citizens' residential quarters. Therefore the handling of drain

is an important problem. In this project, the drain water is planned to be treated by cleaning tanks in the premises and released to percolate through the soil. When an urban project calls for drainage works in the future, they will be done by CDP on their own responsibility.

Outside the Mogadishu airport is Wadajir area which is inhabited by tens of thousands of people. The difficulty in the traffic to Mogadishu led to Minister of Fisheries to request for the establishment of a branch market. It was decided to build a store and an office there and to bring frozen products and processed food daily by chilled trucks to put in the show-cases equipped with freezers.

3) Transportation Facilities

In order to transport ice-preserved products from a producing center to a consuming center, it was decided that the use of chilled trucks was the best.

IV-5. Capacity of Facilities

The present condition of the marine product consumption in Mogadishu is as stated above. In view of the high rate of increase in population, citizens' taste for marine products and a growing demand for marine products, an annual increase of demand by approximately 1,000 tons (or 3 tons per day) could be expected.

At present both the operation rate of fishing boats and the catch efficiency are on a low level in the fishing villages of Brava and El-Ahmed due to poor maintenance of fishing boats

1) PROCESSING CAPACITY IN BRAVA OR EL-AHMED (250 OPERATION DAYS/YEAR)

METHOD OF STORAGE	PRODUCTS	VOLUME OF RAW MATERIAL		CAPACITY OF PRODUCTS		
		DAILY VOLUME OF RAW MATERIAL	ANNUAL VOLUME OF RAW MATERIAL	PROCESSING	RECOVERY	CAPACITY OF PRODUCTS /YEAR
CHILLED	CHILLED PRODUCTS	800KG/DAY	200TON	HEADING & GUTTING	65%	130TON
	PROCESSED PRODUCTS	400 "	100 "	"	65%	65 "
	SUB-TOTAL	1,200 "	300 "			195 "
FROZEN	FROZEN PRODUCTS	800 "	200 "	"	65%	130 "
TOTAL		2,000 "	500 "			325 "
	(DRIED CRUDE FISH MEAL SCRAP)	(700 ")	(175 ")		(15%)	(26 ")
	(FISH OIL)	(700 ")	(175 ")		(5%)	(9 ")

2) PROCESSING CAPACITY IN EL-GAB

METHOD OF STORAGE	PRODUCTS	VOLUME OF RAW MATERIAL			CAPACITY OF PRODUCTS	
		DAILY VOLUME OF RAW MATERIAL	OPERATION DAY/YEAR	ANNUAL VOLUME OF RAW MATERIAL	RECOVERY	CAPACITY OF PRODUCTS /YEAR
CHILLED	CHILLED PRODUCTS	1,040KG/DAY	250DAYS	260TON	100%	260TON
	PROCESSED PRODUCTS	520 "	250 "	130 "	46%	60 "
	SUB-TOTAL			390 "		
FROZEN	FROZEN PRODUCTS	870 "	300 "	260 "	100%	260 "
TOTAL		2,430 "		650 "		580 "
	(DRIED CRUDE FISH MEAL SCRAP)			(70 ")		10 "
	(FISH OIL)			(70 ")		3 "

3) SALES VOLUME IN EL-GAB AND WADAJIR

PRODUCTS	EL-GAB			WADAJIR			SALES VOLUME/ YEAR TOTAL
	SALES VOLUME/ DAY	OPERATION DAY/YEAR	SALES VOLUME/ YEAR	SALES VOLUME/ VOLUME/ DAY	OPERATION DAY	SALES VOLUME/ YEAR	
CHILLED PRODUCTS	1,040KG/ DAY	250DAYS	260TON	0	0	0	260TON
FROZEN PRODUCTS	270 "	300 "	80 "	600KG/ DAY	300DAYS	180TON	260 "
PROCESSED PRODUCTS	140 "	300 "	40 "	70 "	300 "	20 "	60 "
TOTAL	1,450 "		380 "	670 "		200 "	580 "

and shortage in fishing gear and nets, but the aids by FAO and various foreign countries are expected to help improve these conditions and increase the future landings up to 500 tons per year respectively in each area.

The volume of demand and supply stated above is used as the yardstick of determining the capacity of various facilities in the consuming city (Mogadishu) and the producing centers (Brava and El-Ahmed).

IV-6. Locations of Facilities and Details of Specification

1) Refrigeration Facilities and Others at Producing Centers

(1) Selection of Project Sites

In the two producing centers of Brava and El-Ahmed, the proposed sites for construction have been selected at the locations which are adjacent to the landing place in each area, and in the west of existing buildings to avoid sand storms. As CDP has the right of using the land at both locations, no obstacle for building the facilities on the site is anticipated. The selected sites are spacious vacant lots, which will be leveled by CDP.

(2) Scale and Specification of Facilities

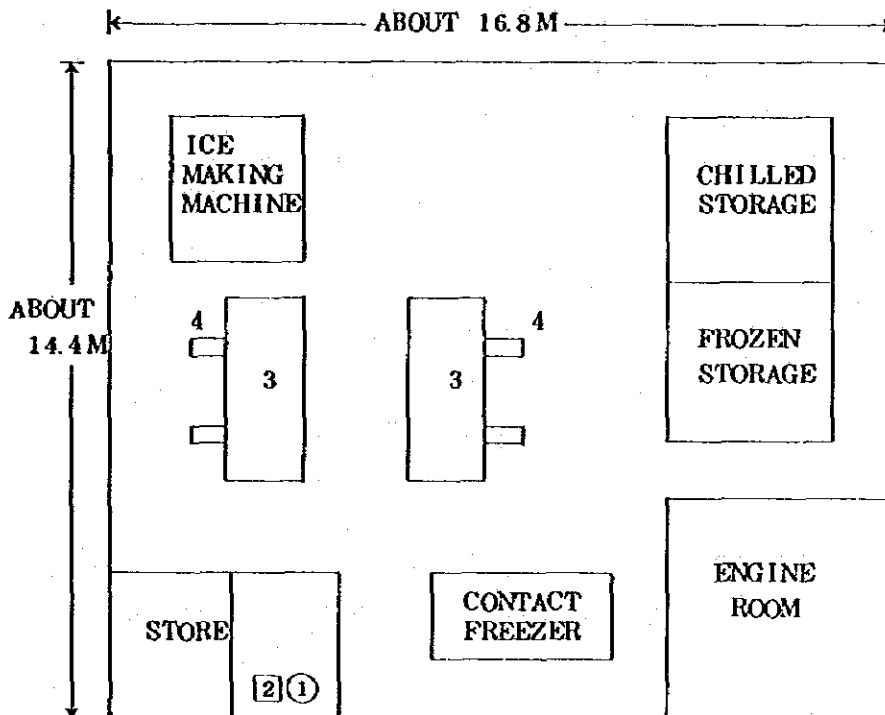
In both producing centers fish will be processed as shown in Fig. 4-3-2. The scale and specification are identical in both centers. The refrigeration facilities have a floor space of approximately 240m² and a yearly capacity target of a total of 500 tons, made up of 200 tons of fresh fish, 100 tons of processing materials and 200 tons of freezing products.

Out-line of specification of plant and equipment

Item	Specification	Quantity
House	One floor prefabricated house Floor space about 240m ²	1 house
Water and drainage equipment	Contain sewage tank	1 unit
Refrigerating equipment		
Chilled storage	Storage at 0°C ~ -5°C	1 "
Frozen storage	Storage at -20°C ~ -25°C	1 "
Freezer	Contact freeze unit type	1 "
Ice making machine	Plate ice unit type	1 "
Ice storage		1 "
Electric equipment		
Generator		2 sets
Switch board and others		1 unit
Processing equipment		
Boiler		1 set
Work table and others		1 unit
Vehicle		
Chilled truck		1 truck
Manual-driven vehicle		1 unit

4-6-1 Out-line of general arrangement

BRAVA AND EL-AHMED (SCALE 1:160)



- 1 BOILER
- 2 PRESS
- 3 WORK TABLE
- 4 SCALING TABLE

FLOOR SPACE ABOUT 241.92m²

The specifications of the facilities and tools are as follows:

The general layout is shown in Fig. 4-6-1.

2) Fishery Product Consumers' Market (Main Market)

(1) Selection of the Project Site

Out of the three proposed sites, El-Gab was selected, considering the traffic convenience and the size of the available space. Located in the center of Mogadishu, adjacent to the bus terminal, meat market, vegetable and fruit market, etc., the selected site can relatively easily get the supply of electricity and water and is the best of the three proposed sites. The selected site is owned by the city and the mayor has already consented to the use of the site by the request of the Ministry of Fisheries.

The selected site is a vacant lot which has a space large enough for the project and is not leveled. It will be leveled by CDP.

(2) Scale and Specification of the Facilities

The handling of fish shown in Fig. 4-3-3 is required to be performed at the main Mogadishu consumers' market. For this purpose, the scale and details of the facilities are planned as follows:

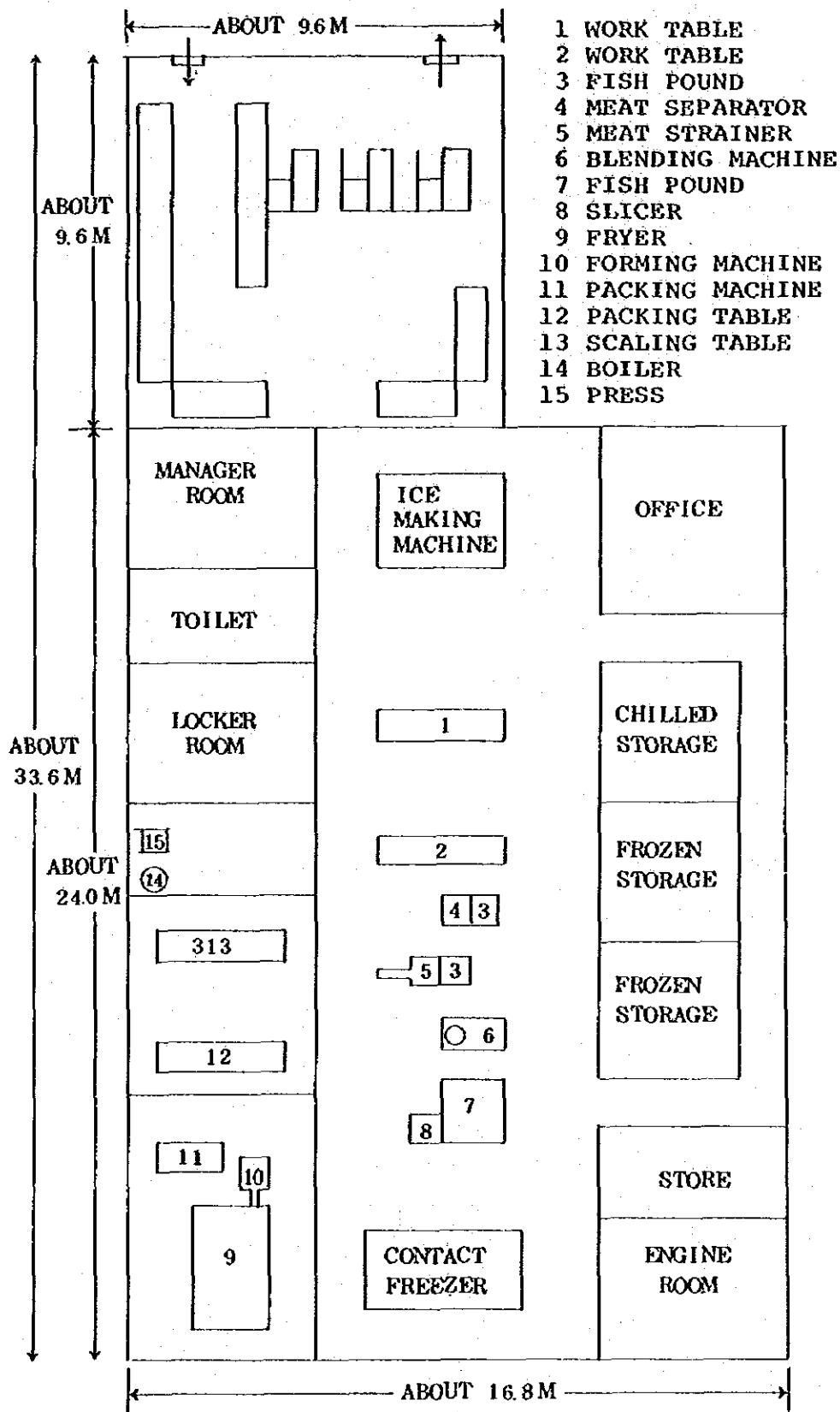
The scale: The scale of annual sales will be 260 tons of fresh fish, 80 tons of frozen fish and 40 tons of processed food, and the area of the building shall be about 500m². Details of the building machinery and tools are as follows:

Out-line of specification of plant and equipment

Item	Specification	Quantity
House	One floor prefabricated house Floor space about 500m ²	1 house
Water supply and drainage equipment	With sewage disposal tank	1 unit
Air conditioner		1 "
Selling counter		1 "
Toilet	Western type	1 "
Refrigerating equipment		
Chilled storage	Storage at 0°c ~ -5°c	1 "
Frozen storage	Storage at -20°c ~ -25°c	1 "
Freezer	Contact freeze unit type	1 "
Ice making machine	Plate ice unit type	1 "
Ice storage		1 "
Electric equipment		
Generator		1 set
Switch board and others		1 unit
Processing equipment		
Meat separator		1 set
Forming machine		1 "
Fryer		1 "
Packing machine		1 "
Fish oil separator		1 "
Slicer		1 "

Boiler		1 set
Others		1 unit
Display equipment		
Cash register		3 sets
Display case with freezer	Semi-open type	8 sets
Work tables and others		1 unit
Vehicle		
Chilled truck		1 truck
Manual-driven vehicle		1 unit

4-6-2 Out-line of general arrangement EL-GAB (SCALE 1:160)



FLOOR SPACE ABOUT 495.36 m²

with the building divided into 90m² of the store and 410m² of processing and handling space. The space for processing and handling is further divided into spaces for refrigeration and freezing, processing plant, handling plant and an office.

The building shall be a prefabricated one-story house. In Somalia there are generally many stone buildings, and, considering the length of time required for construction, high expenditures for labor, shortage of building technicians and supply of cement, it was decided to ship from Japan sets of loose parts for assembly into prefabricated buildings and complete the construction in a short period.

The specification of the facilities, machinery and tools for equipment are shown hereunder.

3 Fishery Product Consumers' Market (Branch Market)

1) Selection of the Project Site

The selected construction site is owned by the city of Mogadishu, located in the southwest of the city of Mogadishu and is inhabited by tens of thousands of citizens. The supply of water and power is relatively easily obtainable. There is no fish market near-by and is the best model area for spreading and expanding the habit of fish eating in the future. The selected site is an unlevelled vacant lot with

a sufficient space and CDP will level it.

2) Scale and Specification of the Facilities

The floor space shall be approximately 100m², accommodating a display room, an office, toilets and a warehouse. The items for sale at the Mogadishu branch market shall be limited to frozen products and processed products; ice-preserved products shall not be sold. The items for sale at the branch market shall be supplied by the main market depending upon the sales at the branch market. Storage facilities, such as freezers, etc. shall not be installed in the branch market. The specifications of the facilities machinery and tools for equipment are shown in the following list.

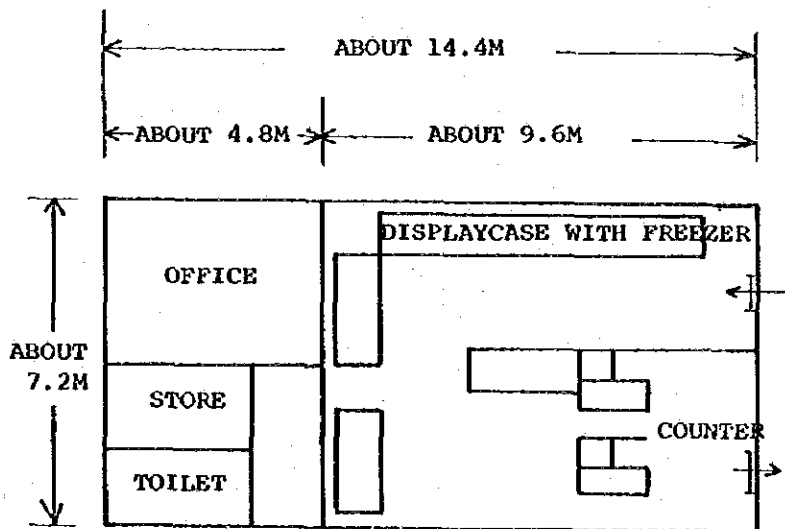
The general layout is as follows:

Out-line of specification of plant and equipment

Item	Specification	Quantity
House	One floor prefabricated house Floor space about 100m ²	1 house
Water supply and drainage equipment	Contain sewage tank	1 unit
Air conditioner		1 "
Selling counter		1 "
Toilet	Western type	1 "
Electric equipment		
Switch board and others		1 "
Display equipment		
Cash register		1 "
Display case with freezer	Semi-open type	1 "
Vehicle		
Manual-driven vehicle		1 "

4-6-3. Out-line of general arrangement

WADAJIR
(SCALE 1:160)



FLOOR SPACE ABOUT 103.68M²

IV-7 Implementation Procedures

The design of the implementation plan will be started after the exchange of notes is executed between the governments of Japan and Somalia.

The drawings and specifications required for the construction as well as the books required for the bid contract will be prepared.

After the drawings for the design of the implementation plan is completed, tenders will be invited on behalf of the Somali government.

The successful bidders will execute contracts with the Government of Somalia, and the construction will be started with the approval of the Government of Japan.

The implementation procedures of the project are as shown in page 80:

IV-8. Precautions for Project Implementation

The sites for the construction of facilities are located in the tropics near lat. 1° to 2° N., and especially the main producing centers are under severe conditions with sand storms raging occasionally and high hardness of available water. The fact that experienced technicians are few and spare parts for repair and various kinds of consumable materials are hard to get in Somalia shall be attended, and the design for the construction of facilities should be drawn up to enable the provided facilities, machinery and tools a maximum effect for the furtherance of the Somalia's fisheries promotion project. In other words, regarding

the facilities, machinery and tools, it must be fully considered that:

1. These must be able to fulfill the intended function satisfactorily under severe natural conditions,
2. The operation and maintenance could be easily acquired, and
3. Enough parts and materials should be provided,

and further instructions on the operation and handling of the facilities, machinery and tools should be given.

In order to obtain the anticipated results of this project, it is presumed that, considering the present level of Somalia's technology, the follow-up in the technological area including the despatch of a specialist in freezing and acceptance of trainees for machinery and marine product processing must be fully considered.

4 IMPLEMENTATION PROCEDURES

MONTHS	-3	-2	-1	0	1	2	3	4	5	6	7	8	9	10	11	12
BASIC DESIGN SURVEY																
EXCHANGE NOTE				E												
DESIGNING																
BIDDING																
ENFORCEMENT																

APPENDIX

1. Statistics

2-1-1 Fixed price for fish for cooperatives

SO. SH/kg

AREA	GRADE A	B	C	D	LOBSTERS
1. MOGADISHU COOPERATIVE					
a FOR FISHERMAN	4.00	3.00	2.00	1.20	12.00
b RETAIL	5.25	4.25	3.45	2.25	16.00
2. MERCA COOP					
a	2.70	2.00	1.50	1.00	10.00
b	3.90	3.20	2.70	2.00	14.00
3. KISMAYO COOP					
a	1.50	1.00	0.70		14.00
b	3.00	2.00	1.50		18.00
4. EL-AHAMED SETTLEMEN					
a	0.80	0.80	0.80	-	10.80
b	3.00	2.20	1.00	-	14.00
5. BERBERA COOP					
a	4.20	-	-		-
b	5.00				-
6. HABO/ALULA					
	FRESH TUNA	DRIED SHARK	DRIED SHARKFIN	DRIED MACKEREL	
a FOR FISHERMAN	0.95	1.55	1.50	1.50	
b FROMFACTORY	1.00				
c FOR SOMALFISH	-	2.55	2.12	2.00	

Table 2-1-2. Estimates of fish resources

Resources	Yearly potential catch (ton)	Major species
1) Skipjack, Tuna, King Mackerel	8,000	
2) Small pelagic species	100,000	Sardine, Anchovy, etc.
3) Lary Demersal species (excluded Shark Ray)	40,000	Snapper, Scavengers, Bream, Grouper, Liz and fish
4) Lobster (Shallow Sea) Lobster (Deep Sea)	500 1,500	P. ornatus, P. verrudor
5) Shrimp	400	Southern part from Kishmoyo
6) Sea tertle	unknown	
7) Squid & Octopus	unknown	
8) Middle layer pelagic species	unknown but plenty	
Total	180,000 + α	

Source : White Fish Authority

2-1-3 Fish export

1. EXPORT FISH & FISH PRODUCTS

<u>YEAR</u>	<u>QUANTITY(m/ton)</u>	<u>VALUE(1,000SOSH)</u>
1972	1,343	5,198
1973	1,796	13,461
1974	2,002	15,742
1975	2,392	11,583
1976	3,250	15,616
1977	5,072	24,478

2. EXPORT OF FISH & FISH PRODUCTS, 1976

<u>COMMODITY</u>	<u>QUANTITY(m/ton)</u>	<u>VALUE(1,000SOSH)</u>
CANNED TUNA	3,249	3,784.9
FROZEN FISH	1,386	1,374.9
DRIED FISH	1,358.4	3,395.3
FROZEN LOBSTER	1,428.0	7,560.4
TOTAL	3,249.0	15,615.5

3. EXPORT OF FISH & FISH PRODUCTS, 1977

<u>COMMODITY</u>	<u>QUANTITY(m/ton)</u>	<u>VALUE(1,000SOSH)</u>
FROZEN FISH	3,877.8	1,054.2
FROZEN LOBSTER	515.	2,718.2
DRY SALTED FISH	678	1,549
TOTAL	5,071.9	3,927.3

2-1-4 Fish production in Somalia

SPECIES	1974	1975	1976	1977	1978
1. NORTH COAST					
LAS KOREH	614	1,553	1,308	1,410	788
BOLI MOG	100	300	344	845	
HABO	435	301	56		
CANDALA	98	86	232		
CURING&LOGAL	(700)	1,260	(1,200)	(1,100)	(1,000)
SUB-TOTAL	1,947	3,500	3,040	3,355	1,778
2. EAST COAST					
EIL				379	240
ADALE				306	217
MOGADISHU				(300)	430
MERCA				(80)	61
EL-AHMED					72
BRAVA				226	123
KISHIMAYO				(100)	100
KULMIS				232	225
CHIAMBONI				(100)	102
OTHERS				(200)	(200)
TOTAL	2,000	4,400	4,000	1,923	1,770
3. OFF SHORE					
FISH	1,370	1,500	3,400	3,400	235
LOBSTERS	680	950	950	1,150	20
TOTAL	2,050	2,450	4,350	4,550	255
4. G. TOTAL	5,997	10,350	11,390	9,828	3,803

UNIT:TON

SOURCE: SOMAL FISH STATISTICAL REVIEW

FAO FISH MARKETING IN SOMALIA, JA ROSS1975

FINTECS, LAS-KOREH BOLIMOG STUDY 1978

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