7-2 Suggestions

The following recommendations and suggestions can be given to the Government and the implementing organization of the country so that the coastal transport vessel for fishing products to be provided by the Project will be more effectively operated and serve more efficiently for the development and promotion of the fisheries.

(1) Operation budget control

The management costs for the operation of the project vessel will be covered by the governmental subsidies and freight rate paid to beneficiary of the project vessel. For yearly freight rate establishment, the country needs to survey the business plan of each beneficiary, to draw the most effective operation plan based on proper cargo booking plan and then should establish appropriate freight rates. Also, for establish of the project vessel maintenance and administration plan, the country needs to draw periodical maintenance and administration plan from a long range standpoint and to establish a detail plan in order to carry out the effective operation plan.

(2) On board personnel plan

Although 4 foreign officers and engineers will be assigned on board for the beginning of the Project, the assignment of proper Mozambicans on board and early technology transfer is expected, since the personnel expenses for foreigners shares about 44% of the whole operation and management expenses and because of inconvenience of employment of foreigners. Cost reduction by early realization of operation by only Mozambicans and crew members training by regular shifting of crew is strongly recommended.

(3) Port facilities

It is recommended that the ports and harbors cargo work facilities at fishing ports are consolidated to improve the productivity of ports and harbors. Operation cost reduction and

increase of operation rate of the Project vessel by quick cargo work and shipment is requested.

APPENDICES

Appendices

1. Member List of Study Team

Assignment	Name	Title
1. Team Leader	Hidenobu Sobashima	Assistant Director, Grant Aid Division, Economic Cooperation Bureau, Ministry of Foreign Affairs of Japan
2. Fishing Vessel Project Planning	Kenji Matsumoto	Fishing Boat Inspector (Fishing Boat Division,) (Oceanic Fisheries Department,) Fisheries Agency, Ministry of Agriculture, Forestry and Fisheries
3. Vessel Design	Satoru Hirashima	Nichiro Gyogyo Kaisha, Ltd.
4. Vessel Outfitting Facilities	Takatsugu Nishihashi	Nichiro Gyogyo Kaisha, Ltd.
5. Operation, Transport Planning for Fishing Products	Masami Uramoto	Nichiro Gyogyo Kaisha, Ltd.
6. Weather and Hydro-graphic Conditions	Kuniaki Yamakawa	Nichiro Gyogyo Kaisha, Ltd.
7. Inter-preter for Portuguese	Natsumi Kusuno	Nichiro Gyogyo Kaisha, Ltd.

2. Study Schedule

Basic Design Study

Day	Date	Day of the Week	Itinerary, Description
1	Nov.28,1988	Mon.	Lv. Narita, Ar. London (JL401)
2	Nov.29,1988	Tue.	Lv. London (UM121)
3	Nov.30,1988	Wed.	Ar. Harare, Visit to the Japanese Embassy in Zimbabwe
4	Dec. 1,1988	Thu.	Application for the Mozambique Visa
5	Dec. 2,1988	Fri.	Lv. Harare, Ar. Maputo (TM343), Visit to the Ministry of Economic Cooperation, Discussion on the itinerary, presentation of the Inception
6	Dec. 3,1988	Sat.	Survey of the Fishing Port of Maputo, Materials and Equipment Supply Corporation (EQUIPESCA)
7	Dec. 4,1988	Sun.	Survey of the markets in Maputo, the neighboring fishing villages
8	Dec. 5,1988	Mon.	Basic Discussion, arrangements for the content of the Minutes
9	Dec. 6,1988	Tue.	Technical discussion
10	Dec. 7,1988	Wed.	Technical discussion, arrangement for the content of the Minutes, the dinner party hosted by the Secretariat of State for Fisheries
11	Dec. 8,1988	Thu.	Visit to the Director General of the Secretariat of State for Fisheries, signature of the Minutes, the dinner Party hosted by the Survey Team
12	Dec. 9,1988	Fri.	Technical discussion, Mr. Sobashima leaving Maputo
13	Dec.10,1988	Sat.	Technical discussion, leaving Maputo, arriving Quelimane (TM144), Mr. Matsumoto leaving Maputo

Day	Date	Day of the Week	Itinerary, Description
14	Dec.11,1988	Sun.	Survey of the Quelimane city (the markets, commercial port), preparation for data analysis
15	Dec.12,1988	Mon.	Survey of the floating pontoons, refrigerator, commercial port, visit to the Railway Bureau
16	Dec.13,1988	Tue.	Visit to Angoche (charter for a day), Survey of RIGEL 2
17	Dec.14,1988	Wed.	Lv. Quelimane, Ar. Maputo (TM141), discussion with the officials of the Secretariat of State for Fisheries
18	Dec.15,1988	Thu.	Investigation of the shipyards, repair shops, shipping facilities
19	Dec.16,1988	Fri.	Survey of the repair shops, the School of Mercantile Marine, two of the Team members leaving Maputo, arriving Beira (TM134)
20	Dec.17,1988	Sat.	Survey of the Fishing Port of Beira, shipyards, fisheries complex, two of the Team members leaving Beira, arriving Maputo (TM145)
21	Dec.18,1988	Sun.	Discussion within the Team
22	Dec.19,1988	Mon.	The last discussion, bidding farewell
23	Dec.20,1988	Tue.	Lv. Maputo, Ar. Harare (UM304)
24	Dec.21,1988	Wed.	Report to the Japanese Embassy in Zimbabwe, Lv. Harare (UM124)
25	Dec.22,1988	Thu.	Ar. London, Lv. London (JAL424)
26	Dec.23,1988	Fri.	Ar. Narita

3. List of Counterparts in Mozambique

Date	Name	Title and Organization
Nov. 30, 1988	Ken Ikebe	Ambassador Extraordinary and Plenipotentiary, Japanese Embassy in Zimbabwe
	Hiroyuki Eguchi	Counselor, Japanese Embassy in Zimbabwe
	Yukiharu Matsumoto	First Secretary, Japanese Embassy in Zimbabwe
	Shinichi Shimizu	Second Secretary, Japanese Embassy in Zimbabwe
	Yukio Kawajiri	Second Secretary, Japanese Embassy in Zimbabwe
	Norihumi Sasaki	Secretary, Japanese Embassy in Zimbabwe
Dec. 2, 1988	LUIZ FILIPE LIMA SCHWALBACK	International Cooperation Department, External Relations, Secretariat of State for Fisheries
	AMERICO ANTONIO FORTUNA	Senior Chief, International Cooperation Bureau, Ministry of International Cooperation
	GEORGE R. POITEVEIN	Chief Director, Technical Department, Technical Bureau, Secretariat of State for Fisheries
	FILIMAO LANGA	Ministry of International Cooperation
	Susumu Kimura	Head, EFRIPEL (Quelimane)
	Hiroyuki Oohama	Representative, EFRIPEL (Maputo)
	Iwao Oshima	Representative, EFRIPEL (Maputo)
Dec. 3, 1988	EDGAR PONTES	Chief, Sales Distribution Section, Materials and Equipment Supply Corporation (EQIPESCA)
	CAETANO JOAO MEQUE	Head, Fishing Port of Maputo
	MAMADE SULEMANE	Director for External Relations, Secretariat of State for Fisheries

Date	Name	Title and Organization
Dec. 5, 1988	CRIT TULCIDAS	Assistant Director, Supply Department, Small Scale Fisheries Bureau, Secretariat of State for Fisheries
	STANISLAW J. MICHALSKI	Chief Director, Technical Department, Small Scale Fisheries Bureau, Secretariat of State for Fisheries
Dec. 8, 1988	JOAQUIM TENREIRO DE ALMEIDA	Director General, Secretariat of State for Fisheries
Dec. 10, 1988	JOSE JULAI MAZIVE	Assistant Director, Overseas Investment Promotion Office, Ministry of International Cooperation
	ELISA SANTOS	Chief, Economic Bureau, Secretariat of State for Fisheries
	FILIPE CARLOS MASSINGUE	Chief, Personnel Bureau, Secretariat of State for Fisheries
	RUI EMIDIO FIGUEIREDO	Chief Director, Economic Department, Economic Bureau, Secretariat of State for Fisheries
	MOISES MASSINGA	Representative, Materials and Equipment Supply Corporation
	ISIDORA DA ESPERANCA FAZTUDO	Representative, EFRIPEL
Dec. 12, 1988	ANESELMO BENJAMIN N. PORTUGAL	Head, Fishing Port of Quelimane
	JOAQUIM NELSON TEMBE	Chief Director, Maintenance Dept for Cold Storage Facilities, Quelimane Fishing Port
	MARIO DUDA JAMBO	Chief, Zambezia Railway Bureau
	MARIO MABUNDA	Chief Director of Port Administration Dept, Zambezia Railway Bureau
	Singo Kokubu	Representative, EFRIPEL (Quelimane)
	SEIICHI HIROSIMA	Representative, EFRIPEL (Quelimane)

Date	Name	Title and Organization
Dec. 13, 1988	SALVADOR NHAVENE	Chief Director, Personnel Department, EMOPESCA ANGOCHE
	ALEXANDRE NICOLAS	Chief Director, Maintenance Department, EMOPESCA ANGOCHE
Dec. 13, 1988	BRAZ SUALE	Chief Director, Fleet Department, EMOPESCA ANGOCHE
	TOMAS NAMALUE	EMOPESCA ANGOCHE
Dec. 15, 1988	ATANASIO FARANCISCO	Chief, Shipping Materials Bureau, Ministry of Transport and Telecommunications (ENAMA)
	ANTONIO JOPELA	Chief, Shipping Maintenance Bureau, Ministry of Transport and Telecommunications (ENAMA)
	CANDIDO TEIXEIRA	Principal, School of Fisheries
Dec. 16, 1988	JOAQUIM L. KANAMBANGA	Assistant Director of School Affairs, School of Mercantile Marine
	KARE WIEDSWANG	Principal and Project Manager, School of Mercantile Marine
	SILVESTRE CHISSANO	Head of Production, Head Shipyard, NAVIPESCA
	ANTONIO MAFUMO	Chief, Glassfiber Shipyard, NAVIPESCA
	DIMITRI	Chief, Production Bureau, Beira Shipyard
	EUSEBIO FELICIANO SIQUELA	Chief, Fisheries Bureau, the County of Sophara
	JOAO PAULINO	Chief Director of the Personnel Department, Fisheries Bureau, the County of Sophara
	VICTORINO VICENTE COSSA	Head, Port of Beira

4. Minutes of Discussions

MINUTES OF DISCUSSIONS
ON
THE PROJECT FOR BUILDING OF
A COASTAL TRANSPORT VESSEL FOR FISHING PRODUCTS
IN
THE PEOPLE'S REPUBLIC OF MOZAMBIQUE

In response to the request of the Government of the People's Republic of Mozambique, the Government of Japan decided to conduct a basic design study on the Project for Building of a Coastal Transport Vessel for Fishing Products in Mozambique (hereinafter referred to as "the Project") and entrusted the study to the Japan International Cooperation Agency (hereinafter referred to as "JICA"). JICA sent to Mozambique a study team headed by Mr. Hidenobu Sobashima, Assistant Director, Grant Aid Division, Economic Cooperation Bureau, Ministry of Foreign Affairs of Japan from November 28th to December 22nd, 1988.

The team had a series of discussions on the Project with the officials concerned of the Government of Mozambique headed by Mr. Mamade Sulemane, Director for External Relations, Secretariat of State for Fisheries, and conducted a project-site survey to cover Maputo and other proposed ports of call.

As a result of the study and discussions, both parties have agreed to recommend to their respective Governments that the major points of understanding reached between them, attached hereto, should be examined towards the realization of the Project.

Maputo 8th December, 1988

Hidenobu Sobashima
Team Leader
Basic Design Study Team
JICA

Mamade Sulemane
Director for External Relations
Secretariat of State for Fisheries
People's Republic of Mozambique

ATTACHMENT

1) The Objective of the Project

The Objective of the Project is to promote various kinds of fisheries in Mozambique by means of providing a vessel and related equipment for transporting fishery products and materials in the Exclusive Economic Zone of Mozambique.

2) Executing Organization

The Secretariat of State for Fisheries is responsible for the implementation of the Project.

3) Request of the Government of Mozambique

The team will convey the request of the Government of Mozambique to the Government of Japan that the latter take necessary measures to cooperate in providing the vessel and equipment listed in ANNEX I within the scope of the Japan's Grant Aid Program.

4) Necessary Measures to be taken by the Government of Mozambique

The Government of Mozambique will take necessary measures listed in ANNEX II on the condition that the Grant Aid of the Government of Japan is extended to the Project.

5) System of the Japan's Grant Aid Program

The Mozambique side has understood the system of the Japan's Grant Aid, explained by the team, which includes the principle of the use of Japanese consultants and Japanese firms for the implementation of the Project.

6) Assurance of Necessary Budget

The Mozambique side assured the visiting team that the necessary budget for effective operation and maintenance of the vessel and equipment would be provided, as well as the adequate number of Mozambiquean personnel with sufficient knowledge, technique and experience, on the condition that the Grant Aid of the Government of Japan is extended to the Project.

Note:

The both parties felt it was desirable that technical cooperation be extended from Japan to Mozambique for the smooth and efficient implementation of the Project.

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ANNEX I

(1) Vessel

1) Type and Number
Coastal transport vessel for fishing products one (1)

2) Port of Registration
Maputo, People's Republic of Mozambique

3) Operation Areas
- Service Areas :
Coastal areas of Mozambique waters

Intended Ports of Call
Maputo, Quelimane, Beira and other ports in Mozambique where safe access and operation of the vessel is ensured.

4) Rules and Regulations
Mozambique maritime rules and regulations should be reffered to where applicable.

5) Principal Particulars

Classification	Nippon Kaiji Kyokai (NK) or Bureau Veritas (BV)	
Length overall	approx. 55	M
Lpp	approx. 50	M
Breadth	approx. 10	M
Depth	approx. 4.5	M
Cruising speed	approx. 10	Knots
Main engine power	approx. 1000	PS
Capacity		
Dry cargo hold	approx. 300	M^3
Refrigerated fish hold	approx. 300	M^3
Fuel oil tank	approx. 150	M^3
Fresh water tank	approx. 100	M^3
Cargo gear		
Derrick and Boom, Double rigged type	2	Sets
Complement	total 24	Persons

6) Spare parts: Two (2) years use for normal operation

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(2) Onshore Supporting Equipment for the Vessel

Refrigerated truck	4tons load	2 Units
Folk lift		2 Units
Truck crane		1 Units
Lorry for bunker's use	4tons load	1 Units
Truck	4tons load	2 Units

ANNEX II

Necessary measures to be taken by the Government of Mozambique

1) To prompt unloading and custom clearance in Mozambique of the provided vessel and equipment.

2) To secure, with respect to the supply of the vessel and equipment and services under the verified contracts, that Japanese nationals shall not be subject to any custom duties, internal taxes and other fiscal levies which may be inforced in Mozambique in accordance with the law and regulations concerned of Mozambique.

3) To accord Japanese nationals whose services may be required in connection with the supply of the vessel and equipment and the services under the verified contracts, such facilities as may be nesessary for their entry into Mozambique and stay therein for the performance of their work.

4) To maintain and use properly and effectively the vessel and equipment provided by the Grant Aid.

5) To bear all the expenses other than those to be borne by the Grant Aid, nesessary for the vessel and equipment.

6) To provide necessary personnels with sufficient knowledge, technique and experience for the implementation of the Project.

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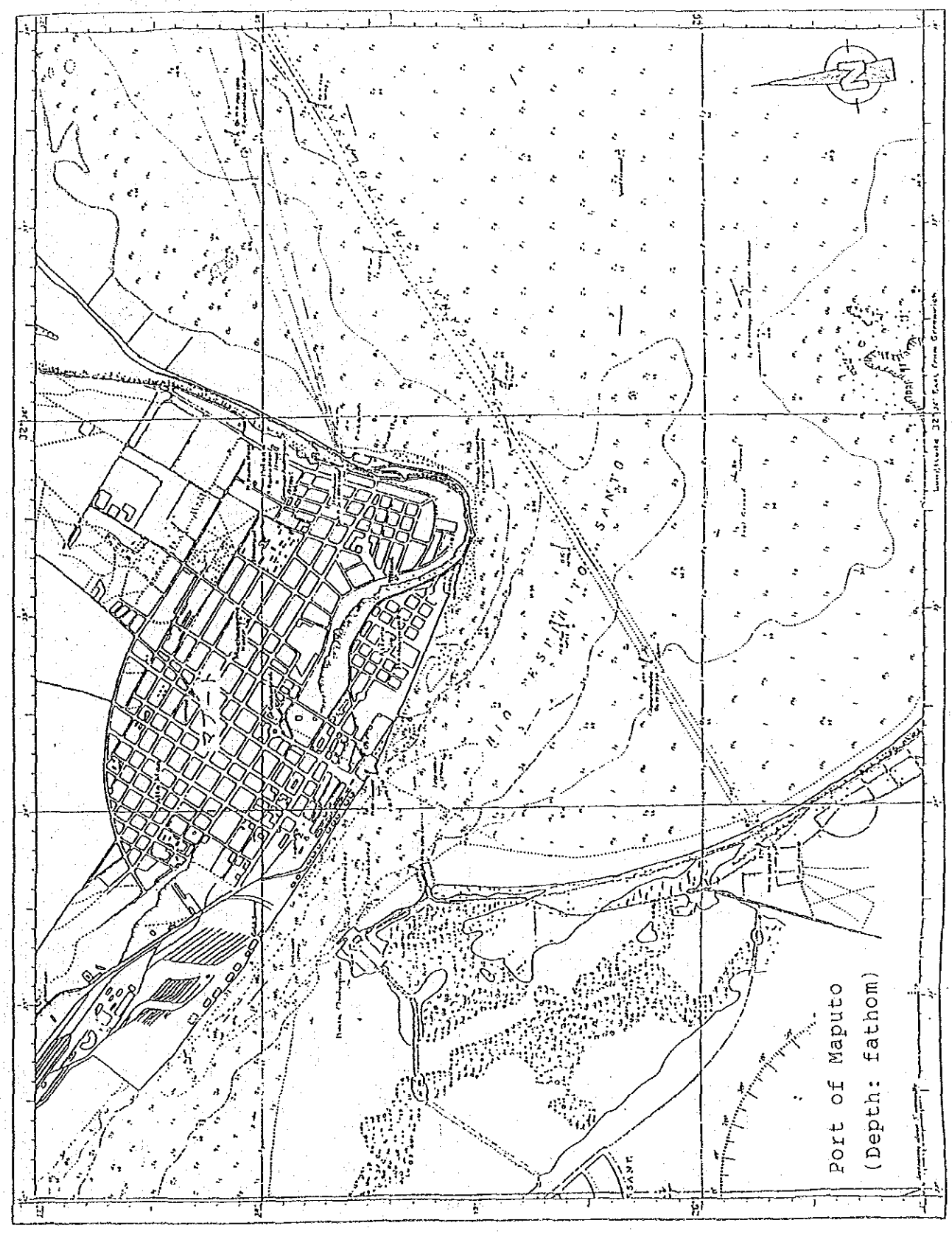
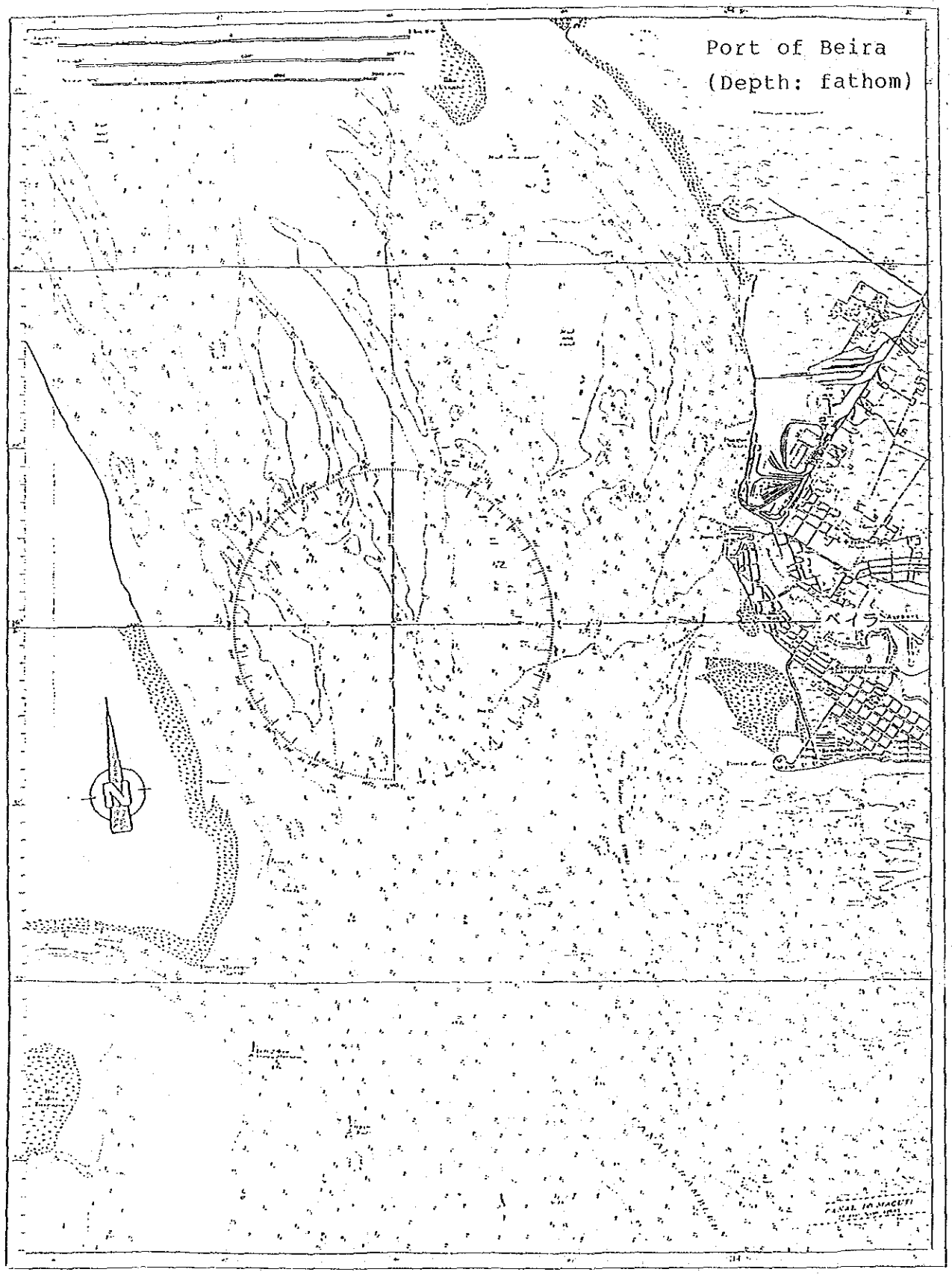
5. Materials

(1) Port Maps

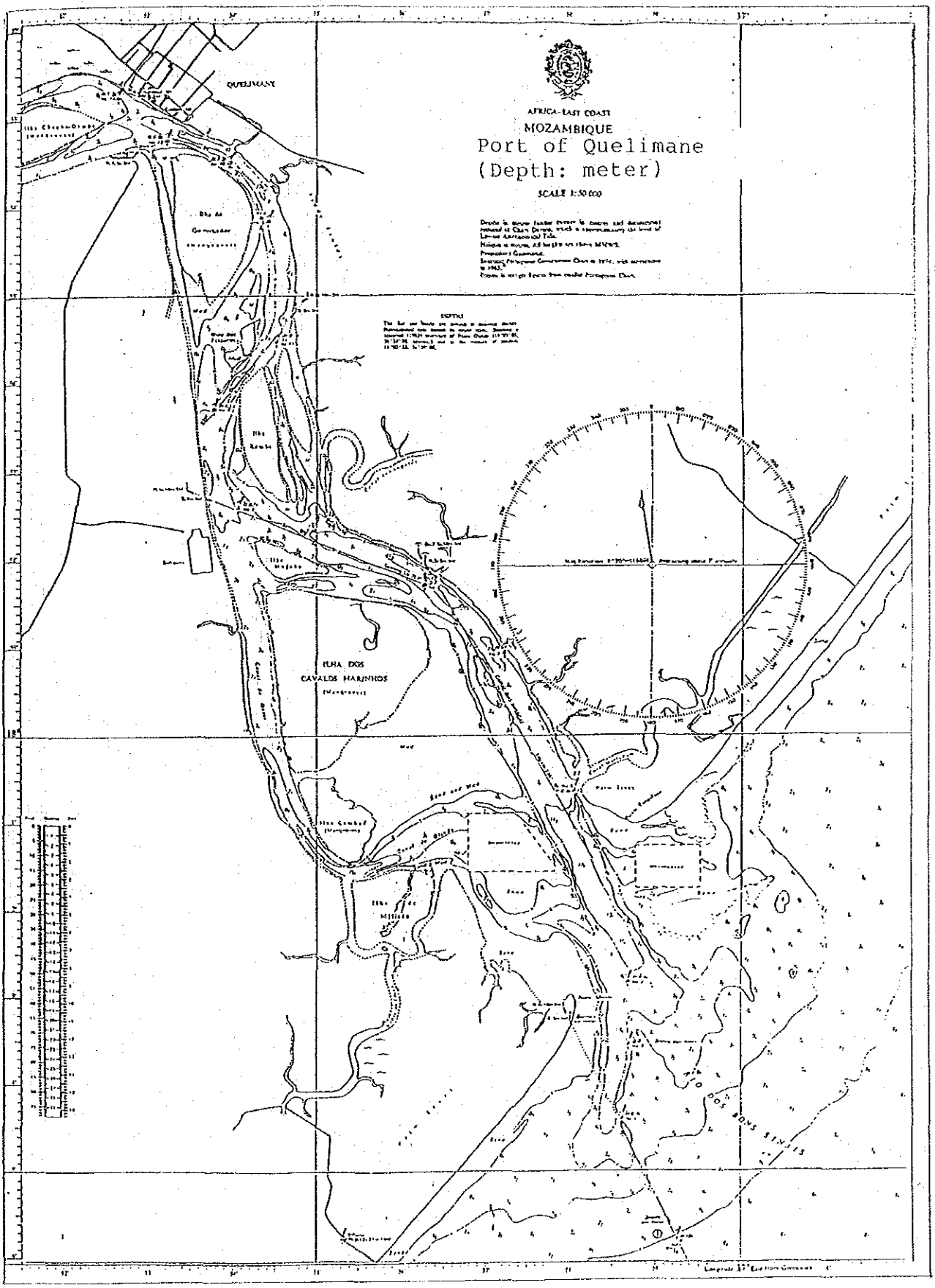
① Port of Maputo



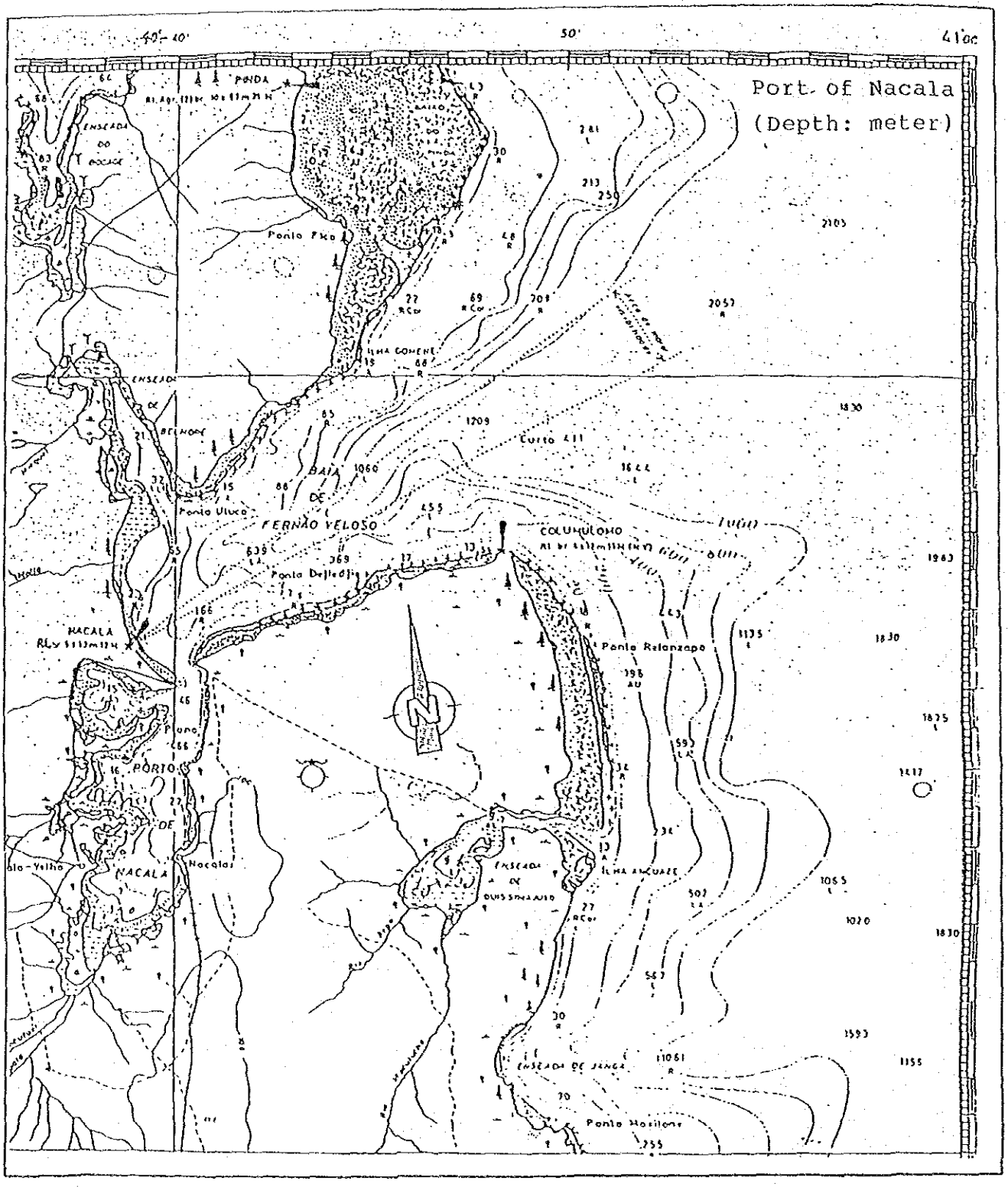
② Port of Beira



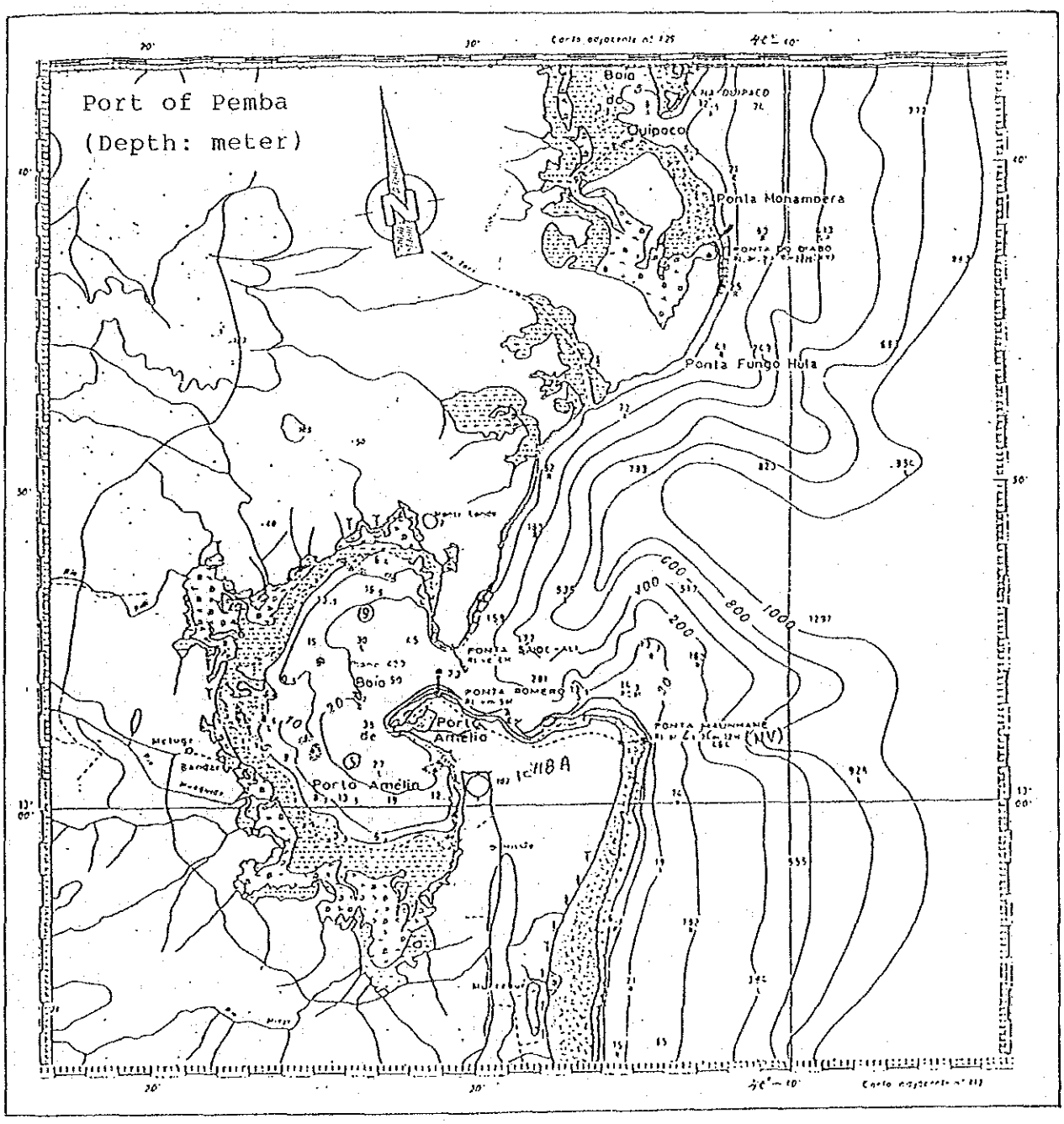
③ Port of Quelimane



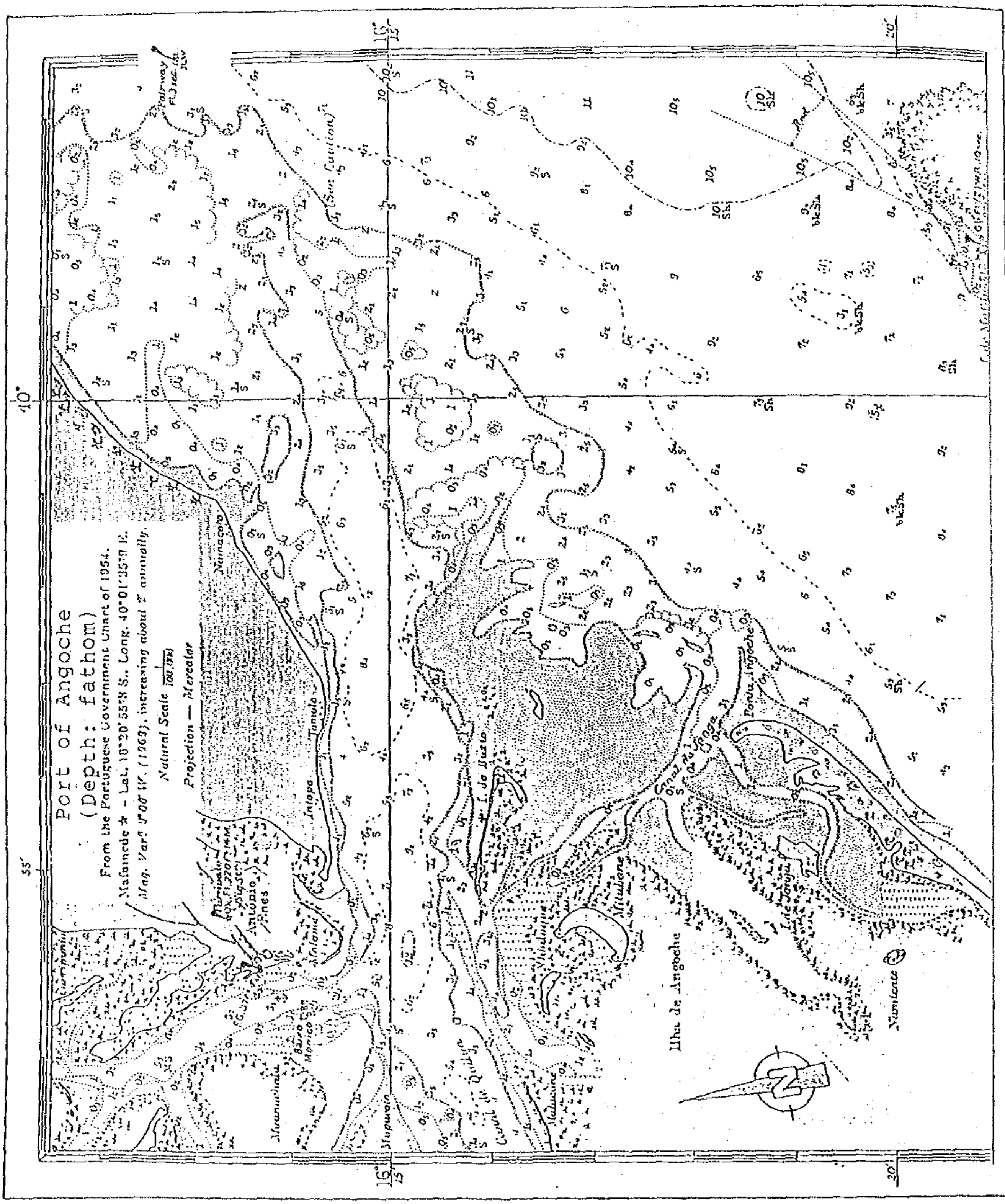
④ Port of Nacala



⑤ Port of Pemba



⑥ Port of Angoche

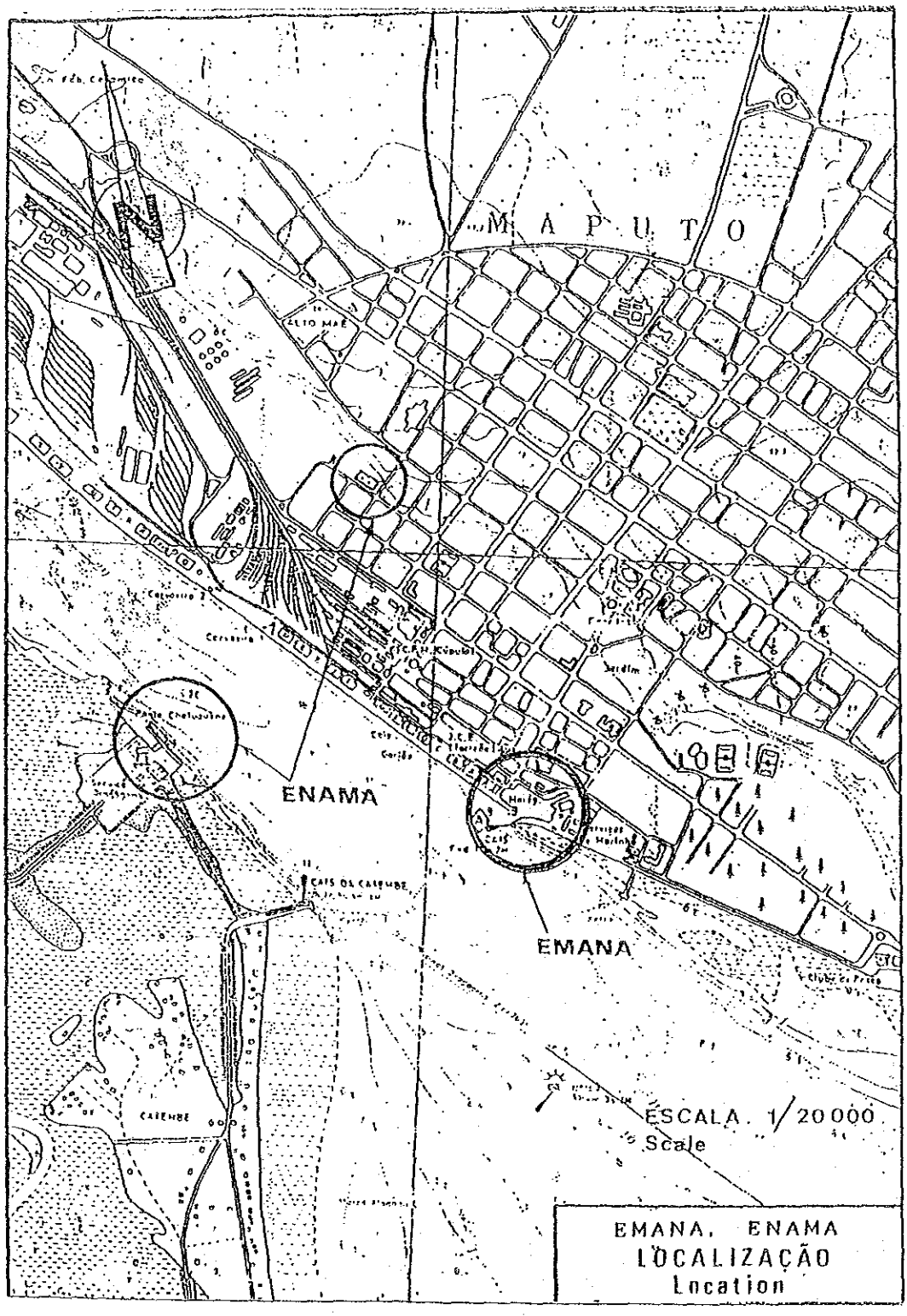


(2) Ship Building and Repair Facilities

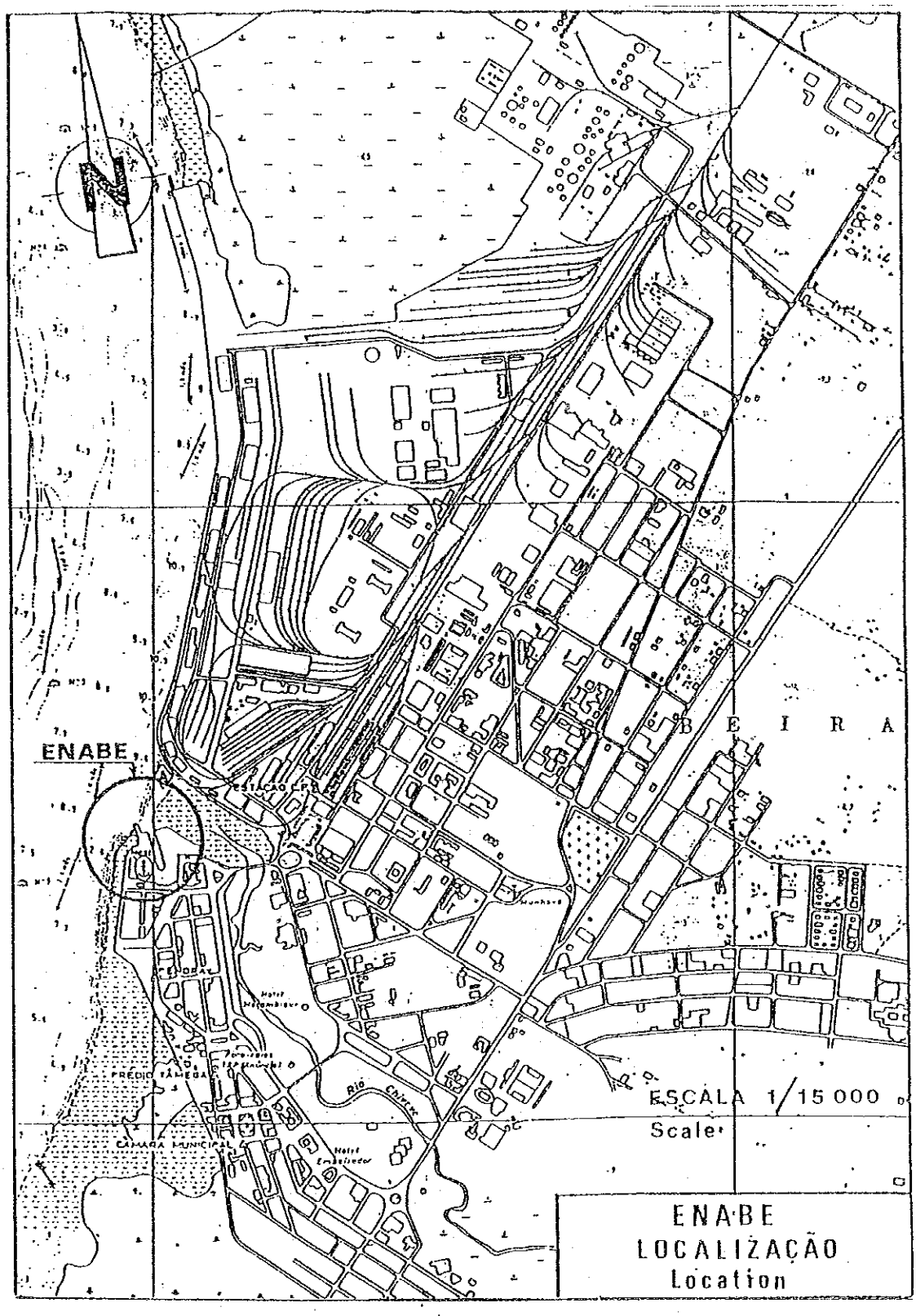
① Ship Repair Facilities in Mozambique

	EMANA	ENAMA	ENABE	NAVIPESCA		
				Shipped Head Office	FRP shipyard	Rio Matola shipyard
Official Name	Empresa de Manutencao Naval	Estaleiros Navais de Maputo	Estaleiros Navais de Beira	Estaleiro Sede	Estaleiro Fibra Vidro	Estaleiro Rio Matola
Location	Maputo	Maputo	Beira	Maputo downtown	Maputo downtown	Maputo downtown
Bulding and Repair Facilities					Cold store for FRP materials is available	
1) Dock	80 x 12 x 3.9 m	Floating dock 115 x 18 x 6.5 m	110 x 17 x 6.5 m	Building, repair and reconstruction of ship of wood, steel and ferrocement	Building and repair of FRP ship	Repair of wooden ship
2) Wharf	-----	190 x 7 m	200 x 2.5 m			
3) Machining Capacity	Possible to shaft of dia. 10 m	Possible to shaft of dia. 2 m	Possible to shaft of dia. 11 m			
4) Steel Plate Machining Capacity	4000 x 2000 x 12 mm	2000 x 1000 x 8 mm	8000 x 2000 x 30 mm			
5) Crane	5 ton	5 ton x 2	7 ton			
6) Casting Capacity	100 kg/casting					
Employees:				Total of three shipyards:		
Workshop	Approx. 180	Approx. 155	Approx. 312	Approx. 317		
Office	Approx. 33	Approx. 69	Approx. 156	Approx. 35		
Total	Approx. 213	Approx. 224	Approx. 468	Approx. 342		
Other Temporary Employees	Approx. 100	Approx. 50	Approx. 10			
Productiviey (1987)				Result of Jan. to Jul. 1988		
1) Number of Vessels Repaired	11	70 (Only hull repair)	40	Wooden ship under building: 2	FRP ship built: 8	Wooden ship repaired : 4
2) Turnover (mil.MT)	141.3	668.6	293.5	Cement ship under building: 1	FRP ship reparired : 24	Wooden ship reconstrcuted: 1
3) Turnover in Foreign Currencies	0	USD 213,000.00	USD 20,000.00 (estimated)			
Technical Assistance		Technical assistance and assistance from Soviet Union			Technical assistance and assistance by technical materials from Sweden	

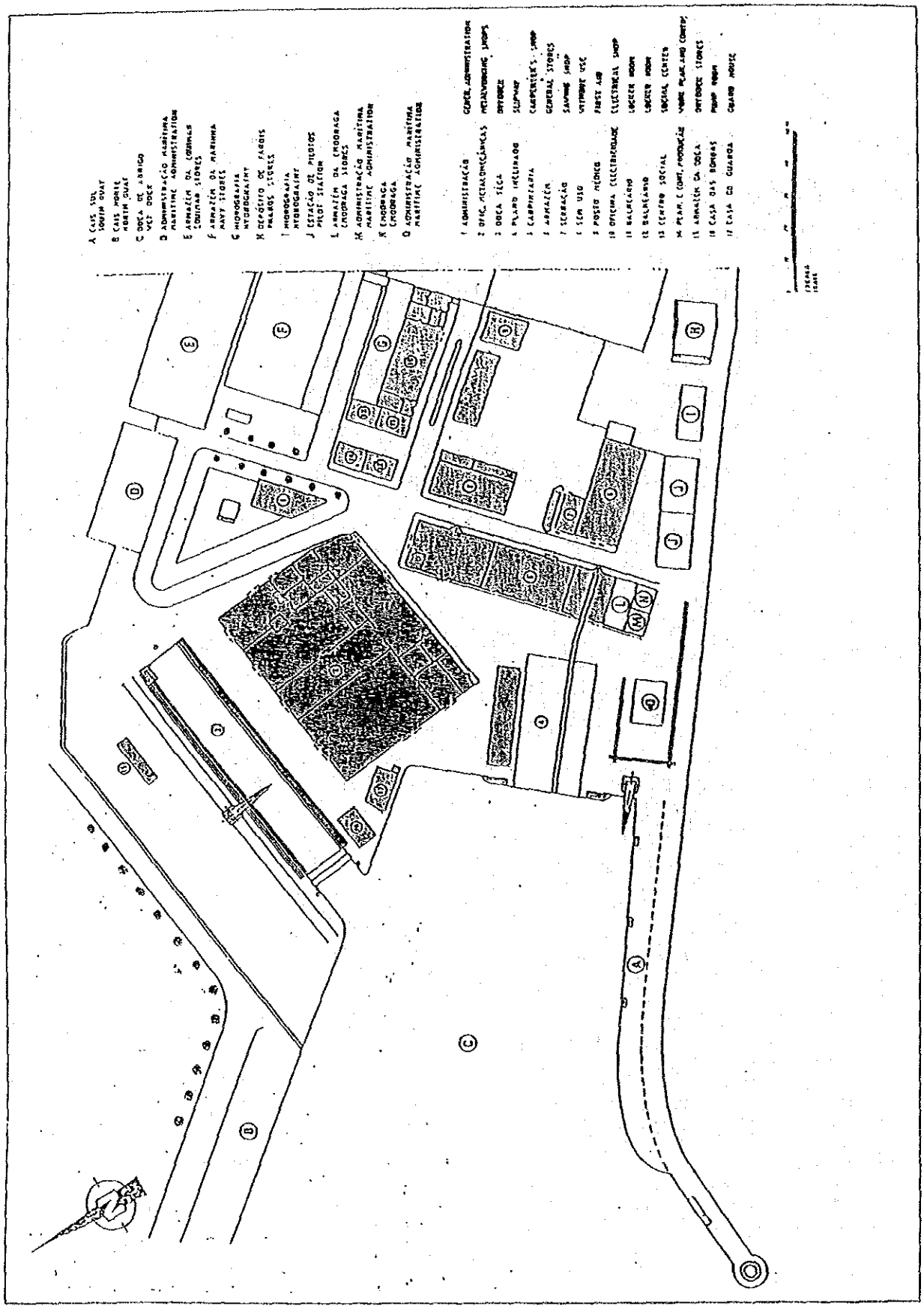
② Locations of EMANA (Ship Maintenance Company), ENAMA (Shipyard of Maputo)



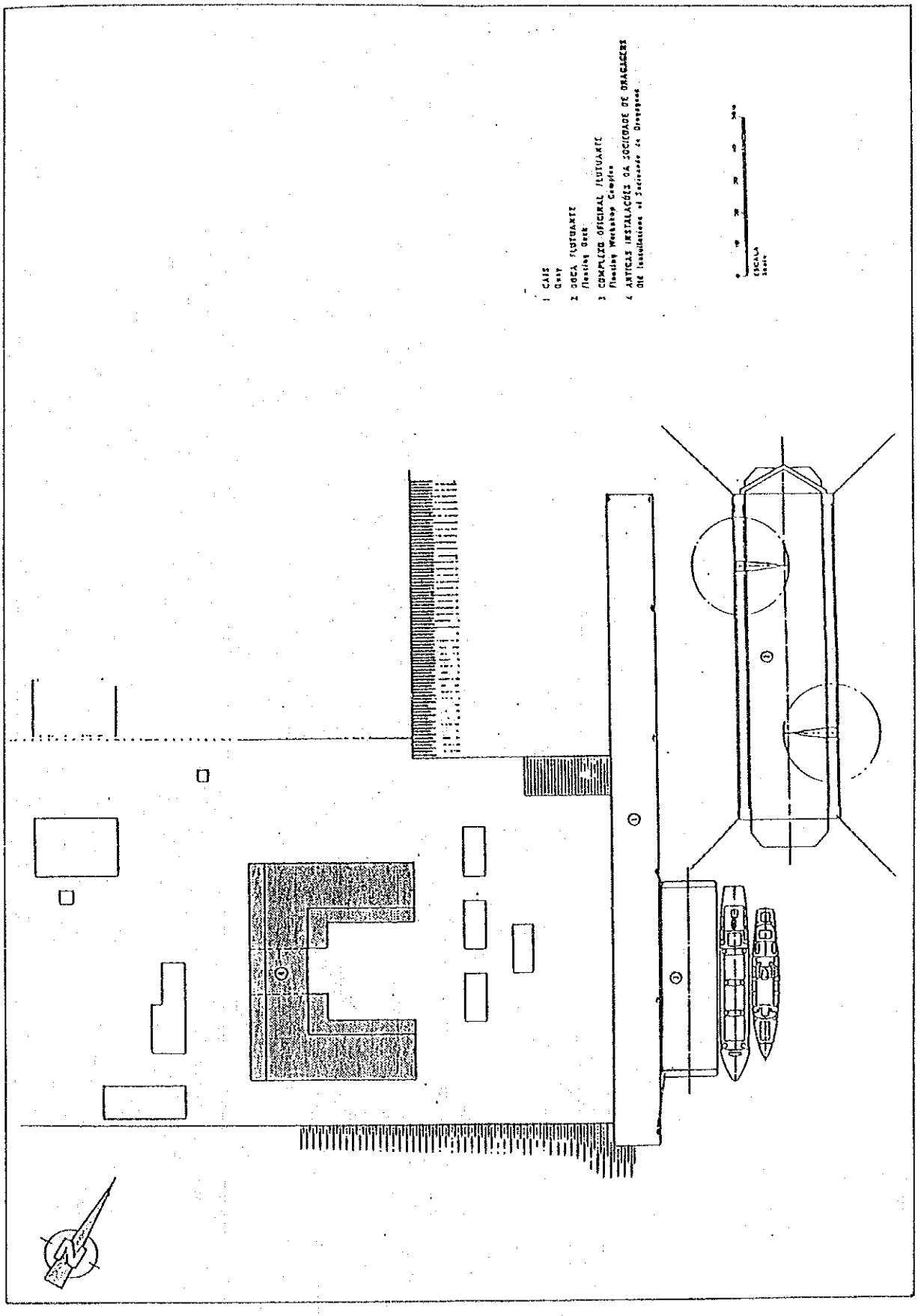
③ Location of ENABE (Shipyard of Beira)



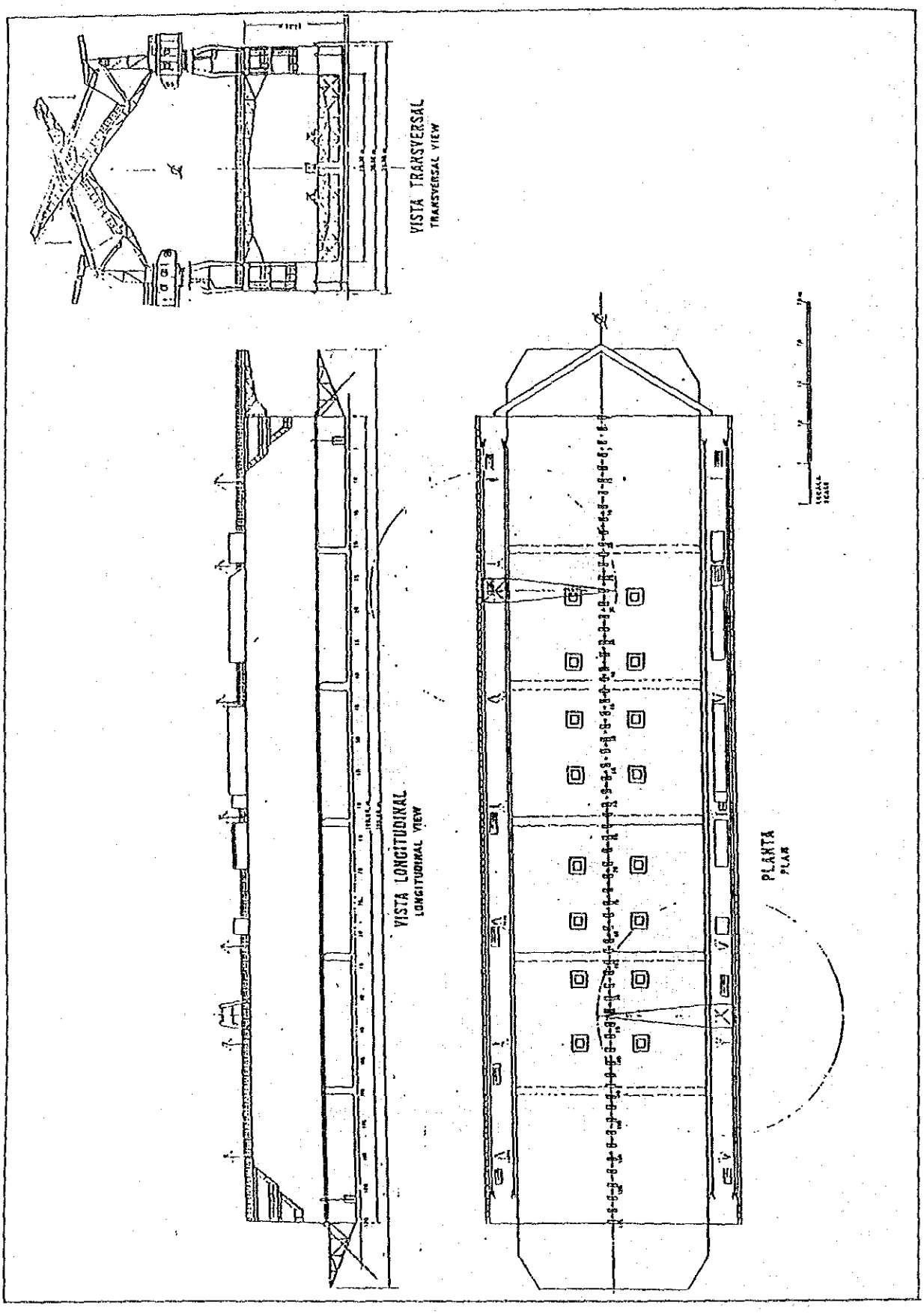
④ Plot Plan of EMANA (Ship Maintenance Company)



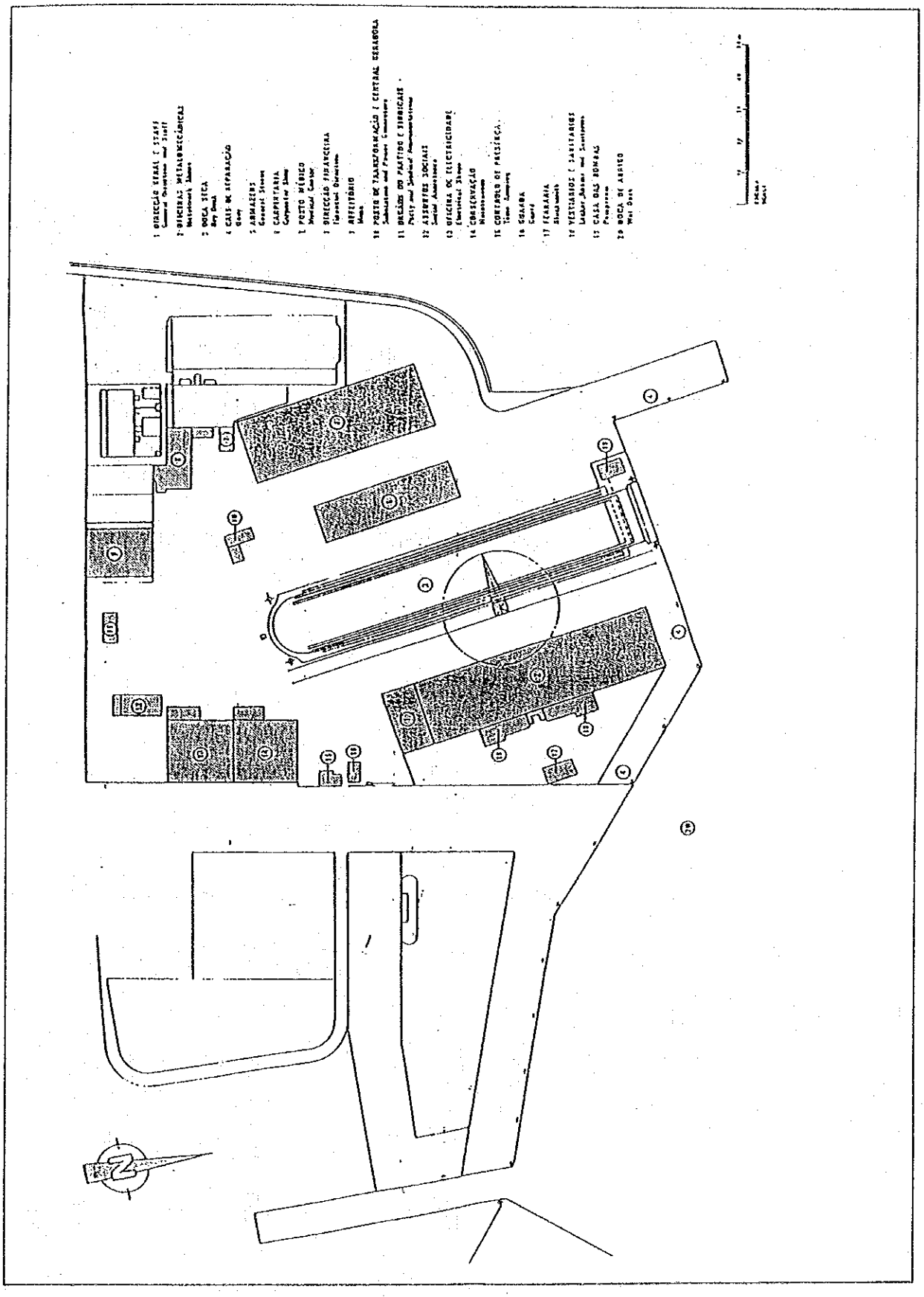
⑤ Plot Plan of ENAMA (Shipyard of Maputo)



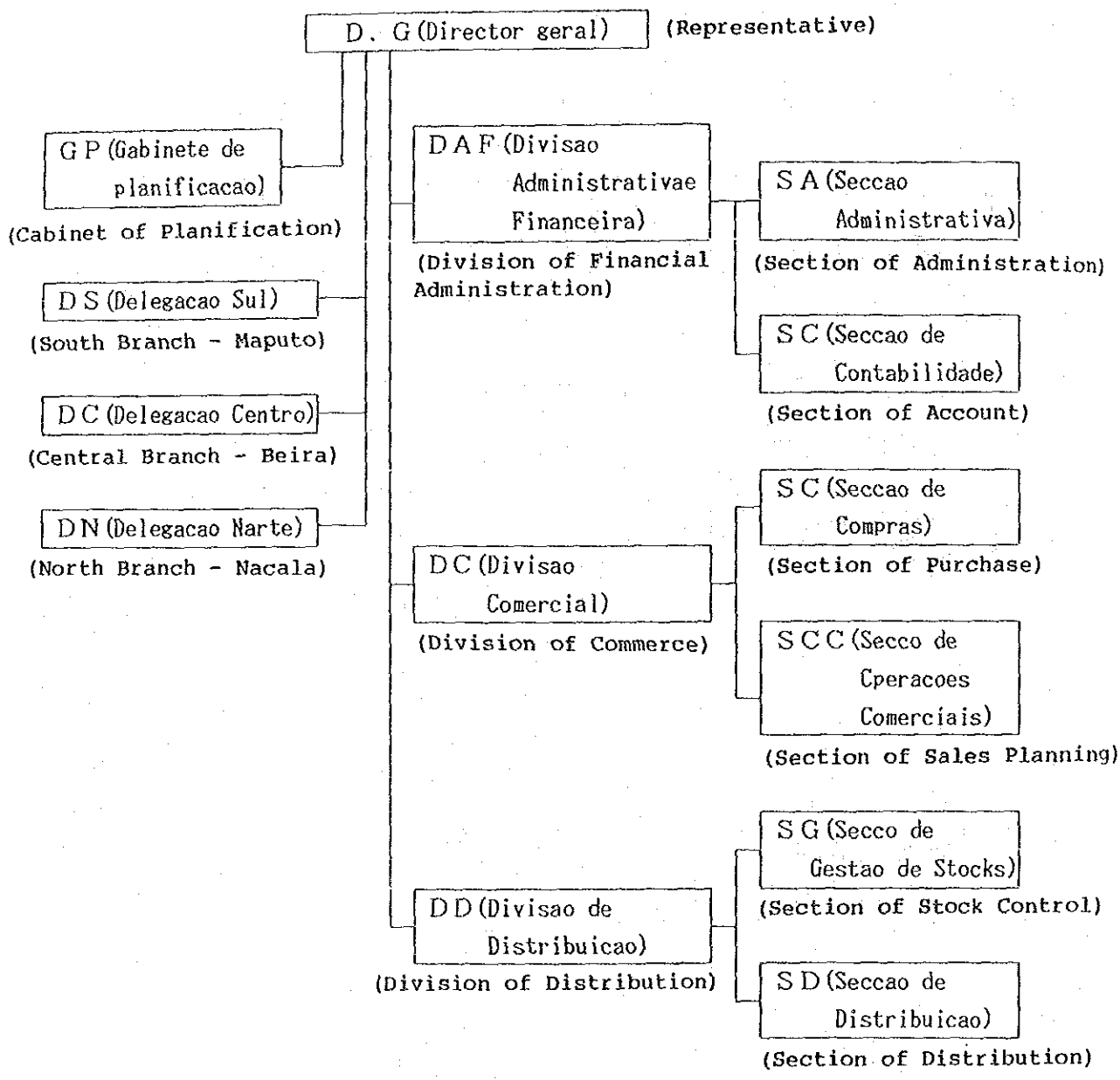
⑥ General Plot Plan of the Floating Dock,
ENAMA (Shipyard of Maputo)



⑦ Plot Plan of ENABE (Shipyard of Beira)



(3) Organization Chart of EQUIPESCA (as of December 1988)



Personnel assignment	Present	On project vessel provided time
Representative	1	1
Cabinet of Planification	5	5
Division of Financial Administration	19	19
Division of Commerce	12	12
Division of Distribution	5	5
Charge of Navigation	0	3
South Branch	35	35
Central Branch	20	20
North Branch	13	13
Total	110	113

(4) Operation and Management Cost Calculation of the Project Vessel

1) Calculation sheet for freight/ton

2) Calculation standard for freight/ton

3) Maintenance and management cost

4) Cost freight

5) Freight by unloading port

6) Conditions for estimating maintenance and management cost

7) Calculation standard for estimation of maintenance and management cost

1) Calculation Sheet for Freights/Ton

① First three year plan (first year to third year)

	Cargo transport amount per year (Loading capacity)	Freight/Ton calculation (Standard: Freight of Maputo to Beira)
Going	(1) Equipment and materials for fishing (3,900 m^3) Maputo: Loaded Beira, Quelimane: Unloaded (60% estimated) = 2,340 Nacala, Pemba: Unloaded (40% estimated) = 1,560 Total 3,900 m^3	2,340x(Freight coefficient Beira 1.0+Quelimane 1.11)x1/2x(Loading coefficient 1/1.2 estimated) = 2,057 1,560x(Freight coefficient Nacala 1.38+Pemba 1.45)x1/2x(Loading coefficient 1/1.2 estimated) = 1,840 Total 3,897 m^3
	(2) Refrigerated fishing products Maputo: Loaded Beira: Unloaded = 1,800 Beira, Maputo: Unloaded = 1,200 Total 3,000 m^3	1,800x(Freight coefficient Beira 1.0)x(Coefficient by nature of cargo 1.4) x(Loading coefficient 1/1.2 estimated) = 2,100 1,200x(Beira 1.00+Nacala 1.38+Pemba 1.45)x1/3x1.4x(1/1.2 estimated) = 1,787 Total 3,887 m^3 Total 7,784m^3
Returning	(1) Refrigerated fishing products Quelimane: Loaded Beira: Unloaded = 1,700 Beira, Maputo: Unloaded = 1,200 Total 2,900 m^3	1,700x(Freight coefficient Quelimane/Beira 0.76)x(Coefficient by nature of cargo 1.4) x(Loading coefficient 1/1.2 estimated) = 1,507 1,200x(Quelimane/Beira 0.76 + Quelimane/Maputo 1.22)x1.4x(1/1.2 estimated) = 1,309 Total 2,816 m^3
	Gross Total 9,800 m^3	Gross Total 10,600 m^3

② Second three year plan (forth year to sixth year)

	Cargo transport amount per year (Loading capacity)		Freight/Ton calculation (Standard: Freight of Maputo to Beira)	
Going	(1) Equipment and materials for fishing (3,900 m^3)			
	Maputo: Loaded			
	Beira, Quelimane:			
	Unloaded (60% estimated)	= 2,340	2,340x(Freight coefficient Beira 1.0+Quelimane 1.11)x1/2x(Loading coefficient 1/1.2 estimated)	= 2,057
	Nacala, Pemba:			
	Unloaded (40% estimated)	= 1,560	1,560x(Freight coefficient Nacala 1.38+Pemba 1.45)x1/2x(Loading coefficient 1/1.2 estimated)	= 1,840
	Total	3,900 m^3	Total	3,897 m^3
	(2) Refrigerated fishing products			
	Maputo: Loaded			
	Beira:			
	Unloaded	= 2,300	2,300x(Freight coefficient Beira 1.0)x(Coefficient by nature of cargo 1.4) x(Loading coefficient 1/1.2 estimated)	= 2,683
	Beira, Maputo:			
	Unloaded	= 1,500	1,200x(Beira 1.00+Nacala 1.38+Pemba 1.45)x1/3x1.4x(1/1.2 estimated)	= 2,234
	Total	3,800 m^3	Total	4,917 m^3
			Total 8,814m^3	
Returning	(1) Refrigerated fishing products			
	Quelimane: Loaded			
	Beira:			
	Unloaded	= 1,700	1,700x(Freight coefficient Quelimane/Beira 0.76)x(Coefficient by nature of cargo 1.4) x(Loading coefficient 1/1.2 estimated)	= 1,507
	Beira, Maputo:			
	Unloaded	= 1,200	1,200x(Quelimane/Beira 0.76 + Quelimane/Maputo 1.22)x1.4x(1/1.2 estimated)	= 1,309
	Total	2,900 m^3	Total	2,816 m^3
	Gross Total	10,600 m^3	Gross Total	11,630 m^3

2) Calculation Standard for Freight/Ton

The actually applicable freight coefficient shown below is used.

① Adjusting coefficient by unloading port

	Maputo	Beira	Quelimane	Nacala	Pemba
Maputo	*	1.00	1.11	1.38	1.45
Beira	1.00	*	0.76	1.06	1.13
Quelimane	1.11	0.76	*	0.91	0.99
Nacala	1.38	1.06	0.91	*	0.68
Pemba	1.45	1.13	0.99	0.68	*

② Adjusting coefficient by nature of cargo

Nature of cargo	Adjusting coefficient
Dry cargo such as equipment and materials for fishing	1.0
Liquid cargo such as fuel, lubricant, etc.	1.2
Refrigerated cargo like fishing products	1.4

Example of calculation of freight rate:

In case refrigerated catch is transported from Maputo to Pemba

Freight rate

= Standard freight rate

x 1.45 (adjusting coefficient by unloading port)

x 1.4 (adjusting coefficient by nature of cargo)

= 2.03

3) Maintenance and Management Cost (for 10 years)

Unit: thousand meticais

Item	1st year	2nd year	3rd year	4th year	5th year	6th year	7th year	8th year	9th year	10th year
(1) Material cost										
Consumables for ship		6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000
Fuel	75,777	75,777	75,777	75,777	75,777	75,777	75,777	75,777	75,777	75,777
Lubricant	3,789	3,789	3,789	3,789	3,789	3,789	3,789	3,789	3,789	3,789
Other materials	4,800	4,800	4,800	4,800	4,800	4,800	4,800	4,800	4,800	4,800
(2) Personnel cost										
Salary for Mozambican	7,570	7,570	7,570	7,570	7,570	7,570	7,570	7,570	7,570	7,570
for Foreigner	148,400	148,400	148,400							
Food cost for Mozambican	8,000	8,000	8,000	8,000	8,000	8,000	8,000	8,000	8,000	8,000
for Foreigner	3,200	3,200	3,200							
Cost for personnel change for Foreigner	9,200	9,200	9,200							
(3) Expenses										
Repair	5,000	20,000	25,000	26,600	28,300	30,100	32,000	34,100	36,300	3,8700
Port	5,200	5,200	5,200	5,200	5,200	5,200	5,200	5,200	5,200	5,200
Hull insurance	73,125	69,063	65,001	60,939	56,877	52,815	48,753	44,691	40,629	36,567
Others	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200
Total	345,261	362,199	363,137	199,875	197,513	195,251	193,089	191,127	189,265	187,603
General administration expenses	10,358	10,866	10,894	5,996	5,925	5,858	5,793	5,734	5,678	5,628
Gross Total	355,619	373,065	374,031	205,871	203,438	201,109	198,881	196,861	194,943	193,231
In case foreign officers and engineers will continuously be on board	355,619	373,065	374,031	366,671	364,238	361,909	359,681	357,661	355,743	354,031

4) Cost Freight

① Standard Freight (from Maputo to Beira)

Item	1st year	2nd year	3rd year	Average of 3 years	4th year	5th year	6th year	Average of 3 years
(1) Total of maintenance and management cost Value in ( ) represents cost in case of foreigners on board.	thousand MT 355,619 (355,619)	373,065 (373,065)	374,031 (374,031)	367,572 (367,572)	205,871 (366,671)	203,438 (364,238)	201,109 (361,909)	203,473 (364,273)
(2) Governmental subsidy	53,000	53,000	53,000	53,000	53,000	53,000	53,000	53,000
(3) Net expenses (1)-(2) Value in ( ) represents cost in case of foreigners on board.	302,619 (302,619)	320,065 (320,065)	321,031 (321,031)	314,572 (314,572)	152,871 (313,671)	150,438 (311,238)	148,109 (308,909)	150,473 (311,273)
(4) Cargo freight/ton	F/T 10,600	10,600	10,600	10,600	11,630	11,630	11,630	11,630
(5) Freight rate (3)/(4) Value in ( ) represents cost in case of foreigners on board.	MT/m³ 28,548 (28,548)	30,195 (30,195)	30,286 (30,286)	29,690 (29,690)	13,145 (26,971)	12,935 (26,762)	12,735 (26,561)	12,938 (26,765)

Item	7th year	8th year	9th year	10th year	Average of 4 years	Average of 10 years
(1) Total of maintenance and management cost Value in ( ) represents cost in case of foreigners on board.	thousand MT 198,882 (359,681)	196,861 (357,661)	194,943 (355,743)	193,231 (354,031)	195,979 (356,779)	249,705 (362,265)
(2) Governmental subsidy	53,000	53,000	53,000	53,000	53,000	53,000
(3) Net expenses (1)-(2) Value in ( ) represents cost in case of foreigners on board.	145,882 (306,681)	143,861 (304,661)	141,943 (302,743)	140,231 (301,031)	142,979 (303,779)	196,705 (309,265)
(4) Cargo freight/ton	F/T 11,630	11,630	11,630	11,630	11,630	11,321
(5) Freight rate 3 / 4 Value in ( ) represents cost in case of foreigners on board.	MT/m³ 12,545 (26,370)	12,370 (26,196)	12,205 (26,031)	12,058 (25,884)	12,294 (26,120)	16,913 (27,318)

5) Freight by unloading port

(Standard for equipment and materials for fishing)

(Unit: MT／m³)

	Maputo	Beira	Quelimane	Nacala	Pemba	Remarks
Maputo	*	29,700	33,000	41,000	43,100	1. Equipment and materials for fishing (standard: dry cargo) (1.0) 2. Average freight rate for first three years are given in upper triangle. 3. Average freight rate for second three years are given in lower triangle.
Beira	13,000 (26,800)	*	22,600	31,500	33,600	
Quelimane	14,400 (29,700)	9,900 (20,400)	*	27,100	29,400	
Nacala	17,900 (37,000)	13,800 (28,400)	11,900 (24,400)	*	20,200	
Pemba	18,900 (38,900)	14,700 (30,300)	12,900 (26,500)	8,900 (18,200)	*	

Value in ( ) represents cost in case of foreigners on board.
Freight for refrigerated cargo such as fishing products and liquid cargo will be calculated by multiplying the adjusting coefficient by nature of cargo.

6) Conditions for estimating maintenance and management cost

① *Governmental subsidy*: 53,000 thousand meticais a year is estimated.

② Unit cost: Unit cost for the purpose of estimation is local cost as of November, 1988 (metical:MT) and to be considered fix for the Project term.

③ Currency exchange rate: US$ 1 = 620 MT, ¥ = 5.4 MT

④ Personnel Plan: For beginning three years, 4 foreign officers and engineers will be on board for technical assistance. From 4th year, 20 Mozambican crew members will be on board for operation.

⑤ Cargo collection plan: Basen on the cargo collection plan described in Chapter 3 hereto, for beginning three years 10,600 F/T (9,800 m^3) is planned. From 4th year, the cargo collection is estimated to be 11,630 F/T (10,600 m^3) with increase of the catch and distribution amount.

7) Calculation standard for estimation of maintenance and management cost

The estimation of maintenance and management cost is made according to the following calculation standard.

① Material cost

(i) Consumables for ship

No expense is estimated for 1st year as consumables loaded on delivery are used.
2nd year and after, monthly cost will be
@500 thousand MT x 12 = 6,000 thousand MT

(ii) Fuel cost

Year fuel consumption 43.5 tons/voyage
x 13 voyages x @134.0 x 1,000 = 75,777 thou. MT
(Fuel unit cost
107.2 MT/L x 1/0.8 (specific gravity)
= 150.5 MT/kg)
(Refer to Chapter 4 for calculation of fuel consumption)

(iii) Lubricant

Fuel cost x 5% (from experience) = 3,789 thousand MT

(iv) Other materials
@400 thousand MT/month x 12 = 4,800 thousand MT

② Labor cost (for crew)

(i) Salary

Foreigner (Japanese)

@6,870 thousand yen x 4 = 27,480 thousand yen

27,480 x 5.4 = 148,392 thousand MT

(ii) Food cost

@800 thousand yen x 4 = 3,200 thousand MT

@400 thousand MT x 20 = 8,000 thousand MT

TOTAL = 11,200 thousand MT

(iii) Cost for personnel change

Foreigner @ $1,855 x 8 (4 x go and return)

= $14,840

= 9.200 thousand MT.

③ Expenses

i) Repair expenses Unit: thousnad MT

Item	1st year	2nd year	3rd year	4th year and after
Inspection work	5,000	5,000	5,000	*1 Increase of repair cost due to deterioration by age is estimated as 6.5% a year.
General work	-	15,000	15,000	
Spare parts	-	-	5,000	
Total	5,000	20,000	25,000	

*1 Value by experience of the minimum square

ii) Port expenses

@25 thousnad MT x 208 days = 5,200 thousand MT
(Cargo loading/unloading expenses are not calculated as the work is carried out by crew members.)

iii) Hull insurance

Value of ship x 3%

Depreciation by year = Ship price on departure x 8,33% (12 years by fixed rate)

iv) Other expenses @ 100 thousand MT/month x 12 = 1,200 thousand MT

④ General administration expenses

Above (1 + 2 + 3) x 3%

⑤ Depreciation

No depreciation is counted as the Project is the subject of grand aid.

(5) List of Literature Cited

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General	Summary of International Statistics, 1988	Statistics Bureau, Management and Coordination Agency	Nov. 1988	Original	
General	Actual Situation of Economic Society in Mozanbique, Africa Edition, Number 19	Association for Promotion of International Cooperation	1984	Copy	
Fisheries General	General and Fisheries Related Circumstances in Mozanbique	Overseas Fishery Cooperation Foundation	Aug. 1978	Original	
Fisheries General	General and Fisheries Related Circumstances in Mozanbique (II)	Overseas Fishery Cooperation Foundation	Apr. 1983	Original	
Fishing Survey	Fishery Development Survey Report in South Africa by the 51th Akebono-maru	Japan Deep Sea Trawling Association	Mar. 1971	Original	

Field	Title of Information and Material	Issuing Authority	Date of Issue	Nature	Summary
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Vessel Design	International Convention for Safety of Human Life on Sea, 1983	Foundation for Promotion of Ship Building in Japan	Aug. 1985	Original	
Vessel Design	Rules on Steel Made Vessel 1988	Nippon Kaiji Kyokai	Aug. 1988	Original	
Vessel Design	Inspection Procedure for Rules on Steel Made Vessel 1988	Nippon Kaiji Kyokai	Aug. 1988	Original	
Vessel Design	Guidance for the Survey and Construction of Steel Ship's	Nippon Kaiji Kyokai	July 1987	Original	
Vessel Design	Standard of Steel Made Fishing Vessel Structure 1982	Fishing Vessel Association	Oct. 1982	Original	
Vessel Design	Operation Manual for Fishing Vessel Refrigerating Equipment, Appendix Explanation, Feb. 1980	Fishing Vessel Association	Feb. 1980	Original