

APPENDIX

APPENDIX

| | Page |
|---|------|
| Appendix 1 Member List of Survey Team | 7- 1 |
| Appendix 2 Survey Schedule | 7- 2 |
| Appendix 3 List of Interviewee | 7- 4 |
| Appendix 4 Minutes of Meetings | 7- 8 |
| Appendix 5 Country Data | 7-13 |
| Appendix 6 Information on Research/Training Vessels | 7-22 |
| Appendix 7 Natural Condition Survey | 7-24 |
| Appendix 8 Determination of Design Wave | 7-41 |
| Appendix 9 Examination of Harbour Calmness | 7-45 |
| Appendix 10 Examination of Drifting Sand | 7-47 |
| Appendix 11 Examples of Project Effects | 7-49 |

APPENDIX 1 MEMBER LIST OF SURVEY TEAM

Official Member

Mr. Akira Nagano (Team Leader)

Deputy Director, Construction Division
Fishing Port Department,
Fisheries Agency,
Ministry of Agriculture, Forestry and Fisheries

Mr. Hiroshi Hayashida (Development Planning)

Deputy Director,
Office of International Affairs
Bureau of Ports and Harbours,
Ministry of Transport

Mr. Masaki Hoshina (Grant Aid)

Grant Aid Division,
Economic Cooperation Bureau,
Ministry of Foreign Affairs

Consultant member (Pacific Consultants International)

| | | |
|-------------------------------|-----------------|------------------------------------|
| Mr. Isamu Hotta | Project Manager | Fishing Port Planning |
| Mr. Jun Yamauchi | Expert | Port Structure Design |
| Mr. Tadaharu Akesaka | Expert | Architectural Design |
| Mr. Hiroshi Nishimaki | Expert | Plants/Utilities Design |
| Mr. Katsumi Kira | Expert | Fishery and Marketing |
| Mr. Shigeyoshi Yoshida | Expert | Topographic/Hydrographic Survey |

APPENDIX 2 SURVEY SCHEDULE

1) First Site Investigation (November 23 - December 22 1989)

| DATE | Team | Individuals |
|---------------|---|---|
| Nov. 23 (THU) | Departure from Narita | |
| 24 (FRI) | Arrival at Cairo | |
| 25 (SAT) | Meeting among the study team | |
| 26 (SUN) | Courtesy call to the Japanese Embassy, JICA and MOIC | |
| 27 (MON) | Ditto but MOD and MOA, Presentation of I/P | |
| 28 (TUE) | Move to Ataq. Site survey. Visit to Suez Governorate | |
| 29 (WED) | Visit to Fish Resources Development Authority, and National Institute of Oceanography | |
| 30 (THU) | Data Collection at Ice Making Plant and Market | |
| Dec. 1 (FRI) | Move to Cairo, Discussion among the study team | Preparation for Site Investigation |
| 2 (SAT) | Discussion on Minutes with MOD | Site Survey at Ataq. Fishing Port |
| 3 (SUN) | Signing of Minutes of Meeting at MOD | Data Collection at Suez Canal Authority, Ismailia |
| 4 (MON) | Report to Japanese Embassy, JICA and MOIC | Data Collection at Fish Development Authority, Suez |
| 5 (TUE) | Three Officials leave for Japan | Start Topo/Hydro-Survey, etc. at Site |
| 6 - 8 | Data Collection on Social/Economic | Data Collection on Fishery |
| 9 (THU) | Survey for Training boat at Alexandria | Data Collection on Construction |
| 10 - 11 | Data Collection on Natural/Economic | |
| 12 (TUE) | Move to Ataq. Site Survey | |
| 13 - 14 | Survey at Hurughada Fishing Port | Data Collection at Red Sea Port Authority |
| 15 (FRI) | Study and Adjustment of Data | |
| 16 - 18 | Data Collection on Social /Economic | Data Collection at Supply Establishment, Suez |
| 19 (TUE) | Report to Japanese Embassy, JICA and MOIC | Finish Site Investigation |
| 20 (WED) | Leave to Japan | |

2) Second Site Investigation (March 11 - March 22, 1990)

| DATE | SCHEDULE |
|----------------|---|
| March 11 (SUN) | Departure from Narita |
| March 12 (MON) | Arrival at Cairo |
| March 13 (TUE) | Courtesy call to the Japanese Embassy, JICA and MOIC |
| March 14 (WED) | Explanation and discussion on Draft Final Report with MOD |
| March 15 (THU) | Survey for fisheries at Alexandria |
| March 16 (FRI) | Meeting among the study team |
| March 17 (SAT) | Courtesy call to Suez Governorate and site survey at Ataq Fishing Port |
| March 18 (SUN) | Discussion and signing of Minutes of Meetings at MOD |
| March 19 (MON) | Report at Japanese Embassy, JICA and MOIC |
| March 20 (TUE) | Leave to Japan |

APPENDIX 3 LIST OF INTERVIEWEE

1) First Site Investigation (November 12 - December 11, 1989)

EGYPT SIDE

| | |
|---|--|
| Minister | H.E. Mr. Hassaballa Mohamed EL Kafrawy |
| First Under Secretary | Mr. Ahamad Taher Abdel Ghaffar |
| Under Secretary | Mr. Saleh Abu Eliz |
| Chairman, Central Organization for Reconstruction | Mr. Adl M. Derbala |
| Chairman, Advisory Committee for Reconstruction | Dr. Aly EL Salmy |
| Chairman, Advisory Committee for Ataqa Fishing Port | • Mr. Mohamed Abdel Fattah Mohsen |
| Member, Advisory Committee for Reconstruction | • Dr. Younis Amin Omer |
| | • Mr. Ibrahim Mohamed Sharkas |
| | • Dr. Salah EL Din EL Zarka |
| | • Mr. Safwat Ghanem |
| Chairman, Sinai and North Suez Gulf Region Development Authority | • Mr. Mohamad Abdel Momin EL Katoory |
| Vice Chairman, Research and Study Organization | Mr. Tharwat Talaat Nashed |
| Member, Research and Study Organization | Mr. Samir Said Gomaa |
| Ministry of Agriculture | |
| General Manager, General Egyptian Authority for Fish Research Development | • Mr. Mohamed Abdel Hamid EL Shinawy |
| Manager, Red Sea Region | Mr. Abd EL Hamed Gobran |
| Egyptian Fisheries co. Fishing & Fishing Gear (Public Sector) | |
| Head of Sea Fisheries Sector | Dr. Esam A. Sabry |
| Ministry of International Cooperation | |
| Under Secretary | Mr. Saad Bayoumy |
| Director of Japan Dept. | Mr. Mohsen Sadek |

Ministry of Supply

Ministry of Development

Egyptian Fish Marketing Co.,
(Public Sector)

General Manager, Internal
Trade

Mr. Farouk Basiony

Ministry of Maritime Transport

Ports and Lighthouses Authority • Dr. Mahmoud Helmy Awad

Red Sea Ports Authority • Mr. Mahmoud Abdel Roouf

Suez Governorate

General Secretary

• Mr. Essam EL Goahary

Advisor

• Mr. Hosany Ahmad Nabih EL Dessouky

Suez Canal Authority

Sub Director

• Mr. Ahmad Bahgat Ibrahim Enany

Director of Work Sec.

• Mr. Adel Fahmy EL Sofany

Sub Director

• Mr. Ahmed Bahgat Ibrahim Enany

National Institute of Oceanography and Fisheries

Director, Red Sea and Suez Canal
Branch

Dr. Ehab Bibars

Armed Force

Operations Authority

• Mr. Alaa Eldin Ismail Aly

Note: Marked • are member of committee,
Rehabilitation and Development
of Ataqa Fishing Port

JAPAN SIDE

Embassy of Japan in Egypt

Ambassador

Mr. Masahi Yamada

First Secretary

Mr. Akira Takamine

Japan International Cooperation Agency

Resident Representative

Mr. Keiji Iimura

Officer

Mr. Takeshi Komori

JICA Expert

Mr. S. Onogawa
Mr. S. Yokogawa
Mr. K. Monma
Mr. T. Sato

JETRO Office

Mr. Y. Watanuki

2) Second Site Investigation (March 11 - March 22, 1990)

EGYPT SIDE

Ministry of Development

Chairman, Central Organization
for Reconstruction

Mr. Adl M. Derbala

Chairman, Advisory committee
for Reconstruction

Dr. Aly El Salmy

Chairman, Advisory Committee
for Ataqqa Fishing Port

• Mr. Mohamed Abdel Fattah Mohsen

Member, Advisory Committee
for Reconstruction

• Dr. Younis Amin Omer

• Mr. Ibrahim Mohamed Sharkas

• Mr. Sufwat Ghanem

Chairman, North Suez Gulf
Region Development Authority

• Mr. Mohamad Abdel Momin EL Katoony

Vice Chairman, Research and
Study Organization

Mr. Tharwat Talaat

Member, Research and Study
Organization

Mr. Samir Said Gomaa

Advisor

Mr. Salah El Khatib

Ministry of Agriculture

General Manager, General
Egyptian Authority for Fish
Resarch Development

• Mr. Mohamed Abdel Hamid EL Shinawy

Ministry of International Cooperation

Under Secretary

Mr. Saad Bayoumy

In Charge of Japan

Mr. Mohsen Sadek

Director of Japan Dept.

Ministry of Maritime Transport

Red Sea Ports Authority

• Mr. Mahmoud Abdel Roouf

Suez Governotate

General Secretary

• Mr. Essam EL Goahary

Advisor

• Mr. Hosany Ahmad Nabih EL Dessouky

Suez Canal Authority

Sub Director

• Mr. Ahmad Bahgat Ibrahim Enany

Director of Work Sec.

• Mr. Adel Fahmy EL Sofany

JAPAN SIDE

Embassy of Japan in Egypt

Ambassador

Mr. Masahi Yamada

First Secretary

Mr. Akira Takamine

First Secretary

Mr. Kohei Tajima

Japan International Cooperation Agency

Resident Representative

Mr. Keiji Iimura

Vice Representative

Mr. Hiromasa Kawazoe

JICA Expert

Mr. S. Onogawa

APPENDIX 4 MINUTES OF MEETINGS

MINUTES OF DISCUSSIONS
ON
THE PROJECT FOR REHABILITATION AND DEVELOPMENT
OF
ATAQA FISHING PORT
THE ARAB REPUBLIC OF EGYPT

In response to the request of the Government of the Arab Republic of Egypt, the Government of Japan had decided to conduct a basic design study on the Project for Rehabilitation and Development of Ataqá Fishing Port and entrusted the study to the Japan International Cooperation Agency (JICA). JICA sent to the Arab Republic of Egypt the Basic Design Study Team headed by Mr. Akira Nagano, Deputy Director, Construction Division, Fishing Port Department, Fisheries Agency, Ministry of Agriculture, Forestry and Fisheries, from November 23 to December 22, 1989.

The Team had a series of discussion on the Project with the officials concerned of the Government of the Arab Republic of Egypt headed by Gen. Eng. Mohamed Abdel Fattah Mohsen, Ministry of Development, New Communities, Housing and Public Utilities, and conducted a field survey in Ataqá, Suez City.

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

Cairo, December 3, 1989

Akira Nagano

Mr. Akira Nagano
Leader, Basic Design Team
Japan International
Cooperation Agency
(JICA)

Moh. A-F Mohsen

Gen. Eng. Mohamed Abdel Fattah Mohsen
Chairman of Ataqá Fishing Port
Advisory Committee,
Ministry of Development,
New Communities, Housing and
Public Utilities
The Arab Republic of Egypt

Handwritten signature and date:
19/12/89

ATTACHMENT

1. OBJECTIVES OF THE PROJECT

The objectives of the project is to contribute to the development of fishery around Ataga Fishing Port in Red Sea area by developing a fishing port equipped with necessary facilities.

2. EXECUTING BODY

The responsible and executing organization for the Project is Ministry of Development, New Communities, Housing and Public Utilities. The responsible organization for management, operation and maintenance of the facilities after construction is Suez Governorate, General Egyptian Authority for Fish Resources and Red Sea Port Authority.

3. SITE OF THE PROJECT

The proposed site of the Project is located at approximately 15km from Suez City to the south west as shown in ANNEX I.

4. REQUEST BY THE GOVERNMENT OF EGYPT

The Team will convey the request of the Government of the Arab Republic of Egypt to the Government of Japan that the latter will take necessary measures to cooperate in implementing the Project and provide necessary facilities and equipment within the scope of the Japanese Grant Aid Programme.

The Egyptian side expressed that the problem of spare parts is very important. Both sides discussed the problem and understood the importance of the matter.

During the discussion, the Egyptian side also requested the provision of spare parts for five years. The Japanese side understood the request and will convey it to the Government of Japan to put it into consideration.

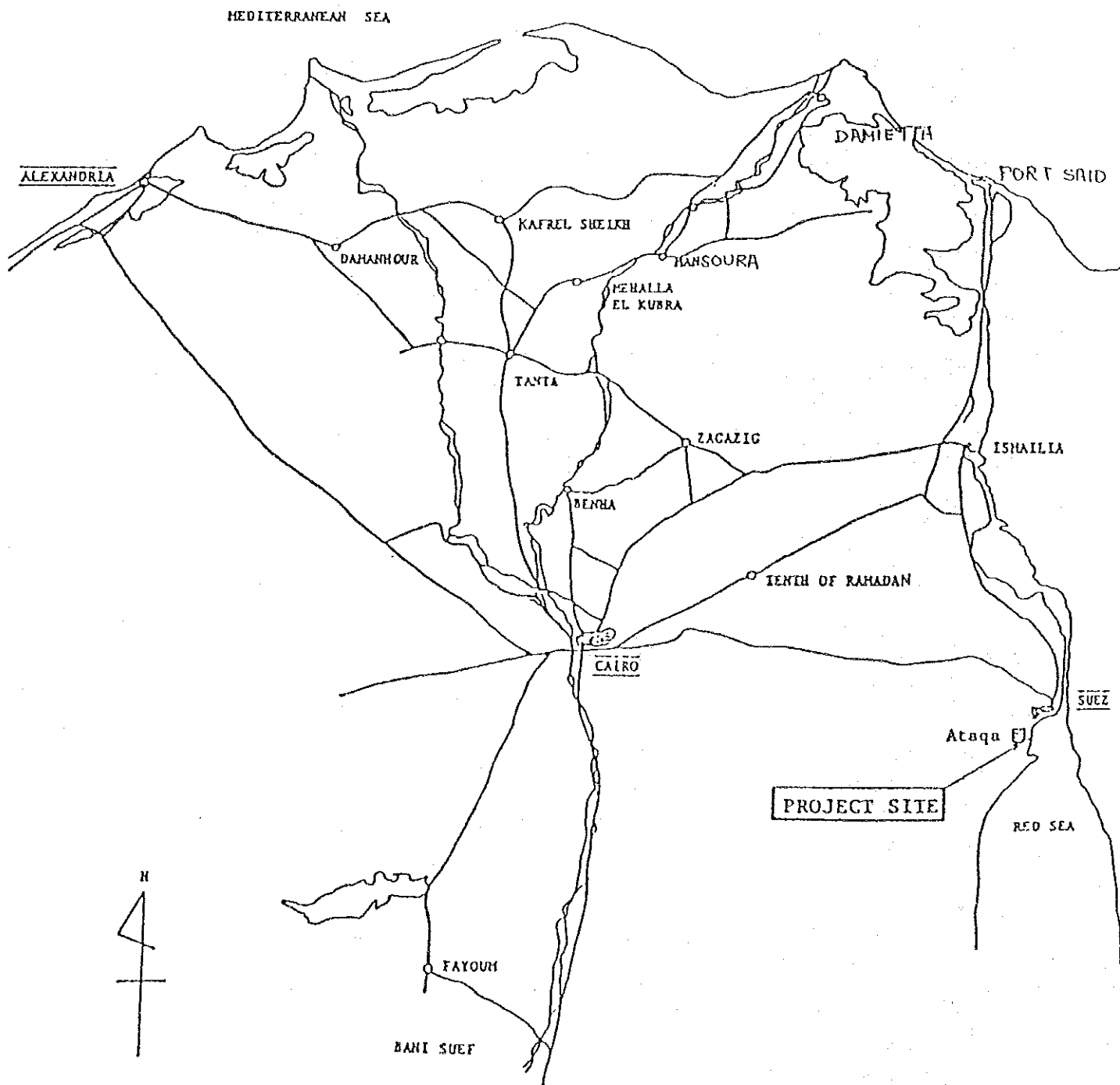
5. MEASURES TO BE TAKEN BY THE GOVERNMENT OF ARAB REPUBLIC OF EGYPT

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

6. UNDERTAKING OF JAPAN'S GRANT AID SYSTEM

The Egyptian side has understood Japan's Grant Aid System explained by the Team which includes a principle of use of a Japanese consulting firm and a Japanese firm for the construction.

ANNEX I-1. LOCATION MAP



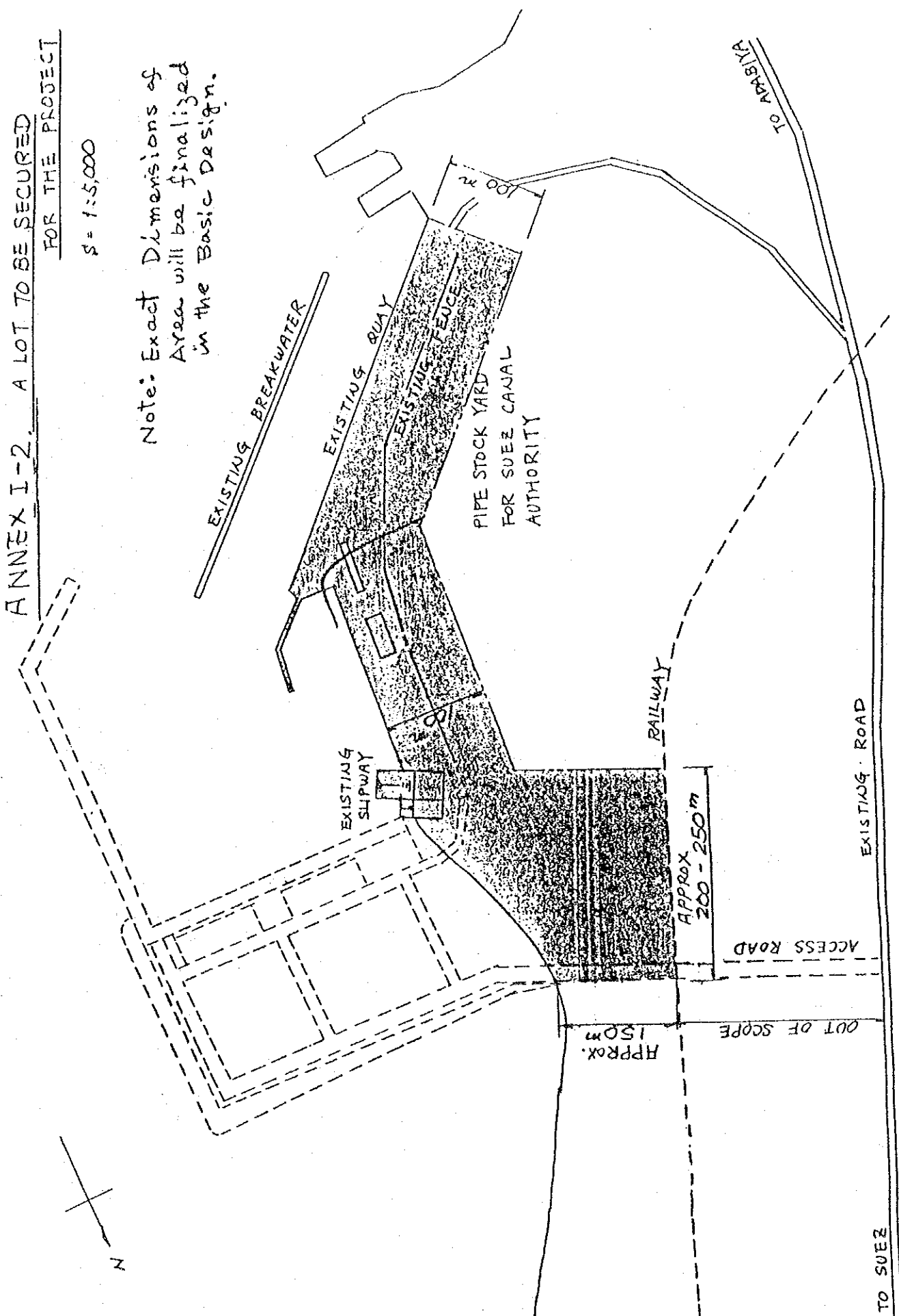
a.n

ellab

ANNEX I-2. A LOT TO BE SECURED FOR THE PROJECT

S = 1:5,000

Note: Exact Dimensions of Area will be finalized in the Basic Design.



a.n

elhabey

ANNEX II

Recommendations for Undertakings by the Government of Egypt.

1. To secure cleared land necessary for the execution of the Project and provide enough space for such construction as temporary offices, working area, stockyard and others.
2. To ensure that sea area necessary for the construction of the facilities be freely accessible.
3. To provide facilities for distribution of electricity, water supply, drainage and sewage, telephone and other incidental facilities up to the Project site.
4. To ensure prompt unloading, tax exemption, customs clearance at ports of disembarkation in Egypt and prompt internal transportation therein of the products purchased under the grant.
5. To secure, with respect to the supply of the products and services under the verified contracts, that Japanese nationals shall not be subject to any customs duties, internal taxes and other fiscal levies which may be imposed in the Arab Republic of Egypt.
6. To accord Japanese nationals whose services may be acquired in connection with the supply of the products and the services under the verified contract such facilities as may be necessary for their entry into Egypt and stay therein for the performance of their work in accordance with the relevant laws and regulations of the Arab Republic of Egypt.
7. To maintain and use properly and effectively the facilities constructed and equipment provided under the Grant Aid.
8. To bear all the expenses other than those covered by the grant, necessary for the execution of the Project.

APPENDIX 5 COUNTRY DATA

- 1) "WORLD TABLES 1988-1989" World Bank
- 2) Structure of Ministry of Agriculture
- 3) Structure of Fish Resources Development Authority, Suez
- 4) Structure of Ministry of Maritime Transport
- 5) Structure of Suez Governorate

| EGYPT, ARAB REPUBLIC OF | 1967 | 1968 | 1969 | 1970 | 1971 | 1972 | 1973 | 1974 | 1975 | 1976 | 1977 |
|--|--|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| CURRENT GNP PER CAPITA (US \$) | 180 | 190 | 210 | 230 | 240 | 250 | 270 | 270 | 310 | 350 | 390 |
| POPULATION (thousands) | 30,855 | 31,587 | 32,319 | 33,053 | 33,788 | 34,520 | 35,272 | 36,076 | 36,953 | 37,898 | 38,907 |
| ORIGIN AND USE OF RESOURCES | | | | | | | | | | | |
| | <i>(Millions of current Egyptian Pounds)</i> | | | | | | | | | | |
| Gross National Product (GNP) | 2,512 | 2,605 | 2,809 | 3,033 | 3,212 | 3,363 | 3,757 | 4,282 | 5,107 | 6,555 | 8,102 |
| Net Factor Income from Abroad | -11 | -10 | -24 | -26 | -29 | -27 | -49 | -57 | -111 | -172 | -242 |
| Gross Domestic Product (GDP) | 2,523 | 2,615 | 2,834 | 3,058 | 3,241 | 3,390 | 3,806 | 4,339 | 5,218 | 6,727 | 8,344 |
| Indirect Taxes, net | 323 | 351 | 388 | 432 | 449 | 388 | 342 | 142 | 162 | 562 | 810 |
| GDP at factor cost | 2,200 | 2,264 | 2,446 | 2,627 | 2,792 | 3,002 | 3,464 | 4,197 | 5,056 | 6,165 | 7,534 |
| Agriculture | 628 | 666 | 730 | 773 | 814 | 933 | 1,062 | 1,280 | 1,468 | 1,744 | 2,038 |
| Industry | 587 | 613 | 679 | 740 | 787 | 804 | 852 | 1,052 | 1,360 | 1,615 | 2,051 |
| Manufacturing | .. | .. | .. | .. | .. | .. | .. | 746 | 880 | 993 | 1,120 |
| Services, etc. | 985 | 984 | 1,037 | 1,114 | 1,191 | 1,265 | 1,550 | 1,865 | 2,228 | 2,806 | 3,445 |
| Resource Balance | -79 | -100 | -94 | -140 | -165 | -196 | -197 | -726 | -1,101 | -789 | -894 |
| Exports of Goods & NFServices | 369 | 345 | 403 | 434 | 447 | 452 | 532 | 890 | 1,053 | 1,498 | 1,876 |
| Imports of Goods & NFServices | 448 | 444 | 496 | 573 | 612 | 649 | 729 | 1,616 | 2,154 | 2,287 | 2,770 |
| Domestic Absorption | 2,601 | 2,714 | 2,928 | 3,198 | 3,406 | 3,586 | 4,003 | 5,065 | 6,319 | 7,516 | 9,238 |
| Private Consumption, etc. | 1,719 | 1,783 | 1,882 | 2,016 | 2,139 | 2,259 | 2,429 | 3,191 | 3,280 | 3,936 | 5,176 |
| General Gov't Consumption | 519 | 602 | 679 | 756 | 839 | 909 | 1,074 | 899 | 1,298 | 1,670 | 1,628 |
| Gross Domestic Investment | 364 | 330 | 367 | 427 | 429 | 418 | 500 | 975 | 1,741 | 1,910 | 2,434 |
| Fixed Investment | 325 | 313 | 342 | 353 | 363 | 378 | 462 | 685 | 1,282 | 1,471 | 1,873 |
| Memo Items: | | | | | | | | | | | |
| Gross Domestic Saving | 285 | 231 | 274 | 287 | 263 | 222 | 303 | 249 | 640 | 1,121 | 1,540 |
| Gross National Saving | 279 | 222 | 253 | 276 | 251 | 243 | 303 | 282 | 707 | 1,278 | 1,673 |
| | <i>(Millions of 1980 Egyptian Pounds)</i> | | | | | | | | | | |
| Gross National Product | 7,309 | 7,513 | 7,997 | 8,460 | 8,757 | 8,925 | 8,944 | 9,180 | 9,937 | 11,419 | 12,919 |
| GDP at factor cost | 6,107 | 6,228 | 6,645 | 6,993 | 7,268 | 7,605 | 8,170 | 8,618 | 9,508 | 10,828 | 11,923 |
| Agriculture | 1,967 | 2,009 | 2,086 | 2,137 | 2,165 | 2,339 | 2,409 | 2,416 | 2,565 | 2,600 | 2,528 |
| Industry | 1,969 | 2,059 | 2,297 | 2,446 | 2,544 | 2,575 | 2,528 | 2,446 | 2,840 | 3,282 | 4,006 |
| Manufacturing | .. | .. | .. | .. | .. | .. | .. | 1,266 | 1,348 | 1,453 | 1,551 |
| Services, etc. | 2,171 | 2,159 | 2,261 | 2,411 | 2,559 | 2,690 | 3,233 | 3,756 | 4,104 | 4,946 | 5,390 |
| Resource Balance | -71 | -381 | -351 | -503 | -502 | -523 | -811 | -1,937 | -2,272 | -1,102 | -992 |
| Exports of Goods & NFServices | 2,296 | 2,036 | 2,296 | 2,523 | 2,488 | 2,614 | 2,482 | 3,182 | 3,182 | 4,059 | 4,449 |
| Imports of Goods & NFServices | 2,367 | 2,417 | 2,646 | 3,026 | 2,989 | 3,136 | 3,294 | 4,518 | 5,454 | 5,161 | 5,441 |
| Domestic Absorption | 7,412 | 7,923 | 8,419 | 9,035 | 9,338 | 9,519 | 9,878 | 11,247 | 12,434 | 12,817 | 14,285 |
| Private Consumption, etc. | .. | .. | .. | .. | .. | .. | .. | 7,157 | 6,558 | 6,782 | 8,157 |
| General Gov't Consumption | .. | .. | .. | .. | .. | .. | .. | 1,985 | 2,583 | 2,753 | 2,427 |
| Gross Domestic Investment | 1,166 | 1,050 | 1,145 | 1,203 | 1,055 | 1,088 | 1,429 | 2,104 | 3,292 | 3,282 | 3,701 |
| Fixed Investment | .. | .. | .. | .. | .. | .. | .. | 1,479 | 2,424 | 2,527 | 2,848 |
| Memo Items: | | | | | | | | | | | |
| Capacity to Import | 1,951 | 1,875 | 2,147 | 2,289 | 2,182 | 2,188 | 2,404 | 2,488 | 2,666 | 3,380 | 3,685 |
| Terms of Trade Adjustment | -344 | -161 | -148 | -234 | -305 | -425 | -79 | -93 | -516 | -678 | -764 |
| Gross Domestic Income | 6,997 | 7,381 | 7,920 | 8,298 | 8,531 | 8,570 | 8,988 | 9,217 | 9,646 | 11,037 | 12,529 |
| Gross National Income | 6,964 | 7,352 | 7,849 | 8,226 | 8,452 | 8,499 | 8,865 | 9,087 | 9,421 | 10,741 | 12,155 |
| DOMESTIC PRICES (DEFLATORS) | | | | | | | | | | | |
| | <i>(Index 1980 = 100)</i> | | | | | | | | | | |
| Overall (GDP) | 34.4 | 34.7 | 35.1 | 35.8 | 36.7 | 37.7 | 42.0 | 46.6 | 51.3 | 57.4 | 62.8 |
| Domestic Absorption | 35.1 | 34.3 | 34.8 | 35.4 | 36.5 | 37.7 | 40.5 | 45.0 | 50.8 | 58.6 | 64.7 |
| Agriculture | 31.9 | 33.2 | 35.0 | 36.2 | 37.6 | 39.9 | 44.1 | 53.0 | 57.2 | 67.1 | 80.6 |
| Industry | 29.8 | 29.8 | 29.5 | 30.3 | 30.9 | 31.2 | 33.7 | 43.0 | 47.9 | 49.2 | 51.2 |
| Manufacturing | .. | .. | .. | .. | .. | .. | .. | 58.9 | 65.3 | 68.3 | 72.2 |
| MANUFACTURING ACTIVITY | | | | | | | | | | | |
| Employment (1980 = 100) | 63.5 | 63.2 | 67.4 | 68.6 | 72.4 | 74.4 | 78.8 | 80.1 | 84.3 | 86.9 | 89.9 |
| Real Earnings per Empl. (1980 = 100) | 64.7 | 63.6 | 65.4 | 64.6 | 63.5 | 68.5 | 72.0 | 72.1 | 75.1 | 77.6 | 78.8 |
| Real Output per Empl. (1980 = 100) | 79.7 | 80.9 | 85.1 | 81.4 | 85.9 | 90.1 | 89.3 | 69.3 | 69.1 | 72.3 | 81.4 |
| Earnings as % of Value Added | 53.4 | 51.7 | 55.5 | 53.7 | 50.3 | 50.5 | 49.6 | 42.4 | 50.9 | 50.2 | 46.4 |
| MONETARY HOLDINGS | | | | | | | | | | | |
| | <i>(Millions of current Egyptian Pounds)</i> | | | | | | | | | | |
| Money Supply, Broadly Defined | 916 | 944 | 999 | 1,053 | 1,084 | 1,255 | 1,536 | 2,000 | 2,430 | 3,061 | 4,103 |
| Money as Means of Payment | 707 | 722 | 746 | 783 | 846 | 989 | 1,205 | 1,503 | 1,863 | 2,239 | 2,943 |
| Currency Outside Banks | 450 | 460 | 496 | 525 | 559 | 631 | 777 | 948 | 1,156 | 1,388 | 1,749 |
| Demand Deposits | 257 | 261 | 250 | 258 | 288 | 358 | 428 | 555 | 707 | 851 | 1,194 |
| Quasi-Monetary Liabilities | 209 | 223 | 253 | 270 | 238 | 266 | 331 | 498 | 567 | 822 | 1,160 |
| | <i>(Millions of current Egyptian Pounds)</i> | | | | | | | | | | |
| GOVERNMENT DEFICIT (-) OR SURPLUS | | | | | | | | | | | |
| Current Revenue | .. | .. | .. | .. | .. | .. | .. | .. | -938 | -1,557 | -1,114 |
| Current Expenditure | .. | .. | .. | .. | .. | .. | .. | .. | 2,235 | 2,424 | 3,301 |
| Current Budget Balance | .. | .. | .. | .. | .. | .. | .. | .. | 2,418 | 2,662 | 3,209 |
| Capital Receipts | .. | .. | .. | .. | .. | .. | .. | .. | -183 | -238 | 92 |
| Capital Payments | .. | .. | .. | .. | .. | .. | .. | .. | 54 | 105 | 147 |
| | .. | .. | .. | .. | .. | .. | .. | .. | 809 | 1,424 | 1,353 |

SOURCE ; THE DATA FILE OF THE WORLD BANK

| 1978 | 1979 | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | NOTES | EGYPT, ARAB REPUBLIC OF |
|--|--------|--------|--------|--------|--------|--------|--------|--------|--------|-------|--------------------------------------|
| 390 | 410 | 480 | 530 | 580 | 590 | 610 | 640 | 650 | 670 | A | CURRENT GNP PER CAPITA (US \$) |
| 39,979 | 41,108 | 42,289 | 43,510 | 44,760 | 46,021 | 47,276 | 48,503 | 49,739 | 50,954 | .. | POPULATION (thousands) |
| <i>(Millions of current Egyptian Pounds)</i> | | | | | | | | | | | ORIGIN AND USE OF RESOURCES |
| 9,358 | 11,957 | 15,446 | 16,088 | 19,332 | 22,557 | 26,585 | 29,995 | 34,780 | 39,725 | C | Gross National Product (GNP) |
| -437 | -748 | -1,051 | -1,232 | -1,449 | -1,613 | -1,919 | -3,136 | -3,576 | -3,962 | .. | Net Factor Income from Abroad |
| 9,795 | 12,705 | 16,497 | 17,320 | 20,781 | 24,170 | 28,504 | 33,132 | 38,356 | 43,687 | C | Gross Domestic Product (GDP) |
| 774 | 604 | 757 | 768 | 684 | 929 | 1,103 | 1,180 | 2,125 | 1,879 | .. | Indirect Taxes, net |
| 9,021 | 12,101 | 15,740 | 16,552 | 20,097 | 23,241 | 27,401 | 31,952 | 36,231 | 41,808 | C | GDP at factor cost |
| 2,286 | 2,530 | 2,875 | 3,326 | 3,932 | 4,564 | 5,494 | 6,386 | 7,531 | 8,844 | .. | Agriculture |
| 2,583 | 4,337 | 5,789 | 6,245 | 6,521 | 6,970 | 8,024 | 9,125 | 9,715 | 10,441 | .. | Industry |
| 1,319 | 1,650 | 1,928 | 2,144 | 2,670 | 3,068 | 3,624 | 4,316 | 4,805 | 5,806 | .. | Manufacturing |
| 4,152 | 5,234 | 7,076 | 6,981 | 9,644 | 11,707 | 13,883 | 16,441 | 18,985 | 22,523 | .. | Services, etc. |
| -1,496 | -2,364 | -2,038 | -2,673 | -3,096 | -2,646 | -3,837 | -4,018 | -3,783 | -4,766 | .. | Resource Balance |
| 2,130 | 3,777 | 5,034 | 5,780 | 5,618 | 6,159 | 6,371 | 6,598 | 6,034 | 6,593 | .. | Exports of Goods & NFServices |
| 3,626 | 6,141 | 7,072 | 8,453 | 8,714 | 8,805 | 10,208 | 10,616 | 9,817 | 11,359 | .. | Imports of Goods & NFServices |
| 11,291 | 15,069 | 18,535 | 19,993 | 23,877 | 26,816 | 32,341 | 37,150 | 42,139 | 48,453 | .. | Domestic Absorption |
| 6,178 | 8,724 | 11,411 | 11,588 | 13,923 | 15,712 | 19,367 | 22,600 | 26,706 | 33,710 | .. | Private Consumption, etc. |
| 2,012 | 2,172 | 2,585 | 3,294 | 3,704 | 4,160 | 5,140 | 5,712 | 6,340 | 6,328 | .. | General Gov't Consumption |
| 3,101 | 4,173 | 4,539 | 5,111 | 6,250 | 6,944 | 7,834 | 8,838 | 9,093 | 8,415 | .. | Gross Domestic Investment |
| 2,685 | 3,763 | 4,062 | 4,702 | 6,150 | 7,144 | 7,634 | 8,338 | 8,593 | 8,865 | .. | Fixed Investment |
| <i>(Millions of 1980 Egyptian Pounds)</i> | | | | | | | | | | | Memo Items: |
| 1,605 | 1,809 | 2,501 | 2,438 | 3,154 | 4,298 | 3,997 | 4,820 | 5,310 | 3,649 | .. | Gross Domestic Saving |
| 1,878 | 2,834 | 3,282 | 3,248 | 3,096 | 4,918 | 4,848 | 4,149 | 3,831 | 1,693 | .. | Gross National Saving |
| <i>(Millions of 1980 Egyptian Pounds)</i> | | | | | | | | | | | Gross National Product |
| 13,491 | 14,100 | 15,446 | 15,918 | 17,612 | 18,995 | 20,160 | 20,899 | 21,550 | 22,308 | C | GDP at factor cost |
| 13,005 | 14,245 | 15,740 | 16,363 | 18,249 | 19,629 | 20,853 | 22,253 | 22,845 | 23,424 | C | Agriculture |
| 2,668 | 2,777 | 2,875 | 2,925 | 3,043 | 3,131 | 3,197 | 3,299 | 3,369 | 3,439 | .. | Industry |
| 4,630 | 5,049 | 5,789 | 6,003 | 6,160 | 6,585 | 7,194 | 7,766 | 7,886 | 8,063 | .. | Manufacturing |
| 1,638 | 1,766 | 1,928 | 2,004 | 2,188 | 2,329 | 2,517 | 2,680 | 2,774 | 2,833 | .. | Services, etc. |
| 5,707 | 6,418 | 7,076 | 7,436 | 9,046 | 9,913 | 10,462 | 11,188 | 11,590 | 11,922 | .. | Resource Balance |
| -1,166 | -2,237 | -2,038 | -2,489 | -2,025 | -1,615 | -2,280 | -2,290 | -1,286 | 110 | .. | Exports of Goods & NFServices |
| 4,461 | 4,302 | 5,034 | 4,960 | 4,444 | 4,921 | 5,222 | 5,436 | 5,461 | 5,808 | .. | Imports of Goods & NFServices |
| 5,627 | 6,540 | 7,072 | 7,450 | 6,469 | 6,536 | 7,503 | 7,726 | 6,747 | 5,697 | .. | Domestic Absorption |
| 15,247 | 17,196 | 18,535 | 19,619 | 20,893 | 21,908 | 23,838 | 25,295 | 24,902 | 24,104 | .. | Private Consumption, etc. |
| 8,505 | 10,167 | 11,411 | 11,577 | 12,303 | 12,800 | 13,764 | 14,693 | 15,127 | 15,479 | .. | General Gov't Consumption |
| 2,621 | 2,424 | 2,585 | 3,131 | 3,059 | 3,368 | 3,747 | 3,795 | 3,822 | 3,733 | .. | Gross Domestic Investment |
| 4,120 | 4,604 | 4,539 | 4,911 | 5,531 | 5,741 | 6,328 | 6,807 | 5,953 | 4,892 | .. | Fixed Investment |
| 3,568 | 4,152 | 4,062 | 4,518 | 5,443 | 5,914 | 6,164 | 6,416 | 5,592 | 5,162 | .. | Memo Items: |
| 3,305 | 4,022 | 5,034 | 5,094 | 4,170 | 4,572 | 4,683 | 4,802 | 4,147 | 3,307 | .. | Capacity to Import |
| -1,155 | -280 | 0 | 134 | -274 | -349 | -540 | -634 | -1,314 | -2,501 | .. | Terms of Trade Adjustment |
| 12,925 | 14,678 | 16,497 | 17,263 | 18,594 | 19,944 | 21,018 | 22,371 | 22,302 | 21,714 | .. | Gross Domestic Income |
| 12,336 | 13,820 | 15,446 | 16,052 | 17,339 | 18,646 | 19,620 | 20,265 | 20,236 | 19,807 | .. | Gross National Income |
| <i>(Index 1980 = 100)</i> | | | | | | | | | | | DOMESTIC PRICES (DEFLATORS) |
| 69.6 | 84.9 | 100.0 | 101.1 | 110.1 | 119.1 | 132.2 | 144.0 | 162.4 | 180.4 | .. | Overall (GDP) |
| 74.1 | 87.6 | 100.0 | 101.9 | 114.3 | 122.4 | 135.7 | 146.9 | 169.2 | 201.0 | .. | Domestic Absorption |
| 85.7 | 91.1 | 100.0 | 113.7 | 129.2 | 145.8 | 171.9 | 193.6 | 223.6 | 257.2 | .. | Agriculture |
| 55.8 | 85.9 | 100.0 | 104.0 | 105.9 | 105.8 | 111.5 | 117.5 | 123.2 | 129.5 | .. | Industry |
| 80.5 | 93.5 | 100.0 | 107.0 | 122.0 | 131.8 | 144.0 | 161.0 | 173.2 | 205.0 | .. | Manufacturing |
| <i>(Millions of current Egyptian Pounds)</i> | | | | | | | | | | | MANUFACTURING ACTIVITY |
| 95.0 | 93.0 | 100.0 | 100.9 | 104.0 | 107.2 | 110.5 | 114.0 | .. | .. | .. | Employment (1980 = 100) |
| 82.7 | 88.0 | 100.0 | 118.8 | 118.5 | 121.5 | 116.8 | 121.4 | .. | .. | .. | Real Earnings per Empl. (1980 = 100) |
| 81.8 | 83.8 | 100.0 | 102.5 | 117.2 | 127.6 | 128.4 | 140.5 | .. | .. | .. | Real Output per Empl. (1980 = 100) |
| 52.1 | 54.0 | 56.8 | 61.4 | 57.4 | 57.4 | 57.4 | 57.4 | .. | .. | .. | Earnings as % of Value Added |
| <i>(Millions of current Egyptian Pounds)</i> | | | | | | | | | | | MONETARY HOLDINGS |
| 5,212 | 6,844 | 10,364 | 13,566 | 17,792 | 21,817 | 25,929 | 30,676 | 37,102 | 44,878 | .. | Money Supply, Broadly Defined |
| 3,553 | 4,354 | 6,775 | 7,646 | 9,552 | 10,933 | 12,443 | 14,696 | 15,973 | 18,241 | .. | Money as Means of Payment |
| 2,184 | 2,657 | 3,398 | 4,291 | 5,503 | 6,475 | 7,097 | 8,284 | 8,803 | 9,537 | .. | Currency Outside Banks |
| 1,369 | 1,697 | 3,377 | 3,355 | 4,049 | 4,458 | 5,346 | 6,412 | 7,170 | 8,704 | .. | Demand Deposits |
| 1,659 | 2,490 | 3,589 | 5,920 | 8,240 | 10,884 | 13,486 | 15,980 | 21,129 | 26,637 | .. | Quasi-Monetary Liabilities |
| <i>(Millions of current Egyptian Pounds)</i> | | | | | | | | | | | GOVERNMENT DEFICIT (-) OR SURPLUS |
| -1,246 | -1,964 | .. | -1,096 | -3,554 | -2,364 | -3,258 | -3,439 | -4,708 | .. | F | Current Revenue |
| 3,778 | 4,363 | .. | 7,893 | 9,116 | 10,714 | 11,951 | 13,245 | 15,126 | .. | .. | Current Expenditure |
| 3,488 | 4,516 | .. | 6,333 | 9,347 | 9,637 | 12,519 | 12,891 | 15,042 | .. | .. | Current Budget Balance |
| 290 | -153 | .. | 1,560 | -231 | 1,077 | -568 | 354 | 84 | .. | .. | Capital Receipts |
| 42 | 323 | .. | 188 | 601 | 363 | 395 | 655 | 743 | .. | .. | Capital Payments |
| 1,578 | 2,134 | .. | 2,844 | 3,924 | 3,804 | 3,085 | 4,448 | 5,535 | .. | .. | |

SOURCE ; THE DATA FILE OF THE WORLD BANK

| EGYPT, ARAB REPUBLIC OF | 1967 | 1968 | 1969 | 1970 | 1971 | 1972 | 1973 | 1974 | 1975 | 1976 | 1977 |
|--------------------------------------|--|-------|-------|-------|-------|-------|-------|--------|--------|--------|--------|
| FOREIGN TRADE (CUSTOMS BASIS) | | | | | | | | | | | |
| | (Millions of current US dollars) | | | | | | | | | | |
| Value of Exports, fob | 566 | 656 | 824 | 870 | 927 | 887 | 1,117 | 1,588 | 1,596 | 1,785 | 2,015 |
| Nonfuel Primary Products | 417 | 476 | 572 | 585 | 634 | 564 | 721 | 988 | 792 | 761 | 866 |
| Fuels | 21 | 19 | 48 | 79 | 73 | 68 | 113 | 201 | 327 | 644 | 720 |
| Manufactures | 128 | 161 | 204 | 207 | 220 | 256 | 283 | 399 | 478 | 380 | 429 |
| Value of Imports, cif | 792 | 666 | 638 | 787 | 920 | 898 | 914 | 2,351 | 3,934 | 3,862 | 4,815 |
| Nonfuel Primary Products | 401 | 286 | 232 | 274 | 370 | 361 | 380 | 1,225 | 1,703 | 1,344 | 1,586 |
| Fuels | 56 | 52 | 56 | 74 | 71 | 60 | 23 | 66 | 272 | 221 | 109 |
| Manufactures | 334 | 328 | 349 | 439 | 479 | 478 | 511 | 1,060 | 1,958 | 2,296 | 3,120 |
| | (Index 1980 = 100) | | | | | | | | | | |
| Terms of Trade | 110.3 | 122.7 | 104.5 | 89.1 | 84.1 | 79.8 | 77.7 | 94.4 | 86.3 | 89.8 | 86.8 |
| Export Prices, fob | 24.4 | 26.0 | 21.7 | 18.6 | 21.6 | 23.3 | 35.7 | 62.2 | 55.2 | 56.3 | 57.8 |
| Nonfuel Primary Products | 32.8 | 34.0 | 32.7 | 32.5 | 36.0 | 39.0 | 63.3 | 69.7 | 60.3 | 72.0 | 71.8 |
| Fuels | 4.3 | 4.3 | 4.3 | 4.3 | 5.6 | 6.2 | 8.9 | 36.7 | 35.7 | 38.4 | 42.0 |
| Manufactures | 23.0 | 23.7 | 22.3 | 20.1 | 18.0 | 20.1 | 39.6 | 67.6 | 71.9 | 87.1 | 75.5 |
| Import Prices, cif | 22.1 | 21.2 | 20.8 | 20.9 | 25.7 | 29.2 | 46.0 | 65.9 | 63.9 | 62.7 | 66.6 |
| Trade at Constant 1980 Prices | (Millions of 1980 US dollars) | | | | | | | | | | |
| Exports, fob | 2,320 | 2,524 | 3,797 | 4,670 | 4,298 | 3,805 | 3,126 | 2,555 | 2,891 | 3,172 | 3,489 |
| Imports, cif | 3,578 | 3,143 | 3,069 | 3,762 | 3,585 | 3,077 | 1,988 | 3,569 | 6,151 | 6,163 | 7,234 |
| BALANCE OF PAYMENTS | | | | | | | | | | | |
| | (Millions of current US dollars) | | | | | | | | | | |
| Exports of Goods & Services | .. | .. | .. | 962 | 1,005 | 1,017 | 1,304 | 2,338 | 2,589 | 3,391 | 4,001 |
| Merchandise, fob | .. | .. | .. | 817 | 851 | 813 | 1,000 | 1,818 | 1,875 | 2,169 | 2,346 |
| Nonfactor Services | .. | .. | .. | 143 | 153 | 203 | 300 | 433 | 628 | 1,150 | 1,542 |
| Factor Services | .. | .. | .. | 2 | 1 | 1 | 4 | 87 | 86 | 72 | 113 |
| Imports of Goods & Services | .. | .. | .. | 1,447 | 1,518 | 1,592 | 1,986 | 4,165 | 5,471 | 5,596 | 6,417 |
| Merchandise, fob | .. | .. | .. | 1,084 | 1,131 | 1,170 | 1,429 | 3,618 | 4,608 | 4,659 | 5,110 |
| Nonfactor Services | .. | .. | .. | 297 | 312 | 352 | 429 | 341 | 533 | 523 | 769 |
| Factor Services | .. | .. | .. | 66 | 74 | 69 | 128 | 206 | 330 | 414 | 538 |
| Long-Term Interest | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 380 |
| Current Transfers, net | .. | .. | .. | .. | .. | .. | .. | 231 | 456 | 842 | 960 |
| Workers' Remittances | .. | .. | .. | 29 | 27 | 104 | 117 | 189 | 366 | 755 | 897 |
| Total to be Financed | .. | .. | .. | .. | .. | .. | .. | -1,596 | -2,426 | -1,363 | -1,456 |
| Official Capital Grants | .. | .. | .. | .. | .. | .. | .. | 1,261 | 986 | 705 | 382 |
| Current Account Balance | .. | .. | .. | -148 | -207 | -174 | 20 | -335 | -1,440 | -658 | -1,074 |
| Long-Term Capital, net | .. | .. | .. | 306 | 288 | 594 | 784 | 2,588 | 2,927 | 2,419 | 3,263 |
| Direct Investment | .. | .. | .. | .. | .. | .. | .. | 87 | 225 | 444 | 477 |
| Long-Term Loans | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 2,335 |
| Disbursements | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 3,099 |
| Repayments | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 764 |
| Other Long-Term Capital | .. | .. | .. | 306 | 288 | 594 | 784 | 1,240 | 1,716 | 1,270 | 69 |
| Other Capital, net | .. | .. | .. | -170 | -140 | -405 | -633 | -1,171 | -927 | -548 | -455 |
| Change in Reserves | .. | .. | .. | 12 | 58 | -14 | -171 | -1,082 | -560 | -1,213 | -1,734 |
| Memo Item: | (Egyptian Pounds per US dollar) | | | | | | | | | | |
| Conversion Factor (Annual Avg) | 0.450 | 0.430 | 0.410 | 0.400 | 0.390 | 0.390 | 0.400 | 0.480 | 0.460 | 0.500 | 0.570 |
| EXTERNAL DEBT, ETC. | | | | | | | | | | | |
| | (Millions of US dollars, outstanding at end of year) | | | | | | | | | | |
| Public/Publicly Guar. Long-Term | .. | .. | .. | 1,713 | 2,081 | 2,239 | 2,423 | 2,960 | 4,983 | 6,018 | 8,467 |
| Official Creditors | .. | .. | .. | 1,227 | 1,406 | 1,377 | 1,748 | 2,090 | 4,048 | 5,017 | 7,226 |
| IBRD and IDA | .. | .. | .. | 22 | 17 | 12 | 30 | 36 | 98 | 176 | 255 |
| Private Creditors | .. | .. | .. | 487 | 675 | 862 | 675 | 870 | 935 | 1,000 | 1,242 |
| Private Non-guaranteed Long-Term | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | 18 |
| Use of Fund Credit | .. | .. | .. | 49 | 76 | 27 | 75 | 114 | 80 | 207 | 310 |
| Short-Term Debt | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. |
| Memo Items: | (Millions of US dollars) | | | | | | | | | | |
| Int'l Reserves Excluding Gold | 102.0 | 75.0 | 51.0 | 74.1 | 57.1 | 51.5 | 259.6 | 251.9 | 193.9 | 239.6 | 430.7 |
| Gold Holdings (at market price) | 94.0 | 112.0 | 94.1 | 91.0 | 106.1 | 157.8 | 273.0 | 453.6 | 341.1 | 327.7 | 401.2 |
| SOCIAL INDICATORS | | | | | | | | | | | |
| Total Fertility Rate | 6.6 | 6.4 | 6.2 | 5.9 | 5.7 | 5.5 | 5.5 | 5.4 | 5.4 | 5.3 | 5.3 |
| Crude Birth Rate | 41.8 | 41.1 | 40.4 | 39.8 | 39.1 | 38.4 | 38.9 | 39.4 | 39.8 | 40.3 | 40.8 |
| Infant Mortality Rate | 170.0 | 166.0 | 162.0 | 158.0 | 154.0 | 150.0 | 144.0 | 138.0 | 132.0 | 126.0 | 120.0 |
| Life Expectancy at Birth | 49.7 | 50.2 | 50.7 | 51.1 | 51.6 | 52.1 | 52.8 | 53.5 | 54.2 | 54.9 | 55.6 |
| Food Production, p.c. ('79-81 = 100) | 98.8 | 108.3 | 107.8 | 105.4 | 108.0 | 108.1 | 107.0 | 106.7 | 108.0 | 107.2 | 101.2 |
| Labor Force, Agriculture (%) | 53.8 | 53.2 | 52.6 | 52.0 | 51.4 | 50.7 | 50.1 | 49.4 | 48.8 | 48.2 | 47.6 |
| Labor Force, Female (%) | 7.1 | 7.1 | 7.1 | 7.1 | 7.3 | 7.4 | 7.5 | 7.7 | 7.8 | 8.0 | 8.1 |
| School Enroll. Ratio, primary | .. | .. | .. | 72.0 | .. | .. | .. | .. | 71.0 | 73.0 | 73.0 |
| School Enroll. Ratio, secondary | .. | .. | .. | 35.0 | .. | .. | .. | .. | 43.0 | 45.0 | 47.0 |

SOURCE ; THE DATA FILE OF THE WORLD BANK

| 1978 | 1979 | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | NOTES | EGYPT, ARAB REPUBLIC OF |
|--|---------|---------|--------|---------|--------|--------|--------|--------|---------|-------|-------------------------------------|
| estimate | | | | | | | | | | | |
| (Millions of current US dollars) | | | | | | | | | | | |
| 2,458 | 3,320 | 4,759 | 5,048 | 5,033 | 5,936 | 6,076 | 5,193 | 4,040 | 4,482 | C f | FOREIGN TRADE (CUSTOMS BASIS) |
| 752 | 702 | 786 | 894 | 809 | 795 | 808 | 696 | 592 | 693 | .. | Value of Exports, fob |
| 1,203 | 2,245 | 3,585 | 3,750 | 3,734 | 4,485 | 4,608 | 3,858 | 2,658 | 2,768 | .. | Nonfuel Primary Products |
| 504 | 373 | 383 | 404 | 490 | 656 | 660 | 639 | 790 | 1,021 | .. | Fuels |
| | | | | | | | | | | .. | Manufactures |
| 6,727 | 7,073 | 8,047 | 8,839 | 9,078 | 10,766 | 11,594 | 10,581 | 8,453 | 10,586 | C f | Value of Imports, cif |
| 2,224 | 2,039 | 2,800 | 3,566 | 3,292 | 3,610 | 3,730 | 3,432 | 2,612 | 2,877 | .. | Nonfuel Primary Products |
| 101 | 164 | 214 | 265 | 371 | 484 | 469 | 303 | 189 | 207 | .. | Fuels |
| 4,401 | 4,870 | 5,033 | 5,008 | 5,415 | 6,672 | 7,395 | 6,846 | 5,652 | 7,502 | .. | Manufactures |
| (Index 1980 = 100) | | | | | | | | | | | |
| 71.7 | 73.7 | 100.0 | 108.3 | 103.7 | 101.5 | 98.0 | 84.0 | 62.8 | 63.5 | .. | Terms of Trade |
| 55.1 | 66.7 | 100.0 | 107.2 | 97.3 | 95.1 | 91.0 | 75.8 | 60.1 | 65.1 | .. | Export Prices, fob |
| 75.8 | 86.4 | 100.0 | 89.5 | 76.2 | 87.2 | 83.5 | 66.4 | 60.4 | 84.5 | .. | Nonfuel Primary Products |
| 42.3 | 61.0 | 100.0 | 112.5 | 101.6 | 95.0 | 90.2 | 74.2 | 52.0 | 52.0 | .. | Fuels |
| 80.6 | 77.7 | 100.0 | 107.9 | 112.2 | 107.9 | 110.5 | 105.6 | 124.8 | 137.0 | .. | Manufactures |
| 76.9 | 90.6 | 100.0 | 99.0 | 93.8 | 93.7 | 92.9 | 90.2 | 95.7 | 102.5 | .. | Import Prices, cif |
| (Millions of 1980 US dollars) | | | | | | | | | | | |
| 4,459 | 4,974 | 4,759 | 4,708 | 5,172 | 6,241 | 6,676 | 6,853 | 6,725 | 6,888 | .. | Trade at Constant 1980 Prices |
| 8,752 | 7,807 | 8,047 | 8,929 | 9,673 | 11,494 | 12,481 | 11,734 | 8,834 | 10,331 | .. | Exports, fob |
| | | | | | | | | | | .. | Imports, cif |
| (Millions of current US dollars) | | | | | | | | | | | |
| 4,243 | 5,707 | 7,087 | 8,207 | 8,430 | 8,870 | 9,561 | 9,754 | 8,754 | 8,061 | .. | BALANCE OF PAYMENTS |
| 2,558 | 3,987 | 4,686 | 5,617 | 5,779 | 5,248 | 5,924 | 6,075 | 5,193 | 4,040 | .. | Exports of Goods & Services |
| 1,541 | 1,414 | 2,116 | 2,186 | 2,183 | 2,604 | 2,558 | 2,636 | 2,647 | 3,231 | .. | Merchandise, fob |
| 144 | 306 | 284 | 404 | 468 | 1,018 | 1,079 | 1,043 | 914 | 790 | .. | Nonfactor Services |
| | | | | | | | | | | .. | Factor Services |
| 7,419 | 10,156 | 11,300 | 13,481 | 13,917 | 14,411 | 16,556 | 18,011 | 17,074 | 14,684 | .. | Imports of Goods & Services |
| 5,998 | 7,817 | 8,577 | 10,334 | 10,380 | 9,619 | 11,328 | 11,593 | 10,581 | 8,453 | .. | Merchandise, fob |
| 614 | 964 | 980 | 1,078 | 1,285 | 1,896 | 2,086 | 2,091 | 2,300 | 2,176 | .. | Nonfactor Services |
| 807 | 1,375 | 1,744 | 2,069 | 2,252 | 2,896 | 3,142 | 4,327 | 4,193 | 4,055 | .. | Factor Services |
| 447 | 333 | 456 | 658 | 618 | 665 | 746 | 744 | 768 | 806 | .. | Long-Term Interest |
| .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | Current Transfers, net |
| 1,761 | 2,445 | 2,696 | 2,855 | 1,935 | 3,165 | 3,931 | 3,496 | 2,973 | 2,845 | .. | Workers' Remittances |
| .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | Total to be Financed |
| .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | .. | Official Capital Grants |
| -1,070 | -1,843 | -1,420 | -2,077 | -3,106 | -1,675 | -2,278 | -3,564 | -4,038 | -2,705 | .. | Current Account Balance |
| 2,515 | 2,337 | 2,172 | 2,335 | 2,315 | 2,787 | 4,562 | 3,599 | 3,606 | 355 | .. | Long-Term Capital, net |
| 387 | 1,375 | 541 | 836 | 885 | 966 | 1,275 | 1,289 | 1,275 | 869 | .. | Direct Investment |
| 2,107 | 1,738 | 1,631 | 1,844 | 1,736 | 1,630 | 1,549 | 1,357 | 681 | 608 | .. | Long-Term Loans |
| 2,917 | 2,525 | 2,706 | 3,205 | 3,228 | 3,177 | 3,052 | 2,894 | 1,860 | 1,536 | .. | Disbursements |
| 810 | 787 | 1,075 | 1,361 | 1,492 | 1,548 | 1,504 | 1,536 | 1,179 | 928 | .. | Repayments |
| 21 | -776 | 0 | -345 | -306 | 191 | 1,738 | 953 | 1,650 | -1,122 | .. | Other Long-Term Capital |
| -178 | 190 | -54 | -55 | 808 | -223 | -2,145 | 365 | 832 | 253 | .. | Other Capital, net |
| -1,267 | -684 | -698 | -203 | -17 | -389 | -139 | -400 | -400 | 2,097 | .. | Change in Reserves |
| (Egyptian Pounds per US dollar) | | | | | | | | | | | |
| 0.660 | 0.700 | 0.720 | 0.740 | 0.810 | 0.860 | 0.930 | 0.960 | 1.100 | 1.210 | .. | Memo Item: |
| | | | | | | | | | | .. | Conversion Factor (Annual Avg) |
| (Millions of US dollars, outstanding at end of year) | | | | | | | | | | | |
| 10,703 | 12,464 | 15,785 | 18,979 | 21,214 | 23,184 | 25,136 | 29,041 | 32,093 | 34,515 | .. | EXTERNAL DEBT, ETC. |
| 9,249 | 10,348 | 13,405 | 15,937 | 17,366 | 18,733 | 20,328 | 23,492 | 26,267 | 28,389 | .. | Public/Publicly Guar. Long-Term |
| 356 | 525 | 728 | 932 | 1,125 | 1,377 | 1,464 | 1,850 | 2,214 | 2,594 | .. | Official Creditors |
| 1,454 | 2,116 | 2,381 | 3,042 | 3,848 | 4,451 | 4,808 | 5,549 | 5,826 | 6,125 | .. | IBRD and IDA |
| 75 | 185 | 265 | 320 | 455 | 600 | 550 | 750 | 947 | 1,098 | .. | Private Creditors |
| 386 | 325 | 177 | 99 | 57 | 52 | 48 | 41 | 31 | 182 | .. | Private Non-guaranteed Long-Term |
| .. | .. | 3,644 | 3,174 | 4,442 | 4,381 | 4,779 | 4,966 | 4,790 | 4,469 | .. | Use of Fund Credit |
| | | | | | | | | | | .. | Short-Term Debt |
| (Millions of US dollars) | | | | | | | | | | | |
| 491.7 | 529.5 | 1,046.0 | 716.2 | 698.1 | 771.1 | 736.2 | 792.1 | 829.0 | 1,378.3 | .. | Memo Items: |
| 558.9 | 1,265.7 | 1,433.7 | 966.7 | 1,111.2 | 927.8 | 749.8 | 795.3 | 950.7 | 1,177.3 | .. | Int'l Reserves Excluding Gold |
| | | | | | | | | | | .. | Gold Holdings (at market price) |
| SOCIAL INDICATORS | | | | | | | | | | | |
| 5.2 | 5.1 | 5.1 | 5.0 | 4.9 | 4.9 | 4.8 | 4.7 | 4.6 | 4.5 | .. | Total Fertility Rate |
| 40.1 | 39.5 | 38.8 | 38.2 | 37.5 | 36.7 | 35.9 | 35.2 | 34.4 | 33.6 | .. | Crude Birth Rate |
| 116.0 | 112.0 | 108.0 | 104.0 | 100.0 | 92.7 | 85.4 | 78.1 | 70.8 | 63.5 | .. | Infant Mortality Rate |
| 56.4 | 57.2 | 58.0 | 58.8 | 59.7 | 60.0 | 60.4 | 60.8 | 61.2 | 61.6 | .. | Life Expectancy at Birth |
| 101.7 | 102.1 | 99.2 | 98.7 | 104.6 | 104.7 | 103.5 | 104.8 | 106.2 | 108.3 | .. | Food Production, p.c. (79-81 = 100) |
| 46.9 | 46.3 | 45.7 | .. | .. | .. | .. | .. | .. | .. | .. | Labor Force, Agriculture (%) |
| 8.3 | 8.4 | 8.6 | 8.8 | 8.9 | 9.0 | 9.2 | 9.3 | 9.5 | 9.6 | .. | Labor Force, Female (%) |
| 74.0 | 75.0 | 83.0 | 87.0 | 82.0 | 84.0 | .. | 85.0 | .. | .. | .. | School Enroll. Ratio, primary |
| 49.0 | 50.0 | 51.0 | 53.0 | 58.0 | 58.0 | .. | 62.0 | .. | .. | .. | School Enroll. Ratio, secondary |

SOURCE ; THE DATA FILE OF THE WORLD BANK

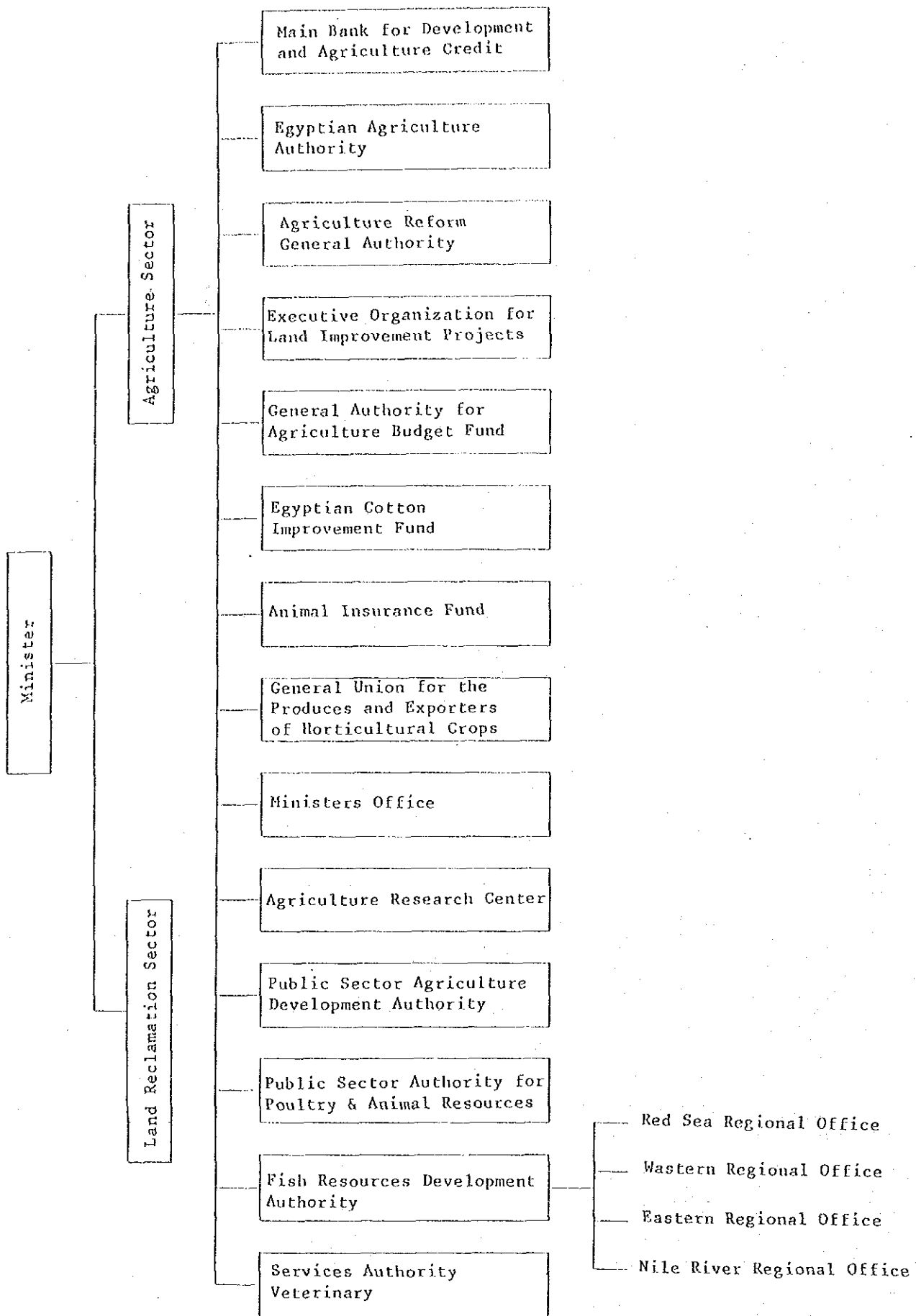


Fig.7-5-1 Structure of Ministry of Agriculture

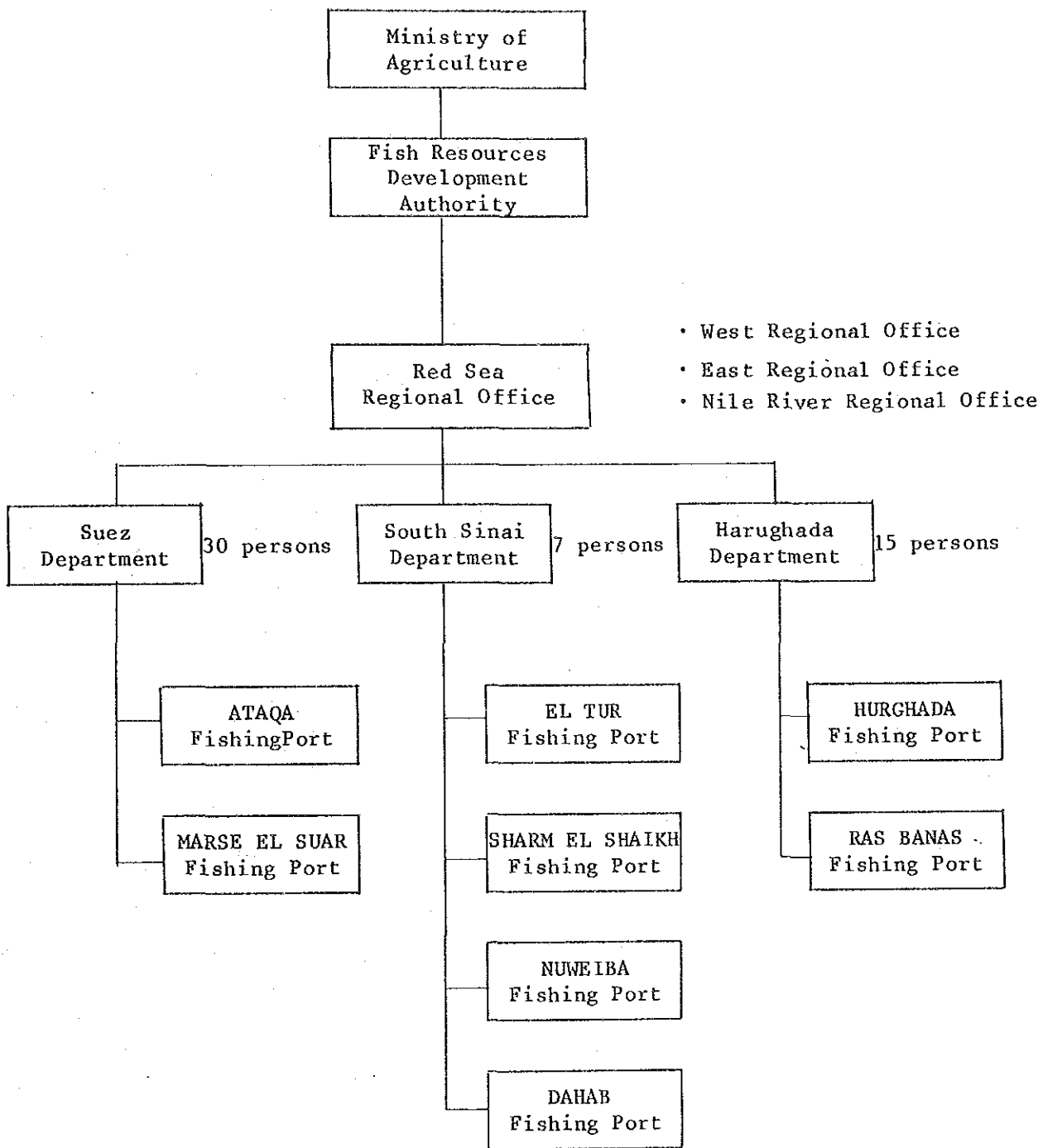


Fig. 7-5-2 Structure of Fish Resources Development Authority, Suez

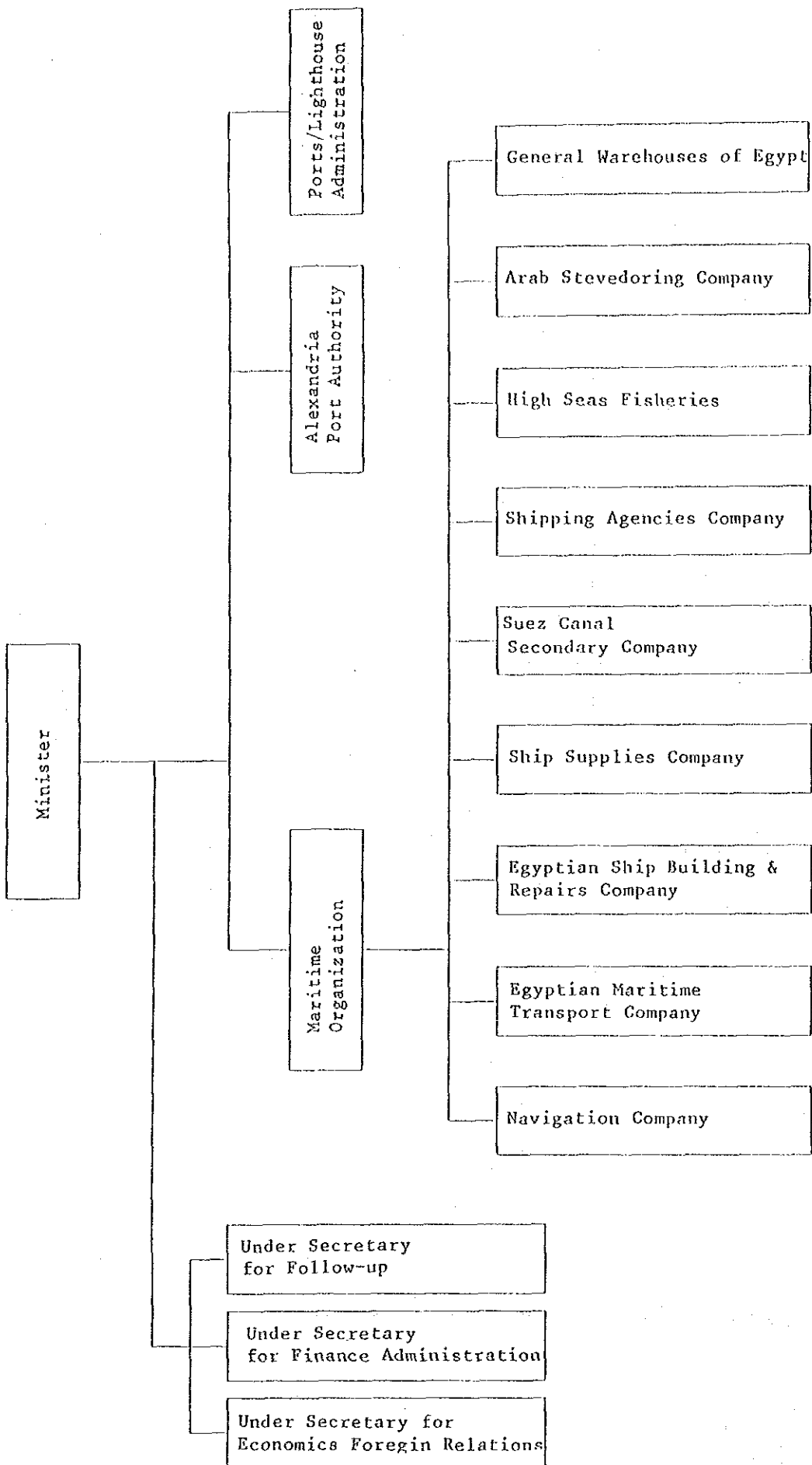


Fig.7-5-3 Structure of Ministry of Maritime Transport

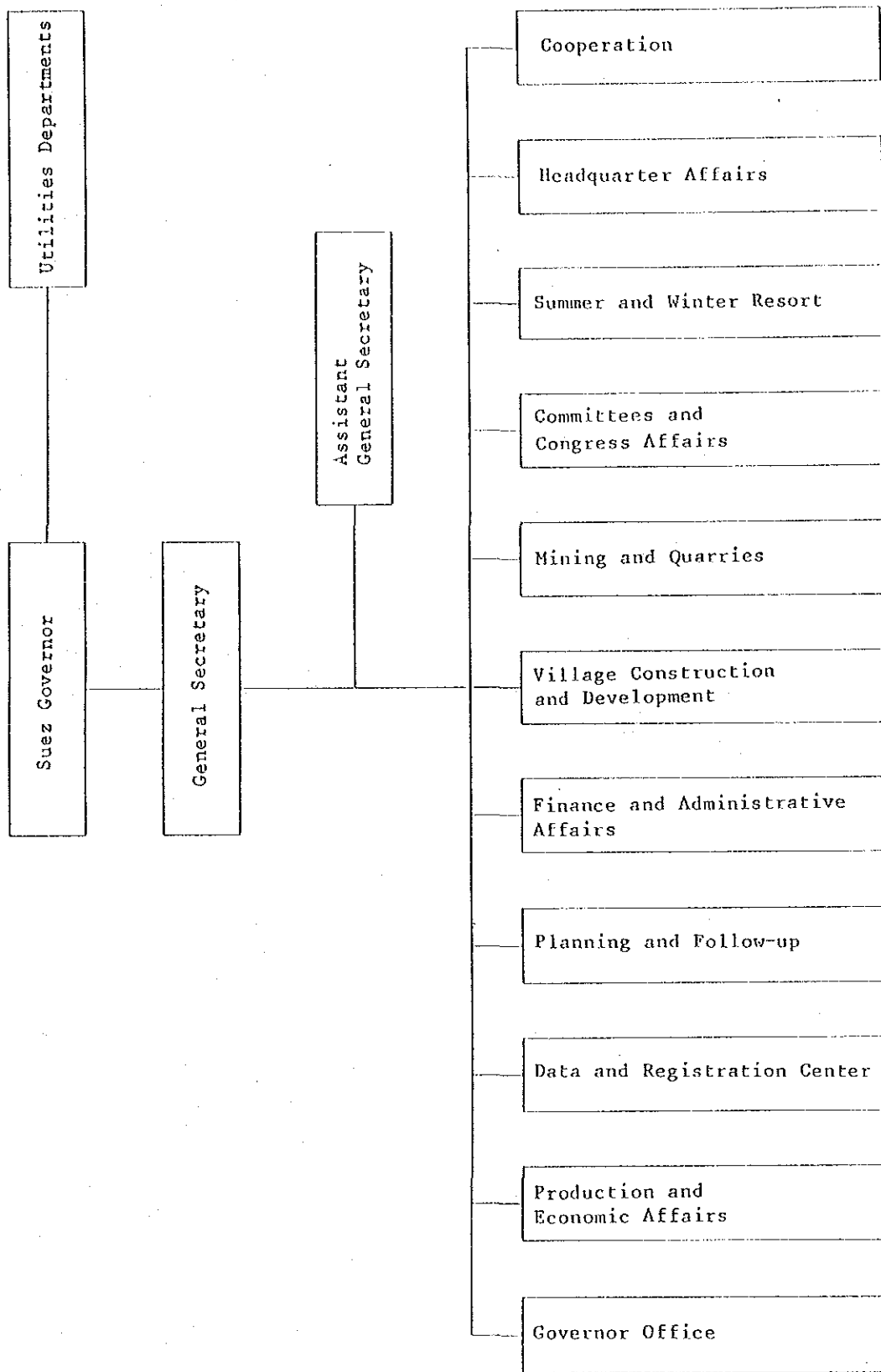


Fig.7-5-4 Structure of Suez Governarate

APPENDIX 6 INFORMATION ON RESEARCH/TRAINING VESSELS

1. On 9 December 1989, the Basic Design Study Team visited the Egyptian Fisheries company for Fishing and Fish Gear in Alexandria. Two Japanese grant aid research/training vessels were working under the control of the company. The purpose of the Team's visit was to investigate the present condition of the vessels.

The Study Team member met Messrs. Monma and Sato, JICA Expert and Dr. Essam A. Sabry, the manager of the company.

2. The vessels conducted research and training for the following purposes:

- 1) Development of fish resources in Egyptian seas, the research survey primarily covered fish resources at depths of more than 100m.

- 2) Training of fisherman in the operation of modern fishing vessels (to provide instructions concerning the techniques for maintaining fish freshness and ice making)

3. During a nine month period from March through December of 1989, the vessels conducted the fish resources survey by repeating fishing operations throughout a 100 mile zone 40 miles off the coast of Alexandria to the mouth of the Nile (Rosetta Mouth) in the Mediterranean Sea. As a result of the research it was found that the sea off of Alexandria is not suitable for trawling. As the local fishermen have no modern purse seining experience, therefore, training for that modern method of fishing is not carried out at present.

The vessels tried trawling in the sea area to east of Alexandria in September 1989.

4. Local fisherman go fishing five to seven days at a time and then take off for two or three days. They continue this fishing cycle four times afterwhitch they take off for ten days.

It is preferable to conduct a fishing operation during a long at-sea period. Presently, however, fishing operations last only about one week. The main reasons for this is that the common fishing boats have small fuel and water tank capacities.

5. In order to permit prolonged fishing operations during one trip, fuel and water could be supplied to the boats at sea. However, it would necessary to prove that this method is better practically by checking actual operating results.
6. It is troublesome for research/training boats to obtain permission to receive fuel and oil supplies at Egyptian commercial or military ports. There are times when the boats must wait two to four weeks to receive supplies.
7. The drafts of the research/training vessels are from 3.5 to 3.8m. The vessels cannot berth at the Alexandria Fishing Port nor at the Ataqqa Fishing Port for taking on fuel and water supplies. For this reason, it is highly desirable to deepen Ataqqa Fishing Port's waterfront. However, even after Project completion, the problem of supplying fishing boats at the Alexandria Fishing Port will remain.

APPENDIX 7 Natural Condition Survey

1) Weather Data (Suez)

- Frequency of Average Annual Wind Distribution
- Frequency of Average Monthly Wind Direction
- Average Monthly Temperature
- Average Monthly Precipitation

2) Site Survey Data

- Site Survey Plan
- Geological Profile
- Tidal Current Harmonic Analysis Result
- Tide Level Harmonic Analysis Result

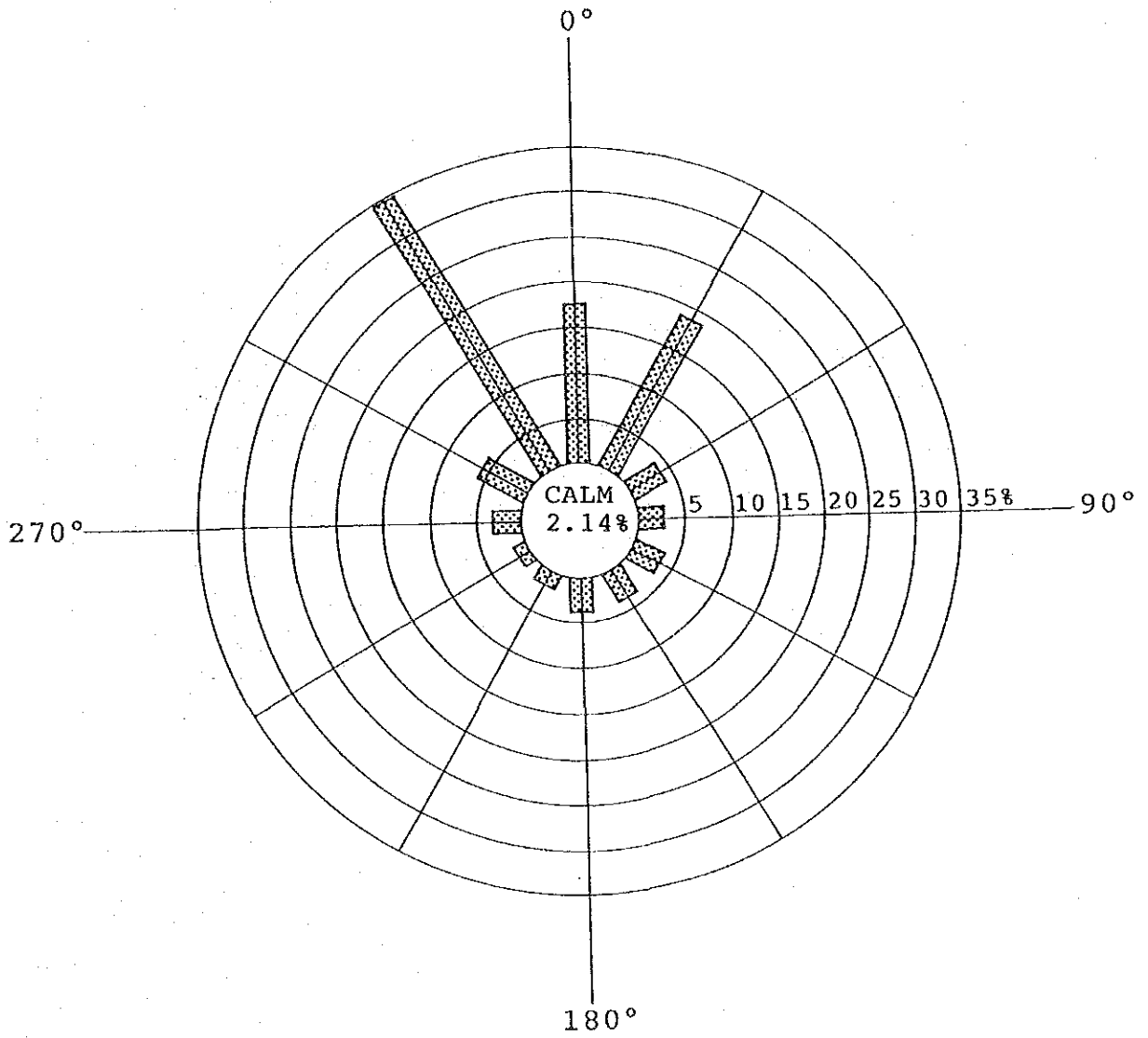


Fig.7-7-1 Frequency of Average Annual Wind Direction (1983-1987)

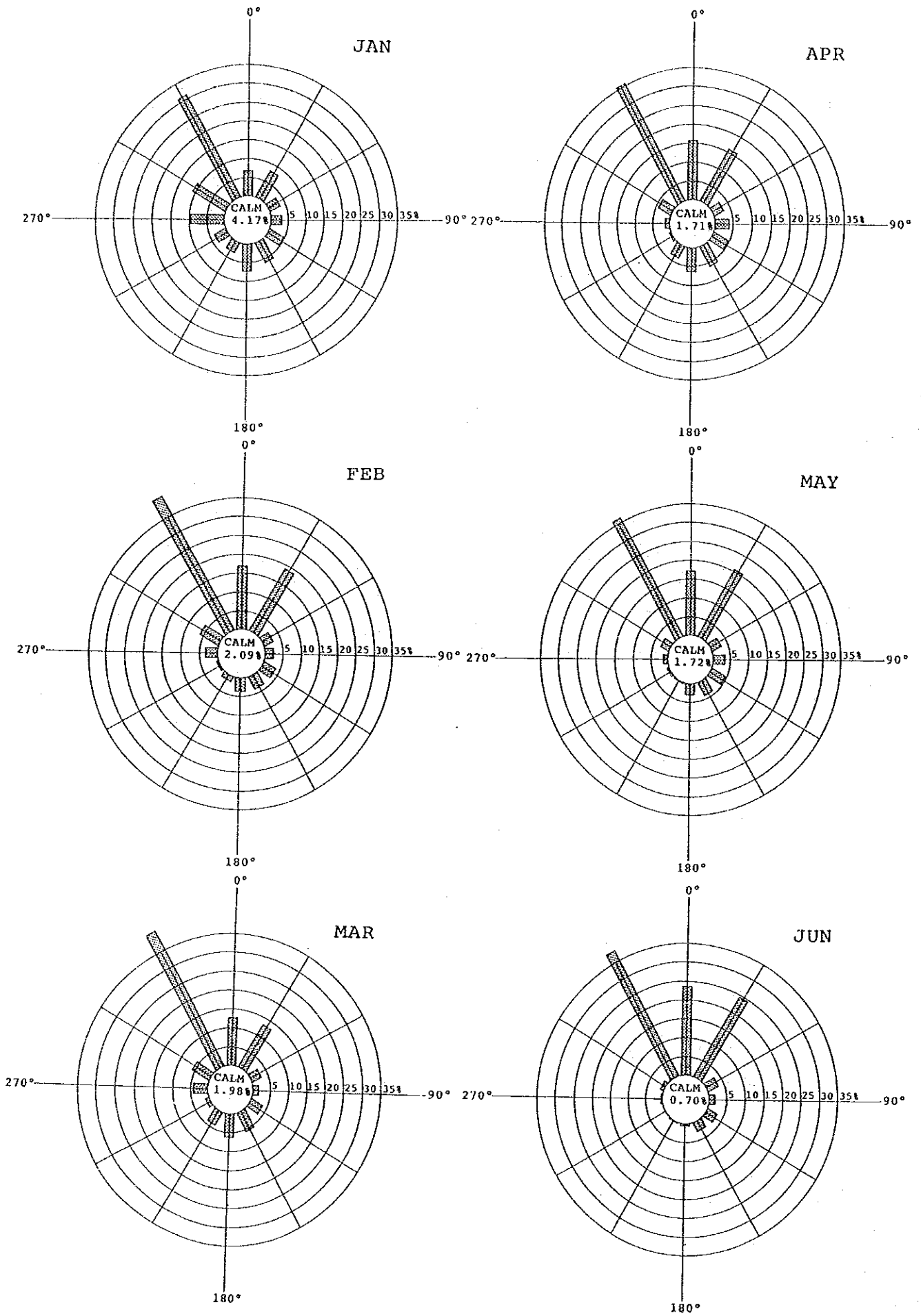


Fig.7-7-2 Frequency of Average Monthly Wind Direction (1983-1987) (1)

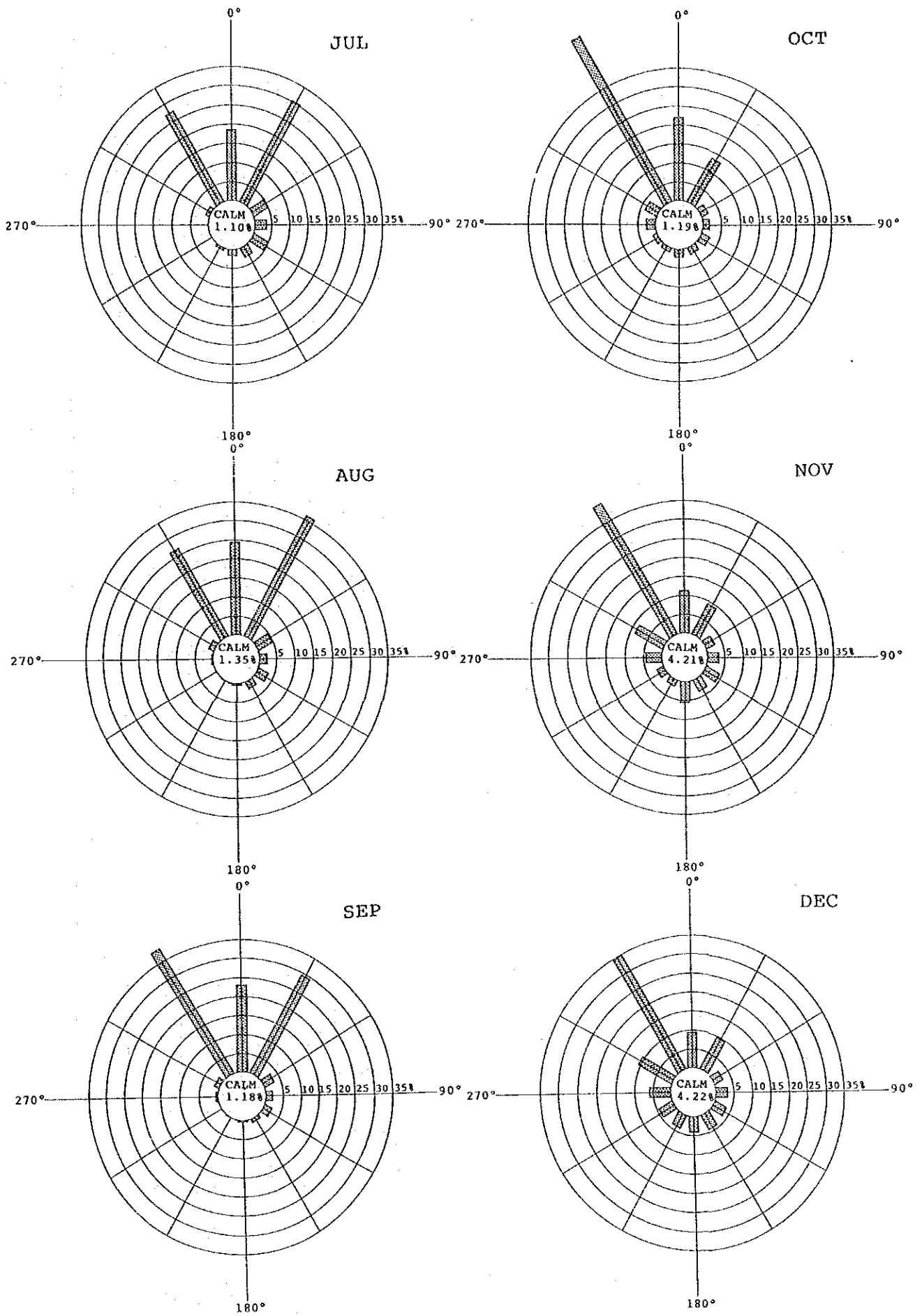
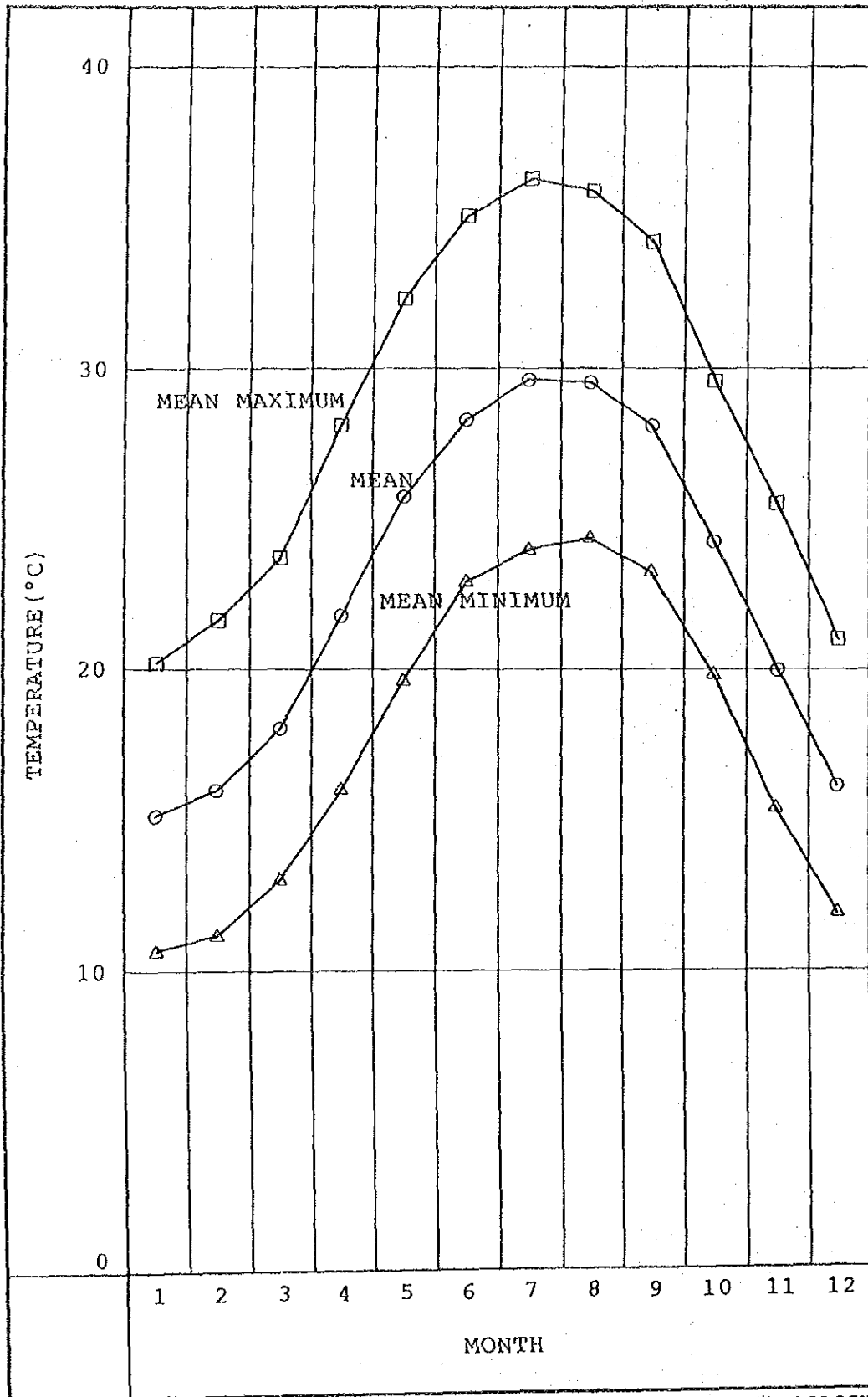
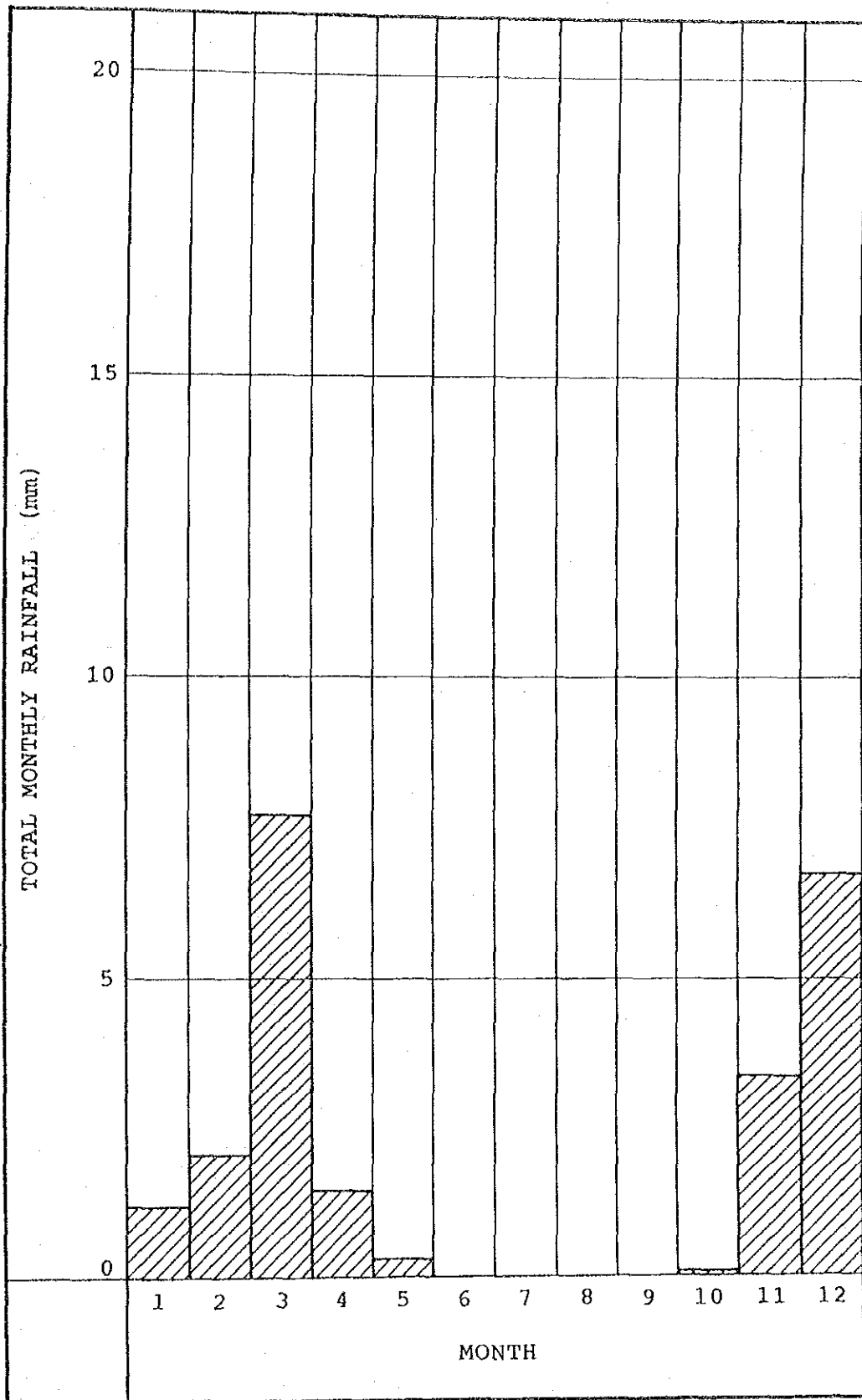


Fig.7-7-3 Frequency of Average Monthly Wind Direction (1983-1987) (2)



SOURCE ; GENERAL AUTHORITY FOR METEOROLOGY

Fig.7-7-4 Average Monthly Temperature in Suez (1983-1987)



SOURCE ; GENERAL AUTHORITY FOR METEOROLOGY

Fig.7-7-5 Average Monthly Precipitation in Suez (1983-1987)

2) Site Survey Data

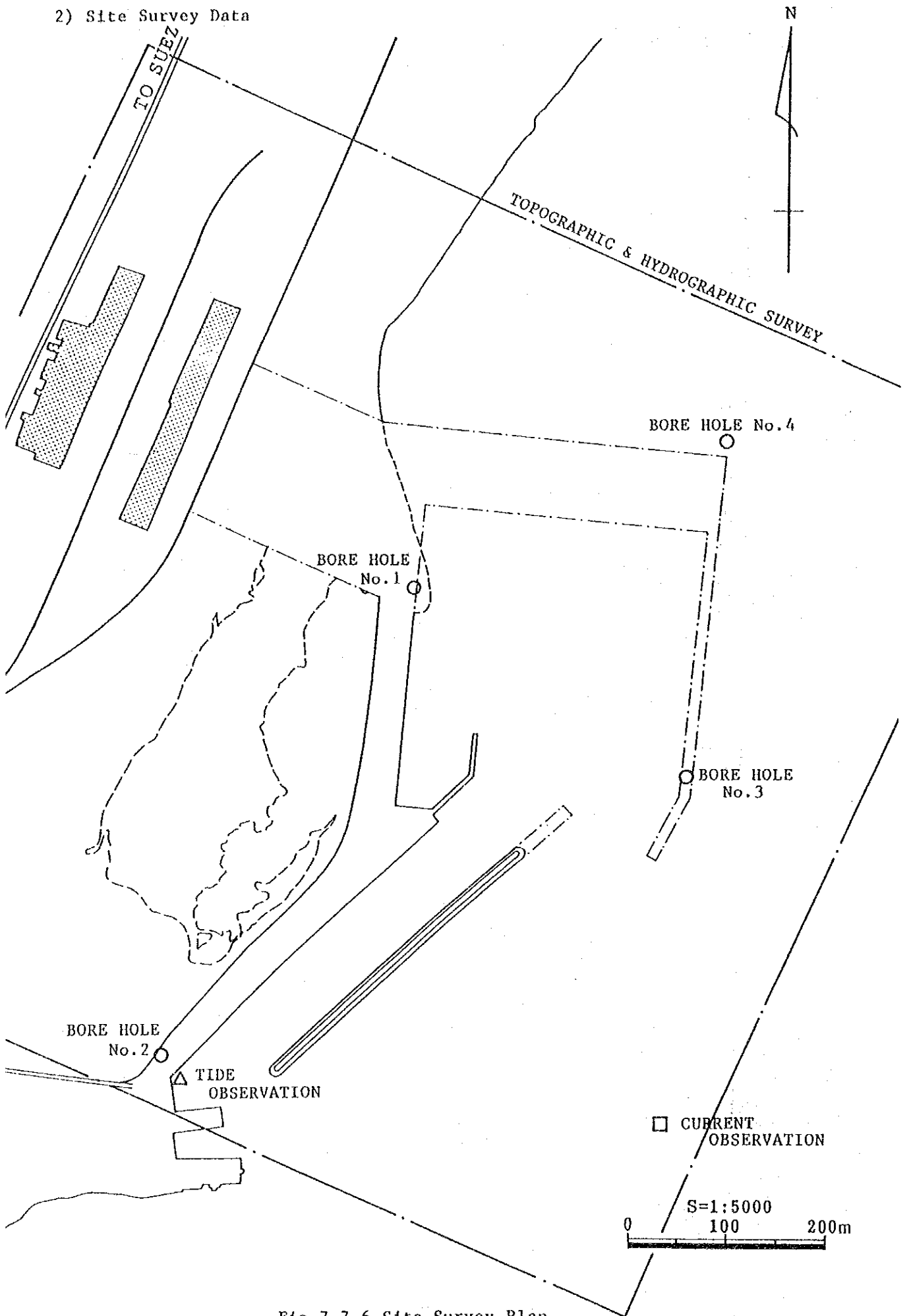
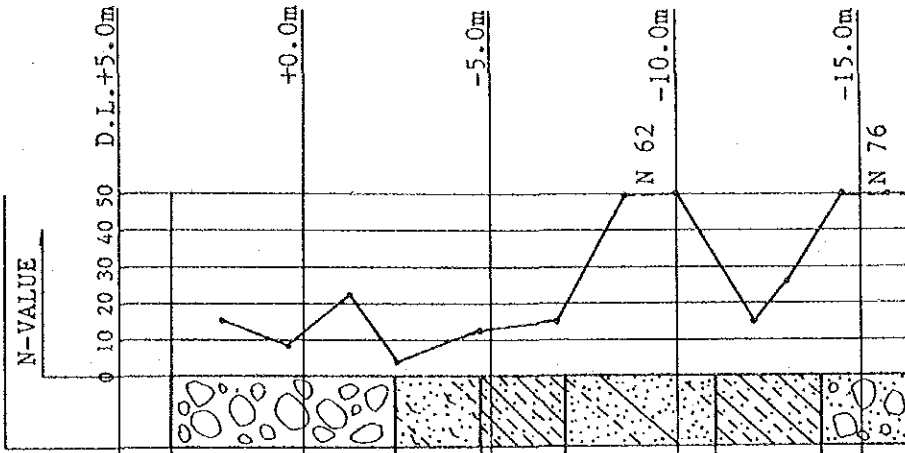
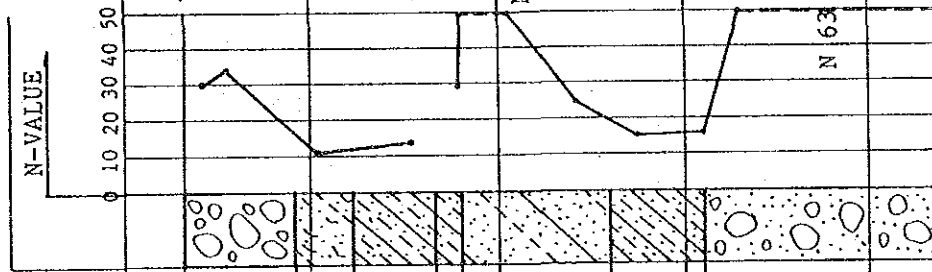


Fig.7-7-6 Site Survey Plan

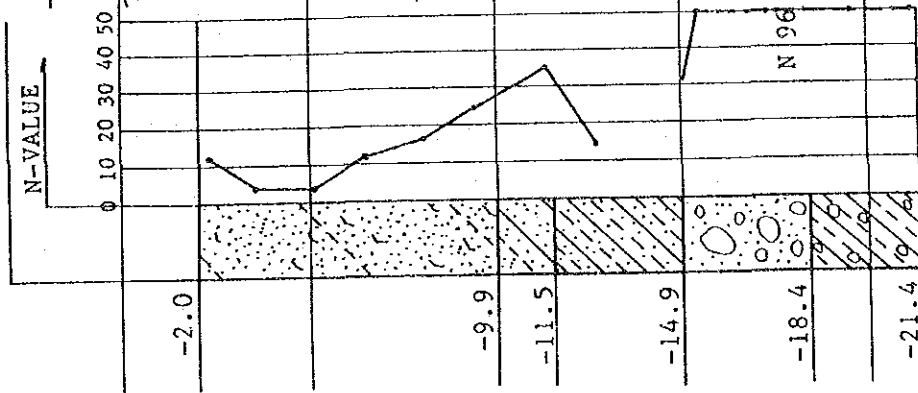
BORE HOLE No. 2



BORE HOLE No. 1



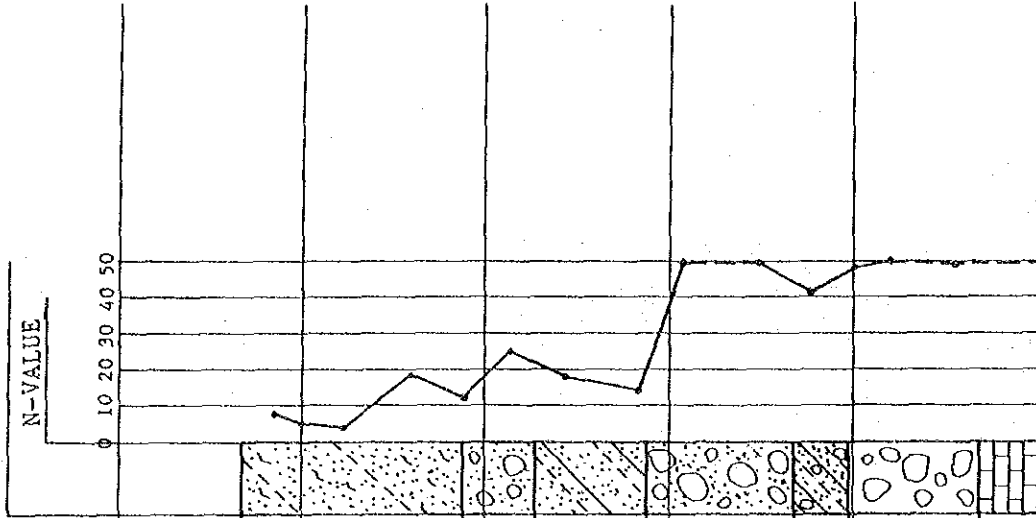
BORE HOLE No. 4



DECOMPOSED LIMESTONE

Fig. 7-7-7 Geological Profile (1)

BORE HOLE No.3



BORE HOLE No.4

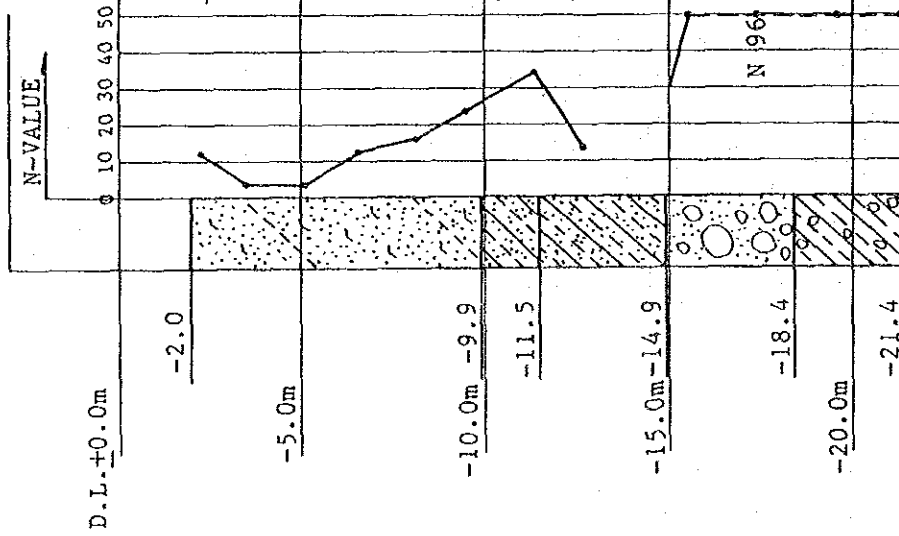


Fig.7-7-8 Geological Profile (2)

Tidal Current Harmonic Analysis

Results of 24 hour Period Tidal Current Harmonic Analysis

Location : Ataqa
 E 32° 28' 4"
 N 29° 53' 49"
 Depth : B + 1.2 m
 Date : 7 to 8 December 1989
 Instrument: Aanderaa RCM-7

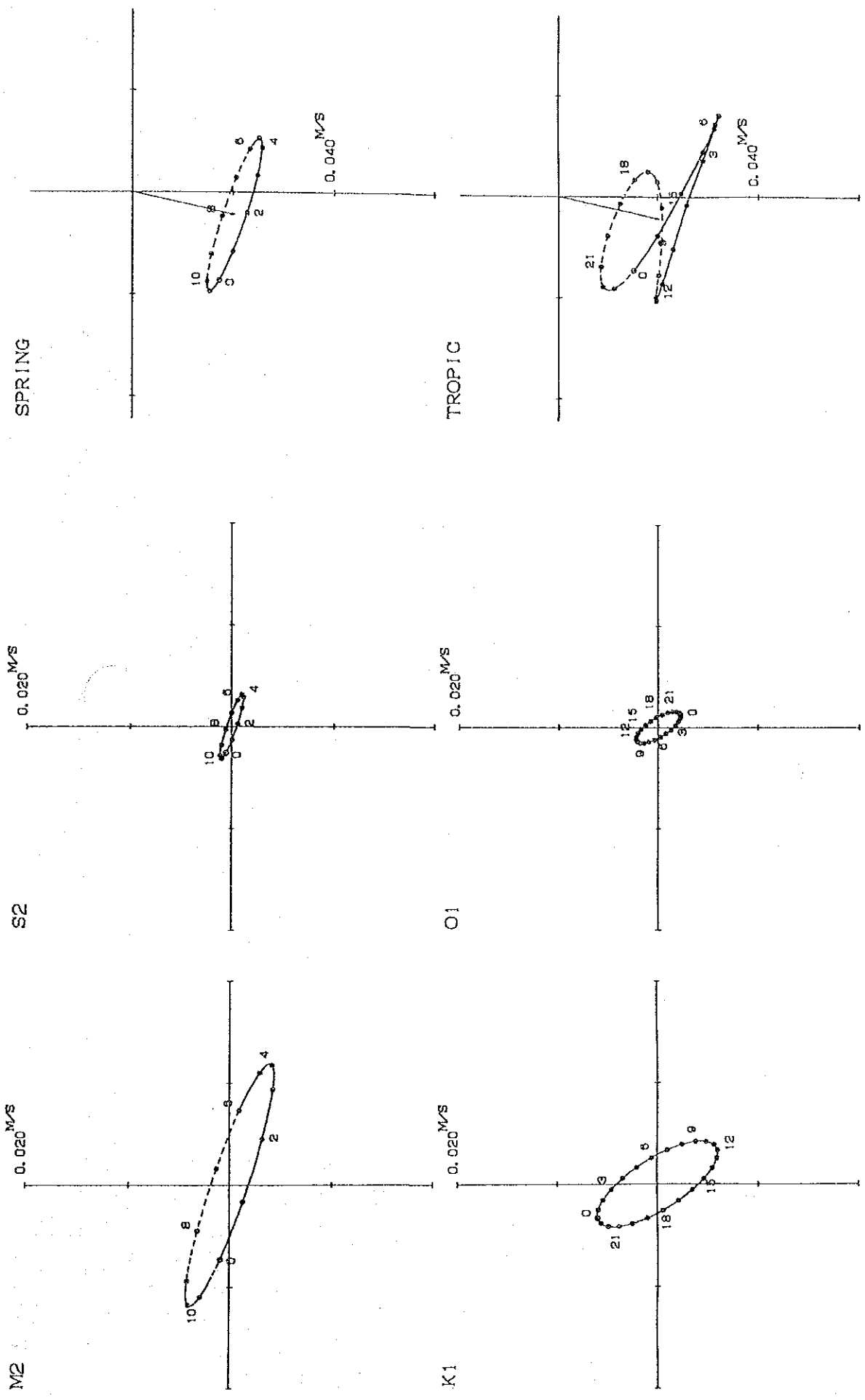
| Components | North | | East | | Elliptic Elements | | | | | | Main | |
|------------|-----------|-----|------------|-----|-------------------|-----|-----|------------|-----|-----|---------|-----|
| | Component | | Components | | Long Axis | | | Short Axis | | | Current | |
| | V | Lag | V | Lag | Dir. | V | Lag | Dir. | V | Lag | V | Lag |
| M2 | 0.4 | 283 | 1.2 | 128 | 289 | 1.3 | 305 | 19 | 0.2 | 215 | 1.2 | 303 |
| S2 | 0.1 | 300 | 0.3 | 145 | 289 | 0.3 | 322 | 19 | 0.0 | 232 | 0.3 | 320 |
| K2 | 0.0 | 300 | 0.1 | 145 | 289 | 0.1 | 322 | 19 | 0.0 | 232 | 0.1 | 320 |
| N2 | | | | | | | | | | | | |
| K1 | 0.6 | 5 | 0.4 | 142 | 329 | 0.7 | 353 | 59 | 0.3 | 83 | 0.6 | 344 |
| O1 | 0.2 | 185 | 0.2 | 322 | 329 | 0.3 | 173 | 59 | 0.1 | 263 | 0.2 | 164 |
| P1 | 0.2 | 5 | 0.1 | 142 | 329 | 0.2 | 353 | 59 | 0.1 | 83 | 0.2 | 344 |
| Q1 | | | | | | | | | | | | |
| M4 | | | | | | | | | | | | |
| MS4 | | | | | | | | | | | | |
| A0 | -2.0 | | -0.4 | | 2.1 | | | 192 | | | -0.8 | |

List of Tidal Current's Elliptic Elements

ATAQA

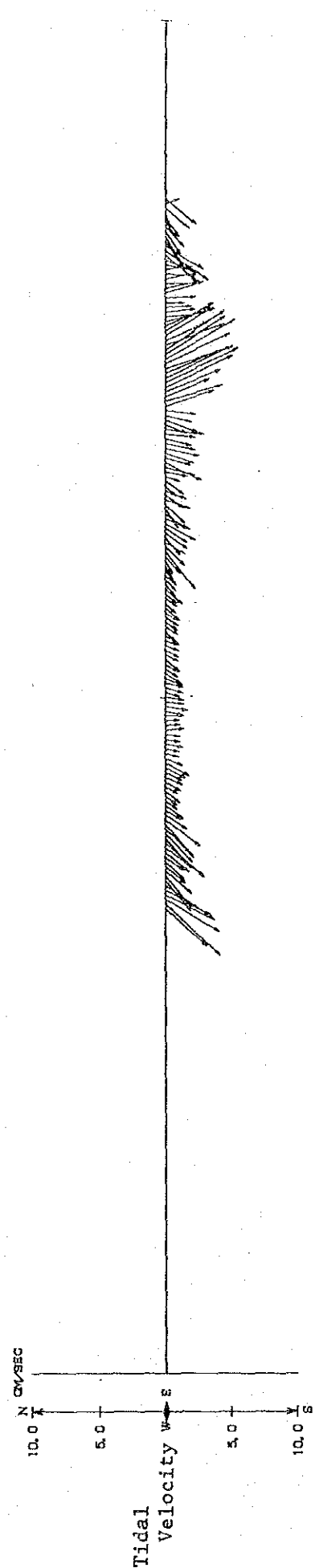
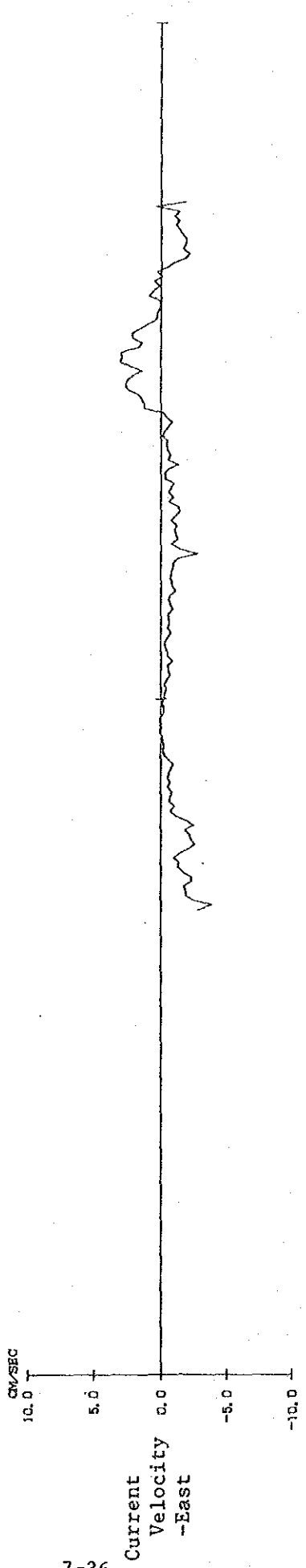
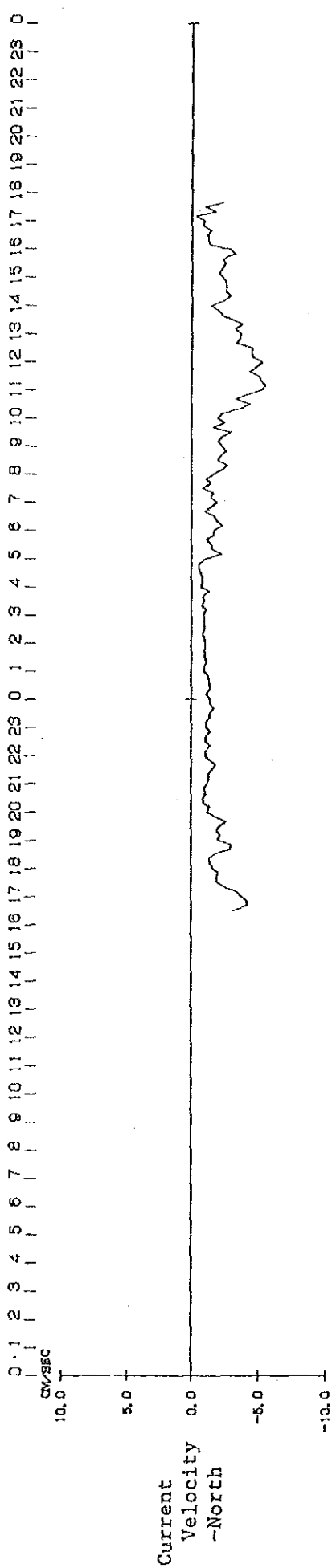
(24hr in Period)

| Depth | Date | Axis | M1 | | | M2 | | | M4 | | | Constant | |
|-------|--------------------|------|----------|-----------|--------|----------|-----------|--------|----------|-----------|--------|----------|-----------|
| | | | θ | V cm/s | H h | θ | V cm/s | H h | θ | V cm/s | H h | θ | V cm/s |
| B+1.2 | 7 to 8 Dec. '89 | L | 329 | 1.3 | 4.9 | 289 | 1.3 | 10.4 | 332 | 0.6 | 1.4 | 192 | 2.1 |
| | | S | 59 | 0.5 | 10.9 | 19 | 0.2 | 7.4 | 62 | 0.0 | 2.9 | | |
| | | S/L | | 0.36 | | | 0.14 | | | 0.02 | | | |



0 in Above Spring, Tropic Figures
Indicate Height Tide at Ataqqa.
Date 7 to 8 Dec. '89

ATAQA B+1.2M
Fig. 7-7-9 Tidal Current Ellipse



7-36

Fig.7-7-10 Component Curve and Vector

ST. B+1.2M
7 to 8 Dec. '89

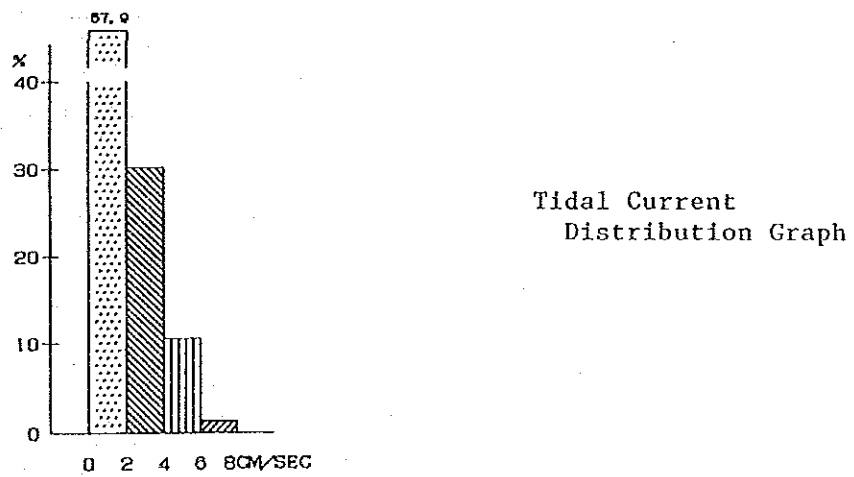
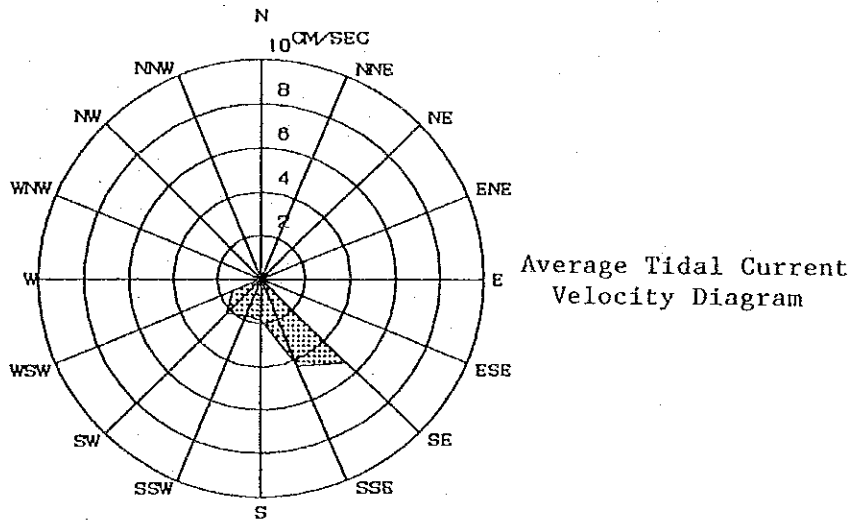
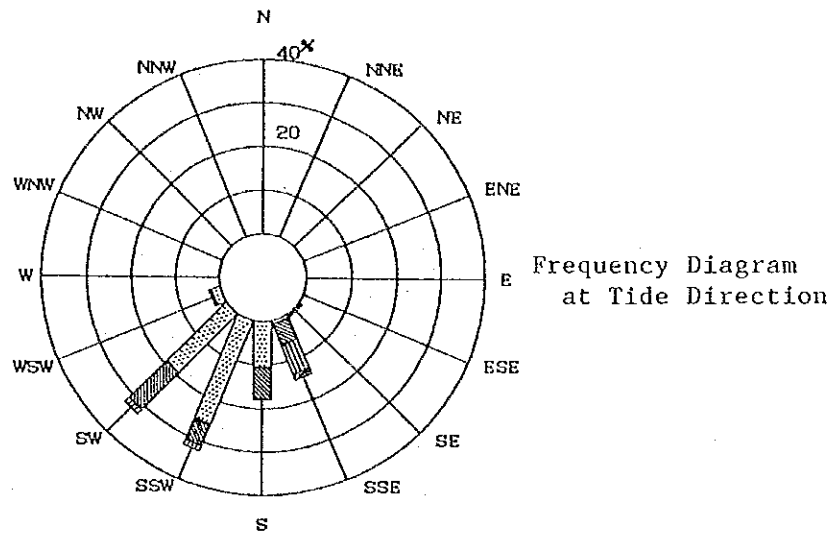


Fig. 7-7-11 Tidal Current Frequency

Tide Level Harmonic Analysis Results

15 day Period Tide Level Harmonic Analysis

Sea : Gulf of Suez
 Location : Ataq
 Latitude : 29° 53' 49" N
 Longitude : 32° 28' 4" E
 Date : 13 to 27 Dec. 1989
 Standard
 Time : -2.0 Hour
 Datum
 Line : Chart Datum Level

| Compo- nents | Amplitude (cm) | Lag (°) |
|-----------------|----------------|---------|
| M 2 | 58.7 | 338.9 |
| S 2 | 15.7 | 355.9 |
| K 2 | 4.3 | 355.9 |
| N 2 | 19.6 | 299.5 |
| K 1 | 4.3 | 198.6 |
| O 1 | 1.6 | 18.2 |
| P 1 | 1.4 | 198.6 |
| Q 1 | 2.5 | 33.9 |
| M 4 | 0.6 | 207.5 |
| MS 4 | 0.2 | 243.2 |
| A 0 | 124.6 | |

List of Tidal Components (15 days Period)

| Symbol | Name | Amplitude | Phase Lag |
|-----------------|-------------------------------------|-----------|------------------------|
| M ₂ | Main Lunar | 12.47 | 28.984 ^o /h |
| S ₂ | Main Solar | 12.00h | 30.000 |
| K ₂ | Changes during Orbital Cycle | 11.97h | 30.082 |
| N ₂ | Monthly Variation in Means Distance | 12.66h | 28.440 |
| K ₁ | Solitary Lunar | 23.93h | 15.041 |
| O ₁ | Main Lunar Diurnal | 25.82h | 13.943 |
| P ₁ | Main Solar Diurnal | 24.07h | 14.959 |
| Q ₁ | Main Lunar Eliptic | 26.87h | 13.399 |
| M ₄ | Moor Fortnightly | 6.21h | 57.968 |
| MS ₄ | Littoral Current | 6.01h | 58.984 |
| V ₀ | Current | - | - |

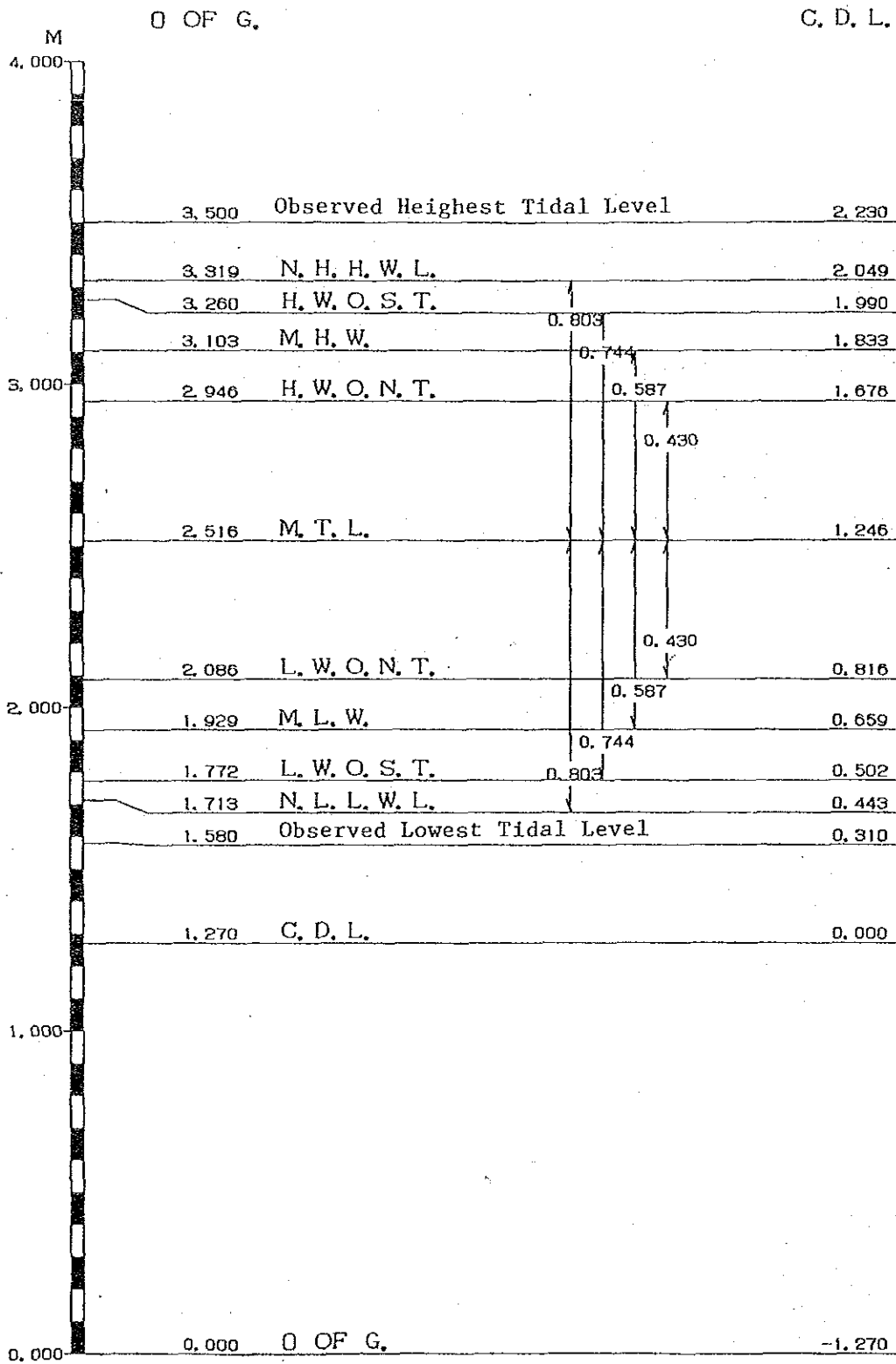


Fig.7-7-12 Tidal Diagram
7-40

APPENDIX 8 Determination of Design Wave

1. Design Wave Height

As no wave observation data in the Suez Bay was available, design wave for the Project facility has to be estimated from wind observation data by using the SMB method.

Occurrence rate of the wave direction estimated from the wind data is shown in Figure 7-7-1. From the figure, it is apparent that waves from "SE", "S", and "SW" directions are predominant in the Suez Bay.

As the Ataqqa Fishing Port is located in the west side of the Suez Bay and the north, west, and south sides of the fishing port is bounded by land, waves come into the port only from the east through south-south-east direction. Thus, the height of the waves that come into the port was estimated for the wave that approach from the east through south-south-east direction.

Maximum wind speed in each month during a 1983-1987 period is shown in Table 7-8-1. By the maximum wind speed in each year, a wind speed having a 30-year return period was statistically estimated as 41 knots as shown in Figure 7-8-1.

The effective fetch for each direction to estimate wave height is as shown in Figure 7-8-2. Based on the figure and the maximum wind speed of 41 knots, wave characteristics were obtained.

Since waves coming from the south-south-west direction to the Ataqqa port are blocked by the cape situated of the south of Ataqqa, they do not enter directly into the port. Thus, the waves that come into the Ataqqa port was estimated from the waves that reach to the tip of the cape by using the wave refraction method.

From the area topography, waves of SSW come into the port is less than 119°.

The result of the wave estimation is as shown in Table 7-8-2. The estimated design wave height is 1.3m.

Table 7-8-1 Maximum wind speed per Hour in Each Month
(1983-1987)

LOCATION: SUEZ

| Month Yr | JAN. | FEB. | MAR. | APR. | MAY. | JUN. | JUL. | AUG. | SEP. | OCT. | NOV. | DEC. |
|-------------|------|------|------|------|------|------|------|------|------|------|------|------|
| 1983 | 28 | 23 | 24 | 24 | 24 | 32 | 19 | 17 | 18 | 18 | 15 | 26 |
| 84 | 21 | 23 | 29 | 26 | 21 | 19 | 19 | 18 | 19 | 18 | 21 | 23 |
| 85 | 28 | 24 | 23 | 26 | 20 | 19 | 17 | 18 | 17 | 15 | 18 | 18 |
| 86 | 26 | 21 | 26 | 21 | 28 | 18 | 16 | 15 | 18 | 17 | 21 | 32 |
| 87 | 18 | 23 | - | - | - | 22 | 17 | 17 | 18 | 16 | 18 | 22 |

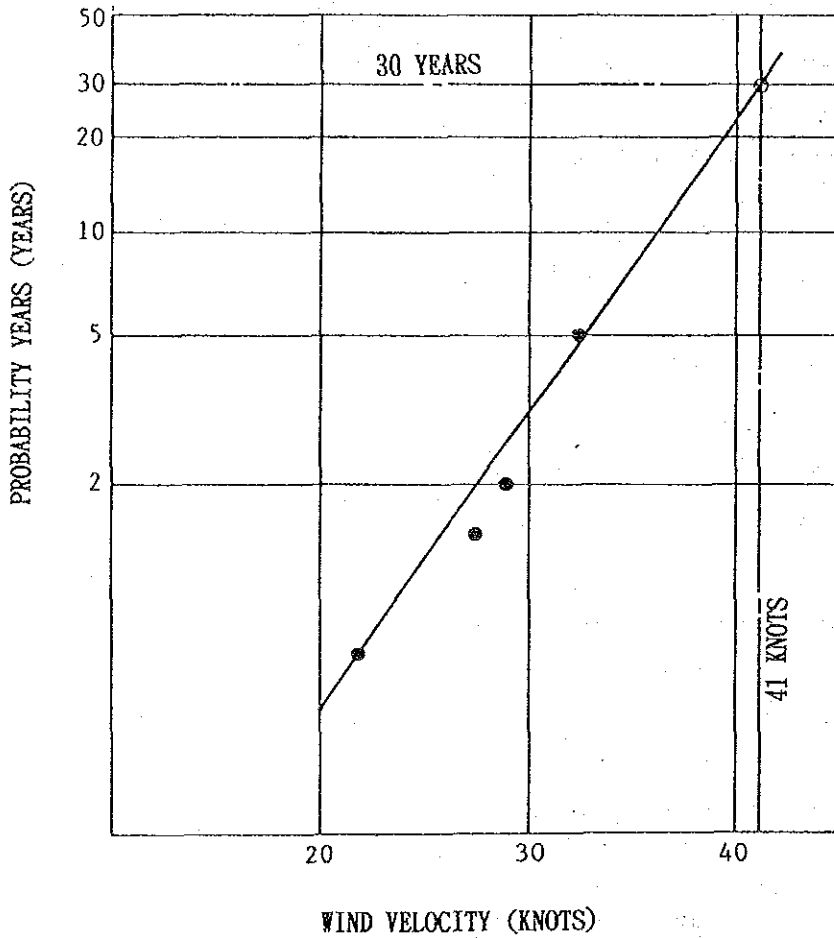


Fig. 7-8-1 Maximum Wind Speed and Return Period

Table 7-8-2 Estimated Design Wave

| Direction | E | ESE | * SE | * SSE |
|-----------------------------|----------------|-----|------|-------|
| Wind Speed (knot) | 41 (20.5m/sec) | | | |
| Effective Fetch (km) | 10 | 8 | 7 | 37 |
| Wave Hight (m) | 1.3 | 1.2 | 1.1 | 2.2 |
| Refraction Coefficient | 1.0 | 1.0 | 0.67 | 0.57 |
| Wave Hight at ATAKA (m) | 1.3 | 1.2 | 0.7 | 1.3 |
| Wave Period (sec) | 3.7 | 3.4 | 3.3 | 5.2 |
| Required Wind Duration (hr) | 1.6 | 1.2 | 1.1 | 3.2 |

Waves coming from "SE" and "SSE" directions refract at the tip of Adabiya Cape and enter into the Ataqqa Fishing Port having the angle of N119°.

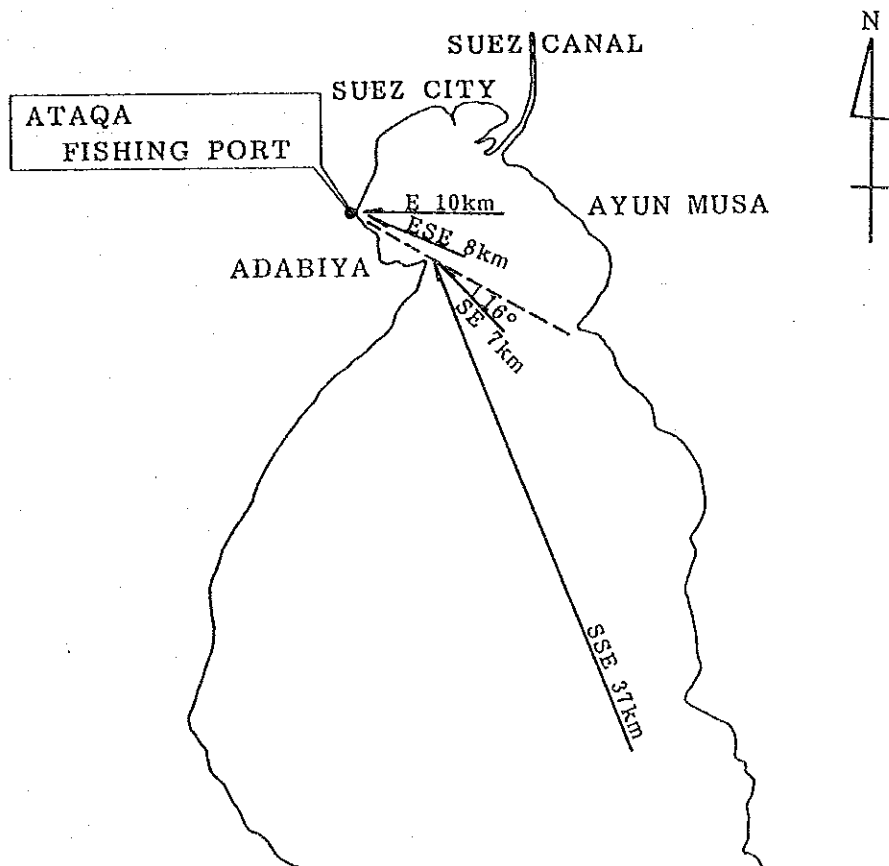


Fig. 7-8-2 Wind Direction and Effective Fetch

2. Calmness in Harbor

The harbor calmness shall be examined by the waves that come in the fishing port. The waves coming into the port shall be estimated by the SMB method using the maximum wind speed of 32 knots (16m/s) during 1983-1987 period and the effective fetch shown in Figure 7-8-2.

The result is shown in Table 7-8-3. From the result, the wave height to examine the harbor calmness was decided as 1.1m.

Table 7-8-3 Estimated Wave Height for the Analysis of Calmness in Harbor

| Direction | E | E S E | * S E | * S S E |
|-----------------------------|--------------|-------|-------|---------|
| Wind Speed (knot) | 32 (16m/sec) | | | |
| Effective Fetch (km) | 10 | 8 | 7 | 37 |
| Wave Hight (m) | 1.1 | 1.0 | 0.9 | 1.9 |
| Refraction Coefficient | 1.0 | 1.0 | 0.67 | 0.57 |
| Wave Hight at ATAKA (m) | 1.1 | 1.0 | 0.6 | 1.1 |
| Wave Period (sec) | 3.4 | 3.3 | 3.2 | 4.8 |
| Required Wind Duration (hr) | 1.5 | 1.3 | 1.2 | 3.5 |

Note: Waves coming from "SE" and "SSE" directions retract at the tip of the Adabiya Cape and enter into the Ataqqa Fishing Port having the angle of N119° .

APPENDIX 9 EXAMINATION OF HARBOUR CALMNESS

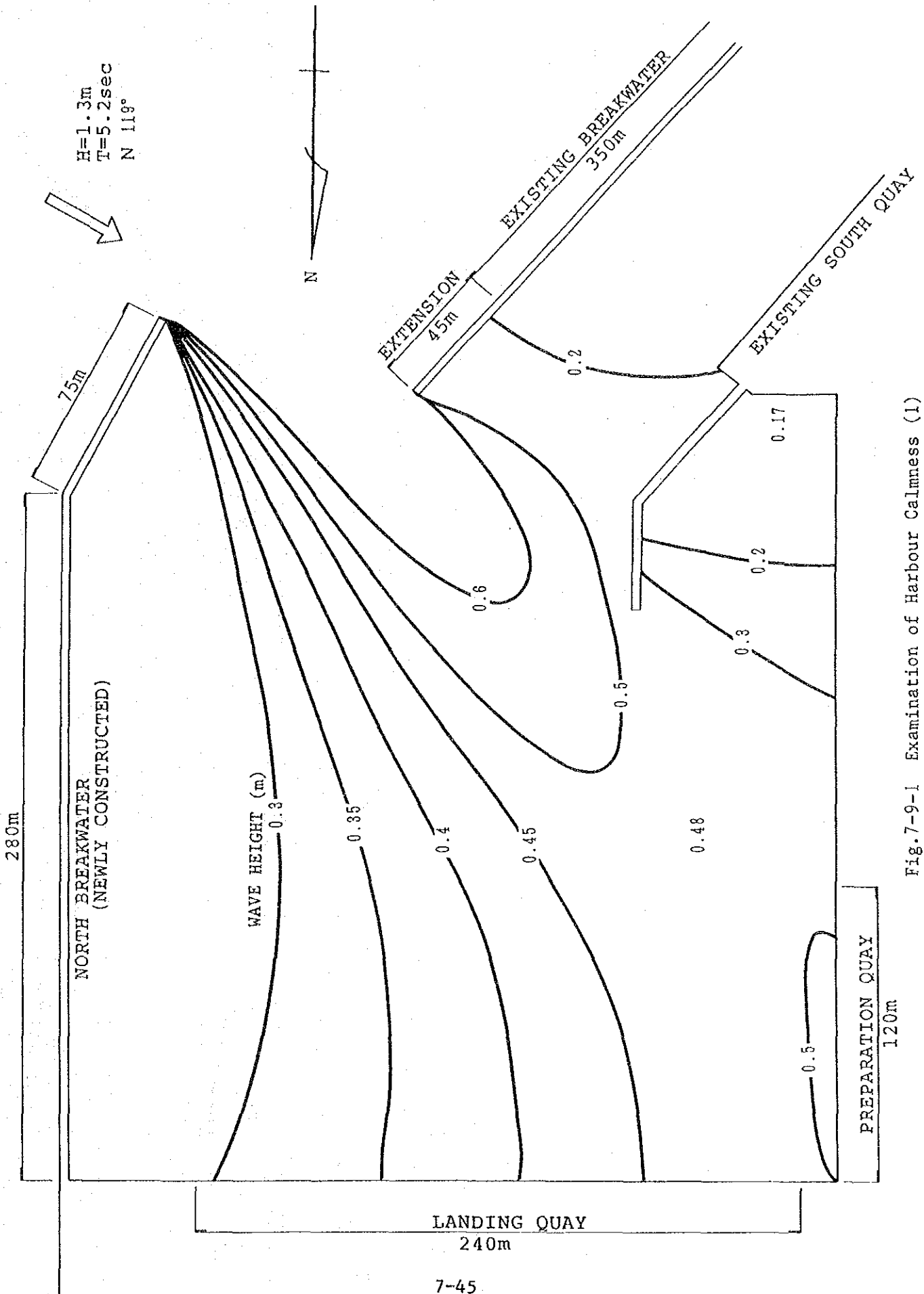


Fig.7-9-1 Examination of Harbour Calmness (1)

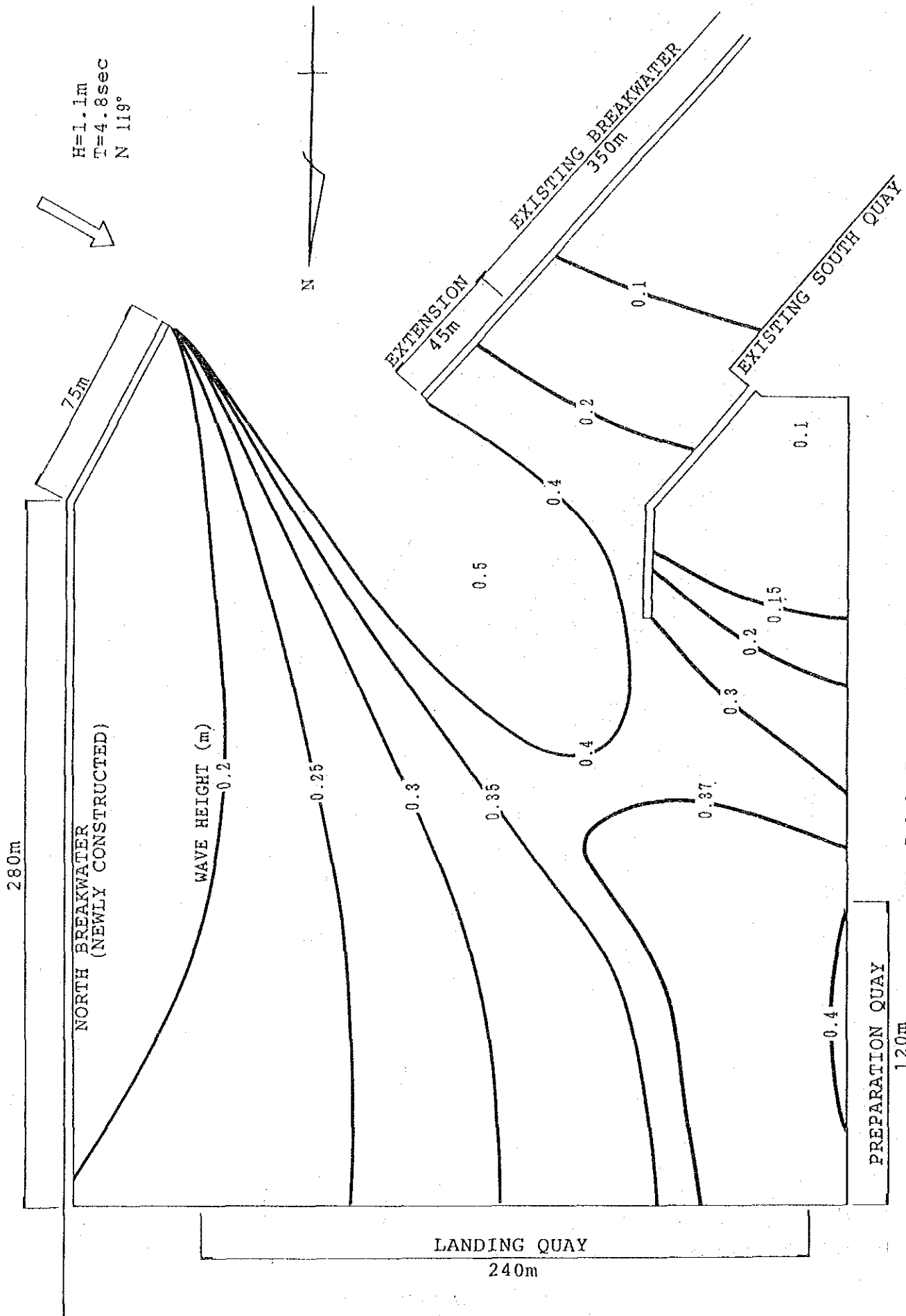


Fig.7-9-2 Examination of Harbour Calmness (2)

APPENDIX 10 Examination of Drifting Sand

1. Sand Drift by Current

Critical traction force by current can be calculated by the following equation:

$$\frac{U_*^2}{(\frac{\sigma}{\rho} - 1) \cdot g \cdot d} = 0.05$$

where, g = acceleration of gravity, 980 cm/sec²,
 d = diameter of sand in seabed, 0.2cm
 σ/ρ = specific gravity of sand particle, 2.65
 U_*^2 = critical traction force

$$\begin{aligned} U_*^2 &= 0.05 (2.65 - 1) \times 980 \times 0.2 \\ &= 16 \text{ cm/sec} \\ U_* &= 4 \text{ cm} \end{aligned}$$

According to the current observation, current velocity is 6 cm/sec at 2.0m above the sea floor. the current velocity at the vicinity of the sea floor can be estimated by the following equation

$$V = 0.26 (6.0 + 5.75 \text{ Log } \frac{Z}{d})$$

where, V is velocity at height Z cm above the sea floor, (= 5 cm/sec)
 d is the diameter of sand (cm)

Thus,

$$\begin{aligned} V &= 0.26 (6.0 + 5.75 \text{ Log } \frac{5}{0.2}) \\ &= 3.6 \text{ cm/sec.} \end{aligned}$$

Therefore, the sand in the seabed will not be moved by the current.

2. Critical Depth for Sand Movement by Current

The critical depth for sand movement by current can be calculated by the following equation:

$$Y_i = 0.417 \left(\frac{H_o}{L_o}\right) \cdot \left(\frac{L_o}{d}\right)^{1/3}$$

where, Y_i : function of $\frac{h_i}{L_o}$

H_o : wave height 1.3m

d : the diameter of sand, 0.2cm

h_i : critical depth for sand movement

L_o : wave length, 42m

$$Y_i = 0.417 \left(\frac{1.3}{42}\right) \cdot \left(\frac{42}{0.002}\right)^{1/3}$$

$$= 0.36$$

From Figure 7-10-1, $\frac{h_i}{L_o} = 0.025$

$$h_i = 0.025 \times 42$$

$$= 1.05\text{m}$$

Therefore, the critical depth when sand moves by 1.3m high wave is 1.05m.

Since the channel in the Ataqqa port is deeper than the critical depth, sand in the seabed within the port will not move.

Sand in the port may move when water is agitated by passing boats. But, the quantity of the sand movement will be extremely small.

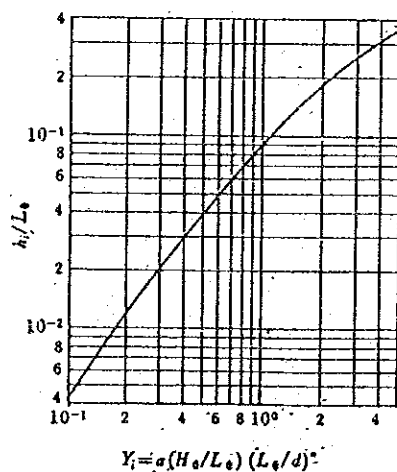


Figure 7-10-1 Y_i and h_i/L_o

APPENDIX 11 EXAMPLES OF PROJECT EFFECTS

As a result of Project implementation, various direct and indirect effects will be achieved as previously described in chapter 6. In particular, the following economic benefits will result:

i) Benefits Derived by the Improvement of Fish Freshness:

According to the hearing survey conducting during the field survey period, about 20% of the landed fish at the Ataqqa Fishing Port is traded at low prices because the fish are not fresh. After completing the landing quay, the roofed fish handling area, and the ice making plant, this type of problem will be eliminated.

Based on the hearing survey data, the relationship between fish prices and fish freshness was tabulated as shown in Table 7-11-1. Prices deviate according to species, but at least there is more than 15% price difference attributable to the degree of fish freshness.

Table 7-11-1 Fish Freshness and Prices at the Free Fish Market

| Class | Species | Fish Price (LE/kg) | | Price Lowering Rate % |
|---------------|---------------|--------------------|--------------|-----------------------|
| | | Very Fresh | Not so Fresh | |
| Low class | Sardines | 3.0 | 1.5 | 50 |
| Central class | Groupper | 6.0 | 5.0 | 17 |
| | Mullet | 9.0 | 7.0 | 23 |
| High class | King mackerel | 10.0 | 8.5 | 15 |
| | Shrimp | 30.0 | 20.0 | 33 |

The monetary benefit of providing fresh fish to the people as a result of Project implementation was estimated as being LE 4,660,000/year as shown in Table 7-11-2.

Table 7-11-2 Monetary Benefit Resulting from Improved Fish Freshness made Possible by Project Implementation

| Class | Species | Fish Catch M (tonnes/year) | Fish Price P (LE/kg) | Value MxP (LE/year) | Value Increase by Improved Freshness 0.03 MxP (LE/year) |
|------------------|---|----------------------------------|----------------------------|---------------------------|--|
| Low class | Sardines | 7,268 | 3.0 | 155,319,000 | The prices of 20% of the total fish catch will increase 15%: 4,660,000 |
| Central class | Mackerel Horse Mackerel Mullet Grouper | 15,002 | 7.5 | | |
| High class | Shrimp | 700 | 30.0 | | |

ii) Benefit Resulting From Reduced Fishing Boat Waiting Time

Because the existing quay crown is high (DL + 3.9 m), extremely hard work is required to land fish even during periods of high tide. Furthermore, small fishing boats having low deck heights have to wait almost half a day for the tide to rise before it is possible for them to offload fish. After completing the two quay for small boats (see Fig. 5-3-7), this problem will be solved.

The benefit resulting from reduced boat waiting time was calculated as being LE 158,000/year as shown in Table 7-11-3. Also, the new low quay will make it easier for large-sized boats to offload fish.

Table 7-11-3 Benefit Resulting from Low Quay Construction

| | Under Present Condition | After Project Construction |
|--|--|--|
| Allowable Water level for Fish Landing Operation | Quay Height-Boat Deck-Workable Height DL+3.9m-0.7m-1.8m = DL +1.4m or higher | Quay Height-Boat Deck-Workable Height DL+2.2m-0.7m-1.8m = DL =0.3m or higher |
| Possible Landing Operation per day | (1/3) dya (8hr/day) | 24 hours/day |
| Number of Incoming Boats | 4.2 boats/day (from Table 5-3-1) | |
| Time Loss | 33.6 hr/day | |
| Hourly Cost of Waiting Time | For one small boat: $LE\ 300,000 \div 10\ years \div (365 - 30)\ days \div 24\ hr/day$ = LE 3.7/hr Crew's wages (8 persons/boat) $LE\ 800/month \times 8\ person \div 26\ days/month \div 24\ hr/day$ = LE 10.3/hr Total: LE 14.0/hr | |
| Annual Bendfit | $(33.6\ hr/day) \times (365 - 30)\ days \times LE\ 14.0/hr$ = LE 158,000/year | |

