

## **CHAPTER 5. PROJECT EXECUTION PLAN**



## CHAPTER 5 Project Execution Plan

### 5.1 Execution organizations

The organizations to execute this project are as follows:

1) During construction of the new training vessel

A Japanese consultant shall undertake all engineering work necessary for building this vessel as an agent, in accordance with the contract with the Ministry of Maritime Transport in Egypt.

This vessel shall be constructed at a Japanese shipyard which will be selected from among Japanese tenderers.

2) After commencement of operation of the new training vessel

This vessel shall be owned by the Ports and Lighthouses Administration, Ministry of Maritime Transport in Egypt and operated by AMTA as an organization executing education and training. This vessel shall be also utilized as a supply boat to lighthouses which are under control of the Ports and Lighthouses Administration.

Management and maintenance of this vessel shall be handled by both the Ports and Lighthouses Administration and AMTA.

### 5.2 Allocation of Work

All of the construction work of this vessel shall be carried out by the Japanese shipyard and after completion she shall be shifted from Japan to Egypt by the shipyard.

### 5.3 Execution Schedule

Table 1, 5.3 shows an execution schedule of the project, which can be roughly classified into the following 7 stages:

(1) Signing of the exchange note on the detail design

Signing of the exchange note on the execution of the detail design between the governments of both countries.

(2) Contract of consultant service

Contract of consultant service for the execution of the detail design and supervision of the vessel during the construction between the Ministry of Transport of Egypt and the Japanese consultant.

(3) Execution of detail design

Preparation of documents for pre-qualification and tender, based on Basic Design Study Report by the consultant.

(4) Signing of the master exchange note

Signing of the master exchange note on the construction of the vessel between the governments of both countries.

(5) Tender and contract

Pre-qualification of bidding Japanese shipyards, invitation to tender, tender evaluation and contract by the Ministry of Maritime Transport of Egypt cooperated by the consultant.

(6) Construction of the vessel

Execution of the construction, various tests and sea trial based on the contract specifications. The shipyard executes

to make working drawings, purchase of materials, manufacture, build, test and make trial of the vessel. Inspection and supervision during construction of the vessel are executed by the consultant on behalf of the Ministry of Maritime Transport of Egypt.

(7) Shift and delivery of the vessel

Upon completion of the vessel in the shipyard, it will be shifted to a port in the Arab Republic of Egypt and delivered there.

5.4 Technical Instruction

In order to operate the vessel without troubles after delivery of the new training vessel, full technical know-how on the equipment, etc. of the vessel and operational skill are needed. For this purpose, it is necessary to learn technique during the construction of the vessel in Japan and training through on-board experience during shifting to the Arab Republic of Egypt.

Therefore, as shown in table 1, 5.4 it is recommended that 8 persons of officer class and 4 persons of crew class stay in Japan to study during outfitting work and to transfer the technique as well, and furthermore these 12 persons should be on board when shifting the vessel to Egypt.

5.3 TABLE 1

EXECUTION SCHEDULE

NO. OF MONTHS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
SIGN OF E/N	DETAIL DESIGN					MASTER E/N																			
CONTRACT FOR CONSULTANT																									
EXECUTING DRAWINGS																									
TENDER																									
CONTRACT FOR SHIPBUILDING																									
WORKING DRAWINGS																									
ORDER OF MATERIALS																									
SUPERVISION																									
KEEL LAYING																									
LAUNCHING																									
TESTS																									
COMPLETION																									
SHIFT TO EGYPT																									
DELIVERY																									

5.3 TABLE 2

STUDY DURING OUT-FITTING AND TECHNICAL TRANSFER

	3 Months before Completion	1 Month before Completion	1 week Before Completion	Completion in Japan	Delivery in Egypt
					Shift to Egypt
Captain Chief Officer 2 Persons	<				
Chief Officer 2nd Officer Chief Cook 3 Persons		<			
2nd Engineer 3rd Engineer Radio Operator 3 Persons		<			
2-Deck Crew 2-Engine Crew 4 Persons			<		





## **CHAPTER 6 PROJECT EVALUATION**



## CHAPTER 6 Project Evaluation

In this chapter, summarized is the result of studies from viewpoints of social and economic impact to Egypt and other countries by the grant aid of a training vessel to Egypt and of scale of supply of this vessel based on the current situation of Egypt.

### 6.1 Impact to Promotion of the Shipping Industry

Not only Egypt but also Middle East and African countries are pursuing social and economic development through promotion of international trade as the major goal of the nation, and are aggressively promoting the expansion of the shipping industry, particularly in building up and expanding the national fleet, which would improve their international balance of payment.

For such purposes, the supply of qualified seafarers for ocean-going vessels is one of the major factors, however, there are few institutes available for the high level training of seafarers including maritime staff in these countries compared to developed countries.

Among them AMTA is a high level institution for maritime training, established by the League of Arab States, which is a conference panel of Middle East countries pursuing their common interest, for supply of seafarers with the goal of strengthening their own transportation capability for exportation of crude oil produced by them as well as improving their international balance of payment. AMTA is training seafarers in a wide scale not only for Egypt and Middle East countries but also for African countries, and those who have graduated from AMTA so far are in active service at major shipping companies and various maritime related establishments, and are contributing to the development of the maritime

industries in each of these countries.

Egypt, naturally, as well as other countries are expected to continue their heavy reliance on AMTA for training of their seafarers, and it is presumed that AMTA will continue its contribution very effectively as before to the promotion of the shipping industries of Middle East and African countries.

This new training vessel, which is to be used for training in the actual operation of vessels, the most essential process in the course of training of seafarers, has a capacity of accommodating 160 trainees. This capacity is the major element in making a decision on the basic scale of the new training vessel, and for which is reached a conclusion that it is an adequate design scale after various studies as described in Chapters 2 and 3, on scales of fleets owned by Egypt and other Middle East and African countries, required number of seafarers, analysis of dependency on AMTA for training of seafarers, and analysis of programs for training on board the vessel.

Based on the above, acquisition of this new training vessel is judged effective in making substantial contributions to Middle East and African countries including Egypt and also adequate in scale in satisfying most of the demands for training in these countries.

## 6.2 Effect on Education and Training of Seafarers

AMTA is provided with a wide range of training staffs who meet the requirements for high level of seafarers training and also with complete courses, training systems, training materials and facilities including those granted by United Nations, U.S.A. and Japan as assistance.

Especially it is a feature of AMTA to own a vessel, "AIDA

III", specialized for training of students from the beginning of its establishment to perform practical training on board the actual vessel.

Those institutions which do not have a training vessel are required by STCW Convention to perform practical training of cadets on board commercial vessels. On the contrary, with the training vessel, it is possible to concentrate on training for acquisition of safe navigation skills, which is the aim of STCW, through more intensive cadets training compared with the above case, with a qualified training staff aboard, and equipments and facilities suitable for teaching and learning.

AMTA has been training cadets with a specialized training vessel "AIDA III" from the beginning, sending out seafarers with high level of skills to Egypt and also to Middle East and African countries. However, as mentioned in Chapter 3, this vessel has deteriorated after 28 years of service and partly because she has been converted from a passenger vessel, it appears that she is becoming unsuitable for training purpose in many respects.

For this reason, supply of a new training vessel to replace "AIDA III" enables AMTA to continue to train and supply qualified seafarers satisfying STCW Convention, to respond to demands of Egypt and other countries concerned and eventually to contribute in securing safe navigation of vessels around the world's oceans.

### 6.3 Effect of Supply Service to Lighthouses

Another use of this new vessel is, in parallel with education and training of seafarers by AMTA, to provide supply and maintenance services to lighthouses around the Red Sea, which play an important role in insuring safe navigation of vessels passing through the Suez Canal from all over the world.

Furthermore, it is considered effective and appropriate to assign these services to this vessel, because operation of the vessel accompanied by supply and maintenance services to lighthouses is an important lesson for trainees rather than a disturbance to the education and training schedule of the vessel.

#### 6.4 Overall Evaluation

Study on realization of the project for this new training vessel as grant aid of Japan, in response to a strong request by the Egyptian Government, has been carefully made.

As a result, we have reached the conclusion that realization of this project under Japanese grant aid is significant, mainly due to the following reason.

This type of vessel is indispensable for the education and training of seafarers of ocean-going vessels which are necessary for the development of national shipping industries not only in Egypt but in Arab and African countries.

AMTA is an institution for training that possesses the highest level of capability and a wealth of experience and successful results in training seafarers in the region. It is considered, therefore, that the grant aid, under which this vessel will be offered to AMTA, will result in a supply of qualified seafarers to these countries and contribute to the promotion of efficient ship operation and secure safer navigation of vessels around the oceans of the world.

Supply and maintenance services to lighthouses around the Red Sea performed by the new training vessel will secure safe navigation of vessels from all over the world that pass through the Suez Canal.

## **CHAPTER 7 CONCLUSION AND RECOMMENDATION**





## CHAPTER 7 Conclusion and Recommendations

As stated in the foregoing, acquisition of this training vessel is a project with wide scope of impact and scale in terms of contribution to economical development not only in Egypt but also in the Middle East and African countries. In addition, this project has an important character to serve the fundamental requirements of developing countries for training of human resources.

It is hoped that the training by this new vessel will bring successful results with beneficial effects to the development of these countries concerned as promptly as possible.

In conclusion, to ensure successful results from this project, the following recommendations are presented herein.

- (1) Egypt is recommended to secure necessary budget and capable staff for operation and maintenance of this vessel, so that this vessel can completely fulfil its duty after entering service.
- (2) It is recommended to secure a pier for exclusive use of this vessel and to provide with necessary equipment.
- (3) It is desirable to study to improve the current curriculum and syllabus of training, since modernization and advanced level of training will be realized with completion of the new training vessel.



## APPENDIXES



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1. The 1st Survey Team (Survey of Basic design)

1.1 The Members of the Team

Governmental member

Team Leader:

Mr. Masatsugu Kimura

Director of Research Division,  
Research and Investigation  
Bureau, Institute for Sea  
Training, Ministry of  
Transportation

Shipbuilding Plan:

Mr. Masami Otani

Chief, Planning Division,  
Maritime Technology and  
Safety Bureau, Ministry of  
Transportation

Grant Aid Policy,  
Project Coordination:

Mr. Akihiko Morita

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

Technical Consultant

Naval Architect (Hull):

Mr. Toshimasa Suzuki

Overseas Shipbuilding  
Cooperation Centre

**Seamen Training Programme:**

Mr. Nobuaki Kojima

Maritime International  
Cooperation Centre

**Mechanical Engineer:**

Mr. Ikuo Miki

Overseas Shipbuilding  
Cooperation Centre

**Naval Architect (Outfitting):**

Mr. Yukitaka Maeda

Overseas Shipbuilding  
Cooperation Centre

**1.2 The Names of Participants in the Meeting**

**Ministry of Maritime Transport**

R. Adm. Anwar Hegazy

First Undersecretary of State

R. Adm. Moheeb Helal

Undersecretary of State

Mr. Ahmed Amrousy Gad

General Manager, Department of  
Planning and Follow-up

**Ports & Lighthouses Administration**

R. Adm. A. Medihat Ghanem

Chairman

Cmdre. Hassan Rashed

General Manager, Marine  
Personnel

Eng. M. Adel Soliman

General Manager, Technical  
Affairs



Eng. Kareem Naguib Messiha

General Administration, Civil  
Engineering

Arab Maritime Academy

Dr. Gamal Moktar

Director General

Dr. Abdel Moneim Salama

First Deputy of Director  
General

Capt. Ahmed H. Fahmy

Deputy Director General

Dr. A. Farouk Abdel Moneim

Senior Lecturer,  
Department of Engineering  
Studies

Capt. Mohamed Youssef

Senior Lecturer,  
Department of Nautical Studies

Mrs. Samia El Bourini

Administrative Assistant

Ministry of International Cooperation

Mr. Hamed Mostafa

General Director

Mr. Mohassen Shadek

Manager, Japan Desk

Embassy of Japan

Mr. Yamada

Japanese Minister in Egypt

Mr. Furui

First Secretary

JICA Egypt Office

Mr. Iimura

Resident Representative

Mr. Komori

Depty Resident Representative

JETRO Egypt Office

Mr. Watanuki

Resident Representative

1.3 THE INVESTIGATION TOUR SCHEDULE

Date	Description
Aug. 11 (Fri.)	12:00 Departure from Narita (JL441) 19:40 Arrival at Paris
Aug. 12 (Sat.)	16:40 Departure from Paris 21:50 Arrival at Cairo
Aug. 13 (Sun.)	09:30 Visit to JICA 11:00 Visit to the Japanese Embassy 13:00 Visit to Ministry of International Coope- ration Move to Alexandria
Aug. 14 (Mon.)	10:00 Meeting at AMTA
Aug. 15 (Tue.)	10:00 Meeting at AMTA
Aug. 16 (Wed.)	10:00 Sign the MINUTES OF DISCUSSION at the Ministry of Maritime Transport 12:00 Inspect the training centre
Aug. 17 (Thu.)	The governmental party moves to Cairo Arrangement of data, document, etc.
Aug. 18 (Fri.)	Arrangement of data, documents, etc.
Aug. 19 (Sat.)	07:00 The governmental party leaves Cairo (AF121) 12:05 The governmental party arrives at Paris 10:00 Technical discussions at AMTA

Date	Description
Aug. 20 (Sun.)	10:00 Technical discussions at AMTA 16:00 The governmental party leaves Paris (AF276)
Aug. 21 (Mon.)	09:30 Inspect ALDA III, the shipyard and the quay 10:55 The governmental party arrives at Narita
Aug. 22 (Tue.)	09:00 Technical discussions at AMTA
Aug. 23 (Wed.)	09:00 Technical discussions at AMTA
Aug. 24 (Thu.)	Arrangement of data, document, etc.
Aug. 25 (Fri.)	Arrangement of data, document, etc.
Aug. 26 (Sat.)	09:00 Sign the MEMORANDUM OF DISCUSSIONS 12:00 Visit to Ministry of Maritime Transport Move to Cairo
Aug. 27 (Sun.)	12:30 Visit to JICA 14:00 Visit to the Japanese Embassy 15:00 Visit to Ministry of International Cooperation
Aug. 28 (Mon.)	10:00 Visit to JETRO
Aug. 29 (Tue.)	14:40 Departure from Cairo (JL472)

Date	Description
Aug. 30 (Wed.)	18:00 Arrival at Narita

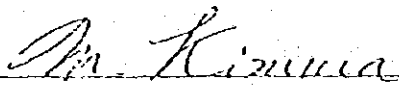
MINUTES OF DISCUSSIONSONTHE PROJECT FOR REPLACING A TRAINING VESSEL  
IN THE ARAB REPUBLIC OF EGYPT

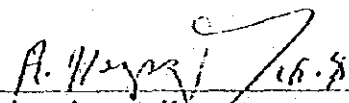
In response to the request of the Government of Arab Republic of Egypt, the Government of Japan decided to conduct a basic design of the Project for Replacing a Training Vessel (hereinafter referred to as "the Project"), and entrusted the study to the Japan International Cooperation Agency (JICA). JICA sent to Egypt the study team headed by Mr. Masatsugu Kimura, Director of Research Division, Research and Investigation Bureau, Institute of Sea Training, Ministry of Transport, from August 11 to August 30, 1989.

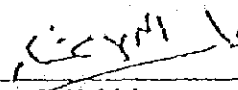
The team had a series of discussions on the Project with the officials concerned of the Government of Egypt and conducted a field survey in Alexandria.

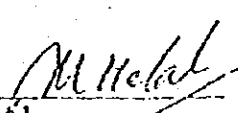
As a result of the study and discussions, both parties agreed to recommend to their respective Governments that the major points of understanding reached between them, attached herewith, should be examined towards the realization of the Project.


Alexandria, August 17, 1989

  
 Mr. Masatsugu KIHURA  
 Team Leader  
 Basic Design Study Team, JICA

  
 R. Adm. Anwar Hegazy  
 First Under Secretary of State  
 Ministry of Maritime Transport

  
 Dr. Gamel Hokhtar  
 Director General  
 Arab Maritime Transport Academy

  
 R. Adm. Moheeb Helal  
 Under Secretary of State  
 Ministry of Maritime Transport

  
 R. Adm. A. Medhat Chamon  
 Chairman,  
 Ports & Lighthouses  
 Administration.

ATTACHMENT

1. TITLE OF THE PROJECT

The title of the Project is "The Project for Replacing a Training Vessel in Arab Republic of Egypt."

2. OBJECTIVES OF THE PROJECT

The objectives of the Project is to replace a training vessel in order to provide necessary training to cadets and seamen in Arab Maritime Transport Academy (hereinafter referred to as "AMTA") in view of improving and strengthening maritime transportation of Egypt and other countries as well as supply of provisions and maintenance of isolated lighthouses.

3. EXECUTING ORGANIZATION

The Ministry of Maritime Transport of Egypt is responsible for the execution of the Project in cooperation with AMTA.

4. COMMENTS BY THE GOVERNMENT OF EGYPT

The comments made by the Government of Egypt on the outline specifications of the vessel are shown in Annex -I.  
The Japanese Study Team will convey to the Government of Japan the intention of the Government of Egypt that the former takes the necessary measures to cooperate in implementing the Project within scope of the Japanese economic cooperation in grant aid.

5. JAPANESE GRANT AID PROGRAMME

The Egyptian Side has understood the system of the Japanese Grant Aid Programme explained by the Team which includes a principle for use of a Japanese consultant firm and Japanese contractors for the implementation of the Project.

6. DATA AND INFORMATION REQUIRED BY THE TEAM

Some data and information which are shown in the questionnaire of the Inception Report have been required by the team for further examination of the feasibility of the Project. The Egyptian side stated that it will be submitted to Japanese side on 26 August, 1989.

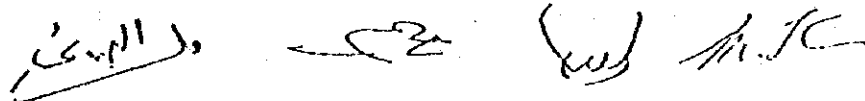
7. NECESSARY MEASURES TAKEN BY EGYPT

The Government of Egypt would take the necessary measures for realization of the Project as shown in Annex-II on condition that a Grant Aid by the Government of Japan is extended to the Project.  
Also the Egyptian side will take necessary action to expedite this approval for execution of this project by the Government of the Arab republic of Egypt.

8. OTHERS

The Egyptian side stated that the Project would be executed beneficially not only for Egypt but also for Arab and African countries as a tripartite cooperation Project in view of the leadership of Egypt in the region.

The Egyptian side stated that the existing training vessel AIDA-III might be scrapped or moored and used for onboard training after implementation of the Project.



Comments by the Egyptian Side on the Outline Specification of the Training Ship

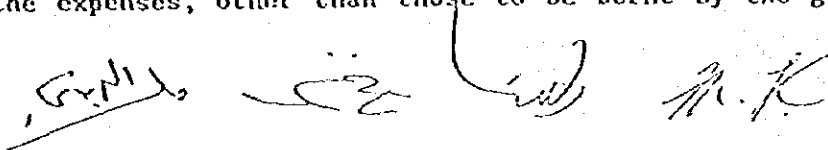
1. Reposition of the two work boats .
2. Increase of the cruising range from 20 days to 30 days.
3. Adding to the rules the following regulation:  
(Subdivision Regulation for sea-going passenger ships.)
4. Rearrangement of officers, crew and others cabins.
5. Replacement of the St derrick by an electro-hydraulic crane of same capacity.
6. Height of walking areas to be increased to 220 cm and also length of beds to be not less than 200 cm.
7. Accommodation air conditioning to be modified to suit a summer temperature up to 45-50 C°.
8. Navigational aids and instrumentation to be supplemented by other necessary equipment.
9. Incinerator to be installed.
10. Fire detection system to be added to the cargo hold.
11. Partition of classrooms.
12. Exhaust gas boiler to be considered if possible.
13. Training bridge with repeaters to be considered if possible.

*(Handwritten signatures and initials)*



Recommendations for undertaking by the Government of the Arab Republic of Egypt, in accordance with Egyptian Regulations and Relevant Laws.

1. To ensure eventually, prompt unloading, tax exemption and custom clearance at ports of disembarkation in the Arab Republic of Egypt and internal transportation therein of the products purchased under the Grant.
2. To secure, with respect to the supply of the products and services under verified contracts that Japanese nationals involved in the project will not be subject to any customs duties, internal taxes, and other fiscal levies which may be imposed in Egypt with respect to the supply of the products and services under the verified contract.
3. To accord Japanese nationals whose services may be required in connection with the supply of the products and the devices under the verified contract such facilities as may be necessary for their entry to the Arab Republic of Egypt and stay therein for the performance of their work in accordance with the relevant laws and regulations of the Arab Republic of Egypt.
4. To ensure the necessary budget and personnel for the proper and effective operation and maintenance of the vessel provided under the grant aid.
5. To provide necessary permissions, licences and other authorizations for carrying out the Project.
6. To bear all the expenses, other than those to be borne by the grant aid.



MEMORANDUM OF TECHNICAL DISCUSSIONS  
ON  
THE PROJECT REPLACING A TRAINING VESSEL  
IN  
THE ARAB REPUBLIC OF EGYPT

As a part of the Basic Design study, the technical consultant Team of " JICA " had a series of discussions on the technical matters with the officials concerned of the Governement of Egypt as follows :-

Place : AMTA Head Office - Alexandria

Date : From 19 Aug. to 26 Aug. 1989

Attendance :

Japanese Side

Mr. Toshimasa Suzuki

Mr. Nobuaki Kojima

Mr. Ikuo Miki

Mr. Yukitaka Maeda

Egyptian Side

1) Ports & Lighthouses Adm.

Cmdre . Hassan Rashed

Eng . M. Adel Soliman

Eng . Kareem Haguib Messiha

2) AMTA

Dr. Eng . Abdel Moneim Salama

Capt . Ahmed A . Fahmy

Dr. Eng. A. Farouk Abdel Moneim

Capt . Mohamed Youssef

And also both parties conducted an observation of existing training vessel " AIDA 3 " which was docked in the Alexandria Shipyard and one of the expected mooring quay for the new training vessel on 21 Aug.

Both parties agreed to make the papers as a memorandum of discussions and the reflection of the Basic Design Study Report as far as possible .

The memorandum of Discussions consisted of the following three (3) appendices :


- Appendix I Response to the questionnaire
- Appendix II Memorandum of Discussions on the Hull part .
- Appendix III Memorandum of Discussions on the Machinery part .

Both parties understood and agreed that some requests which bring big cost increase made by the Egyptian side may be asked to resign regretably from the ceiling of the budget of the vessel , because one of the most important conditions to make the project feasible for the grant aid program , is the total cost of the vessel .

Alexandria , Aug. 26 , 1989



Mr. Toshimasa Suzuki  
Technical Consultant Member  
Basic Design Study Team , JICA



Dr. Eng Abdel Moneim Salama  
First Deputy of the Director General  
Head of the Technical Committee

## 2. The 2nd Survey Team (Confirmation of Draft Final Report)

### 2.1 The Members of the Team

#### Governmental member

##### Team Leader:

Mr. Masatsugu Kimura

Director of Research Division,  
Research and Investigation  
Bureau, Institute for Sea  
Training, Ministry of  
Transportation

##### Shipbuilding Plan:

Mr. Hiroyuki Nishida

Chief, Shipbuilding Division,  
Maritime Technology and  
Safety Bureau, Ministry of  
Transportation

#### Technical Consultant

##### Naval Architect (Hull):

Mr. Toshimasa Suzuki

Overseas Shipbuilding  
Cooperation Centre

##### Seamen Training Programme:

Mr. Nobuaki Kojima

Maritime International  
Cooperation Centre

## 2.2 The Names of Participants in the Meeting

### Ministry of Maritime Transport

R.Adm. Moheeb Helal	Head of Delegation, First Undersecretary of State
Mr. Ahmed Amrousy Gad	General Manager, Department of Planning and Follow-up
Mr. Ragab H. Ragat	Head of Central Administration for Planning

### Ports & Lighthouses Administration

R.Adam. A. Medihat Ghanem	Chairman
Cmdre. Hassan Rashed	General Manager, Marine Personnel
Eng. M. Adel Soliman	General Manager, Technical Affaires

### Arab Maritime Academy

Dr. Ganal Moktar	Director General
Dr. Abdel Moneim Salama	First Deputy of Director General
Capt Ahmed H. Fahmy	Deputy Director General
Mrs. Samia El Bourini	Administrative Assistant

Ministry of International Cooperation

Mr. Hamed Mostafa

General Director

Mr. Mohassen Shadek

Manager, Japan Desk

Embassy of Japan

Mr. Tajima

First Secretary

JICA Egypt Office

Mr. Iimura

Resident Representative

Mr. Komori

Deputy Resident Representative

### 2.3 THE INVESTIGATION TOUR SCHEDULE

Date	Description
Nov. 1 (Wed.)	13:55 Departure from Narita (LH717) 19:45 Arrival at Frankfurt
Nov. 2 (Thu.)	13:50 Departure from Frankfurt 19:50 Arrival at Cairo
Nov. 3 (Fri.)	Move to Alexandria
Nov. 4 (Sat.)	10:00~13:00 First Meeting at Ministry of Maritime Transport
Nov. 5 (Sun.)	10:00 Second Meeting at AMTA 13:00 Sign MINUTES OF DISCUSSIONS
Nov. 6 (Tue.)	The governmental party moves to Cairo Technical discussions by the consultant at AMTA
Nov. 7 (Tue.)	The governmental party visits the Japanese Embassy, JICA and Ministry of International Cooperation 09:00 Meeting at AMTA by the consultant 13:00 Exchange of MEMORANDUM OF TECHNICAL DISCUSSIONS
Nov. 8 (Wed.)	The governmental party departs Cairo and arrives at London The technical consultant moves to Cairo
Nov. 9 (Thu.)	The governmental party departs from London The technical consultant visits JICA office in Egypt

Date	Description
Nov. 10 (Fri.)	The governmental party arrives at Narita. The technical consultant departs from Cairo, and arrives at London
Nov. 11 (Sat.)	The technical consultant departs from London
Nov. 12 (Sun.)	The technical consultant arrives at Narita.



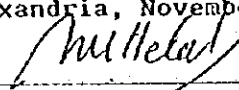
MINUTES OF DISCUSSIONS  
OF THE BASIC DESIGN STUDY  
ON THE PROJECT FOR REPLACING A TRAINING VESSEL  
IN THE ARAB REPUBLIC OF EGYPT


In response to the request of the Government of Arab Republic of Egypt, for Grant Aid for the Project for Replacing a Training Vessel (hereinafter referred to as "the Project"), the Government of Japan decided to conduct a basic study on the Project and entrusted the study to the Japan International Cooperation Agency (JICA). JICA sent to Egypt the study team headed by Mr. Masatsugu KIMURA, Director of Research Division, Research and Investigation Bureau, Institute for Sea Training, Ministry of Transport, from August 11 to August 30, 1989.


As a result of the study, JICA prepared a draft final report and dispatched a draft final report explanation team headed by Mr. Masatsugu KIMURA, Director of Research Division, Research and Investigation Bureau, Institute for Sea Training, Ministry of Transport, to explain and discuss it from November 1 to November 12, 1989.


Both parties had a series of discussions on the report and have agreed to recommend to their respective Governments that the major points of understandings reached between them, attached herewith, should be examined towards the realization of the Project.

Alexandria, November 5, 1989

  
 R. Adm. Moheeb Helal  
 First Under Secretary of State  
 Ministry of Maritime Transport

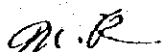
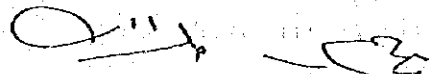
  
 Dr. G. Mokhtar  
 Director General  
 Arab Maritime Transport Academy

  
 Mr. Masatsugu KIMURA  
 Leader,  
 Basic Design Study Team  
 JICA

  
 R. Adm. A. Medhat Ghanem,  
 Chairman,  
 Ports & Lighthouses  
 Administration

A T T A C H M E N T

1. The Egyptian side has principally agreed to the basic design proposed in the draft final report, (with minor but appropriate alternations mutually agreed upon to be incorporated in the final report.)
2. The Egyptian side has understood Japan's Grant Aid system and confirmed that the necessary measures will be taken by the Egyptian side as shown in Annex I, which are manifested in the Annex II of THE MINUTES OF DISCUSSIONS on the Project signed on August 17, 1989, on condition that the grant aid by the Government of Japan would be extended to the Project.
3. The Egyptian side requested that the necessary budget will be provided by the Japanese side to dispatch necessary officers and crews which are suggested by the team for learning technique during the construction of the vessel in Japan in order to operate the vessel without troubles.
4. The Egyptian side requested the necessity of obtaining fellowships from JICA Technical Cooperation for AMTA Sea Training lecturers in the Institute for Sea Training of Japan. On the other hand, Japanese experts in Sea Training could also be availed in Egypt in appropriate time. This request is placed by the Egyptian side for the development and implementation of the training programmes onboard the new training ship.
5. Ten copies of the final report in English will be submitted to the Egyptian side through JICA by the end of December 1989.



A N N E X I

Recommendations for undertaking by the Government of Egypt, in accordance with the Egyptian Regulations and Relevant Laws.

1. To bear necessary fees for banking arrangements as stipulated in JAPAN'S GRANT AID PROGRAM page 12 paragraph 2 which reads :

"BANKING ARRANGEMENT (B/A):

An agreement between the government of the recipient country and an authorized Japanese foreign exchange bank designated by the recipient country is concluded in accordance with the Notes.

\* The commissions described below are to be paid to the Japanese foreign exchange bank by the recipient country for its banking services.

(1) Advising Commission of Authorization to pay (A/P)  
(about Y3,000 - for each A/P)

(2) Payment commission (about 1/10% of each payment)

\* A/P is issued by the government of the recipient country to authorize the Japanese foreign exchange bank to pay on behalf of the government of the recipient country."

2. To ensure, eventually, prompt unloading, tax exemption and customs clearance at the port of disembarkation in the Arab Republic of Egypt and prompt internal transportation therein of the products purchased under the grant aid.
3. To accord Japanese nationals, whose services may be required 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 the Arab Republic of Egypt and stay therein for the performance of their work in accordance with the relevant laws and regulations of Egypt.
4. To exempt Japanese nationals engaged in the Project from customs duties, internal taxes and other fiscal levies which may be imposed in Egypt with respect to the supply of the products and services under the verified contracts.
5. To ensure the necessary budget and personnel for the proper and effective operation and maintenance of the vessel provided under the grant aid, which includes a proper berth

6. To provide and/or acquire necessary permissions, licenses and other authorizations necessary for carrying out the Project.
7. To bear all the expenses, other than those to be borne by the grant aid.

*(Handwritten mark)*

*M.R.*

*(Handwritten signatures)*

MEMORANDUM OF TECHNICAL DISCUSSIONS  
ON THE PROJECT REPLACING A TRAINING VESSEL  
IN THE ARAB REPUBLIC OF EGYPT

As a part of the Basic Design Study, the Technical Consultant Team of "JICA" has a series of discussions on the technical matters with the officials concerned of the Government of Egypt as follows:

Place: AMTA Head Office - Alexandria  
 Date : From 5 November 1989 to 7 November 1989

Attendance:

Japanese Side:

Mr. Toshimasa Suzuki  
 Mr. Nobuaki Kojima

Egyptian Side:

Ports & Lighthouses Administration  
 Cmdre. Hassan Rashed  
 Eng. Adel Soliman

AMTA

Dr. Eng. Abdel Moneim Salama  
 Capt. A. Fahmy

Referring to the Minutes of Discussions of the Basic Design Study (See Attachment, page 2, para 1) signed on 5 November 1989 between the Japanese side and the Egyptian side, both parties agreed to include minor but appropriate alternations in the Draft Final Report in order to incorporate them in the Final Report for the efficient and durable performance of the ship.


In this respect, technical teams held necessary meetings to discuss some few requests submitted hereunder by the Egyptian side:

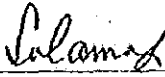
1. To raise the power of the main engine to be 1500 HP at 700 RPM and to recalculate the maximum speed to be not less than 15 kts and the cruising speed about 13.5 kts.
2. Due to the frequent dropping and heaving up of the anchors, it is recommended to acquire durable equipment engaged in this system.
3. The number of life jackets should increase to 300 PCS instead of 286 PCS and all life saving appliances should comply with the latest SOLAS regulations for international voyages.
4. In compliance with the Conventions regarding passenger ships, it is requested to add sprinklers as a fire extinguisher system to all accommodation areas and public service spaces.
5. The Egyptian side clarified to the Japanese side the required minor modifications regarding repositioning of some cabins.


  
 23

6. For safety considerations, it is requested that the bow space outside work boats should be safeguarded by application of necessary protective technical measures.
7. The exposed deck should be covered with deck paints as specified. However, passage-ways are recommended to be covered by anti-slip rubber sheets or by the equivalent.
8. It is recommended that the airconditioning system should be capable to reduce the air temperature inside public service areas to about 28 degree C.
9. To add one electric sawing machine to the workshop equipment.
10. The engine analyzer (portable type) should include means to measure the indicated HP of each cylinder of the main engine.
11. The drinking water supply system of work boats should be provided from both sides of the ship on the main deck.
12. A slave for ARPA radar (radar repeater) should be added to the chart room for training.
13. It is preferable to avoid hydraulic reversing clutch for the main engine.

Alexandria, 7.11.1989

  
Mr. Toshimasa Suzuki  
Technical Consultant  
Basic Design Study Team, JICA

  
Dr. Eng. Abdel Moneim Salama  
First Deputy of the Director General  
Arab Maritime Transport Academy

  
Cmdre Hassan Rashed  
General Manager, Maritime Affairs  
Ports & Lighthouses Administration

3. *Number of the Academy Graduates working in different organizations*

Nº	Country	Name of Organization	Nº.of Grad.
1	EGYPT	Egyptian Navigation Co.	630
2	EGYPT	Misr EDCO Co.	15
3	EGYPT	Pan Arab Co.	18
4	EGYPT	National Navigation Co.	20
5	EGYPT	Pharos Navigation Co.	8
6	EGYPT	Samatour Co.	25
7	EGYPT	Heleopolis Navigation Co.	14
8	EGYPT	Egyptian & Spanish Navigation Company	6
9	EGYPT	Demline Co.	2
10	EGYPT	Sumed	4
11	EGYPT	Alex. Port Authority	8
12	EGYPT	Dekhela Port Authority	2
13	EGYPT	Port Said Authority	4
14	EGYPT	Demietta Port Authority	4
15	EGYPT	Red Sea Port Authority	8
16	EGYPT	AMTA	6
17	EGYPT	Misr Pan Transport Co.	3
18	EGYPT	Arabia Navigation Co.	8
	<i>Total</i>		<u>785</u>
19	JORDAN	Jordan Shipping Co.	23
20	JORDAN	Aquaba Port Authority	18
21	JORDAN	A. Kaawar Shipping Co.	6
22	JORDAN	Orient Stevedoring Co.	2
23	JORDAN	Jordan Insurance Co.	1
24	JORDAN	Ministry of Energy	1
25	JORDAN	Ministry of Communication	6
26	JORDAN	Jordan Potassium Co.	2
27	JORDAN	Beer Zait University	1
28	JORDAN	Maltrans Co.	4
	<i>Total</i>		<u>64</u>
29	SAUDI ARABIA	Ministry of Communication	8
30	SAUDI ARABIA	Saudi Port Authority	14
31	SAUDI ARABIA	Petromine Co.	3
32	SAUDI ARABIA	Petroship Co.	2
33	SAUDI ARABIA	Jedda Refinery Co.	3
34	SAUDI ARABIA	NSCSAC	12
35	SAUDI ARABIA	King Fahd Repairing Dockyard	2
	<i>Total</i>		<u>44</u>

Nº	Country	Name of Organization	Nº.of Grad.
36	IRAQ	Ministry of Transport	2
37	IRAQ	Maritime Transport Enterprises	12
38	IRAQ	IOTC	10
39	IRAQ	Gulf Shipping Co.	2
40	IRAQ	Iraq. Fisheries Co.	6
41	IRAQ	Iraq Port Authority	8
42	IRAQ	Basra Naval Academy	3
	<i>Total</i>		<u>43</u>
43	BAHRAIN	Salman Port Authority	6
44	BAHRAIN	ASRI	6
	<i>Total</i>		<u>12</u>
45	QUATAR	Quatar Navigation Co.	6
46	KUWAIT	KOC	4
47	KUWAIT	KOTC	12
48	KUWAIT	AMPTC	16
49	KUWAIT	UASC	42
50	KUWAIT	Ministry of Communication	4
51	KUWAIT	Arab Oil Co.	4
52	KUWAIT	Jetty Oil Co.	2
53	KUWAIT	Kuwait Fisheries Co.	4
54	KUWAIT	Kuwait Port Authority	8
55	KUWAIT	Kuwait Maritime Transport Co.	4
56	KUWAIT	Kuwait Naval Forces	3
57	KUWAIT	Kuwait Shipbuilding and Repair Company	4
58	KUWAIT	Kuwait Airplanes Provision Co.	2
	<i>Total</i>		<u>109</u>
59	UNITED ARAB EMIRATES	ATC	4
60	UNITED ARAB EMIRATES	ADBOC	2
61	UNITED ARAB EMIRATES	National Sea Service Co.	2
	<i>Total</i>		<u>8</u>

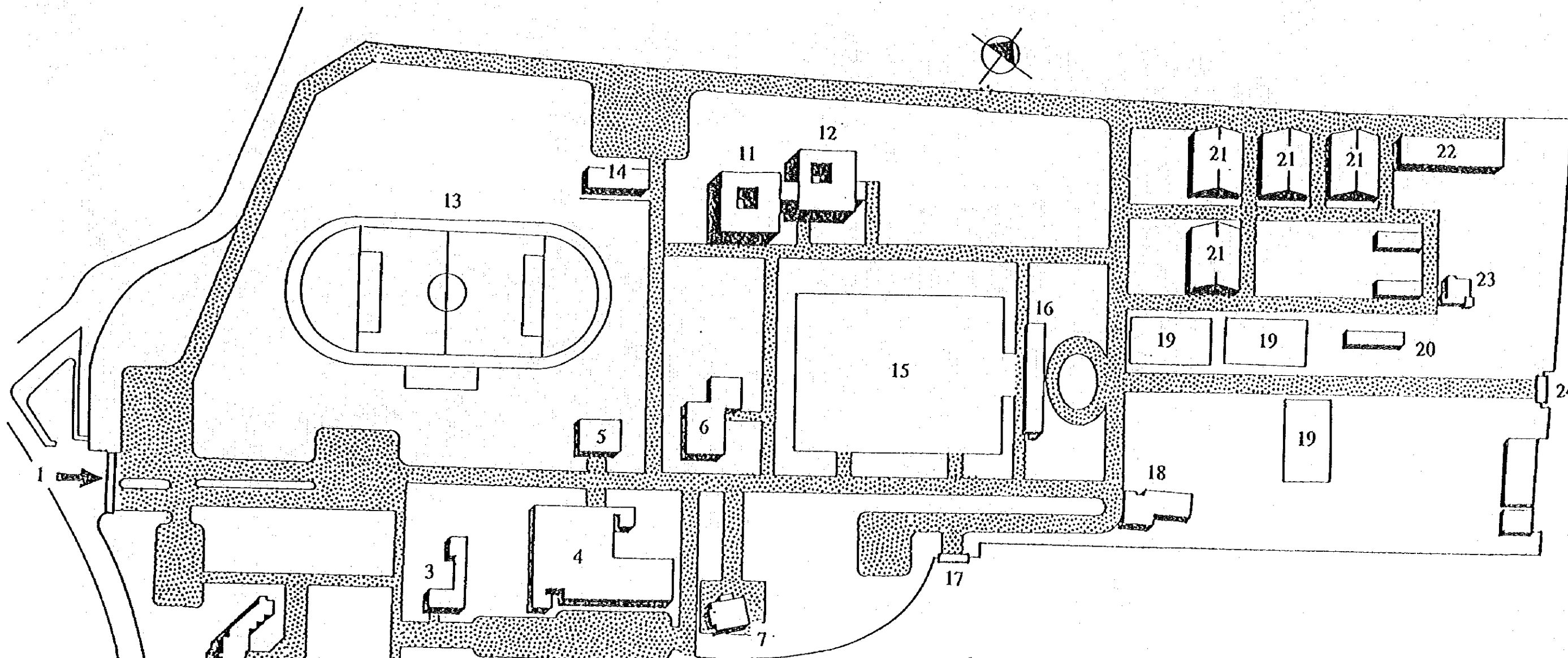


Nº	Country	Name of Organization	Nº. of Grad.
62	SUDAN	Sudan Shipping Lines	43
63	SUDAN	Ports Corporation	25
	<i>Total</i>		<u>68</u>
64	ALGERIA	SNIM - HYPROC	2
65	ALGERIA	SNIM - CNAN	3
	<i>Total</i>		<u>5</u>
66	SYRIA	Syrian Shipping Co.	8
67	LILBYA	GNMTC	6
68	TUNISIA	COTUNAV	2
69	SOMALIA	Ministry of Communication	8
70	NIGERIA	NNSL (Nigerian National Shipping Ltd.)	28
71	NIGERIA	NPA (Nigerian Port Authority)	22
	<i>Total</i>		<u>50</u>
72	TANZANIA	Ministry of Transport	10
73	GAMBIA	Gambian Port Authority	1
74	GHANA	Black Star Lines	6
75 12	LIBERIA	LPA (Liberian Port Authority)	
76	COMMOR ISLANDS	Commonior Port Authority	4
77	U.S.A.	Boeing California	2

### Note

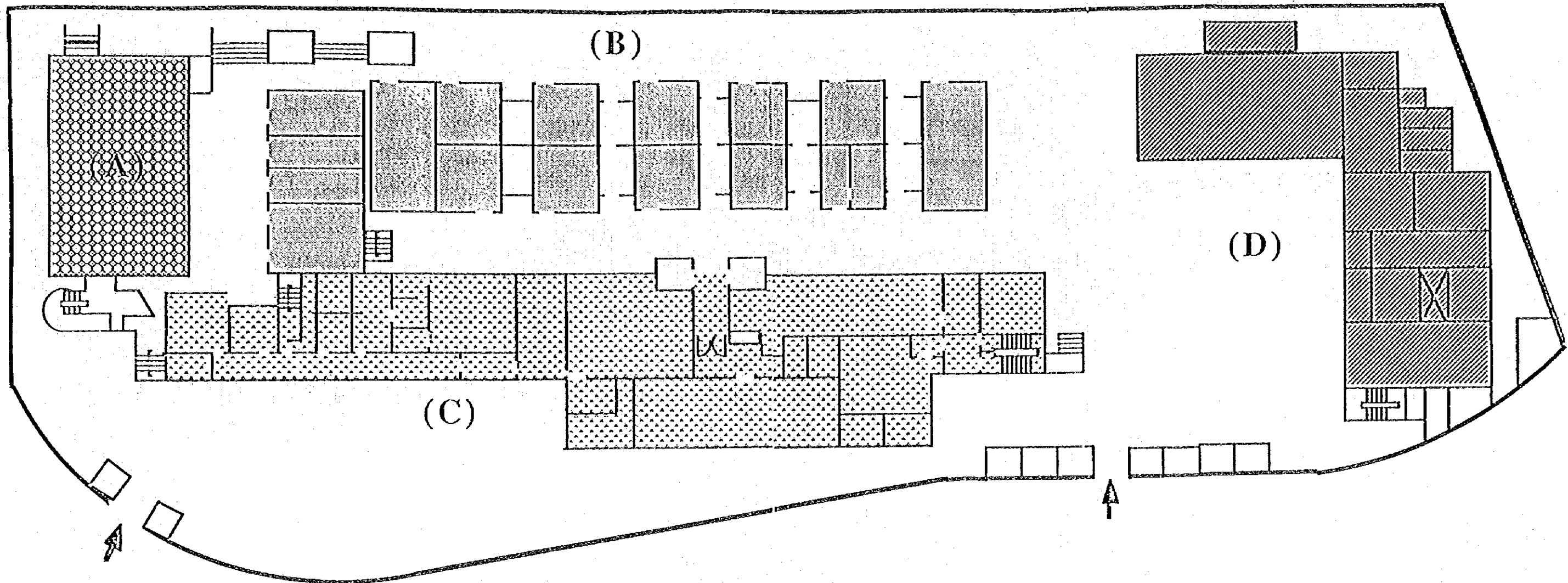
The above figures (Grand Total 1241 graduates) are those whose jobs are identified by the Academy from a grand total of 2307 graduates who joined the Academy as new cadets since its inception in 1972.

4. AMTA's Permanent Premises



AMTA's Permanent Premises  
Abu-Quir

- |  |                   |                             |
|--|-------------------|-----------------------------|
| 1- Main Gate                               |                   |                             |
| 2- Hostels (6 Stories)                     | Area = 1000 Sq.m. |                             |
| 3- Shopping Mall                           | Area = 500 Sq.m.  |                             |
| 4- Messroom                                | Area = 600 Sq.m.  |                             |
| 5- Student's Sector Build.                 | Area = 400 Sq.m.  |                             |
| 6- Mess                                    | Area = 1800 Sq.m. |                             |
| 7- Mosque                                  | Area = 400 Sq.m.  |                             |
| 8- Transformers                            | Area = 400 Sq.m.  |                             |
| 9- Generators                              | Area = 400 Sq.m.  |                             |
| 10- Workshops Stores                       | Area = 600 Sq.m.  |                             |
| 11- West Education Build.<br>( 4 Stories ) | Area = 900 Sq.m.  |                             |
| 12- East Education Build.<br>( 5 Stories ) | Area = 900 Sq.m.  |                             |
|  |                   | 13- Playing Ground          |
|  |                   | 14- Library                 |
|  |                   | 15- Marching Ground         |
|  |                   | 16- Stand                   |
|  |                   | 17- Naval Forces Gate       |
|  |                   | 18- Clinic                  |
|  |                   | 19- Playgrounds             |
|  |                   | 20- Vestiere                |
|  |                   | 21- Workshops               |
|  |                   | 22- Semen's Training Center |
|  |                   | 23- Sailing Club            |
|  |                   | 24- EL-Kawatty Gate         |



## AMTA's Campus at Miami

**Building A ( 6 Stories )      Ground Area = 700 Sq.m.**

*Administrative Offices  
Classrooms  
Labs  
Research and Consultation Center  
Main Conference Room*

**Building B                              Ground Area = 930 Sq.m.**

*Classrooms  
Staff Offices*

**Building C ( 3 Stories )      Ground Area = 1500 Sq.m.**

*Staff Offices  
Classrooms  
Labs*

**Building D ( 3 Stories )      Ground Area = 950 Sq.m.**

*Staff Offices  
Classrooms  
Labs  
Library*



5. Recommendation of Lloyd's Register of Shipping



مصر - الإسكندرية

Lloyd's Register of Shipping  
5 Adib Isaac Street  
Alexandria - P. O. Box 740 - ARE  
Telephone 805088 - 805744  
Telex 54135 LOAX UN  
Fax 814972 ( G p III )

To The Master of  
N.V. "AIDA III"

Our ref SF/SHP/A/8/IAS 88

Your ref

Date 13th March, 1988

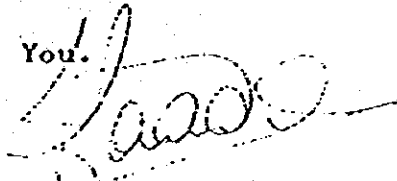
Dear Sir,

Subject : WEAR AND TEAR DAMAGE

In view of survey held and shell plating thickness gauged after docking the vessel on 28.02.88 the following hull repairs is now recommended.

- Keel plate frames 27½ to 31½ and frames 39½ to 56½ to crop and renew.
- Strake (E) starboard side Nos 2 and 3 between frames 0 and 20½ to crop and renew.
- Strake (E) port No. 2 between frames 5½ and 11½ to crop and renew.
- Boat deck plating to crop and renew.
- Longitudinal bulkhead to No. 14 W.B. tank port side between frames 30 and 38 to crop and renew.
- Wasted tunnel deck plating between frames 30 and 35 port side in way of store space above No. 14 W.B. tank to crop and renew.
- Bottom plating below Engine room bilge suction port side frame 45½ to 47½ and starboard side frames 67½ to 69½ to crop and renew.

Thank You.

  
I. ABOU SAADA

Surveyor to Lloyd's Register of Shipping. 30



# Lloyd's Register of Shipping

Telephone 01-709 9166 Telex 850075 Cables: Comunitas, London ECI  
Fax No. 01-493 0231 (2 lines)

71 Fenchurch Street, London, EC3M 4BS

DATE 02/03/88 PAGE

## Listing of Surveys, Conditions of Class and Memoranda

(013)

QUARTERLY  
REGISTRATION NO. 2733 SHIP'S NAME AIDA III  
GROSS TONS DATE OF BUILD 61/62 FLAG Egypt

### MACHINERY DETAILS (cont'd)

#### ITEMS CREDITED SINCE LAST LIST

	DATE	SURVEY STATUS	POST-POWERED
PORT INLINE TRUNK ENGINE			
NO. 1 CYL. COVER, PISTON, CONN ROD AND BEARING, VALVES AND GEARS	12/87		
NO. 6 CYL. COVER, PISTON, CONN ROD AND BEARING, VALVES AND GEARS	12/87		
NO. 1 CRANKPIN, BEARING AND WEBS	12/87		
NO. 6 CRANKPIN, BEARING AND WEBS	12/87		

#### MEMORANDA

0686 STBD M.E NO. 4 PISTON CROWN PART DETACHED.  
0686 PORT M.E SUMP (HTLK REPD).  
SCREWSHAFTS TO BE CRACK DETECTED AT EACH TAILSHAFT SURVEY

### HULL DETAILS

#### CONDITIONS OF CLASS

IMPOSED 12/87 AT  
WASTED BOTTOM PLATING BELOW BILGE, SUCTIONS FRS 28-29(S) & FRS 45-48(P) (TEMP REPD) BEING SPECIALLY EXAMINED AND DEALT WITH AS NECESSARY

IMPOSED 10/87 AT ALEXANDRIA  
PORT LONGITUDINAL BKHD FRS 11-20 (TEMP. REPAIRED) BEING SPECIALLY EXAMINED AND DEALT WITH AS NECESSARY

#### MEMORANDA

INDENTS IN SIDE SHELL PLATING (P & S).  
SIDE SHELL PLATES F.3 (S), F.4, 5 & 6 (P) INDENTED.

END OF LISTING

6. Repair Report from Surveyor to Lloyd's Register of Shipping

Lloyd's  
Register

M.V. " AIDA III "  
LR.No. 5006035

THE FOLLOWING HULL REPAIRS CARRIED OUT AUGUST ,1989 .

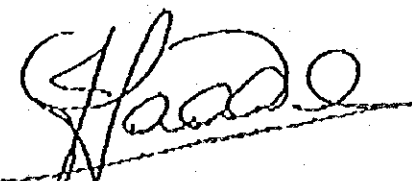
Upon docking the vessel shell and bottom plating thickness gauged revealed wastage of some shell and bottom plates which now cropped and renewed .

1. Strakes E port and stbd frames 116 $\frac{1}{2}$  to stem .
2. Strake C port and stbd frames 116 $\frac{1}{2}$  to stem .
3. Part of strake F 50cm height port and stbd frames 116 $\frac{1}{2}$  to stem .

All the above in way of F.P. tank and cargo hold .

4. Chain locker bottom plating .
5. Keel plate frame 20 $\frac{1}{2}$  - 27 $\frac{1}{2}$  .
6. Strake C1 part cropped and renewed fra 1 $\frac{1}{2}$  - 4 $\frac{1}{2}$  port & stbd .
7. Strake C2 and B2 surrounding A bracket .

Draft marks port and starboard side checked and renewed as necessary .



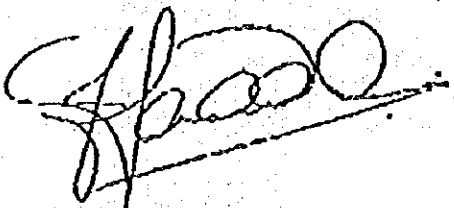
I. ABU SAADA .  
SURVEYOR TO LLOYD'S REGISTER  
OF SHIPPING .

M.V. " AIDA III "  
LR.No. 5006035

WEAR AND TEAR DAMAGE AND REPAIRS CARRIED OUT APRIL, 1989 .

THE FOLLOWING DECK , BOTTOM AND SIDE SHELL PLATES RENEWED ON ACCOUNT OF WEAR AND TEAR DAMAGE .

1. KEEL PLATE FRAMES 27½ to 31½ and 39½ to 56½ .
2. STRAKE (E) STARBOARD SIDE BETWEEN FRAMES 0 AND 20½ .
3. STRAKE (E) PORT BETWEEN FRAMES 5½ and 11½ .
4. BOAT DECK PLATING IN ENTIRETY .
5. LONGITUDINAL BULKHEAD TO No. 14 H.B. TANK PORT SIDE BETWEEN FRAMES 30 and 38 .
6. WASTED TUNNEL DECK PLATING BETWEEN FRAMES 30 and 35 PORT SIDE IN WAY OF STORE SPACE ABOVE No.14 H.B. TANK .



I. ABOU SAADA .  
SURVEYOR TO LLOYD'S REGISTER  
OF SHIPPING





## 8. Curriculum of AMTA

### 8.1 Nautical Studies Department

#### First Year -- Common Semester

Course No.	Course Title	Credit Hours
A 131	English Language (1)	3
A 121	Mathematics (1)	3
A 111	Physics (1)	4
E 181	Introduction to Engineering	2
E 111	Engineering Drawing (1)	2
N 111	Seamanship (1)	3
T 111	Introduction to Maritime Transport	2
C 120	Introduction to Computers	1
P 101	Physical Education (1)	1/2
L 101	Leadership (1)	1/2
<b>Total</b>		<b>21</b>

#### Second Year -- Third Semester

Course No.	Course Title	Credit Hours
A 233N	English Language (3)	3
C 275N	Basic Electronics	3
N 213	Seamanship (3)	3
N 239	Coastal Navigation (2)	3
N 241	Cargo Handling	2
N 281	Celestial Navigation (1)	3
N 271	Navigational Aids and Instruments (1)	3
P 203	Physical Education (3)	1/2
L 203	Leadership (3)	1/2
<b>Total</b>		<b>21</b>

#### First Year -- Second Semester

Course No.	Course Title	Credit Hours
A 132N	English Language (2)	3
A 122N	Mathematics (2)	3
A 112N	Physics (2)	3
N 112	Seamanship (2)	3
N 131	Coastal Navigation (1)	3
N 121	Ship Construction and Stability	3
T 121	Economic Geography	2
P 102	Physical Education (2)	1/2
L 102	Leadership (2)	1/2
<b>Total</b>		<b>21</b>

#### Second Year -- Fourth Semester

Course No.	Course Title	Credit Hours
A 234N	English Language (4)	3
E 284N	Elements of Marine Eng.	2
N 262	Celestial Navigation (2)	2
N 272	Navigational Aids and Instruments (2)	3
N 251	Communications and Signalling	4
N 231	Meteorology and Oceanography (1)	3
N 291	Introduction to Maritime Law	3
N 233	Coastal Navigation (3)	2
P 204	Physical Education (4)	1/2
L 204	Leadership (4)	1/2
<b>Total</b>		<b>23</b>

## 8.2 Engineering Studies Department

### First Year - Common Semester

Course No.	Course Title	Credit Hours
A 131	English Language (1)	3
A 121	Mathematics (1)	3
A 111	Physics (1)	4
B 181	Introduction to Engineering	2
E 111	Engineering Drawing (1)	2
N 111	Seamanship (1)	3
T 111	Introduction to Maritime Transport	2
C 120	Introduction to Computers	1
P 101	Physical Education (1)	1/2
L 101	Leadership (1)	1/2
<b>Total</b>		<b>21</b>

### Second Year - Third Semester

Course No.	Course Title	Credit Hours
A 223E	Mathematics (3)	3
E 213	Applied Mechanics	3
E 221	Thermodynamics (1)	4
E 261	Marine Instrumentation	2
E 252	Power Electronics	1
E 214	Machine Drawing	2
E 232	Workshop Technology (2)	3
A 261E	Chemistry (1)	2
P 203	Physical Education (3)	1/2
L 203	Leadership (3)	1/2
<b>Total</b>		<b>21</b>

### First Year - Second Semester

Course No.	Course Title	Credit Hours
A 114E	Engineering Physics (2)	3
A 122E	Mathematics (2)	2
E 141	Strength of Materials (1)	3
E 151	Electrical Engineering (1)	4
E 112	Engineering Drawing (2)	2
E 131	Workshop Technology (1)	3
A 132	English Language (2)	3
P 102	Physical Education (2)	1/2
L 102	Leadership (2)	1/2
<b>Total</b>		<b>21</b>

### Second Year - Fourth Semester

Course No.	Course Title	Credit Hours
E 222	Thermodynamics (2)	2
E 215	Machine Design (1)	3
E 216	Theory of Machines (1)	1
E 253	Electrical Technology (2)	3
E 262	Marine Automatic Control (1)	3
E 291	Steam Generators (1)	2
E 271	Internal Combustion Engines (1)	4
E 201	Naval Architecture and Ship Construction (1)	2
P 204	Physical Education (4)	1/2
L 204	Leadership (4)	1/2
<b>Total</b>		<b>21</b>

### Third Year - Fifth Semester

Course No.	Course Title	Credit Hours
E 342	Metallurgy	1
E 354	Electrical Technology (3)	1
E 363	Automatic Control Practice (2)	1
E 382	Marine Engineering Practice (1)	3
E 372	Internal Combustion Engines Practice (2)	2
E 392	Steam Power Plant	2
E 323	Hydraulics	2
E 383	Marine Systems (1)	3
P 305	Physical Education (5)	1/2
L 305	Leadership (5)	1/2
<b>Total</b>		<b>16</b>

### 8.3 Electronics and Computer Studies Department

#### First Year - First Semester

Credit No.	Course Title	Credit Hours
A 121C	Mathematics (1)	3
A 112C	Physics (1)	2
C 141	Electric Circuits (1)	3
E 111C	Engineering Drawing (1)	2
N 111	Seamanship	3
A 131C	English Language (1)	3
C 131	Radio Regulations and Procedures (1)	2
C 132	Morse (1)	2
C 120	Introduction to Computers	1
P 101	Physical Education (1)	1/2
<b>Total</b>		<b>21 1/2</b>

#### Second Year - Third Semester

Course No.	Course Title	Credit Hours
A 223C	Mathematics (3)	3
C 221	Combinational and Sequential Digital Circuits	1 1/2
C 244	Electric Circuits (3)	2
C 272	Devices and Electronic Circuits (2)	4
C 211	Communications Engineering (1)	5
C 345	Electrical Machines (2)	2
A 233C	English Language (3)	3
C 235	Radio Regulations and Procedures (3)	2
C 236	Morse (3)	2
P 203	Physical Education (3)	1 1/2
<b>Total</b>		<b>25</b>

#### First Year - Second Semester

Course No.	Course Title	Credit Hours
A 122C	Mathematics (2)	3
A 115C	Physics (2)	2
C 142	Electric Circuits (2)	2
C 172	Devices and Electronic Circuits (1)	4
C 143	Electrical Machines (1)	2
E 181C	Introduction to Engineering	2
A 132C	English Language (2)	3
C 133	Radio Regulations and Procedures (2)	2
C 121	Wireless	1 1/2
C 134	Morse (2)	2
P 102	Physical Education (2)	1/2
<b>Total</b>		<b>24</b>

#### Second Year - Fourth Semester

Course No.	Course Title	Credit Hours
C 222	Computer Architecture	1 1/2
A 224C	Mathematics (4)	3
C 246	Electric Circuits (4)	2
C 273	Devices and Electronic Circuits (3)	4
C 212	Communications Engineering (2)	4
C 247	Electrical Machines (3)	2
A 234C	English Language (4)	3
C 237	Radio Regulations and Procedures (4)	2
C 238	Morse (4)	2
P 204	Physical Education (4)	1 1/2
<b>Total</b>		<b>24</b>



