

**BASIC DESIGN STUDY REPORT
ON
THE PROJECT FOR PROVIDING AMBULANCE MOBILE UNITS
FOR EMERGENCY MEDICAL SERVICES
IN
THE ARAB REPUBLIC OF EGYPT**

MARCH 2004

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)

**JOINT VENTURE
BETWEEN
INTERNATIONAL TOTAL ENGINEERING CORPORATION
AND
INTERNATIONAL TECHNO CENTER CO., LTD.**

GR2

JR

04-084

PREFACE

In response to a request from the Government of the Arab Republic of Egypt, the Government of Japan decided to conduct a basic design study on the Project for Providing Ambulance Mobile Units for Emergency Medical Services in the Arab Republic of Egypt and entrusted the study to the Japan International Cooperation Agency (JICA).

JICA sent to Egypt a study team from 25 October to 14 November 2003.

The team held discussions with the officials concerned of the Government of Egypt, and conducted a field study at the study area. After the team returned to Japan, further studies were made. Then, a mission was sent to Egypt in order to discuss a draft basic design, and as this result, the present report was finalized.

I hope that this report will contribute to the promotion of the project and to the enhancement of friendly relations between our two countries.

I wish to express my sincere appreciation to the officials concerned of the Government of the Arab Republic of Egypt for their close cooperation extended to the teams.

March, 2004

Kunimitsu Yoshinaga
Vice President
Japan International Cooperation Agency

March, 2004

Letter of Transmittal

We are pleased to submit to you the basic design study report on the Project for Providing Ambulance Mobile Units for Emergency Medical Services in the Arab Republic of Egypt.

This study was conducted by the joint venture between International Total Engineering Corporation and International Techno Center Co., Ltd., under a contract to JICA, during the period from October, 2003 to March, 2004. In conducting the study, we have examined the feasibility and rational of the project with due consideration to the present situation of Egypt and formulated the most appropriate basic design for the project under Japan's grant aid scheme.

Finally, we hope that this report will contribute to further promotion of the project.

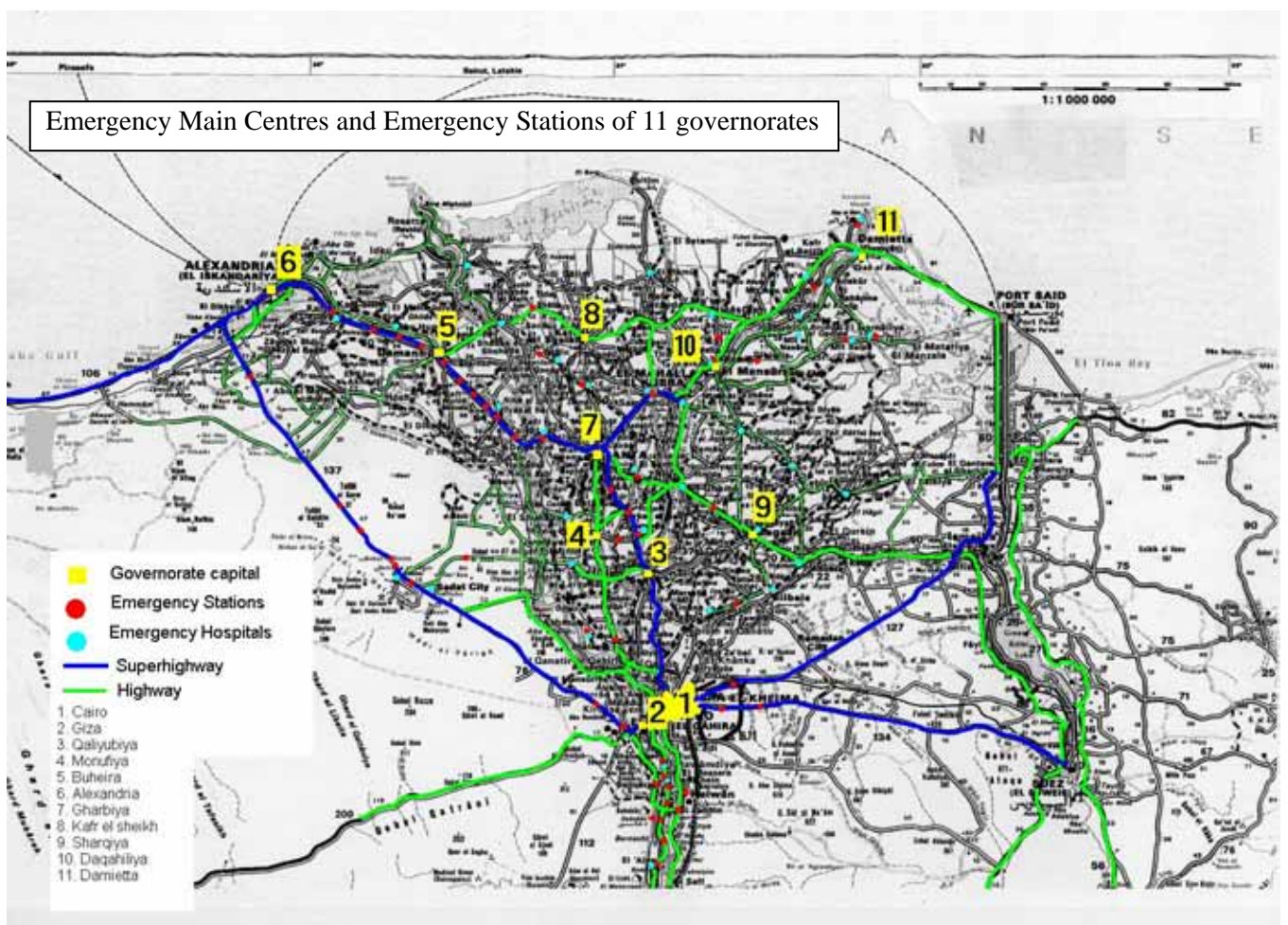
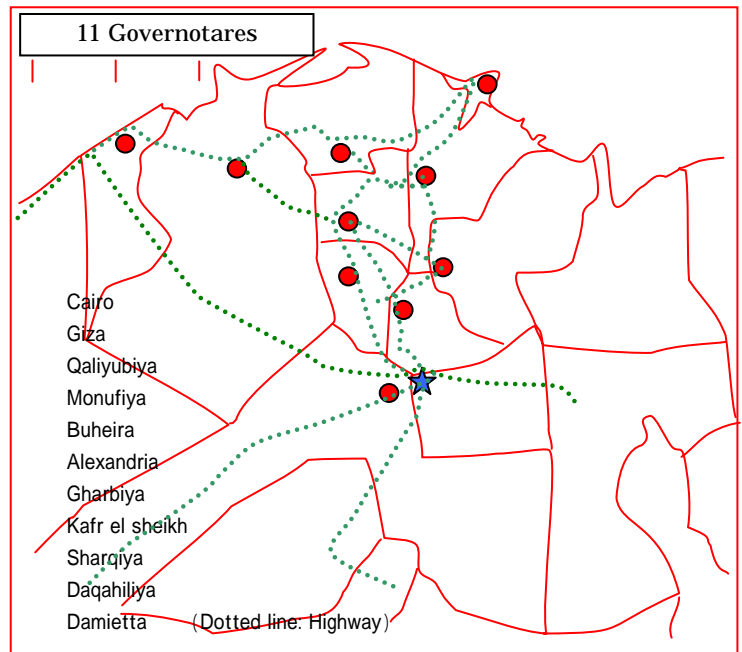
Very truly yours,



Kenji Ishida
Project Manager,
Basic design study team on
the Project for Providing Ambulance Mobile Units
for Emergency Medical Services
in the Arab Republic of Egypt

The joint venture between
International Total Engineering Corporation and
International Techno Center Co., Ltd.

Location Map



List of Figures & Tables

No.	Title	Page
Fig. 2-1	Organogram of the Emergency Main Centre	19
Table 2-1	Special Population Targets	3
Table 2-2	Availability of Spare Parts	5
Table 2-3	List of Medical Equipment	9
Table 2-4	Examination of the Requested Equipment	10
Table 2-5	Outline of Equipment	11
Table 2-6	Quantity of Vehicle (Ordinary ambulance)	12
Table 2-7	Equipment that contain the possibility of third country origin	16
Table 2-8	Implementation Schedule	17
Table 2-9	Activities of Ambulance Car in 2002	21
Table 2-10	Change in Needs of Emergency Medical Services	21
Table 2-11	Change in the Number of Time to Dispatch	22
Table 2-12	Change in the Number of New Emergency Staff (Level 2)	23
Table 2-13	Balance Sheet of Emergency Main Centre (11 governorates)	24
Table 2-14	Change in the Budget of the MOHP	25
Table 3-1	Effect of the Requested Japanese Assistance	27

Abbreviations

EMT	Emergency Medical Technician
ICU	Intensive Care Unit
MOHP	Ministry of Health and Population

Summary

Summary

Recent increase in the number of accident victims has grown so rapidly in Egypt that establishment of a more competent emergency medical system is needed urgently. According to “Healthy Egyptians 2010 Initiative”, deaths caused by injuries are the fifth leading cause of death and stand first in the largest cause of hospitalization, representing 25% of all outpatient visits. One out of every five children who survive childhood diseases such as diarrhea disease and vaccine preventable diseases die from injuries. Amongst children of 1 to 5 years old, injuries account for 19.5% of all deaths. More than half of the deaths in children of 15 to 18 years old are the result of injuries.

Taking those situations seriously, the Ministry of Health and Population has adopted a goal to reduce deaths caused by injuries to no more than 10 per 1,000 total deaths by 2010 (Baseline: 25.9 per 1,000 total deaths in 1998).

The Central Administration of Emergency and Critical Care under the Ministry of Health and Population (MOHP) is responsible for providing emergency medical services free of charge, including first aid of emergency cases, rapid and safe medical transportation, definitive treatment for critical cases, etc. The MOHP had refined its emergency medical service providing system, e.g. deploying the ambulances procured under the Japanese grant aid in 1988, to wrestle with the recently growing injuries. They also had set a standard to deploy an ambulance vehicle for every 25,000 population in urban areas and 5,000 in rural areas.

The conditions of vehicle, however, are so poor, e.g. one third of them are more than 10 years old, driven over 150 thousand kilometre, patient’s space becoming too old for use, decreasing availability of spare parts, etc. that they can not keep up with the rapidly increasing need for emergency transportation services by ambulance.

The MOHP took these situations seriously and therefore requested the grant aid to the Government of Japan to finance procurement of ambulance vehicle and equipment to be used in the vehicle. The request covers the emergency stations in 11 governorates situated in the Nile Delta, one of the most densely populated areas in Egypt.

In response to this request, the Japanese Government decided to conduct a basic design study and entrusted the study to Japan International Cooperation Agency (JICA). JICA dispatched a basic design study team from October 25 to November 14, 2003. After the team returned to Japan, further studies were made. Then, a mission was sent to Egypt in order to discuss a draft basic design from February 7 to 20, 2004.

At first, certain emergency stations were to be specified from 397 stations situated in 11 governorates as the destination of ambulance to be procured. But, the survey revealed that the ambulance shall be delivered

to each 11 governorate rather than to emergency stations, since ambulances are often transferred among the emergency stations.

Then the Project sites shall be 11 governorates, Cairo, Qaliyubiya, Sharqiya, Gharbiya, Monufiya, Daqahiliya, Kafr el Sheikh, Buheira, Alexandria, Damietta and Giza. Those 11 governorates, suffering increase of traffic accidents, account for some 67% of the total population in Egypt. Thus they are suitable for the target site.

The contents of request were ordinary ambulance and ICU ambulance. ICU ambulance shall be excluded from the Project as Emergency Medical Technicians (EMT) are not allowed to perform necessary treatment alone, such as defibrillation, tracheal intubation, by their own regulations. Therefore, only ordinary ambulance and the medical equipment used by the EMT shall be covered by the Requested Japanese Assistance.

The contents of equipment under the Requested Japanese Assistance shall be as follows.

Ordinary Ambulance	
Medical Equipment	Essential stretcher (Multi level)
	Chair-type stretcher
	Suction mattress (Stretcher)
	Oxygen cylinder
	Electrical suction unit
	Back boards
	Sets of air splints
	Neck collars
	Pharmacy cabinet
	Emergency medical kit
	Sterilizing drums

The current number of ambulances in 11 governorates is fewer than half of the number set by the MOHP (1 vehicle/25,000 population) as a standard to deploy an ambulance, and many of them are too old for use. In order to support the present emergency medical system, it is necessary that, at least, current number of ambulance vehicles be kept. Thus, the number of vehicles to be procured under the Requested Japanese Assistance were examined for renewal of the old ambulance, in principal, in order to sustain the current emergency transportation services.

The Requested Japanese Assistance shall require 12 months including Detail Design. Estimated project cost is Japanese Yen 919 million (Japan's Grant Aid : 918 million, Egyptian side : 1 million).

Implementation of the Project is expected to produce the following effects.

(1) Direct Effects

Renewal of the old ambulance vehicles will help decrease the number of vehicle troubles caused by

superannuation of vehicle, provide more reliable emergency transportation services and make more proper provision of transportation services possible which were not possible with their old, malfunctioning vehicles. The number of dispatch will equal to or exceed the number of 2002.

(2) Indirect Effects

The quality of emergency transportation services being sustained, people of the Project site will be able to continue to receive appropriate emergency medical treatment at each medical facility. The ambulances procured will help them continue to provide other services such as pay-transportation of oxygen to patient's house.

Current executing organization will be responsible for the Project as well. Little difficulty in operation and maintenance of the equipment shall arise since they are basically renewal of the existing one and their specifications and quantity are based on the present staff allocation plan.

Maintenance cost will periodically be necessary such as fuel, tyre, oil, filter, etc. The maintenance cost will increase as people's need for emergency medical services increases.

The Emergency Main Centre at each governorate are quarterly allocated with supplementary budget to cope with deficiency of budget or fund, not to hinder continuation of emergency medical services. Judging from the previous records, such budgetary measures for the Emergency Main Centre from the fiscal 2004-05 on will be flexibly taken. Therefore they will be able to deal with the increased maintenance cost.

Renewal of old ambulance vehicles under the Requested Japanese Assistance will contribute to continuation of emergency medical services in terms of quality and quantity. Implementation of the Project will benefit some 44.4 million people, as much as 67% of the entire population.

All those factors being considered, implementation of the Project by the Japan's grant aid shall be proper and appropriate.

Emergency transportation services of Egypt have reached a certain level by the efforts of the Egyptian government. Yet, it is necessary to overcome the following barriers.

(1) Human resources

The number of EMTs shall be increased to meet the growing need of emergency transportation services and to improve the quality of services.

(2) Expansion of competence of EMT

Law allows the EMT to perform such treatments as defibrillation, tracheal intubation, V-line securing, etc. only under direct instructions of doctor. Expansion of competence of EMTs, however difficult it may be, shall be necessary for further development of emergency medical services of Egypt.

(3) Publication of emergency call number

Emergency call, dial 123, has contributed to improvement of people's accessibility to emergency medical services. On the other hand, some measures to prevent wrong dialling or "prank call" must be taken, which represents some 97% of the whole out coming calls.

(4) Maintenance of ambulance

Vehicle Maintenance Workshop of Emergency Main Centre shall need to make a repair ledger for each ambulance, do some preventive check-ups, make equipment check list, etc.

(5) Policy for disaster management

Strict enforcement of traffic laws and academic instruction on injury prevention and control, as well as expansion of emergency medical services, are expressly stated in "Injury Control and Prevention" in "Healthy Egyptians 2020 Initiative", which is also a part of the goals the Project intends to achieve. It is important that some preventive measures be further promoted to decrease the number of accidents and to reduce the tragedy.

Preface	
Letter of Transmittal	
Location Map	
List of Figures & Tables	
Abbreviations	
Summary	
Chapter 1	Background of the Project 1
1-1	Background of the Project 1
1-2	Outline of the Project 1
Chapter 2	Contents of the Project 3
2-1	Basic Concept of the Project 3
2-1-1	The Project and its Overall Goal 3
2-1-2	Basic Concept of the Project 4
2-2	Basic Design of the Requested Japanese Assistance 4
2-2-1	Design Policy 4
2-2-1-1	Basic Policy 4
2-2-1-2	Equipment Planning 4
2-2-1-3	Environment conditions 6
2-2-1-4	Socioeconomic conditions 6
2-2-1-5	Procurement planning 6
2-2-1-6	Maintenance ability 6
2-2-1-7	Grade and Specifications 7
2-2-1-8	Schedule 7
2-2-2	Basic Plan 7
2-2-2-1	Overall Plan 7
2-2-2-2	Equipment Plan 7
2-2-3	Implementation Plan 12
2-2-3-1	Implementation Policy 12
2-2-3-2	Implementation Conditions 14
2-2-3-3	Scope of Works 15
2-2-3-4	Consultant Supervision 15
2-2-3-5	Procurement Plan 15
2-2-3-6	Implementation Schedule 17
2-3	Obligations of Recipient Country 18
2-4	Project Operation Plan 19
2-5	Estimated Project Cost 20
2-5-1	Estimated Project Cost 20
2-5-2	Operation and Maintenance Cost 20
2-6	Other Relevant Issues 25

Chapter 3	Project Evaluation and Recommendations	27
3-1	Project Effect	27
3-2	Objectives and Recommendations	28

[Appendices]

1. Member List of the Study Team
2. Study Schedule
3. List of Parties Concerned in the Recipient Country
4. Minutes of Discussions (BD)
5. Minutes of Discussions (DF)
6. Activities of Emergency Stations in 2002
7. List of the Existing Ambulance by Governorate
8. Balance sheet of Emergency Main Centres in 11 governorates (Year 2002-03)