No.

BASIC DESIGN STUDY REPORT
ON
THE PROJECT FOR DEVELOPING
JORDAN CIVIL DEFENCE APPLIANCES
IN
THE SOUTH AND NORTH REGIONS
IN
THE HASHEMITE KINGDOM OF JORDAN

DECEMBER 2004

JAPAN INTERNATIONAL COOPERATION AGENCY

FIRE PROTECTION EQUIPMENT AND SAFETY CENTER OF JAPAN

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PREFACE

In response to a request from the Government of Hashemite Kingdom of Jordan, the Government of Japan decided to conduct a basic design study on the Project for Developing Jordan Civil Defence Appliances in the South and North Regions in the Hashemite Kingdom of Jordan and entrusted the study to the Japan International Cooperation Agency (JICA).

JICA sent to Jordan a study team from July 28 to August 23, 2004.

The team held discussions with the officials concerned of the Government of Jordan, and conducted a field study area. After the team returned to Japan, further studies were made. Then, a mission was sent to Jordan 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 Hashemite Kingdom of Jordan for their close cooperation extended to the teams.

December 2004

Seiji Kojima
Vice President
Japan International Cooperation Agency

December, 2004

LETTER OF TRANSMITTAL

We are pleased to submit to you the basic design study report on the Project for Developing Jordan Civil Defence Appliances in the South and North Regions in the Hashemite Kingdom of Jordan.

This study was conducted by Fire Protection Equipment and Safety Center of Japan, under a contract to JICA, during the period from July, 2004 to December, 2004. In conducting the study, we have examined the feasibility and rationale of the project with due consideration to the present situation of Jordan 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.

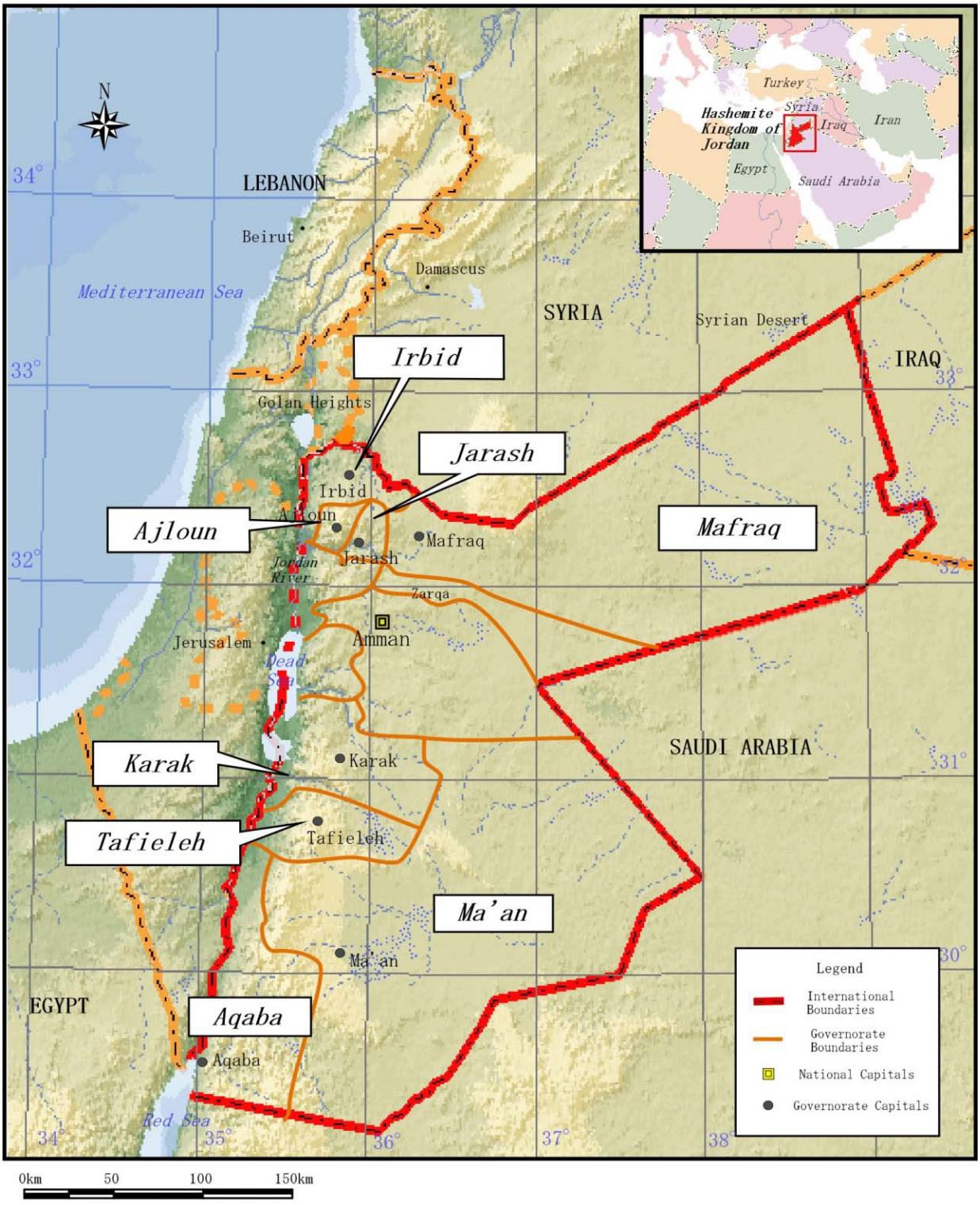
Very truly yours,

Yoshiaki Okamoto

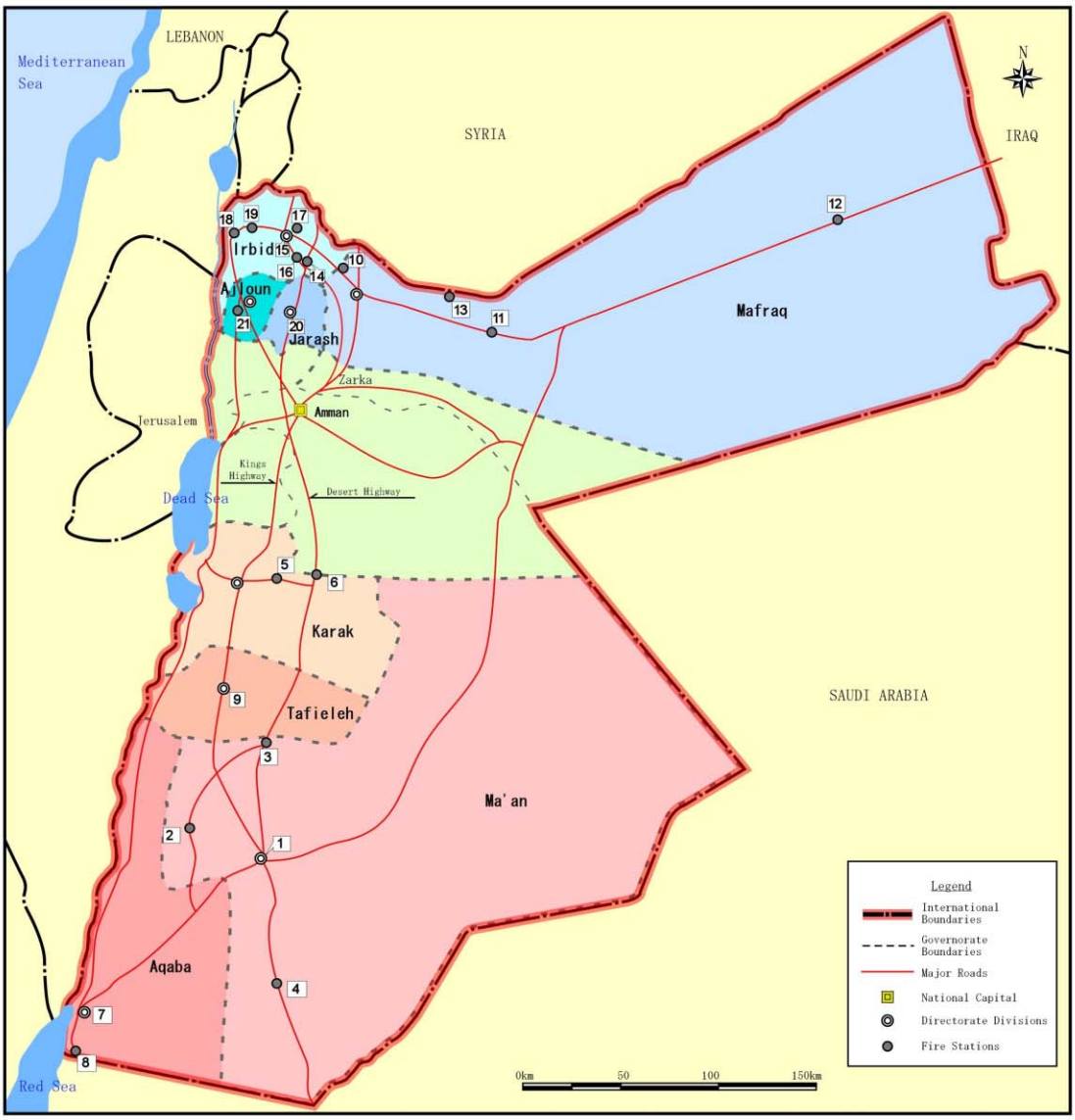
Chief Consultant,

Basic Design Study Team on
the Project for Developing Jordan Civil Defence Appliances in the South and North Regions in the Hashemite Kingdom of Jordan

Fire Protection Equipment and Safety Center of Japan



Location Map



Region	Governorate	No.	Site Name
South	Ma'an	1	Ma'an (Dir. Div.)
		2	Al-taaibeh
		3	Al Husayniyya
		4	Batn Al Ghul
	Karak	5	Industrial Estate
		6	Al Qatrana
	Aqaba	7	Aqaba (Dir. Div.)
		8	South Beach
	Tafieleh	9	Tafieleh (Dir. Div.)

Region	Governorate	No.	Site Name
North	Mafraq	10	Husha
		11	North Badia
		12	Aruwayshid
		13	Om Alqutaen
	Irbid	14	North Support Divisoin
		15	Irbid (Dir. Div.)
		16	Bani Ebeed
		17	Al madina
		18	Ash Shuna
		19	Kufr Asad
	Jarash	20	Jarash (Dir. Div.)
	Ajloun	21	Kufranja

Site Map

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ABBREVIATIONS

CD	General Directorate of Civil Defence
E/N	Exchange of Notes
FESC	Fire Protection Equipment & Safety Center of Japan
FTA	Free Trade Agreement
IMF	International Monetary Fund
JICA	Japan International Cooperation Agency
JIS	Japanese Industrial Standard
JD	Jordan Dinar
VHF	Very High Frequency
WTO	World Trading Organization

SUMMARY

SUMMARY

As the economy of the Hashemite Kingdom of Jordan (hereinafter referred to as "Jordan") greatly relies on tertiary industries (distribution and service industries), Jordanian government has taken several measures to improve and stimulate the nation's economy: promotion of foreign investments and free trade; enhanced privatisation of the public sector; increased investment in the private sector; accession to the WTO; conclusion of the FTA with several countries including the United States; and the creation of the Aqaba special economic zone, while Jordan has been placed under a series of structural adjustment programmes of the IMF since the Gulf crisis. In December, 2003, the Government of Jordan formulated the Socioeconomic Development Plan 2004 - 2006 (Draft). This plan considers the period in question to be an important period for the establishment of a strong economic structure and identifies such priority matters as (i) human resources development, (ii) improvement of administrative services, (iii) improvement of administrative management to reduce the burden of poverty and unemployment reduction measures and (iv) structural reform of the administration, public finance and judiciary. The plan also considers the fire fighting, rescue and ambulance service (hereinafter referred to as “the fire fighting service”) to be an important administrative service which is essential to prevent loss of people’s life, person and property in Jordan and to assist steady economic development.

Meanwhile, the conspicuous advancement of urbanisation and population concentration in urban areas in Jordan together with a high population growth rate and vitalisation of the socioeconomy have resulted in an increasing trend of disasters and accidents. Reflecting this trend, in 2001 the number of dispatch of the General Directorate of Civil Defence (hereinafter referred to as “the CD”), which is the organization responsible for the fire fighting service in Jordan, showed a 22% increase on 1999. Under these circumstances, the Government of Jordan formulated the Civil Defence Development Plan (2002 - 2006) in 2001 for the purpose of establishing a reliable fire fighting, rescue and ambulance strength (hereinafter referred to as “fire fighting strength”) by 2006 through the development/improvement of fire stations and other facilities, vehicles and equipment as well as human resources. Although the Government of Jordan has been increasing its budgetary allocation for the fire service, most of the budget has gone to the recruitment of new fire fighters and the development of training facilities, leaving little for the renewal and reinforcement of fire vehicles and equipment. For this reason, vehicles and equipment which require replacement due to their dilapidated condition are still in use, making the provision of a timely and reliable fire fighting service difficult.

To improve the situation, the Government of Jordan has formulated the Project for Developing Jordan Civil Defence Appliances in the South and North Regions of the Hashemite Kingdom of Jordan featuring the four southern governorates of Ma'an, Karak, Aqaba and Tafieleh and the four northern governorates of Mafraq, Irbid, Jarash and Ajloun and has requested the Government of Japan's provision of the necessary funding for the implementation of the Project based on the successful experience of improving fire vehicles in four governorates in Greater Amman (capital region) under the "Project for Improvement of Equipment for Fire Fighting Service" in FY 1997, a grant aid project of the Government of Japan which did not feature the said eight governorates in the south and north. The latest project aims at providing new vehicles and equipment to improve the fire fighting strength in the eight target governorates in Jordan, thereby reducing the damage caused by disasters and accidents.

In response to the request by the Government of Jordan, the Government of Japan decided to conduct the Basic Design Study and the Japan International Cooperation Agency (hereinafter referred to as "JICA") dispatched the Basic Design Study Team to Jordan for the period from 28th July to 23rd August, 2004. During this visit to Jordan, the Study Team consulted with related organizations in Jordan and confirmed the required contents of the project, conducted a study on 66 fire stations under the jurisdiction of the Governorate Civil Defence Directorate in the eight target governorates and also gathered relevant information and data. Subsequently, the Study Team examined the necessary optimal contents and scale of the Project and estimated the required project cost. Following explanation of the Basic Design Outline to the Jordanian side from 31st October to 7th November, 2004, the Study Team compiled the final basic design report.

The equipment to be provided is restricted to such equipment which is necessary and urgently required to combat ordinary incidents and the target items have been identified as fire-fighting truck, rapid intervention vehicle (RIV; capable of performing rescues), rescue truck, ladder truck and ambulance. For the design of the most appropriate equipment, vehicles and equipment of the minimum and suitable required quantity, type and specifications are planned instead of the simple replacement of the old fire vehicles, etc. so that new vehicles and equipment which are suitable for the special conditions of the target deployment sites are selected. At the same time, those which meet the following criteria are selected in the equipment design process.

- Equipment which can be used within the scope of the existing personnel and technical strength of the target fire stations
- Optimal and minimum required equipment used for fire fighting in Japan and other countries to combat disasters which are likely to be faced by the target fire stations

- Equipment which is capable of independently conducting activities to fight disasters without the assistance of other (fire) companies

For the planning of the fire vehicle deployment the 66 existing fire stations and the 6 fire stations under construction in the 8 target governorates are classified into 3 ranks, i.e. Rank A (departmental fire station), Rank B (primary fire station) and Rank C (secondary fire station) based on such criteria as the population size, number of fires, number of disaster and rescue operations, number of ambulance operations, size of the service area, conditions of buildings and roads, etc. in the service area and number of existing fire trucks and ambulances of operational status, all of which are used as reference indicators for the development of the fire fighting strength by the Fire and Disaster Management Agency of the Ministry of Internal Affairs and Communications in Japan. The appropriate types and number of fire trucks and ambulances (hereinafter referred as "fire vehicles") are then determined for each rank of fire station to calculate the required number of new vehicles based on the difference between the existing number of fire vehicles (excluding those which are too old to be used) for each fire station. In the case of departmental fire stations, each of which serves a wide area, the deployment of a rescue truck (or RIV) or ladder truck (for the governorate of Irbid where there are many high-rise buildings) is considered in view of the characteristics of the service area and existing number of fire vehicles.

The type, number and deployment plan of the main equipment planned are shown in the following two tables.

List of Main Vehicles Planned

No.	Type	Planned Quantity	Unit	Purpose of Use and Suitability of Vehicle Standards
1	Fire-Fighting Truck	14	Vehicle	This is a kind of general-purpose fire vehicle to conduct fire fighting in response to the situation of a fire in local areas which may include desert areas. As fires involving oil and fat occur due to traffic accidents, it is planned to be able to deal with various types of fires without the assistance of other types of fire fighting trucks
2	RIV	15	Vehicle	An RIV carries a minimum amount of fire water and is equipped with both fire fighting and rescue equipment. As such, it is capable of independently conducting fire fighting and/or rescue activities and can be driven through narrow streets. This highly mobile and multi-purpose vehicle can prove its versatility and importance in urban areas and refugee camps, etc. and is also important as an alternative to a rescue truck.
3	Rescue Truck	2	Vehicle	A rescue truck is designed to save lives and is equipped to deal with such major incidents as the collapse of a building and traffic accidents. Even though the disaster scene conditions are diverse, the planned rescue equipment is designed to be practical and standard.
4	Ladder Truck	1	Vehicle	A ladder truck proves its true worth when dealing with a disaster at a high-rise building, etc. as it is highly effective for fire fighting and rescue activities. The planned ladder truck is the standard type and is equipped with a versatile ladder.
5	Ambulance	13	Vehicle	The primary use of an ambulance is to transport the injured or sick due to sudden illness, various types of disasters or accidents to hospital while providing first aid. The specifications are standard while the range of equipment, etc. is restricted to equipment required for emergency medical care and transportation.

Vehicle Deployment Plan

Governorate	Fire station	Rank	Suitable Number of Vehicles ①					Existing Number of Vehicles ② (Excluding the old vehicles)					Planned Number of New Vehicles ①−② (note)				
			Fire-Fighting Truck	RIV	Rescue Truck	Ambulance	Ladder Truck	Fire-Fighting Truck	RIV	Rescue Truck	Ambulance	Ladder Truck	Fire-Fighting Truck	RIV	Rescue Truck	Ambulance	Ladder Truck
Ma'an	Directorate Division	A	2		1	2		2			2				1		
	Al-taaibeh	B	1	1		1							1	1		1	
	Al Husayniyya	B	1	1		1					1		1	1			
	Batn Al Ghul	C	1			1		1								1	
Karak	Industrial Estate	B	1	1		1							1	1		1	
	Al Qatrana	B	1	1		1			1				1			1	
Aqaba	Directorate Division	A	2		1	2		1	*1	1	2		1	*			
	South Beach (Al shati)	B	1	1		1			1				1			1	
Tafieleh	Directorate Division	A	2	1		2		2			*4			1		*	
Mafraq	Husha	B	1	1		1							1	1		1	
	North Badia	B	1	1		1		1						1		1	
	Aruwayshid	B	1	1		1		1						1		1	
	Om Alqutaen	C	1			1							1			1	
Irbid	North Support Divisin	A	1	1	1	1	1						1	1	1	1	1
	Directorate Division	A	2	1		2		2			2			1			
	Bani Ebeed (Shaheed azmin)	B	1	1		1		1			1			1			
	Al-madina	B	1	1		1							1	1		1	
	Ash Shuna (Al shona al shamalia)	B	1	1		1							1	1		1	
	Kufr Asad	B	1	1		1					1		1	1			
Jarash	Directorate Division	A	2	1		2		1			2		1	1			
Ajloun	Kufranja	B	1	1		1							1	1		1	
Total	21 Stations		26	17	3	26	1	12	3	1	15		14	15	2	13	1

(Note)* When the number of existing vehicles is more than the suitable number of vehicles, the planned number of new vehicles is given 0. In this case, relocation of the existing vehicles is not considered.

If the Project is implemented under the grant aid scheme of the Government of Japan, the total project period will be 14.5 months, consisting of 3.5 months for the detailed design, tender and placement of orders for the vehicles and equipment and 11 months for the manufacture of the vehicles/equipment, transportation, mounting and operational guidance. The total project cost is estimated to be approximately ¥972 million (Japanese portion of approximately ¥972 million and Jordanian portion of ¥0.22 million).

The implementation of the Project is expected to have the following direct effects.

- The deployment of 45 new fire vehicles among 72 fire stations, including new fire stations, in the 8 target governorates will improve the ratio of fire vehicles with operational status (including those exceeding their expected life of 15 years for ambulances and 20 years for other vehicles) to the suitable number of deployment from 89% (205 out of 230) to 100% (250 out of 250). As a result, fire damage in the eight target governorates will be reduced and rescue and ambulance activities will be quickly conducted.

- The deployment of 26 new fire vehicles among the existing 66 fire stations in the 8 target governorates will improve the ratio of fire vehicles which have not exceeded their expected life and which are ready for turn out to the number of vehicles deployed from 52% (119 out of 230) to 63% (145 out of 230).

- The 6 new fire stations (one each in Ma'an and Karak and two each in Mafraq and Irbid) with a total of 19 new fire vehicles will reduce fire damage and will enable prompt rescue and ambulance activities in the areas of jurisdiction of these new fire stations.

- The deployment of a ladder truck in the Governorate of Irbid will reduce damage due to fires involving high-rise buildings in the area. At the same time, the soft component will establish the technical foundations for the operation of the ladder truck and fire fighting tactics.

As the Project basically intends the renewal of existing vehicles, except those for the 6 new fire stations, the required manpower is already available at each fire station, including the new fire stations. Moreover, it is believed that the operation and maintenance cost has already been budgeted.

Based on the above findings, the provision of the required funding for the Project is deemed to be relevant in view of the purposes and principles of the grant aid scheme of the Government of Japan.

It is believed that the Project will be implemented more efficiently and effectively if the Jordanian side conducts the following work.

- Training on Vehicle Operation and Maintenance Techniques
- Promotion of Integrated Fire Prevention Approach

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APPENDICES

CHAPTER 1
BACKGROUND OF THE PROJECT

CHAPTER 1 BACKGROUND OF THE PROJECT

In recent years, the number of the dispatch of fire companies has increased in Jordan because of the population concentration in urban areas, the increasing number of disasters and accidents in refugee camps and other reasons.

The fire service is considered to be an essential administrative service for the socioeconomy in Jordan as it protects people's life, person and property from disasters, reducing the number of human casualties and preventing the loss of people's assets.

In 1999, Jordan enforced the revised Civil Defence Law No. 18 and later in 2001 formulated the Civil Defence Development Plan (2002 - 2006), aiming at establishing a sufficient fire fighting strength to meet public expectations by 2006 through the improvement of fire stations and fire vehicles, etc. and the development of human resources. Meanwhile, although the Government of Jordan has steadily increased the fire service budget (a 24% increase between 2000 and 2002) to proceed with development, most of the budget has gone to the recruitment of new fire fighters and the development of training facilities, leaving little for the renewal and reinforcement of fire vehicles. For this reason, the maintenance of vehicles to combat disasters has been insufficient and the dilapidated condition of these vehicles has become an obstacle to a proper and reliable fire service at the time of an incident.

To replace these superannuated vehicles and enforce the fire fighting strength is most urgent subject and that the Project provides the suitable vehicles to the south and north regions, where the infrastructure is behind compared with the Amman Municipality is regarded as important by the Jordanian Government.

Against this background, the Government of Jordan has made a request to the Government of Japan for the assistance for "The Project for Developing Jordan Civil Defence Appliances in the South and North Regions of the Hashemite Kingdom of Jordan" following "The Project for Improvement of Equipment for Fire Fighting Services in the Hashemite Kingdom of Jordan" set by Japan's grant aid featuring the 4 governorates in Great Amman in 1998.

CHAPTER 2
CONTENS OF THE PROJECT

CHAPTER 2 CONTENTS OF THE PROJECT

2.1 Basic Concept of the Project

2.1.1 Higher Goal and Project Goal

The number of disasters and accidents has been steadily increasing in Jordan in recent years following a high population growth rate and the vitalisation of socioeconomic activities. The Government of Jordan formulated the Civil Defence Development Plan (2004 - 2006) in order to create a reliable fire fighting strength to prevent damage caused by various hazards and the Project promises enhancement of the fire fighting strength in the target regions by means of renewing the fire vehicles for the 8 target governorates where replacement of the fire vehicles has been delayed.

2.1.2 Outline of the Project

The Project involves the deployment of 45 new fire vehicles at 21 leading fire stations (included newly constructed fire stations) in the 8 target governorates and the provision of technical guidance on the handling and operation of a ladder truck which requires special skills. The implementation of the Project means that the number of constantly operational fire vehicles deployed in preparation for disasters and accidents in the south and north regions will be increased, contributing to protecting the life, person and property of Jordanian as well as tourists from disasters and accidents.

2.2 Basic Design of the RequestedJapanese Assistance

2.2.1 Design Policy

2.2.1.1 Basic Policies

(1) Scope of Assistance

The Project aims at developing the fire fighting system and improving the fire fighting strength in the eight target governorates by means of deploying fire vehicles of appropriate sizes and contents at the main fire stations among the fire stations under the jurisdiction of the Governorate Civil Defence Directorate. The scope of the Japanese assistance is the procurement of these fire vehicles. Fire trucks carry such auxiliary items as fire equipment required for fire-fighting and rescue activities while ambulances carry emergency medical service equipment. The procurement of such equipment is included in the scope of the assistance together with spare parts which are essential for

the initial operation of the new equipment, including fire vehicles. While the expected outcome of the Project is improvement of the fire fighting system, technical guidance of fire-fighting activities and tactics using the newly deployed equipment is also included in the scope of the assistance to further enhance the outcome.

(2) Selection of Target Sites

There are no standards regarding the establishment of fire stations. Although the CD has its own standards for the deployment of fire vehicles at fire stations, these standards are, in fact, future targets. In reality, there is an absolute shortage of fire vehicles and the sufficiency rates of these standards are low. Because of this, the necessity to deploy new fire vehicles at a fire station cannot be judged solely on the basis of the said sufficiency rate at each station.

Given the situation described above, the fire vehicle deployment is planned based on the following indicators used by the Standards for the Fire Service Strength set forth by the Fire and Disaster Management Agency of Ministry of Internal Affairs and Communications in Japan.

< Indicators >

- Population
- Number of fire incidents
- Number of disaster rescue incidents
- Number of ambulance operations
- Size of the service area
- Conditions of buildings and roads in the service area
- Number of existing fire trucks and ambulances, etc. in operable condition

(3) Selection of Equipment

Fire-fighting activities in Jordan use such vehicles as fire-fighting trucks, water tankers, rapid intervention vehicles (RIVs), rescue trucks and ambulances. The required vehicles for the Japanese assistance under the Project include also ladder truck.

The examination results of each type of requested vehicle are described below.

1) Fire-Fighting Truck

This is the basic type of fire truck capable of dealing with various types of fires, including fires involving oil and/or fat, without the assistance of other types of fire

trucks. It carries water for fire-fighting and is equipped with fire equipment, simple rescue equipment and crew seats. As this type of truck is essential at all fire stations, it is included in the scope of the Project.

2) RIV

An RIV carries a minimum amount of water and is equipped with fire-fighting and rescue equipment. It is capable of dealing with a fire on its own and can conduct ordinary rescue activities. It is a multi-purpose vehicle and is very mobile as it can drive through narrow streets. As its deployment at those fire stations of which the service area includes a refugee camp(s), it is very useful together with its use as an alternative vehicle to a rescue truck, this type of vehicle is included in the scope of the Project.

3) Water Tanker

The lack of fire plugs and other fire-fighting water sources practically throughout Jordan necessitates the deployment of water carrying fire trucks (fire-fighting trucks, water tankers and RIVs) at fire stations. Among these vehicles, water tankers are primarily used to supply fire-fighting water but are excluded from the scope of the Project because of the following reasons.

(a) Many houses in the Project Area, i.e. the eight target governorates, have a fire-resistant structure made of fire bricks and the level of exposure hazard is low. In most cases, a fire can be extinguished by fire-fighting activities by a fire-fighting truck(s) or RIV(s).

(b) When the supply of fire water is required, the main purpose of a water tanker is to supply water to other front line fire trucks. As such, water tankers are not required to make a quick response or to have a fast travelling speed like fire-fighting trucks and RIVs which are used for initial fire-fighting.

(c) Many of the existing water tankers are still usable and can be used for water supply, making the deployment of new water tankers less urgent.

4) Rescue Truck

This type of vehicle is specially designed for exclusive use for rescue activities to deal with ordinary rescue incidents as well as large-scale or unique incidents and is equipped with various rescue apparatus and equipment. Even though the frequency of such incidents is not high, this type of vehicle is essential to deal with large-scale

or unique incidents. As such, it is included in the scope of the Project for deployment at primary fire stations.

5) Ladder Truck

The deployment of a ladder truck which is used for fire-fighting and rescue activities at multi-story buildings is planned for Irbid where such type of vehicle is necessary in view of the number and scale of multi-story buildings and the number of incidents involving these buildings.

6) Ambulance

An ambulance primarily aims at transporting the injured or sick persons to a hospital and cannot be substituted by other types of fire vehicles. The deployment of an ambulance is included in the scope of the Project as this type of vehicle is essential for each fire station.

(4) Scale and Specifications of Vehicles

Although Jordan has deployment standards for fire vehicles and others for fire stations, the currently deployment levels are much lower than the deployment standards. As such, the present standards do not form an appropriate basis to determine the scale (deployment sites and quantity) and specifications of the vehicles. For this reason, the scale and specifications of the vehicles to be procured under the Project are determined based on the following standards which take the policies described in the previous sections for the selection of the target sites and the selection of the vehicles into consideration.

1) Vehicles which can be utilised within the scope of the existing fire stations and manpower at the target fire stations
2) Vehicles which can be sufficiently dealt with by the vehicle operation and maintenance skills of the fire-fighters working at the target fire stations
3) Minimum quantity of vehicles which are most suited to dealing with the anticipated types of disasters in the Project Area and which are used for fire-fighting tactics in Japan and other countries
4) Vehicles which can conduct basic disaster control activities without the assistance of other fire companies
5) Spare parts which are necessary to sustain the initial operation of the vehicles to be procured under the Project

2.2.1.2 Policies Regarding Natural Conditions

Many of the target sites are situated in the desert area. The summer temperature in the Jordan Valley exceeds 36°C every day and 49°C has been recorded in the past. The daytime temperature in the Jordan Highlands is above 40°C in summer. In the desert area, the temperature sometimes exceeds 50°C. In areas such as the Project Area where the outdoor temperature is high, vehicles can be liable to over-heating. It is, therefore, necessary for the vehicle design to take highest permissible temperature into consideration to ensure the proper functioning of the vehicles in high temperature area. Some of the target fire stations are situated in the mountain area and snowfall is observed at these sites in winter, making the adoption of a vehicle design which can deal with such geographical and meteorological conditions and which also allows vehicles to quickly and safely reach a disaster scene essential. Moreover, as it is important for a fire vehicle to turn out quickly in view of the extensive service area of each fire station, the following features are included in the basic design for the fire vehicles, taking not only the temperature and inclination but also the road conditions in desert/hill areas and travelling on narrow roads in refugee camps and other places into consideration.

- Examine the possible deployment of vehicles with sufficient travelling performance
- Ensure sufficient ground clearance

2.2.1.3 Policies Regarding Socioeconomic Conditions

Both south and north Jordan contains densely populated urbanised areas. Some refugee camps are located in north Jordan. As it is difficult for even medium size fire trucks to enter these areas, the fire vehicles which are capable of operating in these areas is considered.

2.2.1.4 Policies Regarding Procurement

(1) Permit and Approval Systems and Laws and Regulations Relevant to Project Implementation

1) Permit and Approval Systems

The use of radio transmitters is usually subject to certain restrictions imposed by the Radio Communication Law and the Radio Wave Law. However, the onboard radios requested this time will not require any special permit or approval as the new equipment is the same or similar to that currently in operation using the already established communication system.

2) Relevant Laws and Regulations

The design of the planned fire vehicles conforms to the Road Transport Law of Jordan. As Jordan has no law regarding emission control for diesel engine vehicles, Japanese regulation will be applied for this purpose.

(2) Design Standards to be Conformed With

The new radio equipment will adopt the VHF system which is the same as the existing fire radio system. Jordan has no domestically manufactured fire trucks and most vehicles in use are manufactured to conform with Japanese or European standards. Accordingly, Japanese and European standards will be applied to the vehicles. In regard to couplings for the fire hoses, interchangeability with the current equipment is essential. British Standards (BS) are, therefore, used as the design standards as in the case of the present couplings.

2.2.1.5 Policies Regarding Operation and Maintenance Capability of Implementing Body

At fire stations under the jurisdiction of the Governorate Civil Defence Directorate in each of the eight target governorates, training on the operation and handling of fire vehicles and daily inspection are conducted and the fire radio system is properly in place. The periodic inspection and the normal maintenance of the fire vehicles are conducted by the personnel dispatched from the workshop of the CD. The fire vehicles which require a heavy maintenance or an overhaul are brought to the workshop of the CD. Consequently, except ladder trucks, the present operation and maintenance system are judged to be sufficient regarding the fire vehicles introduced under the Project.

However, as not using ladder trucks currently, CD has no techniques for its operation. The supplier's basic education and training for maintenance and operation only will hardly create the system to execute effective fire fighting activities facing the actual fire disasters of high-rise buildings.

It is necessary to provide education and training on the ladder truck operation as well as on fire fighting tactics for the ladder truck combined with fire-fighting trucks, rescue trucks etc. by using the soft component scheme.

2.2.1.6 Policies Regarding Equipment Grade

To ensure the continuity of the project effects, one essential condition is to make the planned vehicles/equipment excel in terms of their general purpose usage, durability and ease of

maintenance. From this viewpoint, it has been decided to select vehicles which use proven technologies and have track records of manufacture and operation rather than the latest vehicles adopting advanced technologies.

2.2.1.7 Policies Regarding Procurement Method and Project Implementation Period

(1) Procurement Method

Countries with manufacturers meeting the following conditions are regarded as eligible countries for procurement.

1) Sufficient fire vehicle design and manufacturing technologies and adequate quality management
2) Sufficient reliability and durability of manufactured fire vehicle.
3) Sufficient knowledge of the local conditions in Jordan based on a past record of delivering fire vehicle to the target fire stations or Jordan
4) Availability of after-services by an agent, etc. in the Project Area
5) Ability to meet other procurement conditions and technical specifications

(2) Implementation Period

The Project will be a single year project and an efficient implementation schedule will be prepared.

2.2.2 Basic Plan

2.2.2.1 Basic Planning and Design Concepts

The planning processes for the basic plan are shown in Fig. 2-2-2-1. Firstly, the existing fire service strength (mainly the specification and deployment number of fire vehicles) of the existing fire stations is verified in view of the particular environment (local characteristics) of the area and is compared with the principles and criteria of the basic design. Secondly, by examining the fire-fighting tactics and deployment of fire companies etc. to be improved or introduced to fire service organizations from hard and soft aspects, the desirable fire service strength (the specification and deployment number of fire vehicles) will be reflected to the deployment plan. The equipment plan selects types, specifications and sizes of the minimum and suitable required equipment for keeping the necessary standard of this fire service strength and links it to the procurement.

The purpose of the basic plan is not restricted to the preparation of an equipment plan for the renewal of deteriorated equipment but also plans the minimum and suitable range of equipment to maintain the level of fire service strength required of each fire station. Accordingly, at the first planning stage, equipment deployment corresponding to the required level of fire service strength determined by the processes shown in Fig. 2-2-2-1 is necessary. In particular, the planning of the deployment of fire vehicles which are the main equipment constituting the fire service strength is the principal issue.

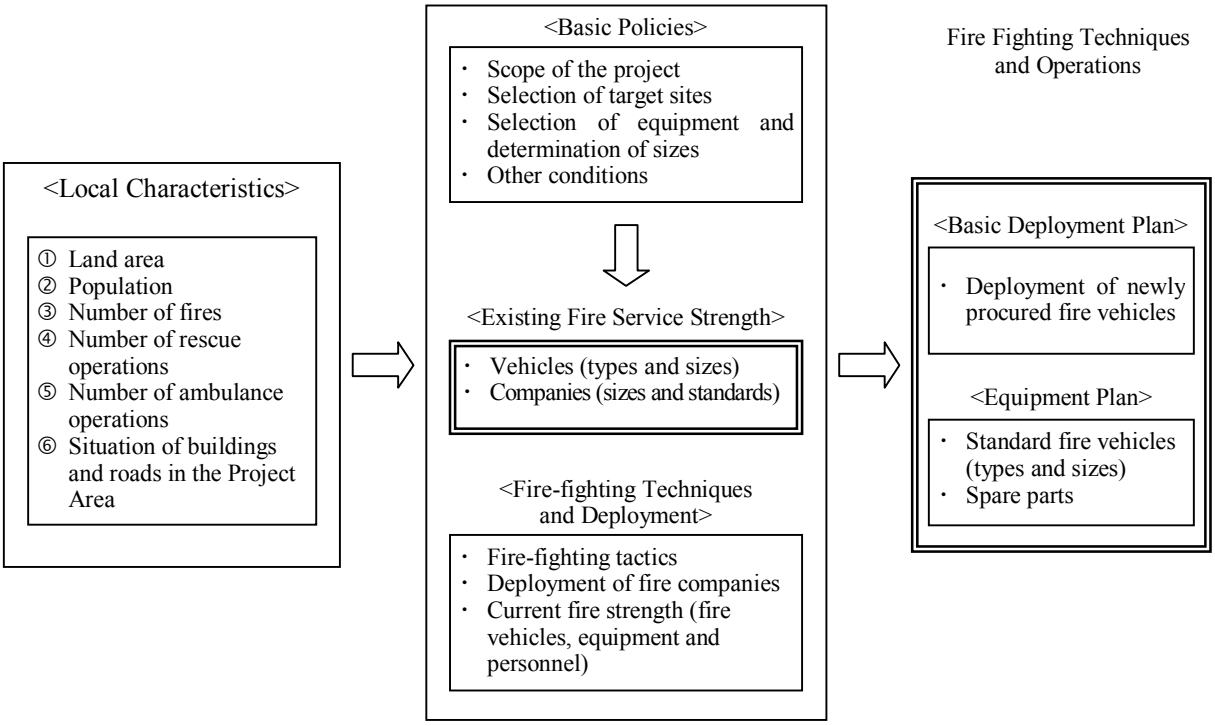


Fig. 2-2-2-1 Planning Processes of the Basic Plan

2.2.2.2 Planning of Deployment of Fire Vehicles

(1) Existing Fire Vehicles

In the eight target governorates, there are a total of 66 fire stations, including Directorate Division of each governorate. In addition, six new fire stations are under construction. Table 2-2-2-1 shows the types of fire vehicles which are currently deployed at the existing fire stations in these governorates. The total number of fire vehicles is 230. Out of these 95 are either fire-fighting trucks or RIVs which are the principal vehicles for fire-fighting activities. Nearly half of the fire-fighting trucks and RIVs, i.e. 41 out of 95, are now difficult to maintain because they are 20 years old or more.

In the case of the 90 existing ambulances, 50 are 15 years old or more, indicating the aging of the ambulance fleet. Meanwhile, 16 of the 40 existing water tankers are at least 20 years old. While water tankers are not included in the scope of the Project because of their low level of urgency described earlier, replacement of the old fire-fighting trucks and ambulances is necessary. Five of the RIVs currently available at some fire stations in the eight target governorates were procured in the last few years. With some exceptions, the rescue trucks are deployed at Directorate Divisions. However, as they are superannuated, replacement of these rescue trucks is considered as necessary to ensure efficient and effective rescue activities in need. Ladder trucks are only available in the Municipality of Greater Amman, the capital of Jordan, and are not deployed in north or south Jordan.

Table 2-2-2-1 Current Situation of Fire Vehicles at Fire Stations in Eight Target Governorates and Their State of Aging

Governorate	Number of F/S	Fire-Fighting Truck	Water Tanker	RIV	Rescue Truck	Ambulance	Total
Ma'an	11	15 (6)	8 (3)	- (-)	- (-)	15(10)	38 (19)
Karak	13	19 (6)	8 (2)	1 (-)	1 (1)	20(12)	49 (21)
Aqaba	9	9 (4)	3 (2)	2 (-)	1 (-)	10 (6)	25 (12)
Tafieleh	4	6 (2)	4 (2)	1 (-)	- (-)	7 (4)	18 (8)
Mafraq	8	11(10)	4 (4)	- (-)	1 (1)	9 (8)	25 (23)
Irbid	14	20 (9)	8 (2)	1 (-)	- (-)	19 (7)	48 (18)
Jarash	4	5 (2)	2 (-)	- (-)	1 (1)	5 (2)	13 (5)
Ajloun	3	5 (2)	3 (1)	- (-)	1 (1)	5 (1)	14 (5)
Total	66	90(41)	40(16)	5 (-)	5 (4)	90(50)	230(111)

Note: Figures in brackets indicate the number of old vehicles, i.e. 15 years old or more for ambulances and 20 years old or more for other types of vehicles, out of the total number of vehicles. The number of fire stations listed excludes new fire stations under construction. In Japan, the expected lives of ambulances and trucks are 10 years and 15 years respectively.

Table 2-2-2-2 Current Situation of Fire Vehicles at Fire Stations Attached to Governorate Directorate Division and Their State of Aging

Governorate	Fire-fighting Truck	Water Tanker	RIV	Rescue Truck	Ambulance	Total
Ma'an	3 (1)	2(1)	- (-)	- (-)	4 (3)	9 (5)
Karak	5 (2)	3 (-)	- (-)	1(1)	4 (2)	13 (5)
Aqaba	1 (1)	- (-)	1 (-)	1 (-)	2 (2)	5 (3)
Tafieleh	2 (-)	1 (-)	- (-)	- (-)	4 (2)	7 (2)
Mafraq	4 (4)	1(1)	- (-)	1(1)	2 (2)	8 (8)
Irbid	2 (1)	1 (-)	- (-)	- (-)	3 (2)	6 (3)
Jarash	2 (1)	- (-)	- (-)	1(1)	2 (1)	5 (3)
Ajloun	2 (-)	1 (-)	- (-)	- (-)	2 (-)	5 (-)
Total	21(10)	9(2)	1 (-)	4(3)	23(14)	58(29)

Note: Figures in brackets indicate the number of old vehicles, i.e. 15 years old or more for ambulances and 20 years old or more for other types of vehicles, out of the total number of vehicles.

(2) Newly Required Vehicles

1) Types of Fire Vehicles

The types of fire vehicles newly deployed at the fire stations are as follows.

- Fire-fighting truck
- RIV
- Rescue truck
- Ladder truck
- Ambulance

2) Evaluation of Importance of Each Fire Station

The 66 fire stations and the 6 new stations under construction in the eight target governorates are classified as departmental fire stations, primary fire stations and secondary fire stations.

(a) Departmental Fire Stations (Support Division or Directorate Division)

In the 8 target governorates, there are 2 Support Divisions directly controlled by the CD which are either at the planning or construction stage and 8 Directorate Divisions. Each of these fire stations has its own service area as in the case of an ordinary fire station but the area of operation can be extended at the time of a great disaster or unique disaster. For this reason, the vehicles required to deal with a large-scale or unique disaster reflecting the characteristics of the service area will be deployed in addition to fire trucks and ambulances.

(b) Primary Fire Stations

Those fire stations which are associated with a high level of fire-fighting need in view of the population size, size of the service area, presence of important facilities and high level of fire hazard, etc. are classified as primary fire stations. Primary fire stations must meet at least two of the following standards.

- The service area contains such trunk roads as the Desert Highway or Baghdad Highway
- There are important facilities in the service area (hospital, university, government building and/or facilities handling hazardous substances, etc.)
- The number of responses to a fire is at least double the average per fire station (266 per 3 years).

- The number of rescue operations is at least double the average per fire station (312 per 3 years).
- The service population is at least double the average service population per fire station (28,643).
- The service area is at least double the average service area per fire station (1,042 km^2).

However, those fire stations of which the service population is less than 5,000, i.e. less than half of 10,000 which is the population number for fire station deployment standard in Japan, are not considered primary stations even if they meet two other standards.

(c) Secondary Fire Stations

Fire stations other than departmental fire stations or primary fire stations are classified as secondary fire stations.

3) Vehicle Deployment Standards

The deployment standards for fire vehicles at departmental, primary and secondary fire stations based on the above-described classification are shown in Table 2-2-2-3.

Table 2-2-2-3 Fire Vehicle Deployment Standards

Type of Fire Vehicle	Departmental Fire Station	Primary Fire Station	Secondary Fire Station
Fire-Fighting Truck	2	1	1
RIV	1*	1	-
Rescue Truck	(1)	-	-
Ladder Truck	(1)	-	-
Ambulance	2	1	1

Note: The RIV* for departmental fire stations will not be deployed if the operation of a rescue truck is possible. The deployment of rescue trucks and ladder trucks at Departmental Fire Stations is determined taking the number of disasters and other relevant local characteristics into consideration.

The importance level of a fire station represents the evaluation results by considering the risk of number increase and spreading of the disasters based on the occurrence situation of disaster, population and industrial structures, condition of public buildings and roads. The secondary fire stations will be equipped with one fire-fighting truck and one ambulance to meet the needs for fire-fighting and ambulance and at the same time to be able to provide simple rescue services. Fire stations judged as primary fire stations will have a system with full rescue function

added hereto and together with the aim to power-up the fire fighting ability, it will be provided with an additional RIV, which has the rescue function.

In principle, departmental fire stations, which ranking is primary fire stations but also responding to wide cover area in case of assistance requested by other fire stations, will receive two fire-fighting trucks, two ambulances and either a rescue truck or a RIV. Out of the three governorates, where currently not provided with rescue trucks (Ma'an, Tafieleh and Irbid) a new rescue truck will be deployed at Directorate Division in Ma'an and North Support Division in Irbid because of the high number of disaster rescue operations in these two governorates. Meanwhile, a new RIV will not be deployed at those departmental fire stations which already have a rescue truck or at which the deployment of a rescue truck is planned (a RIV will be deployed at the North Support Division). A ladder truck will be deployed at the North Support Division located in the Governorate of Irbid to deal with fires involving multi-story buildings. One fire-fighting truck, ambulance and RIV each will also be deployed here given the fact that this is a new fire station.

The South Support Division is excluded from the scope of vehicle deployment as no facility construction plan has been finalized despite the fact that the land has been secured.

4) Number of New Vehicles

The number of new vehicles to be procured under the Project can be determined by subtracting the number of existing vehicles from the planned number of vehicles for deployment based on the deployment standards described above. Fire vehicles judged as superannuated and to be replaced as a result of the basic design survey visit to the fire stations and ambulances 20 years after procurement as well as other fire vehicles 15 years after procurement belonging to the fire stations not visited are excluded from the meaning of "existing vehicles" mentioned above. However, those fire stations where the available garage space is fully occupied by existing vehicles, leaving no garage space for a new vehicle, are excluded from the scope of the Project.

To reach the most effective result of the Project aim the deployment result was analyzed taking the under mentioned criteria into consideration and are verified to be matching with them.

- Number of population of the covering area belonging to each fire station is more than 5,000
- Number of dispatch for fire-fighting and rescue are more than the average of actual dispatch in Japan (39 fire-fighitng, 204 rescue in 3 years)

Based on the above rule, the necessary fire vehicles at each station and the planned number of fire vehicles for deployment at each station are examined. The planned number of new vehicles to be procured under the Project as well as the deployment plan of fire vehicles at each station is shown in Table 2-2-2-4.

Table 2-2-2-4 Planning of Vehicle Deployment - 1

	Governorate	Fire Station (Shaded= with new deployment)	Service Area		Population		Trunk Road	Key Facilities	Number of Fire Turnouts		Number of Rescue Ope.		Number of Ambulance	Number of Items for Evaluation	Overall Evaluation Result	Number of Planned Deployment A					Number of Existing Vehicles B (Excluding those out of order due to aging)					Number of New Vehicles A-B (Shaded= new deployment)					Remarks
																Fire-Fighting Truck	RIV	Rescue Truck	Ambulance	Ladder Truck	Fire-Fighting Truck	RIV	Rescue Truck	Ambulance	Ladder Truck	Fire-Fighting Truck	RIV	Rescue Truck	Ambulance	Ladder Truck	
1	Ma'an	Directorate Division	2,146	○	10,836		○	○	162		368		1,402	3	Departmental Sta.	2	0	1	2	0	2	0	0	2	0	0	0	1	0	0	Use of rescue truck
2	New	Al-taaibeh	132		8,696		○	○						2	Primary Sta.	1	1		1							1	1		1		
3		Al Husayniyya	542		7,525		○	○	56		182		1,455	2	Primary Sta.	1	1		1		0	0		1		1	1		0		
4		Batn Al Ghul	5,639	○	3,656		○		10		80		1,823	2		1			1		1			0		0			1		
5		Wadi Musa(Petra)	258		16,149		○	○	98		110		2,453	2	Primary Sta.	1	1		1		2	0		2		0	0		0		No storage space for RIV
6		Al modawara	2,538	○	3,960		○		18		38		283	2		1			1		1			1		0			0		
7		Al madina	23		20,124		○		319		565		1,882	1		1			1		2			1		0			0		
8		Al jafr	20,019	○	4,569				21		25		708	1		1			1		1			1		0			0		
9		Al shobak	434		13,445				47		66		1,160			1			1		1			1		0			0		
10		Al jarba	412		4,045				2		11		256			1			1		1			1		0			0		
11		Al mrigha	651		6,210				47		196		865			1			1		1			1		0			0		
12		Aii	369		7,640				8		11		252			1			1		1			1		0			0		
		Sub-total	33,163		106,860				788		1,652		12,539			13	3	1	13	0	13	0	0	12	0	2	2	1	2	0	
13	Karak	Directorate Division	318		37,827		○	○	286		262		2,312	2	Departmental Sta.	2	0	1	2	0	5	0	1	4	0	0	0	0	0	0	
14	New	Indust . Estate	208		6,184		○	○						2	Primary Sta.	1	1		1							1	1		1		
15		Al Qatrana	925		7,480		○	○	58		369		2,125	2	Primary Sta.	1	1		1		0	1		0		1	0		1		
16		Down Town(Al madina)	123		24,699			○	515		2,073	○	4,687	2	Primary Sta.	1	1		1		1	0		1		0	0		0		No storage space for RIV
17		Al mazar	335		16,457			○	68		80		3,962	1		1			1		2			2		0			0		
18		Al qasr	157		15,540		○		196		128		3,984	1		1			1		1			2		0			0		
19		University(Muta)	20		13,300			○	220		96		5,918	1		1			1		1			1		0			0		
20		Ghoor al mazra'a	433		15,955		○		114		215		7,019	1		1			1		1			1		0			0		
21		Moab	69		10,050				51		55		2,817			1			1		1			2		0			0		
22		Faqoa	98		13,110				40		26		1,892			1			1		1			1		0			0		
23		Ali	59		14,100				43		34		2,779			1			1		1			1		0			0		
24		Al tayba	39		18,573				7		8		1,643			1			1		1			1		0			0		
25		Ghoor al safi	354		20,420				135		147		1,590			1			1		1			1		0			0		
26		Al mowjeb	79		6,600											1			1		2			1		0			0		
		Sub-total	3,217		220,295				1,733		3,493		40,728			15	3	1	15	0	18	1	1	18	0	2	1	0	2	0	
27	Aqaba	Directorate Division	284		54,548		○	○	728	○	788	○	6,797	4	Departmental Sta.	2	0	1	2	0	1	1	1	2	0	1	0	0	0	0	
28		South Beach (Al shati)	252		5,279		○	○						2	Primary Sta.	1	1		1		0	1		0		1	0		1		
29		Al quwaira	2,357	○	17,625		○		58		160		2,194	2	Primary Sta.	1	1		1		1	0		1		0	0		0		No storage space for RIV
30		Bir Madhkour	1,207		2,091		○		4		297		1,091	1		1			1		1			1		0			0		
31		Wadi Araba	236		3,519		○		12		76		226	1		1			1		1			1		0			0		
32		Al mizfir	406		4,399		○		26		110		261	1		1			1		1			1		0			0		
33		Amutaqadim	813		2,639		○		54		185		125	1		1			1		1			1		0			0		
34		Gharandal	987		2,454		○		5		121		353	1		1			1		1			1		0			0		
35		Down Town(Al madina)	41		17,596				330		231		1,265			1			1		1			1		0			0		
		Sub-total	6,583		110,150				1,217		1,968		12,312			10	2	1	10	0	8	2	1	9	0	2	0	0	1	0	
36	Tafieleh	Directorate Division	986		49,530		○	○	296		324		2,800	2	Departmental Sta.	2	1	0	2	0	2	0	0	4	0	0	1	0	0	0	
37		Al Hisa	893		13,380		○	○	37		257		2,265	2	Primary Sta.	1	1		1		1	1		1		0	0		0		
38		Busayra	129		11,212			○	27		103		2,392	1		1			1		1			1		0			0		
39		Al qadissia	106		9,173		○		28		38		1,544	1		1			1		1			1		0			0		
		Sub-total	2,114		83,295				388		722		9,001			5	2	0	5	0	5	1	0	7	0	0	1	0	0	0	

Table 2-2-2-4 Planning of Vehicle Deployment - 2

	Governorate	Fire Station (Shaded= with new deployment)	Service Area		Population		Trunk Road	Key Facilities	Number of Fire Turnouts		Number of Rescue Ope.		Number of Ambulance	Number of Items for Evaluation	Overall Evaluation Result	Number of Planned Deployment A					Number of Existing Vehicles B (Excluding those out of order due to aging)					Number of New Vehicles A-B (Shaded= new deployment)					Remarks
																Fire-Fighting Truck	RIV	Rescue Truck	Ambulance	Ladder Truck	Fire-Fighting Truck	RIV	Rescue Truck	Ambulance	Ladder Truck	Fire-Fighting Truck	RIV	Rescue Truck	Ambulance	Ladder Truck	
40	Mafraq	Directorate Division	1,417		150,280	○	○	○	430		730	○	2,104	4	Departmental Sta.	2	0	1	2	0	2	0	1	2	0	0	0	0	0	0	Use of the existing rescue truck
41	New	Husha	245		14,780		○	○						2	Primary Sta.	1	1		1							1	1		1		
42		North Badia	529		10,835		○	○	78		266		1,457	2	Primary Sta.	1	1		1		1	0		0		0	1		1		
43		Aruwayshid	7,571	○	8,463		○		41		271		1,749	2	Primary Sta.	1	1		1		1	0		0		0	1		1		
44		Al karama	5,407	○	1,411		○		32		81		460	2		1			1		1			1		0			0		
45		Ashqaf	8,652	○	4,231		○		7		83		121	2		1			1		1			1		0			0		
46	New	Om Alqutaen	396		15,400		○							1		1			1							1			1		
47		Al Safwai	1,718		13,140		○		21		189		1,890	1		1			1		1			1		0			0		
48		Jabir	182		15,480				103		72		625			1			1		1			1		0			0		
49		Irhabb	318		18,605				156		276		442			1			1		1			1		0			0		
		Sub-total	26,435		252,625				868		1,968		8,848			11	3	1	11	0	9	0	1	7	0	2	3	0	4	0	
50	New	North Support Division													Departmental Sta.	1	1	1	1	1						1	1	1	1	1	
51	Irbid	Directorate Division	171		239,802	○	○	○	4,130	○	3,271	○	17,580	5	Departmental Sta.	2	1	0	2	0	2	0	0	2	0	0	1	0	0	0	
52		Bane Ebeede (Shaheed azmin)	192		98,740	○		○	606	○	1,182	○	6,236	4	Primary Sta.	1	1		1		1	0		1		0	1		0		
53	New	Al-madina	32		83,931	○	○	○						3	Primary Sta.	1	1		1							1	1		1		
54		Bani kenana	235		81,150	○			790	○	797	○	5,070	3	Primary Sta.	1	1		1		2	0		2		0	0		0		No storage space for RIV
55		Ash Shuna (Al shona al shamalia	70		24,196		○	○	483		405		1,420	2	Primary Sta.	1	1		1		0	0		0		1	1		1		
56		Kufr Asad	61		25,600		○	○	175		288		2,343	2	Primary Sta.	1	1		1		0	0		1		1	1		0		
57		Al ramtha	183		72,541	○			1,204	○	463		1,852	2	Primary Sta.	1	1		1		2	1		1		0	0		0		
58		Al kora	183		93,855	○			734	○	441		2,222	2	Primary Sta.	1	1		1		1	0		2		0	0		0		No storage space for RIV
59		Al mashari'a	153		53,232		○		562	○	355		6,358	2	Primary Sta.	1	1		1		2	0		1		0	0		0		No storage space for RIV
60		Al mukhaiam	41		75,937	○			309		460		3,112	1		1			1		1			1		0			0		
61		Jordan valley maabar	56		19,357		○		4		4		117	1		1			1		1			1		0			0		
62		University	34		13,472				132		244		3,972			1			1		1			1		0			0		
63		Al hassan city	44		17,617				200		340		4,606			1			1		1			2		0			0		
64		Al mazar	96		46,930				518		571		4,710			1			1		2			1		0			0		
65		Al taeba al shamalia	70		31,275				227		127		2,218			1			1		1			1		0			0		
		Sub-total	1,621		977,635				10,074		8,948		61,816			17	10	1	17	1	17	1	0	17	0	4	6	1	3	1	
66	Jarash	Directorate Division	246		120,908	○	○	○	1,474	○	1,214	○	3,252	5	Departmental Sta.	2	1	0	2	0	1	0	0	2	0	1	1	0	0	0	
67		Suf	62		30,227			○	306		522		1,454	1		1			1		1			1		0			0		
68		Al majar	28		2,994				18		9		62			1			1		1			1		0			0		
69		Borma	66		6,986				240		156		1,171			1			1		1			1		0			0		
		Sub-total	402		161,115				2,038		1,901		5,939			5	1	0	5	0	4	0	0	5	0	1	1	0	0	0	
70	Ajloun	Directorate Division	194		56,928		○	○	1,226	○	888	○	4,724	4	Departmental Sta.	2	0	1	2	0	2	0	0	2	0	0	0	0	0	0	Use of the existing rescue ruck of Ishtafina Fire Station
71		Kufranja	89		26,780		○	○	260		348		1,610	2	Primary Sta.	1	1		1		0	0		0		1	1		1		
72		Ishtafina	129		37,952				270		242		879			1			1				1	1		0			0		
		Sub-total	412		121,660				1,756		1,478		7,213			4	1	1	4	0	3	0	1	3	0	1	1	0	1	0	
		Total	73,947		2,033,635				18,862		22,130		158,396			80	25	6	80	1	77	5	4	78	0	14	15	2	13	1	

Note 1) Total of turnouts by type of disaster from 2001 to 2003

Note 2) Evaluation Ranking

	Service Area	Population	Trunk Road	Key Facilities	Fire (3 years)	Recsue (3 years)	Ambulance (3 years)	Number of Evaluation Items
	≥2,084	≥57,286	Yes	Yes	≥ 532	≥ 624	4,462	≥ 2
(Average)	1,042	28,643			266	312	2,231	< 2

Overall Evaluation Result	
Support Division	1
Departmental Sta.	8
Primary Sta.	21
Secondary Sta.	41
Total	71

(reference) Average Figure in Japan for each Evaluation Item

Sevice Area	Population			Fire	Rescue	Ambulance
76	26,050			39	204	2,388

2.2.2.3 Equipment Planning

(1) Fire Vehicles

1) Decision on Basic Specifications

(a) Water Tank Capacity

All fire stations in the eight target governorates, except for some fire stations located in the Jordan Valley, suffer from poor water supply and the absence of fire plugs means that fire vehicles carrying their own water tank conduct initial fire-fighting in principle. As many local houses are made of fire bricks with only a small number of houses being made of wood, the risk of the spread of a fire is rather small. Consequently, the number of fires requiring a large volume of fire water is small and fire vehicles carrying a water tank with a capacity of some 2 - 4 m^3 can sufficiently cope with a fire in most cases.

As in the case of the existing fire vehicles, the new fire-fighting trucks will have a water tank with a capacity of 4 m^3. Considering the mobility RIVs will have a water tank with a capacity of 2 m^3 to provide with rescue equipment capable of conducting normal rescue activities.

(b) Double Cabin

New replacement vehicles other than ladder trucks and ambulances will have a double cabin (six seats) to increase the capacity to carry fire-fighters, and to make the operation of rescue equipment transporters (five seat pick-up trucks) which are currently used for the purpose of transporting fire-fighters, unnecessary. In this way, a single fire-vehicle can conduct fire-fighting or rescue activities on its own.

(c) RIV

At present, rescue activities are mainly conducted using rescue equipment loaded on rescue equipment transporters (five seat pick-up trucks) and fire-fighting trucks (two seats). The planned deployment of double cabin, six seat RIVs which also carry rescue equipment will make it possible to conduct speedy as well as efficient fire-fighting and rescue activities with a single RIV. These RIVs will be kept small by a small water tank capacity of 2 m^3, which is the minimum necessary capacity, so that they can operate on narrow roads in refugee camps and other places.

(d) Ladder Truck

Given the fact that multi-story buildings in the target areas do not have sufficient fire prevention, fire suppression and evacuation facilities, the new ladder trucks will have superior fire-fighting and rescue functions and the ladder should reach more than 30 m above the ground.

(e) Ambulance

The main function of ambulances in Jordan is the transportation of the injured or sick persons from the scene of request to a hospital and no emergency medical services (EMS) are provided by the crew. The minimum range of first aid equipment which is essential for the functioning of an ambulance will, therefore, be provided.

2) Pump Performance

(a) Continuous Operation Performance

Some governorates have large buildings, such as hotels and factories, at which a fire could result in a large-scale requiring many hours of fire-fighting. In principle, only one fire-fighting truck is deployed at each fire station except departmental fire station and this truck must be capable of discharging water for a long time while receiving water supply from a large-scale fire-fighting water source(s) or water tankers. In Japan, a water pump used by a fire truck is required to be able to continually operate for at least eight hours when the truck is stationary and all fire trucks deployed meet this standard. There is no uniform international standard. For the present purposes, the ability of a water pump to continually operate for at least eight hours is included in the specifications of the water pump used for fire-fighting trucks and RIVs as pump manufacturers with a certain level of technical strength can meet such demand. As such long continuous operation is made possible by strengthening the function to cool the engine (using a sub-radiator and other means), the specifications of the planned fire-fighting trucks will reflect the need for such a function.

(b) Pumping Capacity

The onboard water pump to be used by a fire-fighting truck will adopt high-low pressure specifications. At a high pressure, it will be capable of discharging

water at a rate of 200 liters/min so that the water in a water tank of a limited size can be efficiently and effectively used. For initial fire-fighting by a fire-fighting truck, the truck should be able to discharge water until the arrival of a water tanker to replenish the water (approximately three minutes). A water tank capacity of 4 m^3 and a ground sweep nozzle capable of discharging water at a rate of 1,000 - 1,600 liters/min are designed to meet this requirement regarding water discharge. Fire-fighting trucks will also be equipped with a chemical agent tank and mixer to be able to deal with fires involving oil and/or fat.

The water tank capacity of RIVs is designed to be 2 m^3 based on the Japanese standard because of the need for RIVs to carry rescue equipment. They will carry chemical agent container and a simple agitator to be able to deal with fires involving oil and/or fat.

3) Driving System

The selection of the fire vehicles must take the mobility and traveling performance to suit the topography of the service area into consideration. In general, trucks are driven by either the rear drive method (4 x 2) or four wheel drive method (4 x 4).

Analysis of the topography and road conditions, etc. reveals that the Project Area is generally flat with some hilly areas. The road conditions are generally good. The analysis results of the local meteorological conditions and the expected performance of the vehicles to be deployed indicate that the rear drive method (4 x 2) should be sufficient. Accordingly, no four wheel drive vehicles will be deployed.

(2) Main Loaded Equipment

1) Main Equipment for Rescue Trucks and RIVs

The following equipment will be loaded to each rescue truck or RIV based on the assumption that these vehicles will be used for rescue and fire-fighting activities at the scene of a fire and also for rescue activities at the scene of a traffic accident on an expressway, etc. or scene of a labour accident.

- PTO driven winch : mounted at the front of the vehicle; 5 ton traction power
- Generator : PTO driven 5 KVA (rescue truck only); portable type 1 KVA

- Floodlight tower : 6 m in height, 1,000 W (rescue truck only)
- Lighting apparatus : 500 W halogen lamp x 2; 100 W lamp x 2
- Hydraulic pump : petrol engine, effective oil quantity of 2 liters
- Hydraulic rescue equipment : spreader, cutter
- Air jack set : maximum lift of 70 tons, air cylinder, adjuster
- Manual rescue equipment : engine cutter, portable winch

2) Fire Suit Sets

Fire suits constitute essential clothing to protect fire-fighters from heat at the scene of a fire with dense smoke and heat. Four sets (two sets for a ladder truck) will be provided for each fire vehicles to be newly procured under the Project.

- Helmet : FRP shell with clear plastic face guard and neck flap
- Fire coat : Use of a heat-resistant and non-combustible synthetic fibre
- Gloves : Use of a heat-resistant and tear-resistant material
- Boots : Rubber with a steel shank and anti-prick sole plate
- Safety belt : some 1,200 mm in length with a 1.5 m long rope and carabiner

3) Loaded Equipment for Ambulance

Each new ambulance will be provided with the minimum and suitable range of equipment and tools mentioned below to perform the provision of first aid for the injured/sick and their transportation to a hospital.

- First aid purpose : sink, oxygen inhaler, first aid kit
- Transportation purpose : main stretcher
- The other purpose : fire extinguishers, standard tool set, minimum range of spare parts

4) Others

In regard to air breathing apparatus which is essential for fire-fighting and rescue activities, the CD is intending to use a specific brand in the future. As this is not matching to the scheme of Japanese Grant Aid, air breathing apparatus is excluded from the range of loaded equipment to be procured under the Project. However, a loading unit for air breathing apparatus will be installed inside the cabin of each fire-fighting truck or RIV for its future procurement by CD itself.

In view of the special nature of the fire trucks, pump tools and operation manuals (in English and Arabic) will be provided.

(3) Truck-Mounted Radio

Truck-mounted radios are used for radio communication between a fire vehicle and fire station or between fire vehicles. This equipment is essential to create a system which is capable of coordinated fire-fighting activities through the effective use of fire companies, thereby improving the fire-fighting efficiency and enhancing the overall fire-fighting capacity. Radios are also necessary for ambulances to ensure their effective operation. In Jordan, a fire radio communication network using VHF covers the entire country. Accordingly, radio equipment which is suitable for the existing fire radio communication system will be mounted to all new vehicles to be procured under the Project.

(4) Spare Parts

The availability of spare parts is essential to constantly maintain the fire vehicles, which face much severer driving conditions than ordinary vehicles, in a state of readiness. The CD has a workshop in Amman and has sufficient budget and manpower required for the maintenance of the fire vehicles. The minimum range and quantity of spare parts for initial operation and first replacement of parts will be procured under the Project.

2.2.2.4 Equipment Deployment Plan

Table 2-2-2-5 shows the equipment deployment plan for the eight target governorates as examined in 2.2.2.2 - Planning of Deployment of Fire Vehicles.

Table 2-2-2-5 Equipment Deployment Plan

Governorate	Fire Station / Deployment	Area(km2)	Population	Number of Tumouts(2001-2003) (of which incidents in refugee camps)			Trunk Road★ Narrow Road○ Sloped Road▲	Total Road Length (%)	characteristics of the Service Area	Station Rank ☆=New	Number of Requested Vehicles					Deployment Number of New Vehicles				
				Fire	Rescue	Ambulance					Fire-fighting Truck	RIV	Rescue Truck	Ambulance	Ladder Truck	Fire-fighting Truck	RIV	Rescue Truck	Ambulance	Ladder Truck
Ma'an		33,163	106,855	788	1,652	12,539		12.2												
	South Support Division	45,077	520,600						Construction site secured but no finalized construction plan		2		1	2						
	Directorate Division	2,146	10,836	162	368	1,402	★		Heavy traffic especially during pilgrimage season	Departmental Sta.								1		
	Al-taaibeh	132	8,696				★○▲		Located in a mountain area; next to the Guest House; snowfall in winter	Primary Sta.☆	1	1		1		1	1		1	
	Al Husayniyya	542	7,525	56	182	1,455	★		Heavy traffic; the neighbouring station is far	Primary Sta.	1	1		1		1	1			
	Batn Al Ghul	5,639	3,656	10	80	1,823	★		Heavy local traffic transporting chemicals; the neighbouring station is far		1	1		1					1	
Karak		3,217	220,295	1,733	3,493	40,728		9.1												
	Indust . Estate	208	6,184				★		Huge industrial park under construction; the neighbouring station is far	Primary Sta.☆	1	1		2		1	1		1	
	Al Qatrana	925	7,480	58	369	2,125	★		Heavy traffic;the neighbouring station is far	Primary Sta.	1	1	1	2		1			1	
Aqaba		6,583	110,150	1,217	1,968	12,312		6.0												
	Directorate Division	284	54,548	728	788	6,797	★			Departmental Sta.						1				
	South Beach (Al shati)	252	5,279				★		Many chemical plants: a resort under construction in the sservice area	Primary Sta.	1	1		2		1			1	
	Bir Madhkour	1,207	2,091	4	297	1,091	★		Heavy traffic; the neighbouring station is far; agricultural area		1	1	1	1						
Tafieleh		2,114	83,295	388	722	9,001		5.2												
	Directorate Division	986	49,530	296	324	2,800	★		Heavy traffic; the neighbouring station is far	Departmental Sta.							1			
	Al Hisa	893	13,380	37	257	2,265	★		Heavy traffic; the neighbouring station is far		1		1	1						
	Busayra	129	11,212	27	103	2,392	▲		Heavy traffic; sloped area		1	1		1						
Mafraq		26,435	252,625	868	1,968	8,848		14.8												
	Husha	245	14,780				★○		Heavy traffic; many narrow road sections	Primary Sta.☆	1	1		1		1	1		1	
	North Badia	529	10,835	78	266	1,457	★		Heavy traffic	Primary Sta.	1		1	1			1		1	
	Aruwayshid	7,571	8,463	41	271	1,749	★		Heavy traffic; large service area	Primary Sta.	1	1		1			1		1	
	Om Alqutaen	396	15,400				★		Heavy traffic	☆	1	1		1		1			1	
	Al Safwai	1,718	13,140	21	189	1,890	★		heavy traffic			1		1						
Irbid		1,621	977,635	10,074	8,948	61,816		11.8												
	North Support Division	28,870	1,513,035						264 buildings with 5 or more stories	Regional Fire Dept☆	3	1	1	2	1	1	1	1	1	1
	Directorate Division	171	239,802	4,130 (498)	3,271 (202)	17,580 (2,062)	★		Responsible for a refugee camp	Departmental Sta.							1			
	Bani Ebeed (Shaheed azmin)	192	98,740	606 (309)	1,182 (256)	6,236 (3,112)	○		Responsible for a refugee camp and densely populated area	Primary Sta.							1			
	Al-madina	32	83,931						Densely populated area	Primary Sta.☆	2	1	1	2		1	1		1	
	Ash Shuna (Al shona al shamalia)	70	24,196	483	405	1,420	★		Densely populated area	Primary Sta.	1			1		1	1		1	
	Kufr Asad	61	25,600	175	288	2,343	★○		Heavy traffic	Primary Sta.	1	1		1		1	1			
Jarash		402	161,115	2,038	1,901	5,939		4.3												
	Directorate Division	246	120,908	1,474 (593)	1,214 (164)	3,252 (1,314)	★○		Responsible for a refugee camp	Departmental Sta.						1	1			
	Suf	62	30,227	306 (306)	522 (65)	1,454 (635)	○▲		Responsible for a refugee camp		1	1	1	2						
Ajloun		412	121,660	1,756	1,478	7,213		3.8												
	Kufranja	89	26,780	260	348	1,610	★○▲		Densely populated area	Primary Sta.	1	1	1	2		1	1		1	
											24	17	9	29	1	14	15	2	13	1

2.2.2.5 Outline of Main Equipment

Table 2-2-2-6 outlines the main equipment to be procured under the Project.

Table 2-2-2-6 Outline of Main Equipment

(1) Fire-Fighting Truck and RIV

Item	Fire-Fighting Truck	RIV
Ground Clearance (mm)	≥240	≥ 240
Turning Radius (m)	-	≤ 13
Gross Vehicle Weight (kg)	11,000 - 18,000	≥ 12,000
Maximum Engine Output (BHP)	≥ 200	≥ 160
Maximum Travelling Speed (km/hr)	≥ 100	≥ 100
Drive	4 x 2 (rear wheel drive)	4 x 2 (rear wheel drive)
Steering	Left hand drive (power steering)	Left hand drive (power steering)
Cabin	Double cabin	Double cabin
Seating Capacity	6	6
Pumping Capacity (litres/min)	High pressure : 200 Low pressure :2,500	High pressure : 200 Low pressure :1,500
Tank Capacity (litres)	≥ 4,000 (stainless steel)	≥ 2,000 (stainless steel or plastic)
Foam Tank Capacity (litres)	≥ 400	None; capable of mixing foam agent supplied from polyethylene tank
Rescue Equipment	None	PTO driven 5 ton winch, portable generator and portable hydraulic pump, etc. (see (4) - Rescue Equipment*)
Accessories	Red rotation lamp, electric siren with PA system, search light, suction rubber hose, fire hose, multi-purpose branch pipe, air foam nozzle, sliding three section ladder, collecting head, dividing head, crowbar, axe, adapter, suction hose wrench, strainer for suction hose, fire suits, fire extinguisher (ABC), fire extinguisher (CO_2), manual spotlight, spare tyre, standard tool set, spare packing, paint and compound for repair, pump tool set, operation manual, repair manual and parts catalogue	Red rotation lamp, electric siren with PA system, search light, suction rubber hose, fire hose, multi-purpose branch pipe, air foam nozzle, sliding three section ladder, collecting head, dividing head, crowbar, axe, adapter, suction hose wrench, strainer for suction hose, fire suits, fire extinguisher (ABC), fire extinguisher (CO_2), manual spotlight, spare tyre, standard tool set, spare packing, paint and compound for repair, pump tool set, operation manual, repair manual and parts catalogue
Body Colour	Red	Red

(2) Rescue Truck, Ladder Truck

Item	Rescue Truck	Ladder Truck
Ground Clearance (mm)	≥240	≥ 240
Drive	4 x 2 (rear wheel drive)	4 x 2 or 6 x 4 (rear wheel drive)
Steering	Left hand drive (power steering)	Left hand drive (power steering)
Cabin	Double cabin	Single cabin
Seating Capacity	6	3
Main Equipment Specifications	PTO driven generator (5 KVA), lighting tower (1,000 KW), 5 ton winch (PTO), portable generator and portable hydraulic pump etc. (see (4) - Rescue Equipment*)	Minimum ladder height from the ground (30 m or higher) and automatic ladder lifter
Pumping Capacity (litres/min)	None	Low pressure: 2,500
Accessories	Red rotation lamp, electric siren with PA system, search light, crowbar, axe, rescue suits, water rescue apparatus, boat, fire extinguisher (ABC), fire extinguisher (CO_2), manual spotlight, spare tyre, standard tool set, spare packing, paint and compound for repair, operation manual, repair manual and parts catalogue	Red rotation lamp, electric siren with PA system, search light, suction rubber hose, fire hose, multi-purpose branch pipe, air foam nozzle, collecting head dividing head, crowbar, axe, adapter, suction hose wrench, strainer for suction hose, fire suits, fire extinguisher (ABC), fire extinguisher (CO_2), manual spotlight, spare tyre, standard tool set, spare packing, paint and compound for repair, pump tool set, operation manual, repair manual and parts catalogue
Body Colour	Red	Red

(3) Ambulance

Maximum Engine Output (BHP)	≥ 130
Maximum Travelling Speed (km/hr)	≥ 100
Drive	4 x 2 (rear wheel drive)
Steering	Left hand drive (power steering)
Seating Capacity	2 (driver's compartment) + 1
Number of Transportable Patients	One seriously ill (or injured) patient plus three mild case patients
Effective Internal Height (cm)	≥ 160
Loaded Equipment	Oxygen inhaler, first aid equipment set, storage shelves, sink, main stretcher, scoop stretcher, splints, fire extinguisher (ABC), spare tyre, standard tool set, spare packing, paint and compound for repair, operation manual, repair manual and parts catalogue
Body Colour	White

(4) Rescue Equipment *

Portable Generator	Petrol engine; output: 1 KVA
Portable Hydraulic Pump	Petrol engine; effective oil quantity: two litres
Lighting Equipment	500 W halogen lamp x 2 (with 30 m cable and tripod) 100 W portable lamp x 2 (with 50 m cable and tripod)
Hydraulic Rescue Equipment	Spreader and cutter
Others	Air jack set (maximum lift of 70 tons, air cylinder and adjuster), cutter with an engine, manual spreader and manual winch

(5) Vehicle-Mounted Radio

VHF Mobile Radio	Frequency: 134 - 174 MHz; output: ≥ 40W; number of channels: ≥32; mobile VHF aerial, noise filter, 24 V DC - 12 V DC converter and others

2.2.3 Basic Design Drawing

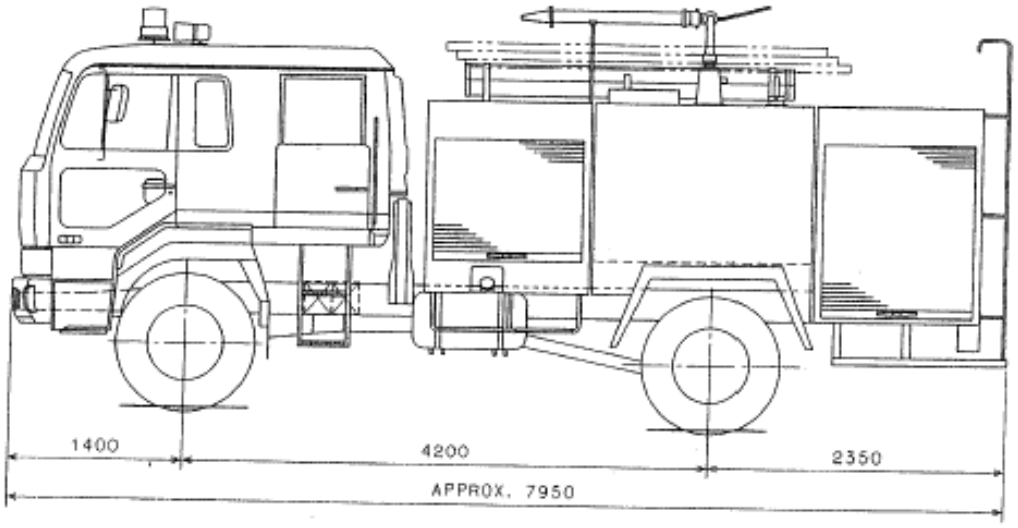


Fig. 2-2-3-1 Fire-Fighting Truck

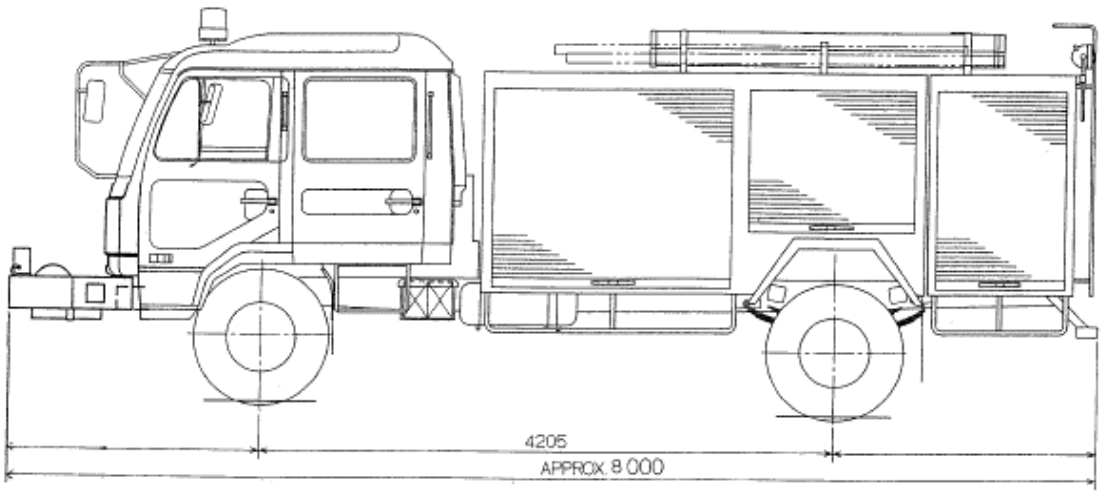
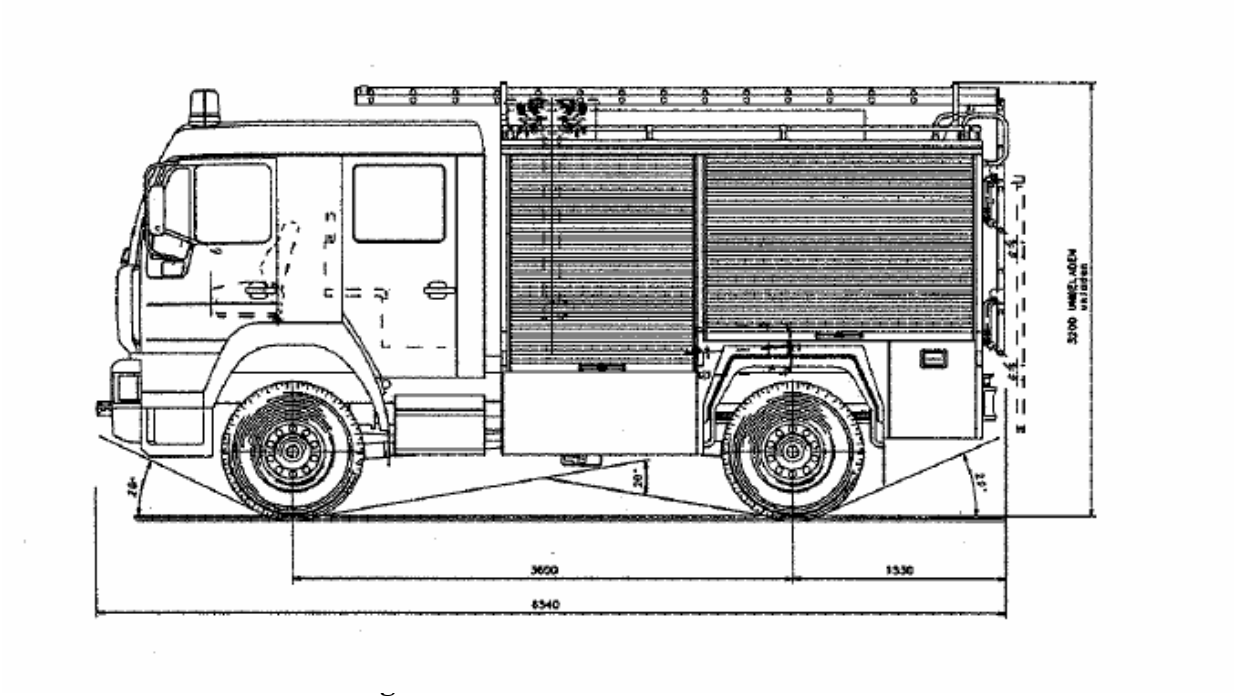
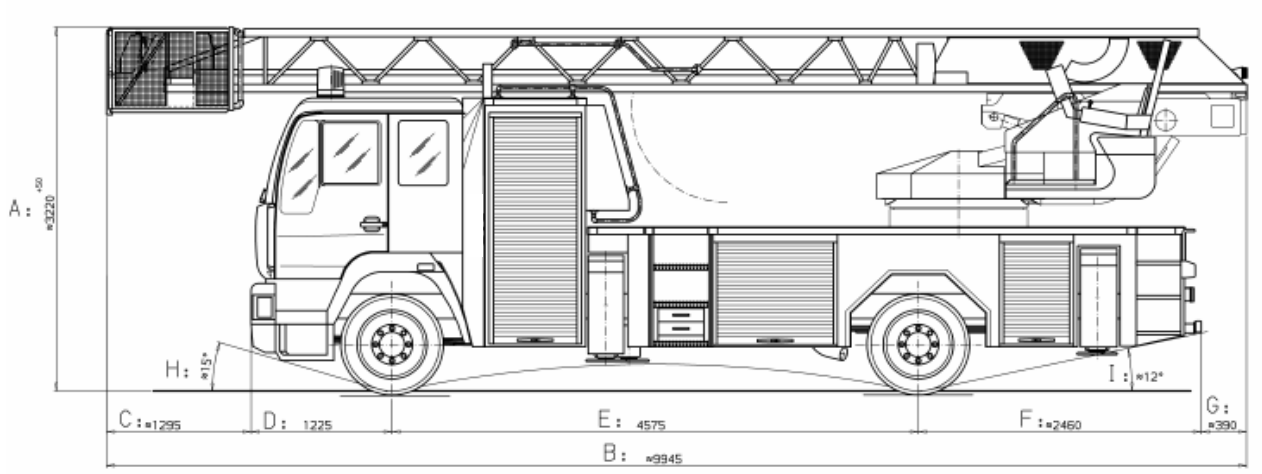


Fig. 2-2-3-2 RIV





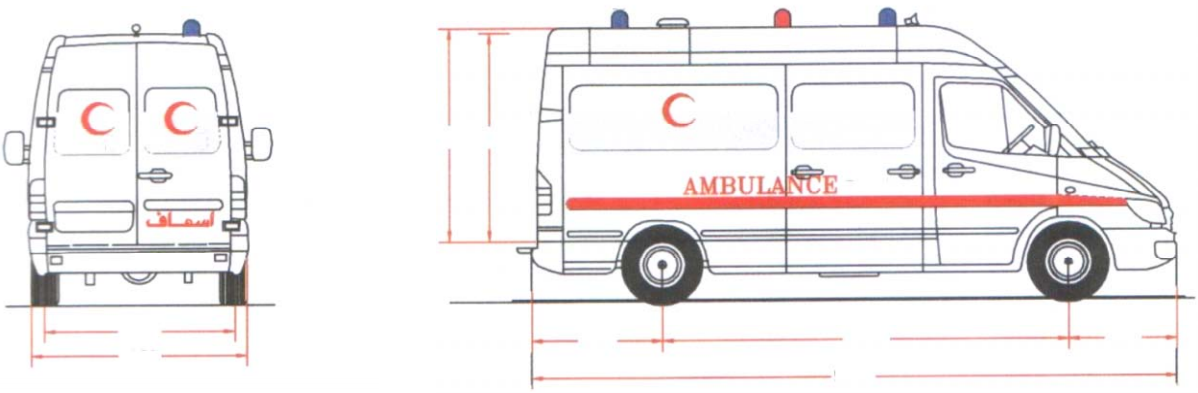


Fig. 2-2-3-5 Ambulance

2.2.4 Implementation Plan

2.2.4.1 Implementation Policy

(1) Basic Issues

The Project will be implemented in a single budget year to aim at achieving the intended project effects in an efficient manner. To be more precise, the Project will be implemented in accordance with the guidelines for the grant aid cooperation scheme of the Government of Japan.

1) Following the decision by the Cabinet of the Government of Japan, the Exchange of Notes (E/N) regarding the grant aid project in question will be signed by the Government of Japan and the Government of Jordan.

2) After the signing of the E/N, a design and supervision contract will be concluded between the Government of Jordan and a Japanese consultant who will immediately commence the contracted work as soon as the contract has been validated by the Ministry of Foreign Affairs of the Government of Japan.

3) A tender for the Project will be held for Japanese equipment suppliers.

4) Although the project implementation organization on the Jordanian side will execute this tender, the consultant will provide full cooperation for the tender.

5) The equipment supplier with the successful bid will conclude a procurement contract with the Jordanian side and will immediately commence the said work as soon as the contract has been validated by the Ministry of Foreign Affairs of the Government of Japan.

(2) Equipment Procurement Policies

Possible procurement from a third country (countries) will be examined by analyzing the past delivery records, prices and availability of after-services in Jordan for the planned vehicles and equipment.

(3) Project Implementation System

1) The project implementation body is the CD of the Ministry of Interior.

2) Governorate Civil Defence Directorate of each governorate will be responsible for the operation and maintenance of the fire equipment to be provided under the Project.

Fig. 2-2-4-1 shows the project implementation system and the relationship between the Japanese and Jordanian organizations involved in the Project.

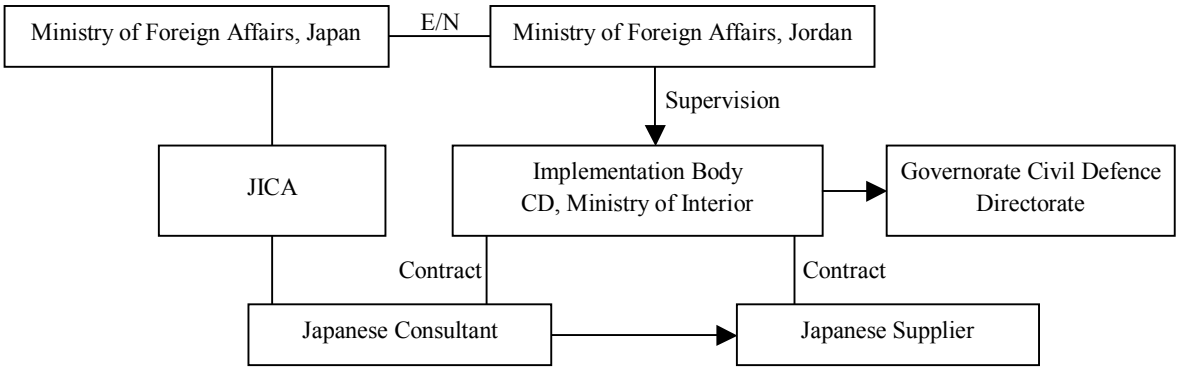


Fig. 2-2-4-1 Project Implementation System

2.2.4.2 Implementation Conditions

For the procurement of the fire equipment, the procurement and delivery schedule will take the following points into consideration to allow the smooth transportation and handing over of the fire equipment and other items.

- The supplier must check all relevant matters for the transportation of the equipment to ensure the swift customs clearance and receipt of the equipment.
- Prior to the handing over of the equipment, engineers dispatched by the supplier will conduct the inspection, test operation and commissioning of the fire vehicles and other equipment as well as the training of fire crews. The necessary arrangements must be made for the tax exemption measures, customs clearance and registration of the fire vehicles by the Jordanian side to be smoothly conducted.

2.2.4.3 Scope of Works

The fire equipment to be procured under the Project will be the responsibility of the Japanese side up to the handing over of the equipment to the Jordanian side in Amman. The Jordanian side will then be responsible for its inland transportation from Amman to the fire stations in the eight governorates and also for its maintenance after handing over. The division of responsibilities between the two sides is outlined in Table 2-2-4-1.

Table 2-2-4-1 Division of Responsibilities

	Item	Japanese Side	Jordanian Side
1	Supply of buildings for the installation or storage of equipment		●
2	Supply of spare parts storage		●
3	Procurement, test operation and adjustment of the fire vehicles; guidance on operation, handling and maintenance	●	
4	Procurement of the equipment to be loaded on fire vehicles; guidance on the handling of such equipment	●	
5	Procurement of and guidance on the handling of spare parts required for initial operation	●	
6	Provision of power sources, water supply and drainage system required by the procured equipment		●
7	Tax exemption and customs clearance of the procured equipment		●
8	Registration of the fire vehicles		●
9	Transportation of the procured equipment to Amman	●	
10	Driving of the fire vehicles from Amman to each fire stations		●
11	Soft component	●	

2.2.4.4 Consultant Supervision

In accordance with the implementation procedure for grant aid cooperation set forth by the Government of Japan, the Japanese consultant will conclude a detailed design and procurement supervision contract for the Project with the Government of Jordan and will conduct the contracted work after validation of the said contract by the Government of Japan. The main work to be conducted by the consultant is described next.

(1) Detailed Design Work

1) Detailed Design

Based on the Basic Design Study results and the contents of the E/N, the consultant will conduct a final check of the project contents, review the equipment specifications and prepare the tender documents required by bidders for equipment procurement and transportation to estimate the necessary cost.

2) Tender-Related Work

The consultant will discuss such matter as qualification of the tender or the tender method with the project implementing body on the Jordanian side and will conduct the tender on behalf of the said body. There is a range of tender-related work as listed below.

- Preparation of the tender documents
- Public announcement of the tender

- Distribution of the tender documents
- Witnessing of the tender
- Examination of the bidding results
- Preparation of a report on the bidding results
- Preparation of a report on the bid evaluation

(2) Procurement Supervision Work

The consultant will supervise such matters as (i) whether or not the procurement by the equipment supplier is conducted in an appropriate manner, (ii) whether or not the work is progressing in line with the planned schedule and (iii) whether or not the procured equipment meets the technical specifications. As the procurement under the Project involves fire vehicles, equipment to be loaded on to fire vehicles, truck-mounted radio equipment and spare parts, the expert supervisors appointed by the consultant must control the manufacturing schedule and quality of the various types of equipment in question. They will also liaise with and explain the progress situation to the project-related organizations. The consultant will dispatch a supervisor (engineer) (to conduct spot supervision) to (i) witness the test operation and commissioning of the equipment by the supplier prior to handing over and training of the Jordanian fire crews by the supplier, (ii) issue the completion certificate and (iii) prepare the final work report.

The consultant will witness the performance test and inspection at the factory, etc. to ensure the quality control of all of the equipment to be procured under the Project.

2.2.4.5 Procurement Plan

(1) Equipment Supplier

The equipment supplier must conduct the design, manufacture, painting, shop inspection and tests, packaging and transportation of the equipment in accordance with the specifications prepared by the consultant and will hand the equipment over to the Jordanian side after confirming the quantity and operability through field tests and inspection. The supplier will prepare the references required to obtain permits regarding the site of handing over and inland transportation and will discuss them thoroughly with the CD. The Jordanian side will be responsible for actually obtaining the said permits.

(2) Supply Sources of Fire Vehicles and Others

The fire vehicles and other equipment used in Jordan have been procured from such third countries as Italy, France, Austria and Germany. These countries are geographically near to Jordan and their manufacturers have set up good after-service systems, including local

agents. Accordingly, the eligible supply sources for the planned equipment include Italy, France, Austria and Germany in addition to Japan and Jordan. The possible supply sources of the main equipment are shown in Table 2-2-4-2.

Table 2-2-4-2 List of Possible Supply Sources of Equipment, etc.

Item	Possible Supply Source		
	Japan	Jordan	Third Country
Fire Fighting Truck	●		●
RIV	●		●
Rescue Truck	●		●
Ladder Truck	●		●
Ambulance	●	●	●
Loaded Equipment to Fire Vehicles	●		●

(3) Transportation Plan

The transportation of the equipment from Japan to Aqaba will take the form of maritime transportation. For the section from Aqaba to Amman, the fire vehicles, excepting the ambulances, will be driven, the spare parts will be transported by truck. In the case of ambulances procured from Japan or third country they will be transported by car carrier from Aqaba to Amman. In case of procured in Jordan their delivery to the CD is planned.

2.2.4.6 Implementation Schedule

The project implementation schedule is shown in Fig. 2-2-4-2. This schedule assumed that the procurement and installation work under the Project will be conducted in the most efficient manner.

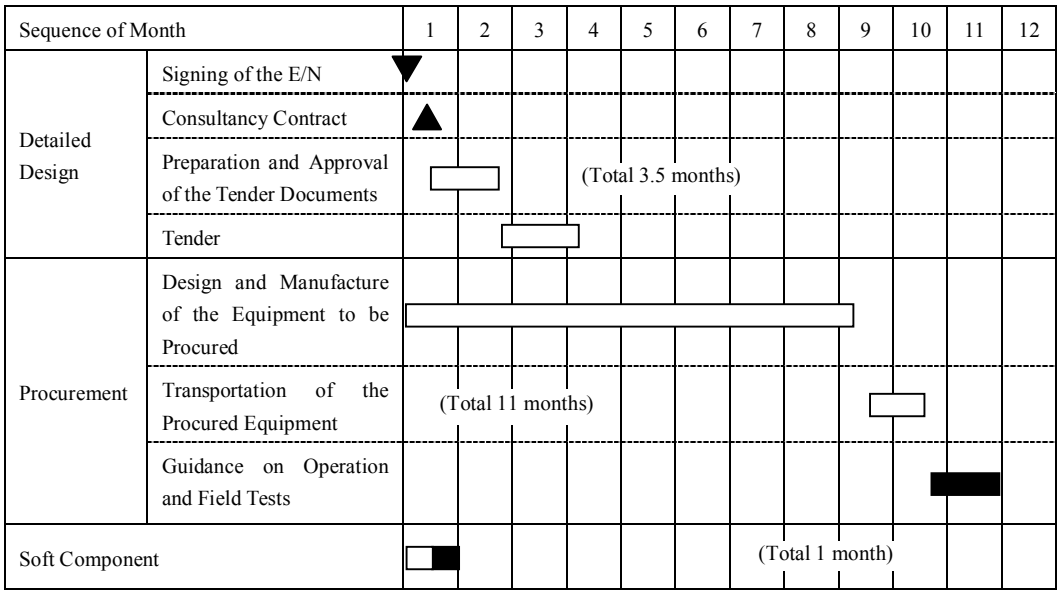


Fig. 2-2-4-2 Project Implementation Schedule

2.3 Obligations of Recipient Country

It will be necessary for the Government of Jordan to undertake the various measures described below at the time of the Project's implementation as a grant aid project of the Government of Japan.

2.3.1 Procedural Matters to be Undertaken by Recipient Country

(1) Acquisition/Securing of Land/Sites

As the Project intends the use of space inside existing facilities, no procedure relating to land acquisition is involved. However, ownership of the land should be guaranteed.

(2) Vehicle Registration

As the fire vehicles will travel on ordinary roads, they must be properly registered with the competent authority.

(3) Tax Exemption

The Jordanian side must exempt Japanese nationals entering Jordan for the purpose of procuring equipment and performing their work based on the procurement contract under the Project from customs duties, internal taxes and all other fiscal levies imposed in Jordan.

In addition, the Jordanian side must ensure the smooth customs clearance of the equipment procured abroad and transported to Jordan and exempt such equipment from taxes.

(4) Provision of Conveniences

The Jordanian side must guarantee the provision of all necessary conveniences for Japanese nationals entering Jordan and staying therein for the purpose of providing services relating to the equipment to be provided under the validated contract.

(5) Banking Arrangements and Issue of A/P

The Jordanian side must open an account in the name of the Government of Jordan at a bank in Japan, issue the A/P to the said bank and pay the fees relating to the A/P and remittance based on the banking arrangement.

2.3.2 Work to be Conducted by Recipient Country

(1) Securing of Garage Space and Construction of Building to House Vehicles

The Jordanian side must secure the space and building to house the vehicle(s) at each fire station based on the fire vehicle deployment plan under the Project.

(2) Securing of Spare Parts Storage

The Jordanian side must secure a lockable room for the storage of the spare parts.

(3) Development of Infrastructure

The Jordanian side must develop the infrastructure, including power source, water supply and drainage, required for the procured equipment.

(4) Inland Transportation of Vehicles

The Jordanian side must transport the new vehicles from Amman to their destinations, i.e. fire stations, after their handing over.

2.3.3 Estimated Cost of Requested Grant Aid Project

The total cost required to implement the Project as a grant aid project of the Government of Japan is estimated to be JPY 972 Mio, further details of which based on the estimation conditions shown in (3) below are described next.

(1) Japanese Portion

Table 2-3-1 Japanese Portion of the Project Cost

Cost Item			Estimated Cost (Mio. JPY)*
Equipment Procurement	Vehicle for fire fighting	Fire-Fighting Truck, RIV	719
	Vehicle for rescue and ambulance	Rescue Truck, Ladder Truck, Ambulance	217
Detailed Design, Procurement Supervision, Soft Component			36
Total			972

* This cost estimate is provisional and would be further examined by the Government of Japan for the approval of the Grant.

(2) Jordanian Portion

Table 2-3-2 Jordanian Portion of the Project Cost

Cost Item	Amount
Inland Transportation Cost (from Amman to Each Fire Station)	JD1,415.15 (JPY217,141)
Total	JD1,415.15 (JPY217,141)

(3) Estimation Conditions

Table 2-3-3 Estimation Conditions of the Project Cost

Item	Conditions
1. Date of Estimation	August, 2004
2. Foreign Exchange Rates	US$ 1 = JPY108.94 JD (Jordanian Dinar) 1 = JPY153.44
3. Procurement Period	All of the planned equipment will be procured in a single fiscal year. The detailed design and equipment procurement periods are those shown in the implementation schedule.
4. Miscellaneous	It is assumed that the Project will be implemented in accordance with the grant aid scheme of the Government of Japan.

2.4 Project Operation Plan

2.4.1 Personnel

The new fire vehicles to be procured under the Project will either replace some of the existing vehicles or be deployed at new fire stations. At these new fire stations, no additional personnel will be required because of the Project as the staff for these fire stations are already undergoing training at the CD.

2.4.2 Maintenance System

In regard to the maintenance of the fire equipment, daily inspection will be conducted at each fire station, and periodic inspection and normal maintenance and repair will be conducted by the personnel dispatched from the workshop of the CD as in the case of the present practice. More extensive maintenance and repair, including overhauling, which cannot be conducted by a visiting engineer(s) will be conducted at the workshop of the CD. If the workshop of the CD cannot conduct the required repair, etc., the local agent of the manufacturer of the equipment in question will be contacted to undertake the necessary work.

2.4.3 Operation and Maintenance Cost

The equipment to be procured under the Project will be fire vehicles and their accessories. In principle, these vehicles will replace existing aged vehicles. As no additional personnel will be required following the implementation of the Project, it is judged that no increase of the personnel cost as part of the operation and maintenance cost will need to be considered. Consequently, the following cost items are believed to be relevant for examination of the operation and maintenance cost.

(1) Fuel cost
(2) Lubricant cost
(3) Expendables cost
(4) Spare parts cost
(5) Utilities cost

The required maintenance budget will be appropriated by the CD to operate and maintain the fire vehicles and other equipment. Table 2-4-4 shows the actual budget of the CD to meet the fire equipment cost, including the maintenance cost, in the last three years.

Table 2-4-4 Civil Defence Budget of the CD

(Unit: JD)

Year	Personnel Cost	Facility and Equipment Cost	Utilities and Fuel Cost	Maintenance Cost	Total
2002	12,847,619	3,976,997	454,475	246,800	17,525,891
2003	15,521,000	4,379,525	602,196	323,525	20,826,246
2004	17,073,100	4,817,478	662,416	355,878	22,908,872

As the new fire vehicles to be procured under the Project will mainly replace existing old vehicles, no increase of the maintenance cost is anticipated. In fact, the maintenance cost to be born by the CD is expected to be reduced from the present level because of the fact that the spare parts to be replaced in several years after the implementation of the Project will be primarily inexpensive expendables. Accordingly, it is judged that the Jordanian side will be able to meet the required maintenance cost of the fire vehicles without any problem.

2.5 Other Relevalent Issures

2.5.1 Soft Component Plan

As part of the Project, a soft component with the following contents will be implemented.

(1) Guidance Item

"Ladder truck operating techniques and fire-fighting tactics and operation"

Among the planned vehicles to be deployed under the Project, ladder trucks have never been used in the Project Area. A ladder truck has a complicated structure, requiring much skill for its operation. In addition, proper judgement of a disaster situation and operating techniques are required for its effective use.

A ladder truck is often used in conjunction with other fire trucks, such as a fire-fighting truck, rescue truck and RIV. Therefore it is important to master suitable fire-fighting tactics and operation of the ladder truck as core unit in coordination with other vehicles (companies), (hereinafter referred to as "fire-fighting tactics and operation").

In regard to the operating techniques and fire-fighting tactics and operation involving a ladder truck, the transfer of the said techniques to the Jordanian side from the professional viewpoint of the Japanese fire service which has rich experience of the operation of ladder trucks is extremely important to enhance the positive effects of the Japanese assistance.

(2) Goal

The newly introduced ladder trucks under the Project will be operated in the optimal manner to suit the type and scale of a disaster to ensure appropriate fire-fighting activities.

(3) Contents of Soft Component

1) Ladder Truck Operating Techniques

Guidance will be provided on the operating techniques so that the newly introduced ladder trucks will be appropriately operated in response to the type, scale and nature of the hazard of a disaster.

2) Fire-Fighting Tactics and Operation

Guidance will be provided on the fire-fighting tactics and operation in the case where a ladder truck collaborates with a fire-fighting truck, rescue truck and/or RIV.

3) Preparation of Manual

A ladder truck operating manual will be prepared for its use for the education and training of fire personnel.

(4) Implementation Method

1) Instructors and dispatch period : 2 instructors x 0.5 months
2) Timing : after the arrival of the ladder trucks to their deployment sites
3) Target personnel : ladder truck crews, senior commanders and trainers
4) Method : lecture and practice using the deployed ladder trucks

CHAPTER 3

PROJECT EVALUATION AND RECOMMENDATIONS

CHAPTER 3 PROJECT EVALUATION AND RECOMMENDATIONS

3.1 Project Effects

Achievement of the project goal through the implementation of the Project is expected to have several direct and indirect effects as described below.

3.1.1 Direct Effects

The expected direct effects of the Project are shown in the following table.

Table 3-1-1 Effects of Project Implementation and Degree of Improvement

Current Situation and Problems	Improvement Measures Under the Project	Effects and Degree of Improvement Under the Project
1. (Ratio of Operational Fire Vehicles) The number of operational fire vehicles (including those which have exceeded their expected life of 15 years for ambulances and 20 years for other vehicles) is 205 compared to a suitable deployment number of 230 in the eight target governorates, causing difficulties in the provision of a versatile fire service.	• Deployment of 45 new fire vehicles at fire stations in these governorates	• With the deployment of the new fire vehicles, the ratio of operational fire vehicles to the suitable number of deployment will improve from 89% (205 out of 230) to 100% (250 out of 250), reducing the damage caused by fire, etc. and providing swift rescue activities.
2. (Deployment of New Fire Vehicles at Existing Fire Stations) The 66 existing fire stations in the eight governorates have 230 fire vehicles, out of which 119 are within their expected service life and are fully operational.	• Deployment of 26 new fire vehicles at 15 fire stations where the need for improvement of the fire strength is especially high among the fire stations in the eight governorates	• With the deployment of the new fire vehicles, the ratio of fire vehicles not exceeding their expected service life will improve from 52% (119 out of 230) to 63% (145 out of 230).
3. (Deployment of New Fire Vehicles at New Fire Stations) Although six new fire stations have been established among the eight governorates, no fire vehicles have been deployed.	• Deployment of 19 new fire vehicles at six new fire stations	• The deployment of new fire vehicles at the new fire stations will consolidate the fire service system in the Project Area, reducing damage due to fire, etc. and providing swift rescue activities.
4. (Deployment of Ladder Truck in Governorate of Irbid) Despite the presence of many multi-storey buildings, no effective fire fighting measures have been established in the Governorate of Irbid.	• Deployment of one ladder truck at North Support Division in the Governorate of Irbid and implementation of the soft component of the Project featuring ladder truck operation, fire operation and tactics	• The improvement of the fire strength to deal with fires, etc. involving multi-storey buildings will reduce the damage due to fire, etc.

3.1.2 Indirect Effects

While rapid development with newly emerging industrial areas has been taking place in the south and north regions of Jordan, which are the target areas of the Project, increases of the population and traffic volume have led to the occurrence of major fire incidents as well as traffic accidents, hindering the steady development of these regions.

The improved fire strength following the implementation of the Project will not only improve the safety of daily life but will also assist the further promotion of tourism and other industries in these regions, contributing to the development of the Jordanian economy.

3.2 Recommendations

The following recommendations are made to make the expected effects of the Project more efficiently achieved and long lasting.

(1) Training on Vehicle Operation and Maintenance Techniques

For the effective and efficient utilisation of the new fire vehicles (and equipment) provided under the Project at the time of a fire or other disaster, it is essential for fire personnel to master the required operational skills for the fire vehicles and equipment as well as practical fire operations and tactics.

Proper maintenance, including preventive inspection and maintenance, is essential to constantly maintain the new fire vehicles and equipment in operational status and to ensure their long service life.

Under the Project, the provision of technical guidance on ladder truck operation and fire fighting tactics for fires involving multi-storey buildings is planned. Various manuals will also be provided.

Even though the current vehicle/equipment operation and maintenance levels in Jordan are reasonable, it is necessary to ensure that relevant education and training based on the technical guidance provided under the Project are continually as well as systematically provided.

(2) Promotion of Integrated Fire Prevention Approach

The number of fire and other disasters per unit population in the target regions is much higher than that in Japan and shows an increasing trend. Moreover, the causes and nature

of such disasters are becoming more complicated while the scale is becoming larger due to local economic growth and the progress of industrialisation.

In order to effectively deal with this situation, an integrated fire prevention approach involving the provision of fire and disaster prevention guidance by the fire service for local residents and companies is essential as a soft measure together with improvement of the fire strength by the Project.

For the implementation of various measures under this approach, a publicity campaign using the new fire vehicles/equipment to raise interest in the fire service and awareness of fire hazards among local residents and companies and the provision of education and training on fire and disaster prevention should prove to be effective.

- Publicity campaign on fire and disaster prevention
- Education and training on fire and disaster prevention for local residents and companies
- Establishing and training of voluntary / private fire brigade of local residents and companies
- Improvement of the fire prevention and safety performance of buildings, etc.

APPENDICES

1. List of Team Members

1.1 Basic Design Study Team

	Name	Work Assignment	Background
(1)	Naoyuki Ochiai	Team Leader	Assistant Head, JICA Jordan Office
(2)	Shinsaku Fukazawa	Planning and Management	Operation Group 1, Grant Aid Management Department, JICA
(3)	Yoshiaki Okamoto	Chief Engineer/Fire and Ambulance Services and Disaster Relief Plan	FESC
(4)	Sadahiko Naito	Equipment Plan (1)/Operation and Maintenance Plan	FESC
(5)	Kazushi Mishima	Equipment Plan (2)	FESC
(6)	Tetsuya Yoshida	Procurement Plan/Cost Estimation	FESC
(7)	Mariko Konishi	Work Coordination/Equipment Plan (3)	FESC (at own expense)

1.2 Team to Explain Outline of Basic Design

Name	Work Assignment	Background
Naoyuki Ochiai	Team Leader	Assistant Head, JICA Jordan Office
Yoshiaki Okamoto	Chief Engineer/Fire and Ambulances Services and Disaster Relief Plan	FESC
Sadahiko Naito	Equipment Plan (1)/Operation and Maintenance Plan	FESC

2. Study Schedule

2.1 Basic Design Study

Day No.	Date	Day of Week	Activities		Overnight (North/South)
1	27th July	Tues.	- Travel from Tokyo (Haneda Airport) to Osaka (Kansai Airport) on EK6251 (20:40) - Travel from Osaka to UAE (Dubai) on EK317 (23:20)		On board
2	28th July	Wed.	- Travel from UAE (Dubai) to Jordan (Amman) on EK903 (07:25) - Courtesy visit to the JICA Jordan Office: receipt of instructions on important matters in conducting the study, explanation of the details of the study and submission of the Inception Report and study schedule		Amman
3	29th July	Thurs.	- Visit to the CD for discussions on technical issues - Recovery of questionnaires and discussions/confirmation - Meeting at the JICA Jordan Office		Amman
4	30th July	Fri.	- Survey at the Al Qatrana F/S (Karak), Al Hisa F/S (Tafielah), Petra F/S (Ma'an) and Taaibeh F/S (Ma'an) together with government members of the team		Aqaba
5	31st July	Sat.	- Survey at the Aqaba Fire Department and South Beach F/S (Aqaba) together with government members of the team		Amman
6	1st Aug.	Sun.	- Visit to the Ministry of Planning: confirmation of the higher plan and status of the sector in question in such plan; obtaining of reference information - Discussions at the CD - Courtesy visit to the Japanese Embassy in Jordan: explanation of the outline of the Study and schedule and submission of the Inception Report and Interim Report		Amman
7	2nd Aug.	Mon.	- Discussions on technical issues at the CD - Explanation of and discussions on the Inception Report; confirmation of the contents of the request - Request for assistance for the field survey		Amman
8	3rd Aug.	Tues.	- Discussions on technical issues at the CD - Explanation of the Minutes of Discussions (M/D) by a government member of the team; preparation of and discussions on the draft M/D		Amman
9	4th Aug.	Wed.	- Signing of the M/D at the CD - Reporting to the Japanese Embassy in Jordan - Reporting to the JICA Jordan Office - Departure of the government members of the team to Japan		Amman
10	5th Aug.	Thurs.	- Discussions at the CD - Discussions on the questionnaire - Confirmation of the field survey schedule and target sites		Amman
11	6th Aug.	Fri.	- Team meeting; arrangement of obtained data and final confirmation of the field survey schedule		Amman
12	7th Aug.	Sat.	- Survey at Kufranja F/S - Survey at Ajloun Departmental F/S - Survey at Suf F/S - Survey at Jarash Departmental F/S - Visit to the Suf and Gaza refugee camps	- Survey at Al Qatrana F/S - Survey at Industrial Estate F/S - Survey at Karak Departmental F/S	Amman/ Amman
13	8th Aug.	Sun.	- Survey at North Support F/S (under construction) - Survey at King Abdullah Univ. Hospital - Survey at Alramtha F/S - Survey at Al Madina F/S (Irbid; under construction) - Visit to Irbid refugee camp - Survey at Irbid Departmental F/S - Survey at Bani Kenana F/S	- Survey at University Centre F/S - Survey at Almazar F/S - Survey at Moab F/S	Amman Amman

Day No.	Date	Day of Week	Activities		Overnight (North/South)
14	9th Aug.	Mon.	- Survey at Shaheed Asmin F/S - Visit to Azmy Al-Muftey refugee camp - Survey at Al Hassan F/S - Survey at Kufr Asad F/S - Survey at Ash Shuna F/S - Survey at Al Mashari'a F/S	- Survey at Ghoor Al Mazra'a F/S - Survey at Al Madina F/S (Karak) - Survey at Alqasr F/S	Amman/ Amman
15	10th Aug.	Tues.	- Survey at Mafraq Departmental F/S - Survey at North Badia F/S - Survey at Om Alqutaen F/S - Survey at Husha F/S	- Survey at Al Husayniyya F/S - Survey at Al Madina F/S (Ma'an) - Survey at Ma'an Departmental F/S	Amman/ Petra
16	11th Aug.	Wed.	- Survey at Al Safwai F/S - Survey at Aruwayshid F/S - Visit to Aruwayshid refugee camp - Survey at Alkarama F/S - Survey at Ashquaf F/S	- Survey at Petra F/S - Survey at Al-Taaibeh F/S - Visit to planned site of South Support F/S - Survey at Batn Al Ghul F/S	Amman/ Aqaba
17	12th Aug.	Thur.	- Survey at Al Mazar F/S - Survey at Alkora F/S - Survey at Ash Shuna F/S (second visit)	- Survey at Aqaba Departmental F/S - Survey at Al Madina F/S (Aqaba) - Survey at South Beach B/S	Amman/ Aqaba
18	13th Aug.	Fri.	- Arrangement of gathered data and team meeting	- Arrangement of gathered data and team meeting	Amman/ Aqaba
19	14th Aug.	Sat.	- Survey at Al Hisa F/S - Survey at Tafieleh Departmental F/S - Survey at Busayra F/S (under construction) - Survey at Busayra F/S (existing F/S)	- Survey at Port Aqaba - Visit to Aqaba Port Authority - Interview with a freight company - Survey at Aqaba Airport F/S	Amman/ Aqaba
20	15th Aug.	Sun.	- Arrangement of gathered data and team meeting	- Survey at Bir Madhkour F/S - Move to Amman	Amman/ Amman
21	16th Aug.	Mon.	- Discussions at the CD		Amman
22	17th Aug.	Tue.	- Visit to the CD Workshop (in Amman) to check the spare parts and OM system - Visit to fire fighting training at the Amman Fire Department - Survey at Wadir Sir F/S (Amman): checking of the vehicles provided under the 1998 grant aid project - Survey at Sweileh F/S (Amman): checking of the vehicles provided under the 1998 grant aid project		Amman
23	18th Aug.	Wed.	- Survey at Ain Albacha F/S (Balqa): checking of the vehicles provided under the 1998 grant aid project - Survey at Al Madina F/S (Zarga): checking of the vehicles provided under the 1998 grant aid project - Meeting at the JICA Jordan Office		Amman
24	19th Aug.	Thur.	- Discussions at the CD on vehicle specifications - Department of a team member (Yoshida) to Japan (EK904)		Amman
25	20th Aug.	Fri.	- Arrangement of gathered data and team meeting - Arrival of the team member at Haneda Airport in Tokyo (19:45)		Amman
26	21st Aug.	Sat.	- Discussions at the CD on fire vehicle specifications		Amman
27	22nd Aug.	Sun.	- Reporting to the JICA Jordan Office - Reporting to the Japanese Embassy in Jordan		Amman
28	23rd Aug.	Mon.	- Visit to the CD to confirm the subsequent work - Department of the team members (Okamoto, Naito, Mishima and Konishi) to Japan (EK904)		On board
29	24th Aug.	Tue.	- Arrival of the team members (Okamoto and Naito) at Kansai Airport (17:45) - Arrival of a team member (Konishi) at Haneda Airport (19:45) - Arrival of a team member (Mishima) at Haneda Airport (22:15)		

2.2 Explanation of Outline of Basic Design

Day No.	Date	Day of Week	Activities	Overnight (North/South)
1	30th Oct.	Sat.	- Travel from Tokyo (Haneda Airport) to Osaka (Kansai Airport) on EK6251 (20:40) - Travel from Osaka to USA (Dubai) on EK317 (23:20)	On board
2	31st Oct.	Sun.	- Travel from UAE (Dubai) to Jordan (Amman) on EK903 (07:25) - Courtesy visit to and discussions at the JICA Jordan Office - Courtesy visit to the Japanese Embassy in Jordan - Courtesy visit to the CD and discussions on technical issues	Amman
3	1st Nov.	Mon.	- Courtesy visit to the Ministry of Planning - Discussions with the CD on technical issues - Meeting at the JICA Jordan Office	Amman
4	2nd Nov.	Tue.	- Survey on the new F/Ss (Husha F/S in Mafraq, Irbid Northern Departmental F/S and Al Madina F/S (Irbid)	Amman
5	3rd Nov.	Wed.	- Discussions with the CD on technical issues	Amman
6	4th Nov.	Thur.	- Discussions with the CD on technical issues - Signing of the M/D - Reporting to the JICA Jordan Office and Japanese Embassy in Jordan	Amman
7	5th Nov.	Fri.	- Arrangement of gathered data	Amman
8	6th Nov.	Sat.	- Survey at TIMCO (ambulance manufacturer) factory - Discussions at the CD on technical issues - Move to Al Ayn (UAE) via Dubai (EK316)	Al Ayn (UAE)
9	7th Nov.	Sun.	- Survey at the TIMCO Head Office (Al Ayn) - Departure for Japan (EK316)	On board
10	8th Nov.	Mon.	- Arrival of the team members (Okamoto and Naito) at Kansai Airport (16:25) - Arrival of a team member (Naito) at Haneda Airport (19:35)	

3. List of Interviewees

(1) Japanese Embassy in Jordan

Noriyuki Ikeda	Second Secretary

(2) JICA Jordan Office

Hideo Morikawa	Resident Representative
Masanobu Takemura	Staff Member

(3) Ministry of Planning

Dr. Nael Hajjaj	Advisor to the Minister
Ebtisam Atanas	Engineer
Wafa Al-Saket	Head of Asian Division
Shatha Kraishan	Engineer

(4) General Directorate of Civil Defence

Mahmoud Al-Abbadi	Director General of Civil Defence
Ahmad Al-Momani	Brigadier/Director General Assistant for Operation
Ali M. Al-Nawasreh	Colonel/Director of Amman Civil Defence Directorate
Mahmoud Al-Anani	Colonel/Director of Telecommunication Department
Thamer Al-Majali	Lt. Colonel/Director of Planning and Organization Department
Husam Al-Soub	Lt. Colonel/Assistant of Airport Civil Defence Directorate
Mohammed Al-Nusour	Captain/Study and Planning/Disaster Department
Ayman A. Al-Maany	1st Lieutenant/Mechanical Engineer Planning Department
Munther Alawi	2nd Lieutenant/Mechanical Engineer Workshop Department
Mohammed Al-Fshikat	Lt. Colonel/Director of Ajlun Civil Defence Directorate
Sultan Al-Humoud	Lt. Colonel/Director of Jarash Civil Defence Directorate
Saad Ababiat	Colonel/Director of Irbid Civil Defence Directorate
Ibrahim Saraireh	Colonel/Director of Karak Civil Defence Directorate
Faris Kharabshih	Lt. Colonel/Director of Tafieleh Civil Defence Directorate
J'far Tanashat	Lt. Colonel/Director of Mafraq Civil Defence Directorate
Ayman Al-Sharath	Lt. Colonel/Director of Aqaba Civil Defence Directorate
Khalid Al-Dmour	Lt. Colonel/Director of Ma'an Civil Defence Directorate
Yassen Rawashdih	Lt. Colonel/Director of Workshop

(5) King Abdullah University Hospital

Isam Merzonya	Chief Maintenance Engineer

(6) Ports Corporation (part of the Jordan Port Authority)

Ahbed Khraino	Assistant Director General, Finance and Administration Affairs
Amir Ibrahim	Operations Manager

(7) Freight Company (Amman Shipping and Transport)

Saud Eteiwi	Aqaba Office Manager

(8) Industrial Estate (Jordan Industrial Estates Corporation: Al-Hussin Bin Abdullah II Industrial Estate)

Abdahaleem S. Alqaralleh	Head of Investment Department

(9) Ambulance Manufacturer (TIMCO): Industrial Engineering and Metal Structure Co., WII

Bashari I. Nassar	Deputy General Manager/TIMCO Jordan Industries, L.L.C. (Zarqa Free Zone, Jordan)
Ahmad Al. Shouli	Commercial Manager/TIMCO Jordan Industries, L.L.C. (Zarqa Free Zone, Jordan)
Hani A. Tannir	General Manager/TIMCO (Al Ain, United Arab Emirates)
Farid Ismail	Deputy General Manager/TIMCO (Al Ain, United Arab Emirates)
P. Subramaniyan	Assistant General Manager/TIMCO (Al Ain, United Arab Emirates)
Shady Moughabghab	Head Ambulance Unit/TIMCO (Al Ain, United Arab Emirates)
Khaled Taha Yassine	Head Fire Fighting Unit/TIMCO (Al Ain, United Arab Emirates)

4. Minutes of Discussions (M/D)

4.1 Basic Design Study

MINUTES OF DISCUSSIONS
ON THE BASIC DESIGN STUDY
ON THE PROJECT FOR DEVELOPING JORDAN CIVIL DEFENCE APPLIANCES
IN THE SOUTH & NORTH REGIONS
IN THE HASHEMITE KINGDOM OF JORDAN

In response to a request from the Government of the Hashemite Kingdom of Jordan (hereinafter referred to as "Jordan"), the Government of Japan decided to conduct a Basic Design Study on the Project for Developing Jordan Civil Defence Appliances in the South & North Regions (hereinafter referred to as "the Project") and entrusted the study to the Japan International Cooperation Agency (hereinafter referred to as "JICA").

JICA sent to Jordan the Basic Design Study Team (hereinafter referred to as "the Team"), which is headed by Mr. Naoyuki OCHIAI, Deputy Resident Representative, JICA Jordan office, and is scheduled to stay in the country from July 28, 2004 to August 23, 2004.

The Team held discussions with the officials concerned of the Government of Jordan and conducted a field survey at the study area.

In the course of discussions and field survey, both parties confirmed the main items described on the attached sheets. The Team will proceed to further works and prepare the Basic Design Study Report.

Amman, August 4, 2004

Mr. Naoyuki OCHIAI
Leader,
Basic Design Study Team
Japan International Cooperation Agency
(Japan)

Major General Mahmoud Al-Abbadi
Director General,
Civil Defence
(Jordan)

ATTACHMENT

1. Objective of the Project

The objective of the Project is to improve the capability of the fire-fighting, rescue and ambulance service system in the south & north Regions through the procurement of new appliances.

2. Project Sites

The sites of the Project are Karak, Ma'an, Aqaba, Tafieleh, Mafraq, Irbid, Jarash and Ajloun Governorates.

3. Responsible and Implementing Organizations

3-1. The responsible organization is General Directorate of Civil Defence, Ministry of Interior.

3-2. The implementing organizations are Governorate Civil Defence Directorates of Karak, Ma'an, Aqaba, Tafieleh, Mafraq, Irbid, Jarash and Ajloun Governorates.

3-3. The organization charts of General Directorate of Civil Defence and Governorate Civil Defence Directorates are attached as ANNEX-1

4. Items requested by the Government of Jordan

After discussions with the Team, the items described in ANNEX-2 were finally requested by the Jordanian side. JICA will assess the appropriateness of the request and will recommend to the Government of Japan for approval.

5. Japan's Grant Aid Scheme

5-1. The Jordanian side understands the Japan's Grant Aid scheme explained by the Team, as described in ANNEX-3.

5-2. The Jordanian side will take the necessary measures, as described in ANNEX-4, for smooth implementation of the Project, as a condition for the Japan's Grant Aid to be implemented.

6. Schedule of the Study

6-1. The consultants will proceed to further studies in Jordan until August 23, 2004.

6-2. JICA will prepare the draft report in English and dispatch a mission in order to explain its contents around October, 2004.

6-3. In case the contents of the report are accepted in principle by the Government of

Jordan, JICA will complete the final report and send it to the Government of Jordan by February, 2005.

7. Other Relevant Issues

7-1. Items, Quantity and Specification

Items, quantity and specification of equipment to be procured under the Project shall be minimum and appropriate for the achievement of the Project objectives. They will be finally decided by the Japanese side in accordance with the criteria attached as ANNEX-5, as a result of further study in Japan.

7-2. Divisions, Sections and Centers covered by the Project

The Jordanian side proposed divisions, sections and centers covered by the Project as ANNEX-6. The requested divisions, sections and centers will be carefully studied by the Team and the final deployment plan of the equipment covered by the Project will be decided by the Japanese side from the viewpoint of efficiency and effectiveness.

7-3. Budget and personnel

The Jordanian side undertakes allocation of sufficient number of trained staff and enough budget in order to operate and maintain equipment procured under the Project properly.

7-4. Division of Role on Ambulance Service

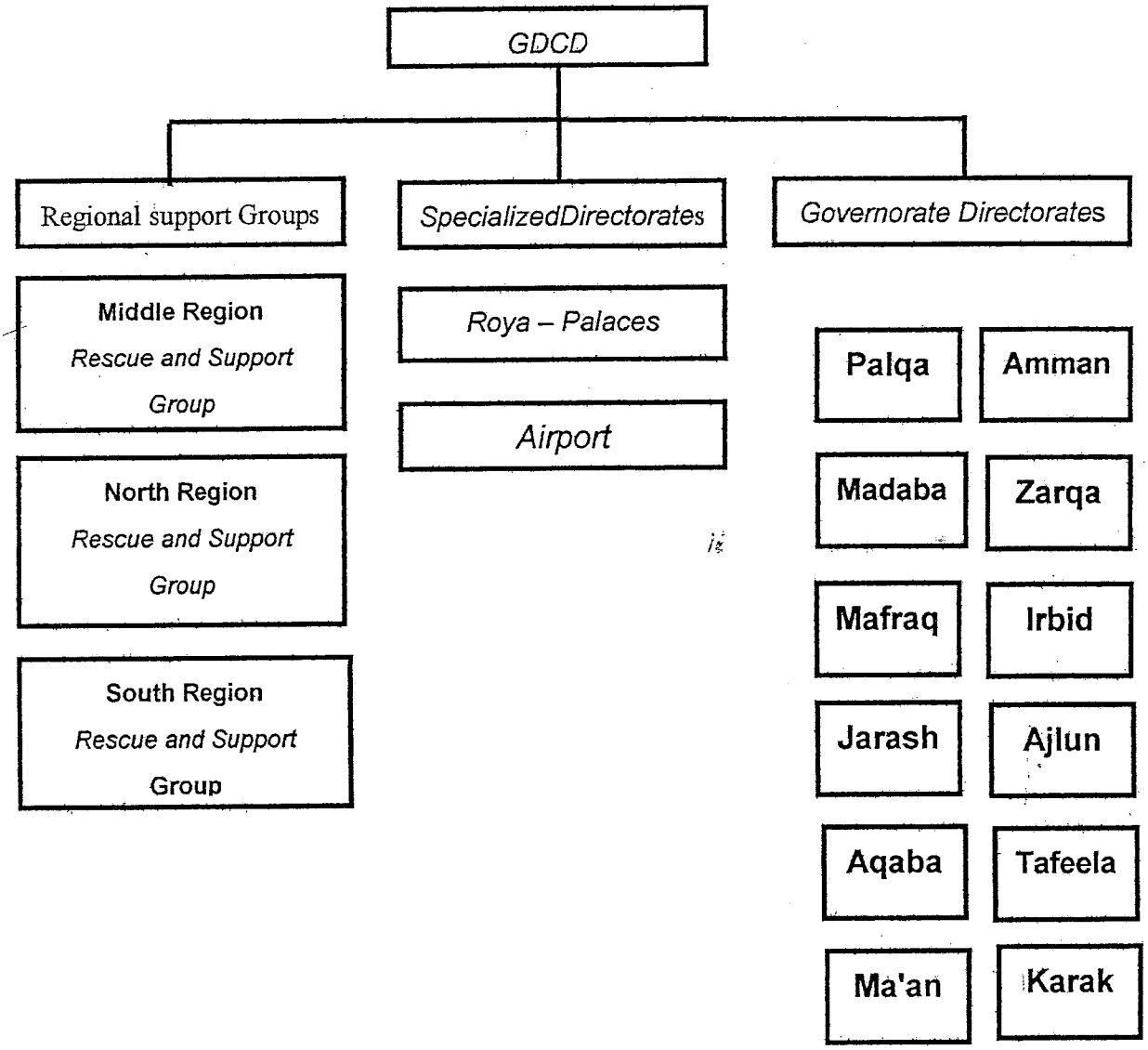
The Jordanian side explained that the division of role on ambulance service as follows;

Civil Defence : Transport patients from the site of accident or fire to hospital

Ministry of Health : Transfer patients between hospitals

ANNEX-1-1

Organizations Chart of Civil Defence Directorates and Governorates Linked to the Director General



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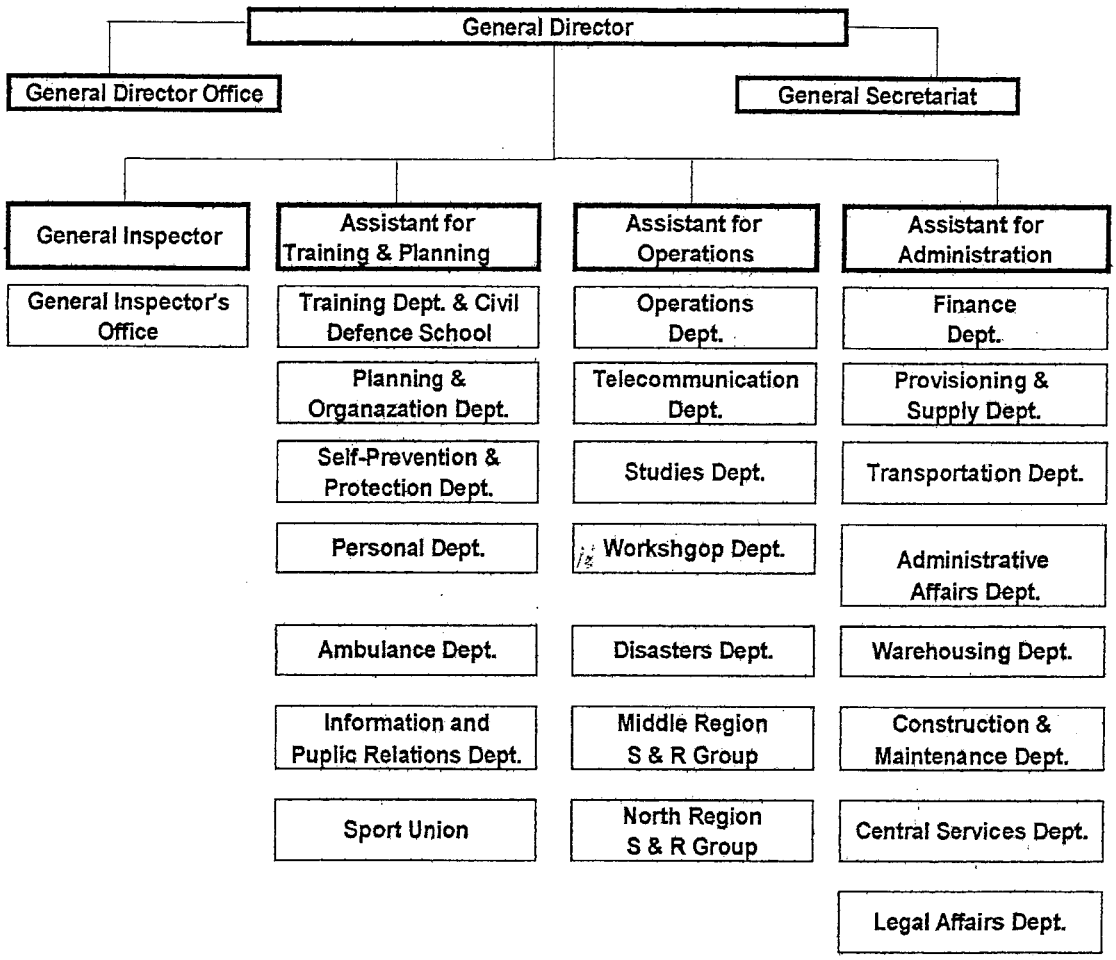
ANNEX-1-2

Organization Chart of Staff in the General Directorate



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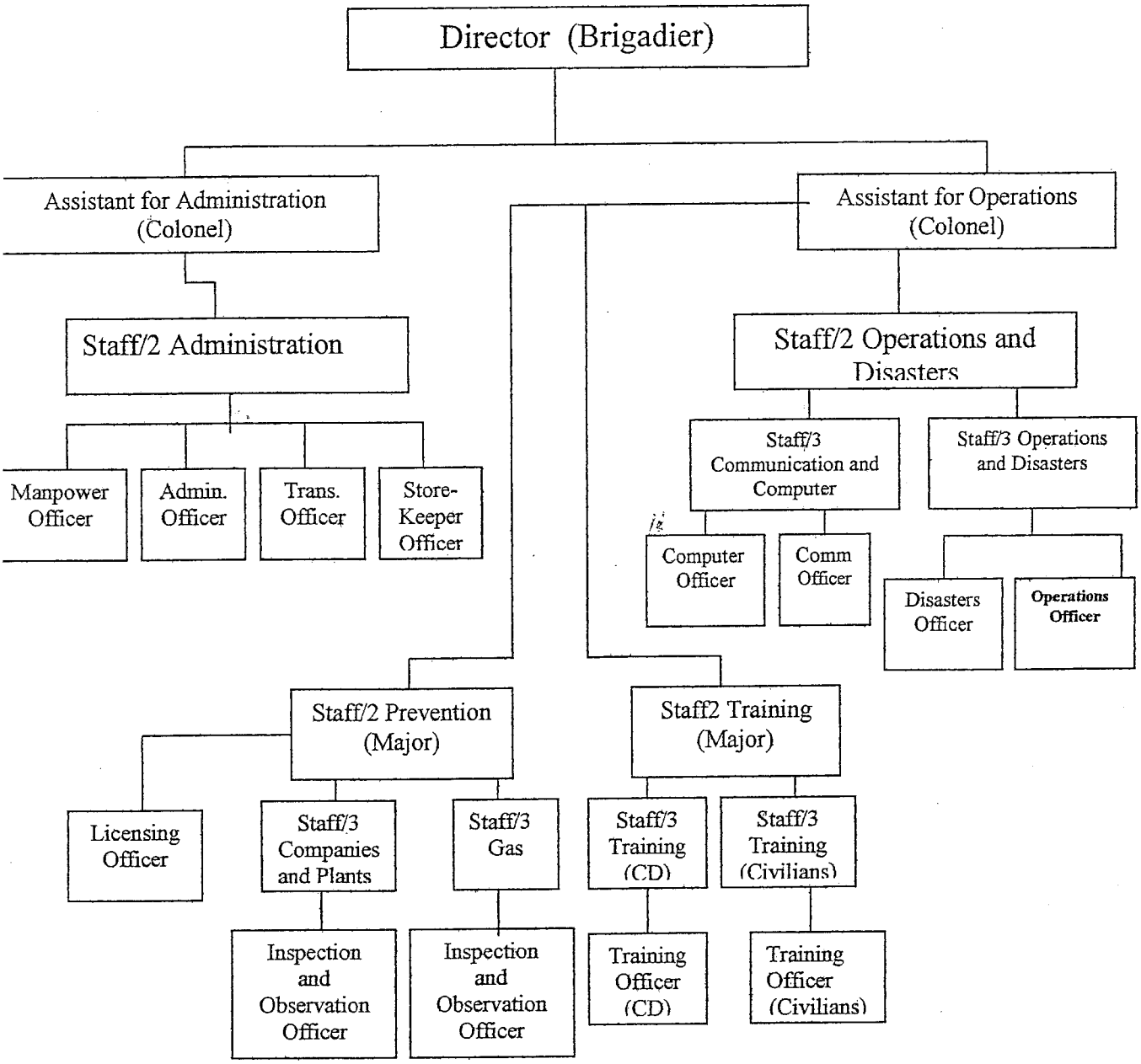
ANNEX-1-3

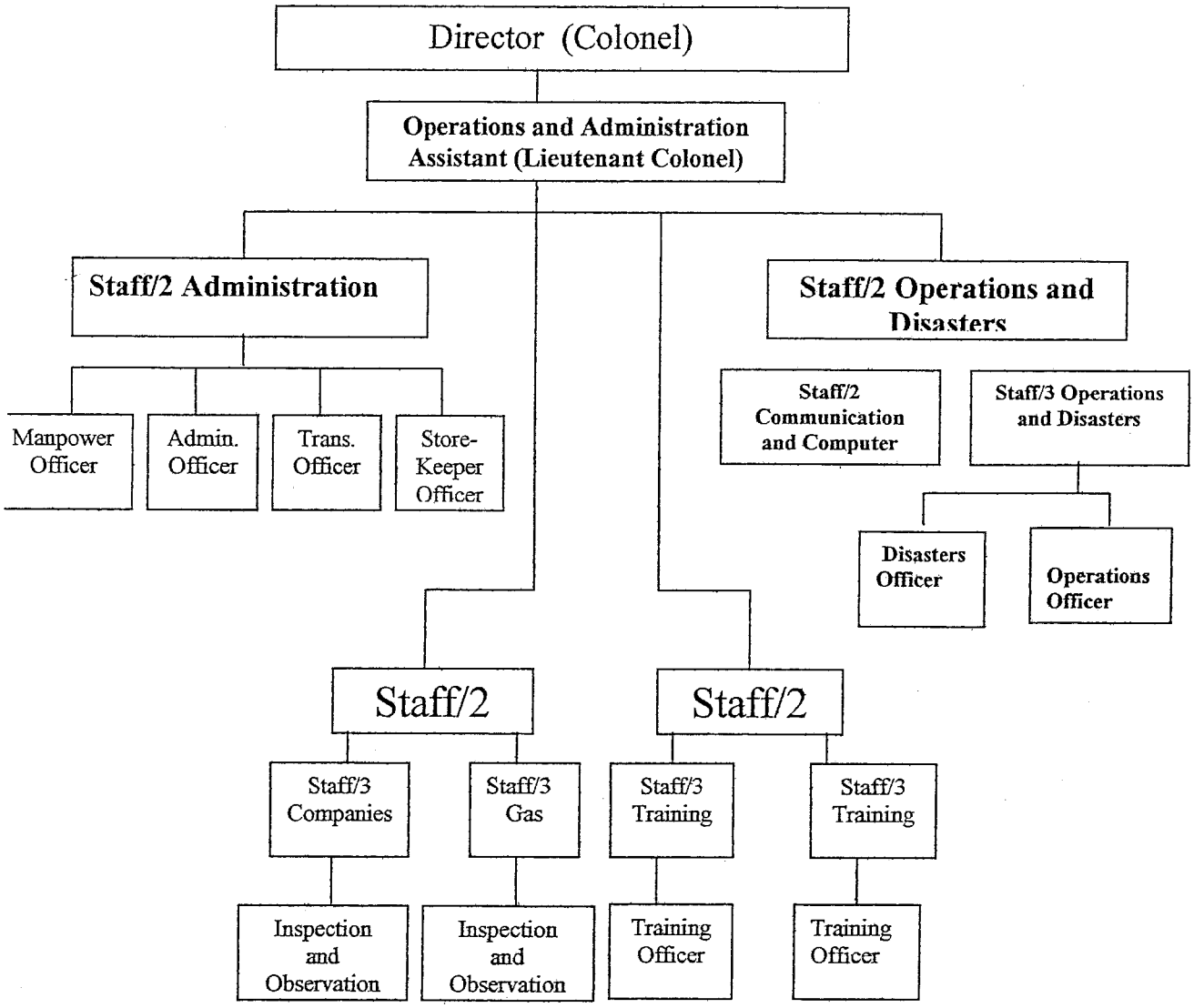
Organizational Chart of a Governorate Civil Defence Directorate (A) –Aqaba, Irbid, Mafraq



6

ANNEX-1-4

Organization Chart of a Governorate Civil Defence Directorate (B) – Tafeela, Ma'an, Karak, Jerash, Ajlun



ANNEX-2: Items Requested by the Government of Jordan

Directrate	Section,Center	Fire Fighting Truck	Water Tanker	Rapid Intervention Vehicle	Rescue Truck	Ambulance	Aerial Platform/ Ladder* *
Ma' an	Al Husayniyya	1	1	1	0	1	0
	South Support	2	1	0	1	2	0
	Batn Al Ghul	1	0	1	0	1	0
	Al-taaibeh	1*	1*	1*	0	1*	0
Karak	Al Qatrana	1	1	1	1	2	0
	Indust. Astate	1	1	1	0	2	0
Aqaba	Bir Madhkour	1	1	1	1	1	0
	South Beach	1	1	1	0	2	0
Tafieleh	Al Hisa	1	1	0	1	1	0
	Busayra	1	1	1	0	1	0
Mafraq	North Badia	1	1	0	1	1	0
	Husha	1*	1*	1*	0	1*	0
	Om Alqutaen	1*	1*	1*	0	1*	0
	Al Safwai	0	0	1	0	1	0
	Aruwayshid	1	1	1	0	1	0
Irbid	Kufr Asad	1	0	1	0	1	0
	Al-madina	2*	1*	1*	1*	2*	0
	Ash Shuna	1	1	0	0	1	0
	North Support (Under Construction)	3*	1	1	1	2	1
Jarash	Suf	1	1	1	1	2	0
Ajloun	Kufranja	1	1	1	1	2	0
	Total	24	18	17	9	29	1

* Newly Added

* * Aerial Platform/ Ladder : Number of high buildings, accidents/ fires of the high buildings in the target area and dispatch record of similar vehicles in Amman should be considered to decide whether the item will be covered by the Project

ANNEX-3: The Japan's Grant Aid Scheme

The Grant Aid Program provides a recipient country with non-reimbursable funds to procure the facilities, equipment and services (engineering services and transportation of the products, etc.) for economic and social development of the country under principles in accordance with the relevant laws and regulations of Japan. Grant Aid is not supplied through the donation of materials as such.

(1) Grant Aid Procedure

1) Japan's Grant Aid Program is executed through the following procedures.

Application	(Request made by a recipient country)
Study	(Basic Design Study conducted by JICA)
Appraisal & Approval	(Appraisal by the Government of Japan and Approval by Cabinet)
Determination of Implementation	(The Notes exchanged between the Governments of Japan and the recipient country)

2) Firstly, the application or request for a Grant Aid project submitted by a recipient country is examined by the Government of Japan (Ministry of Foreign Affairs) to determine whether or not it is eligible for Grant Aid. If the request is deemed appropriate, the Government of Japan assigns JICA to conduct a study on the request. If necessary, JICA send a Preliminary Study Mission to the recipient country to confirm the contents of the request.

Secondly, JICA conducts the study (Basic Design Study), using Japanese consulting firms.

Thirdly, the Government of Japan appraises the project to see whether or not it is suitable for Japan's Grant Aid Program, based on the Basic Design Study report prepared by JICA, and the results are then submitted to the Cabinet for approval.

Fourthly, the project, once approved by the Cabinet, becomes official with the Exchange of Notes signed by the Governments of Japan and the recipient country.

Finally, for the implementation of the project, JICA assists the recipient country in such matters as preparing tenders, contracts and so on.

(2) Basic Design Study

1) Contents of the Study

The aim of the Basic Design Study (hereinafter referred to as "the Study"), conducted by JICA on a requested project (hereinafter referred to as "the Project"), is to provide a basic document necessary for the appraisal of the Project by the Government of Japan. The contents of the Study are as follows:

a) confirmation of the background, objectives and benefits of the Project and also institutional capacity of agencies concerned of the recipient country necessary for the Project's implementation;
b) evaluation of the appropriateness of the Project to be implemented under the Grant Aid Scheme from the technical, social and economic points of view;
c) confirmation of items agreed on by both parties concerning the basic concept of the Project;
d) preparation of a basic design of the Project; and
e) estimation of costs of the Project.

The contents of the original request are not necessarily approved in their initial form as the contents of the Grant Aid project. The Basic Design of the Project is confirmed

considering the guidelines of Japan's Grant Aid Scheme.

The Government of Japan requests the Government of the recipient country to take whatever measures are necessary to ensure its self-reliance in the implementation of the Project. Such measures must be guaranteed even though they may fall outside of the jurisdiction of the organization in the recipient country actually implementing the Project. Therefore, the implementation of the Project is confirmed by all relevant organizations of the recipient country through the Minutes of Discussions.

2) Selection of Consultants
For the smooth implementation of the Study, JICA uses a consulting firm selected through its own procedure (competitive proposal). The selected firm participates in the Study and prepares for a report based upon the terms of reference set by JICA.

At the beginning of implementation after the Exchange of Notes, for the services of the Detailed Design and Construction Supervision of the Project, JICA recommends the same consulting firm which participated in the Study to the recipient country in order to maintain the technical consistency.

(3) Japan's Grant Aid Scheme
1) Exchange of Notes (E/N)
Japan's Grant Aid is extended in accordance with the Notes exchanged by the two Governments concerned, in which the objectives of the project, period of execution, conditions and amount of the Grant Aid, etc., are confirmed.

2) "The period of the Grant" means the one fiscal year which the Cabinet approves the project for. Within the fiscal year, all procedure such as exchanging of the Notes, concluding contracts with consulting firms and contractors and final payment to them must be completed.

However, in case of delays in delivery, installation or construction due to unforeseen factors such as weather, the period of the Grant Aid can be further extended for a maximum of one fiscal year at most by mutual agreement between the two Governments.

3) Under the Grant, in principle, Japanese products and services including transport or those of the recipient country are to be purchased.
When the two Governments deem it necessary, the Grant Aid may be used for the purchase of the products or services of a third country.

However, the prime contractors, namely consulting, constructing and procurement firms, are limited to "Japanese nationals". (The term "Japanese nationals" means persons of Japanese nationality or Japanese corporations controlled by persons of Japanese nationality.)

4) Necessity of "Verification"
The Government of the recipient country or its designated authority will conclude contracts denominated in Japanese yen with Japanese nationals. Those contracts shall be verified by the Government of Japan. This "Verification" is deemed necessary to secure accountability to Japanese taxpayers.

5) Undertakings required to the Government of the recipient country
a) to secure land necessary for the sites of the Project and to clear, level and reclaim the land prior to commencement of the construction;
b) to provide facilities for distribution of electricity, water supply and drainage and other incidental facilities in and around the sites;

c) to ensure all expenses and prompt execution for unloading and customs clearance at ports of disembarkation in the recipient country and internal transportation therein of the products purchased under the Grant Aid;
d) to exempt Japanese nationals from customs duties, internal taxes and other fiscal levies which may be imposed in the recipient country with respect to the supply of the products and services under the verified contracts;
e) to accord Japanese nationals whose services may be required in connection with the supply of the products and services under the verified contracts such as facilities as may be necessary for their entry into the recipient country and stay therein for the performance of their work;

6) "Proper Use"
The recipient country is required to operate and maintain the facilities constructed and equipment purchased under the Grant Aid properly and effectively and to assign the necessary staff for operation and maintenance as well as to bear all the expenses other than those covered by the Grant Aid.

7) "Re-export"
The products purchased under the Grant Aid shall not be re-exported from the recipient country.

8) Banking Arrangement (B/A)
a) The Government of the recipient country or its designated authority should open an account in the name of the Government of the recipient country in a bank in Japan (hereinafter referred to as "the Bank"). The Government of Japan will execute the Grant Aid by making payments in Japanese yen to cover the obligations incurred by the Government of the recipient country or its designated authority under the verified contracts.
b) The payments will be made when payment requests are presented by the Bank to the Government of Japan under an Authorization to Pay (A/P) issued by the Government of recipient country or its designated authority.

9) Authorization to Pay (A/P)
The Government of the recipient country should bear an advising commission of an Authorization to Pay and payment commissions to the Bank.

ANNEX-4: Major Undertakings to be taken by Each Government

No.	Items	To be Covered by Grant Aid	To be Covered by the Recipient Side
1	To secure buildings and / or land		●
2	To construct gates and utilities in and around the site when needed		●
3	To bear the following commissions to the Japanese bank for the banking services based upon the B/A		
	1) Advising commission of A/P		●
	2) Payment commission		●
4	To ensure unloading and customs clearance at port of disembarkation in the recipient country		
	1) Marine (Air) transportation of the products from Japan to the recipient country	●	
	2) Tax exemption and customs clearance of the products at the port of disembarkation		●
	3) Internal transportation from the port of disembarkation to the project site		●
5	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 recipient country and stay therein for the performance of their work		●
6	To exempt Japanese nationals from customs duties, internal taxes and other fiscal levies which may be imposed in the recipient country with respect to the supply of the products and services under the verified contracts		●
7	To maintain and use properly and effectively the equipment provided under the Grant Aid		●
8	To bear all the expenses, other than those to be borne by the Grant, necessary for construction of the facilities as well as for the transportation and installation of the equipment		●
9	To coordinate and solve any issues related to the Project which may be raised from third parties or inhabitants in the Project during implementation of the Project		●

B/A: Banking Arrangement
A/P: Authorization to Pay

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ANNEX-5: Criteria for Equipment Selection and Design

(1) Equipment to respond to general disasters and accidents which may happen naturally and frequently in the civil society will be selected for the Project.
(2) Equipment which is used for particular purposes will be excluded from the Project.
(3) Equipment which can be substituted by other equipment will be excluded from the Project
(4) Equipment which can be used for different purposes, such as counter-terrorism and military or police activities, will be excluded from the Project.
(5) Equipment which may incur too much operation and maintenance cost and personnel or may require upgrading of the existing facilities in large scale will be excluded from the Project.
(6) Equipment whose store space cannot be secured will be excluded from the Project.
(7) Equipment which needs complicated technology in proper operation and maintenance will be excluded from the Project.
(8) Equipment whose consumables, spare-parts and after-sales services are not easily available in the Jordan will be excluded from the Project.
(9) Accessories for equipment will be limited to minimum requirement.
(10) Consumables and spare-parts for equipment will be limited to minimum requirement for the initial operation of the equipment.

ANNEX-6: Divisions, Sections and Centers Proposed by the Jordanian Side

No.	Divisions, Sections and Centers	Governorate
1	Al Husayniyya	Ma'an
2	South Support	
3	Batn Al Ghul	
4	Al-taaibeh*	
5	Al Qatrana	Karak
6	Indust. Astate	
7	Bir Madhkour	Aqaba
8	South Beach	
9	Al Hisa	Tafieleh
10	Busayra	
11	North Badia	Mafraq
12	Husha*	
13	Om alqutaen*	
14	Al Safwai	
15	Aruwayshid	
16	Kufr Asad	Irbid
17	Al-madina*	
18	Ash Shuna	
19	North Support (Under Construction)	
20	Suf	Jarash
21	Kufranja	Ajloun

* Newly Added

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4.2 Outline of Basic Design

MINUTES OF DISCUSSIONS
ON THE BASIC DESIGN STUDY ON THE PROJECT
FOR DEVELOPING JORDAN CIVIL DEFENCE APPLIANCES
IN THE SOUTH & NORTH REGIONS
IN THE HASHEMITE KINGDOM OF JORDAN
(EXPLANATION ON DRAFT REPORT)

In August 2004, the Japan International Cooperation Agency (hereinafter referred to as "JICA") dispatched a Basic Design Study Team on the Project for Developing Jordan Civil Defence Appliances in the South & North Regions (hereinafter referred to as "the Project") to the Hashemite Kingdom of Jordan (hereinafter referred to as " Jordan"), and through discussion, field survey and technical examination of the results in Japan, JICA prepared a draft report of the study.

In order to explain and to consult with Jordan on the components of the draft report, JICA sent to Jordan the Draft Report Explanation Team (hereinafter referred to as " the Team "), which is headed by Mr. Naoyuki OCHIAI, Deputy Resident Representative, JICA Jordan Office, from Oct 31 to Nov 6, 2004.

As a result of discussions, both parties confirmed the main items described on the attached sheets.

Amman, Nov 4, 2004

Mr. Naoyuki OCHIAI	Major General Mahmoud Al-Abbadi
Leader,	Director General,
Basic Design Study Team	Civil Defence
Japan International Cooperation Agency	
(Japan)	(Jordan)

ATTACHMENT

1. Components of the Draft Report

The Government of Jordan agreed and accepted in principle the components of the draft report explained by the Team.

2. Japan's Grant Aid scheme

The Jordanian side understands the Japan's Grant Aid Scheme and the necessary measures to be taken by the Government of Jordan as explained by the Team and described in Annex-3 and Annex-4 of the Minutes of Discussions signed by both parties on August 4, 2004.

3. Schedule of the Study

JICA will complete the final report in accordance with the confirmed items and send it to the Government of Jordan around February, 2005.

4. Other relevant issues

4-1. Equipment planned by the Project

Equipment described in Annex-1 is planned by the Project.

4-2. Soft Component

The Japanese side proposed to implement the soft component under the Project which is composed of the following contents.

- Guidance on Ladder Truck Operating Techniques
- Guidance on Fire-Fighting Tactics and Operation
- Preparation of Manual

The Jordanian side requested its implementation to the Japanese side.

4-3. Necessary Undertakings to be conducted by the Jordanian side

The Jordanian side will conduct the following undertakings timely for the smooth implementation of the Project

- Vehicle Registration
- Tax Exemption
- Securing of Garage Space and Construction of Building to House Vehicles

- Securing of Garage Space and Construction of Building to House Vehicles
- Securing of Spare Parts Storage
- Development of Infrastructure
- Inland Transportation of Vehicles from Amman to each fire station listed in Annex-1 (from the port of disembarkation to Amman is covered by the Japanese side)
- Other matters described in the basic design report

4-4.Utilization of Vehicles covered by the Project

The Jordanian side will utilize properly the vehicles procured under the Project in the described fire stations.

4-5. Proper Operation and Maintenance of the Equipment

The Jordanian side will operate and maintain properly and effectively the equipment procured under the Project by means of allocating necessary budget and personnel.

4-6. Confidentiality of the Draft Report

Both sides agreed that the contents of the draft report including specifications of the equipment would be confidential, be dealt with care and not be disclosed to any third parties until the tendering stage of the Project will be completed.

Annex-1: Equipment planned by the Project, as a result of the Study

Governorate	Fire Station	Fire Fighting Truck	Rapid Intervention Vehicle	Rescue Truck	Ambulance	Ladder Truck
Ma'an	Directorate Division			1		
	Al-taaibeh	1	1		1	
	Al Husayniyya	1	1			
	Batn Al Ghul				1	
Karak	Industrial Estate	1	1		1	
	Al Qatrana	1			1	
Aqaba	Directorate Division	1				
	South Beach (Al shati)	1			1	
Tafieleh	Directorate Division		1			
Mafraq	Husha	1	1		1	
	North Badia		1		1	
	Aruwayshid		1		1	
	Om Alqutaen	1			1	
Irbid	North Support Divisin	1	1	1	1	1
	Directorate Division		1			
	Bani Ebeed (Shaheed azmin)		1			
	Al-madina	1	1		1	
	Ash Shuna (Al shona al shamalia)	1	1		1	
	Kufr Asad	1	1			
Jarash	Directorate Division	1	1			
Ajloun	Kufranja	1	1		1	
Total		14	15	2	13	1