

3-2-3 Examination of Project Components

(1) The followings are the components of this Project.

1) Hospitals' Emergency Departments

At present, the emergency departments of hospitals which provide primary and secondary care treat not only patients in need of emergency care but also outpatients with various cases of diseases. This is because these emergency departments have to play the role of dispensary as well. When tertiary medical services are required, the patients with severe conditions are transferred to hospitals in Damascus and Aleppo. This project is to establish a network of emergency medical services by installing the medical equipment which is requested for the emergency departments of provincial base hospitals. This project procures ICU equipment for major hospitals around the country in accordance with their levels of medical services and CT scanners for some major medical facilities. The medical facilities to receive CT scanners, which are highly sophisticated equipment, are selected in consideration of their positions in the organization of medical facilities of the Syrian Arab Republic. Each of the medical facilities to be selected must satisfy the following conditions:

1. It must be a medical facility that provides a high degree of medical services,
2. It is located geographically in a vacancy of diagnostic services, and
3. It is located in a strategic place of the nation's transportation system.

2) Ambulances

At present, ambulances are stationed either at the garages under the direct control of the Ministry of Health or at the garages under the control of the Health Directorates of the muhafazats. Each garage is managed by its respective authority, and a 24-hour service for ambulance mobilization is operated in three shifts with a sufficient number of staff including drivers. A system for vehicle maintenance is established in such a way that repairs are carried out by mechanics of private garages. Even though this vehicle maintenance system works well, the mobilization of ambulances is not carried out smoothly. Many vehicles are too old to be maintained easily and effectively, and they experience breakdowns repeatedly, reducing the number of ambulances available for mobilization. Another problem impeding the ambulance mobilization is a poor telecommunications system, in which only telephone communication is available. Therefore, this project is to replace the existing old vehicles with new ones and to provide

telecommunications equipment, for the purpose of strengthening the nationwide network of emergency medical services.

Thus, the components of this project can be summarized as follows.

Components	Function	Examination
Medical equipments: ICU equipments CT scanner	Diagnose and treatment equipment for the patient transferred by ambulance	This project is a part of Improvement of emergency services program.
Ambulance: Equipped Ambulance, non- Equipped Ambulance, Radio communication equipment	Diagnose and treatment equipment for the patient transferred by ambulance	Both patient transportation and medical care are main function of emergency services.

3-2-4 Operational Plan of the Project

The agency that is responsible for planning and executing this project is the Department of Medical Services of the Ministry of Health. However, the ambulances procured on this project are managed by the Health Directorates of the muhafazats, and the ICU equipment and CT scanners procured are managed by the respective hospitals which receive these items of equipment.

(1) Personnel Plan

As far as the ICU equipment which is procured on this project is concerned, there is no need of restaffing the emergency departments of the hospitals which are improved on this project. These departments already have sufficient numbers of medical personnel who are ready for the operation of ICU equipment.

However, the CT scanners which are procured on this project need to be staffed with at least one staffer for each of the following roles: a diagnostician capable of reading CT images, an equipment operator, and an assistant. Therefore, the Ministry of Health needs to hire medical workers who are trained for these jobs and to place them at the hospitals which receive CT scanners on this project. Such medical personnel is available since training for CT scanning is provided at university hospitals which are under the control of the Ministry of Higher Education and are equipped with CT scanners.

As for the ambulances which are procured on this project, there is no need of staff increase. At present, sufficient numbers of ambulance drivers are stationed at the garages of the Health Directorates of the muhafazats, and they are working in three shifts for 24-hour service. Moreover, this project is intended to renew the existing fleets of

ambulances by replacing dilapidated vehicles, so there will be no increase in the numbers of vehicles that constitute the fleets of ambulances at these garages.

Therefore, as far as the personnel planning of this project is concerned, additional personnel is required only for staffing the CT scanners . This recruitment can be easily done within the regular employment scheme, just by including a few applicants qualified for CT scanning into the selection of prospective employees.

(2) Budgetary Plan

The annual funds necessary for operating the emergency care system after the completion of this project is estimated at about 5 million Syrian pounds, which is describe more in detail at "3-3-4 Budgetary Estimation".

The following list accounts for the budgetary allocation made by the Ministry of Health during the sixth 5-year development program for health and medical care (1986 ~ 1990). As seen from these figures, the total budget tripled during the period from 1988 to 1990. This indicates the shift of policy priority by the Government of the Syrian Arab Republic, which started to turn more of its resources to the people's welfare through the provision of health and medical care. The government has recently decided to increase the amount of budgetary allocation to the Ministry of Health from the current 2% of the national budget to about 6%. A 1% budgetary increase of 1990 is also expected for both the operation of the emergency care system and the maintenance of the equipment including the ambulance, and this 1% budgetary increase will be fully covered by the above mentioned the budgetary increase of the Ministry of Health.

6 th 5 year Health Development plan(1986 ~ 1990)

(Investment Plan)

(Unit:1000 SL)

	1986	1987	1988	1989	1990	Total
Ministry of health	37,197	49,349	342,262	342,262	250,861	250,861
Damascus city	1,349	1,625	3,227	3,227	761	761
Damascus suburb	2,556	2,198	1,786	1,786	2,581	2,581
Aleppo Mufahazat	13,157	14,183	6,005	6,005	19,974	19,974
Idlib Mufahazt	9,921	10,676	10,332	10,332	7,944	7,944
Tartus Mufahazt	8,498	37,652	59,015	59,015	107,453	107,453
Homs Mufahazt	1,173	8,342	9,672	9,672	8,728	8,728
Hama Mufahazt	9,703	7,077	13,396	13,396	11,576	11,576
Derezor Mufahazt	4,424	1,028	13,036	13,036	44,500	44,500
Hasakeh Mufahazt	428	1,954	599	599	-	-
Rakka Mufahazt	3,983	2,211	-	-	4,506	4,506
Latakia Mufahazt	6,619	7,447	17,663	17,663	16,859	16,859
Dara mufafazt	1,813	1,980	6,678	6,678	9,715	9,715
Sweida mufafazt	1,525	5,419	1,481	1,481	6,100	6,100
Quneitra Mufahazt	1,948	1,962	1,236	1,236	1,293	1,293
Total (unit : 1000)	104,294	153,103	141,694	486,338	492,851	1,378,330

3-2-5 Examination of the Requested Items

(1) Hospitals Improved on This Project

Damascus Hospital, which is located in Damascus, and Ibn-Rashid Hospital in Aleppo are the hospitals which offer the highest degree of medical services in the referral system of the nationwide emergency care system. Accordingly, they are at the top in the hierarchy of the organization of the medical facilities which are under the control of the Ministry of Health. National hospitals which function as base hospitals stand immediately below these two hospitals, and these hospitals are located in each muhafazat. Below these national hospitals, there are another type of national hospitals, several of which exist in each muhafazat and serve their localities. These lower national hospitals are different from one another in their sizes, specialities, service areas, etc. Upon analyzing the data collected during the field study, the hospitals included in this project are classified into three categories:

- Level 1 : highest referral hospitals,
 Level 2 : national hospitals functioning as a highest referral hospital at each muhafazat, and
 Level 3 : national hospitals serving as a base hospital in each region in each mufahazt.

Level 1 :	Damascus hospital	Damascus
	Ibn Rashid hospital	Aleppo

Level 2 :	Ibn Al-Naffis hospital	Damascus
	Al-Watani hospital	Homs
	Al-Watani hospital	Latakia
	Al-Watani hospital	Tartus
	Al-Watani hospital	Hama
	Al-Watani hospital	Hasakeh
	Al-Watani hospital	Derezor
	Al-Watani hospital	Rakka
	Al-Watani hospital	Sweida
	Al-Watani hospital	Dara
	Al-Razi hospital	Aleppo
Al-Watani hospital	Idlib	

Level 3 :	Duma Al-Jerahi hospital	Damascus suburb
	Kahmishili hospital	Hasakeh
	Al-Furaat hospital	Derezor
	Ibn Sina hospital	Idlib
	Jableh hospital	Latakia
	Tadmor hospital	Homs
	Saramihe hospital	Hama
	Baath health center	Quneitra

(2) Determining Hospital's Priority in Equipment Procurement

On this project, medical equipment is procured for the hospitals which are included in the project in the order of the above classification. The highest priority is placed for the hospitals at Level 1. Among the hospitals at Level 2, the order of priority is determined by the respective population sizes which these hospitals serve. In the same

way, the order of priority is determined for the hospitals at Level 3. However, it is necessary to give Baath Health Center, which is categorized at Level 3, an equivalent priority to Level 2. The reason is that Baath Health Center functions as a base hospital for the Mufahazt of Qunaytra, where this health center is located. The Muhafazat of Qunaytra does not have any base hospital since the destruction of the provincial capital.

(3) Determinants for Selecting ICU Equipment

Each item of the ICU equipment procured on this project should be in one model. This is to minimize the item number of consumables and spare parts used with the equipment, thus facilitating operation and maintenance.

Resuscitation beds should be eliminated from the item list of this project. The reason is that resuscitation beds are also made in the Syrian Arab Republic, so the Ministry of Health can purchase them on its own.

Respirators (electrical type) are for the patients who do not have spontaneous breathing and who are in need of intensive care for a long period of time. However, the emergency departments of the hospitals included in this project do not monitor patients for a long period. If a long period of monitoring is required, then the patient is transferred to a respective special hospital. Therefore, it is not necessary to install electrical respirators at these emergency departments.

Defibrillators are already installed in a large quantity at each hospital studied. Many of them are currently used as ECG monitors. Since with the procurement of ECG machine, they can be used for their original purpose, which is defibrillation, the quantity requested for this item can be reduced.

Blood gas analyzers are essential for examining the respiratory conditions of emergency patients. However, this item should be procured only for Damascus Hospital and Al Razi Hospital, which provide tertiary medical services, in consideration of the hospitals past experiences with this item of equipment for efficient utilization. Also this item requires high maintenance cost.

An ultrasound-diagnostic apparatus with linear and sector imaging should be procured for each hospital. The reason is that pregnant women are at the top of the emergency patient list in the Syrian Arab Republic. This medical equipment is also easy to operate and does not require much maintenance.

Pulse oximeters are procured for each of the hospitals since they are essential for examining the respiratory conditions of emergency patients and can be substituted for blood gas analyzers in emergency care. Pulse oximeters are also easily operated, and they do not require much maintenance.

The equipment models for the following items are selected so that they will have equivalent function to those which are currently operated at the hospitals included in this project.

bedside monitor, suction apparatus, resuscitator with a flowmeter, respirator (simple type), ECG monitor (with 3 channels)

(4) Determinants for Selecting Ambulances

1) Vehicle Model

Roads are in good condition in the Syrian Arab Republic. Highways have two lanes in one direction, and other roads are also well paved. Many vehicles seen on the roads are made in Japan. Most vehicle models in Syria which are likely used for ambulances are also made in Japan. A new legislation has softened the import restrictions on small trucks and minibuses for commercial use. Many trucks and minibuses are also imported from Japan. Spare parts for these Japanese vehicles are available through Lebanon and Saudi Arabia. In consideration of ease of vehicle maintenance, vehicles made in Japan are requested for the ambulances on this project. Furthermore, parts for diesel engines are hardly available in Syria while gasoline is cheaply available. Therefore, the ambulances that are procured on this project shall be vehicles having gasoline engines of approx. 2000 cc.

2) Quantity

A list showing the number of ambulances that is to be stationed by 1993 was presented at the end of the field study. However, this list only shows the number of vehicles furnished with emergency care equipment and the number of those not furnished, as targets for the acquisition of ambulances by the year 1993, and it does not specify how these ambulances are to be procured on this project. Thus, the quantity of ambulances to be procured on this project is decided in consideration of the conditions of the existing vehicles. Many existing vehicles are too old to be maintained easily.

Therefore, it is best to replace the vehicles which have been used for 15 years or more together with the unrepairable vehicles by the new vehicles stationed through this project. Renewing the existing fleets of ambulances in this way is cost-effective since it reduces the personnel cost as well as the vehicle maintenance cost in the long run.

3) Radio communication equipment

The project for Improving Telephone Circuit, which is implemented with funds provided by Kuwait, is going to add 100,000 telephone circuits to the existing circuits by 1993. With the completion of the project for Improving Telephone Circuit, the number of emergency phone calls to police stations, hospitals, and ambulance mobilization centers will surely increase, demanding more emergency services. In this Project, radio communication equipment for each Muhafazat and renewed ambulance will be procured in order to establish the information system among the ambulance mobilization centers, ambulances and hospitals.

(5) CT scanners

Each hospital for which a CT scanner is procured is selected in consideration of the present state of the hospital and the size of the population which is to benefit from the CT scanner's installation. For this selection, consideration is also paid to the Project for Procuring Medical Equipment for the Six Hospitals, which is also to procure some CT scanners with funds provided by Kuwait. No hospitals under the control of the Ministry of Health have CT scanners at present. However, five hospitals under the Ministry of Higher Education have CT scanners. In addition, nine CT scanners are owned by private hospitals, making a total of 14 CT scanners currently available in the Syrian Arab Republic. The Ministry of Higher Education is not involved administratively in the emergency care system of the Syrian Arab Republic. The CT scanners owned by the Ministry of Higher Education are used to diagnose patients' cases for the purpose of training medical personnel. Accordingly, ordinary patients are not promptly admitted for CT scanning, so they have to wait for their turns for scanning. In this condition, there is no way that emergency patients can be admitted for CT scanning at the hospitals under the Ministry of Higher Education. Therefore, the Ministry of Health recognizes the importance of procuring CT scanners for some of the hospitals included in this project.

CT scanners are requested for the following seven hospitals:

1. Damascus Hospital (Damascus City)
2. Ibn Al Naffis Hospital (Damascus City)
3. Ibn-Rashid Hospital (Aleppo Muhafazat)
4. Al Watani Hospital (Homs Muhafazat)
5. Al Watani Hospital (Lattakia Muhafazat)
6. Al Watani Hospital (Al-Hasakeh Muhafazat)
7. Al Watani Hospital (Deir-ez-zor Muhafazat)

1. Damascus Hospital (Damascus City) Appropriate

Damascus Hospital is one of the largest medical facilities in the Syrian Arab Republic, and it provides the highest degree of medical services in the nation's referral system. This hospital has an operation theater which is specialized for cerebral surgery. Patients with severe cases are brought here from anywhere in the country. Accordingly, this hospital admits a large number of patients. At present, craniotomies are performed even without definite diagnoses because of a lack of CT scanners. This hospital has been trying to procure sophisticated diagnostic equipment in order to achieve more accurate diagnoses for successful treatments as well as to alleviate the currently experienced congestion in patient treatment. Therefore, it is determined that a CT scanner should be procured for this hospital.

2. Ibn Al Naffis Hospital (Damascus City) Not appropriate

Ibn Al Naffis Hospital is located close to Damascus Hospital. It takes about only 20 minutes by car from this hospital to Damascus Hospital, where CT scanning will become available on this project. The patients found to be in need of CT scanning at this hospital can be transferred to Damascus Hospital. Therefore, this hospital should be eliminated from the list of the hospitals for which CT scanners are to be procured.

3. Ibn-Rashid Hospital (Aleppo Muhafazat) Appropriate

The Muhafazat of Aleppo is the second largest administrative region after the Damascus region, which includes Damascus City and its suburbs. Hospitals in this muhafazat provide the medical services which are not available in other neighboring muhafazats, so one CT scanner is considered to be necessary for this muhafazat. Ibn-Rashid Hospital, which has the ambulance mobilization center for Aleppo City, should be a site of CT scanner installation.

4. Al Watani Hospital (Homs Muhafazat) Appropriate

Since many highways running over the entire country originate from the Muhafazat of Homs, vehicles moving from the Mediterranean coast, the northeastern part, or the central part of the country to Damascus or Aleppo have to cross a junction of highways in this muhafazat. As this muhafazat is at the center of the nation's transportation system, many emergency patients from traffic accidents are brought into the emergency departments of the hospitals in this muhafazat. To facilitate the provision of emergency care for these patients, it is necessary to procure a CT scanner for Al Watani Hospital (Homs Muhafazat) in order to improve the diagnostic function of the emergency care system in this muhafazat.

5. Al Watani Hospital (Lattakia Muhafazat) Not appropriate

CT scanners are going to be procured for Qurudaha Hospital and Tartus Hospital on the Project for Procuring Medical Equipment for the Six Hospitals. Qurudaha Hospital is located close to Al Watani Hospital (Lattakia Muhafazat) within a distance of 20-minute drive, and Tartus Hospital is located in the Muhafazat of Tartus, which is one of the neighboring muhafazats of the Muhafazat of Lattakia. Thus, the patients who should receive CT scanning can be transferred to these two hospitals. Therefore, Al Watani Hospital (Lattakia Muhafazat) should be eliminated from the list of the hospitals for which CT scanners are to be procured on this project.

6. Kahmishili Hospital (Al-Hasakeh Muhafazat) Not appropriate

Kahmishili Hospital is located in Northern Syria in a remote town on the border with Turkey. This hospital is a small general hospital with 68 hospital beds. Since this hospital does not have facilities necessary for cerebroscopy, patients in need of this kind of surgery are transferred to hospitals in Damascus at present. Ambulances transporting these patients take Route 7, the highway heading for Damascus through the Muhafazat of Deir-ez-zor. Al Watani Hospital, which is located in the Muhafazat of Deir-ez-zor mentioned below 7 is going to acquire a CT scanner on this project. The emergency patients of Al-Hasakeh Muhafazat in need of CT scanning can be transferred to Al Watani Hospital (Deir-ez-zor Muhafazat). Therefore, a CT scanner is not procured for Kahmishili Hospital (Al-Hasakeh Muhafazat) on this project.

7. Al Watani Hospital (Deir-ez-zor Muhafazat) Appropriate

No other project which is currently carried out is going to procure a CT scanner for any of the hospitals located in the three muhafazats of Northern Syria, i.e., Al-Lakka, Al-Hasakeh, and Deir-ez-zor. This region does not receive the high-quality

diagnoses available through CT scanning as do the other regions of the country. To alleviate this negative regional difference in medical services, a CT scanner should be installed in the Muhafazat of Deir-ez-zor on this project in order to provide the population living in this region with easy access to CT scanning. At present, all the patients transferred from this region to Damascus are transported through Deir-ez-zor by Route 7, which runs from Deir-ez-zor to Damascus. The patients from Al-Hasakeh are transported only through Route 7, and those from Al-Lakka are transported first through Route 4 and then through Route 7. By installing a CT scanner in Deir-ez-zor, a great improvement in the patients' access to CT scanning is possible for the population living in Northern Syria. After the implementation of this project, CT scanning will be available for them within 1.5 hours. Therefore, it is necessary for this project to procure a CT scanner for Al Watani Hospital (Deir-ez-zor Muhafazat).

3-2-6 Examination of the Need for Technical Cooperation

The technical levels of medical services, management, and medical equipment maintenance of the Syrian Arab Republic are very high relative to those of other developing countries. However, as far as the system of emergency care is concerned, it seems that the government has just started to establish a nationwide system for emergency care. This project is to improve this nationwide emergency care system by procuring ICU equipment, ambulances, and CT scanners, so that the system becomes effective as a whole through the improved interrelations among medical facilities. In tandem with the improved emergency care system, there will be more emphasis on the improvement of medical technology necessary for providing high degrees of medical services. Doctors are trained at hospitals under the control of the Ministry of Higher Education and are employed for hospitals throughout the country after their graduation. If the medical technology of the hospitals under the Ministry of Higher Education is improved, then the doctors trained there will be improved as well. This, in turn, improves the quality of medical services as a whole. In this reason, it is recommended that a Japanese specialist in the field of advanced diagnoses and treatments be dispatched to a hospital under the Ministry of Higher Education.

It is also recommended that the Ministry of Health should send trainees or engineers to Japan for receive maintenance and repair techniques concerning the CT scanners and ultrasound diagnostic apparatus, which are the highly sophisticated electronic items that are procured on this project.

3-2-7 Basic Policy of Japanese Grant Assistance

As a result of the above-mentioned examination of the request, the practicality of this project has been ascertained. The expected effects of this project have been also confirmed in order to make sure for a Japanese grant aid to be extended. Thus, it has been judged appropriate to implement this project in the form of grant assistance provided by the Government of Japan. Consequently, on the assumption that this project is implemented under the Japanese Government's Grant Aid Assistance, first, the outline of this project will be determined. Then, the basic design will be carried out in the following chapter. As mentioned previously in the section "3-2-5 Examination of the Requested Items," it is appropriate to change or eliminate some of the items requested for this project.

3-3 Outline of the Project

3-3-1 Executing Agency and Management System

(1) Executing Agency

The Department of Medical Services under the Ministry of Health is to take charge of the implementation of this project.

(2) Management System

The managing system for the emergency care system is organized as described in the diagram below, with the Ministry of Health at its top. Each section of the system is to perform the following respective tasks:

Ministry of Health:	budgetary allocation as well as personnel planning for each muhafazat;
Department of Medical Services:	procurement of medical equipment, equipment maintenance, etc.;
Health Directorate of Each Muhafazat:	budgetary allocation, personnel planning, administration, stationing of ambulances, and their maintenance for the hospitals under its control;

Medical Facilities and Garages: execution of emergency services; and
 Central Maintenance Center: maintenance, repair, and modification of medical equipment.

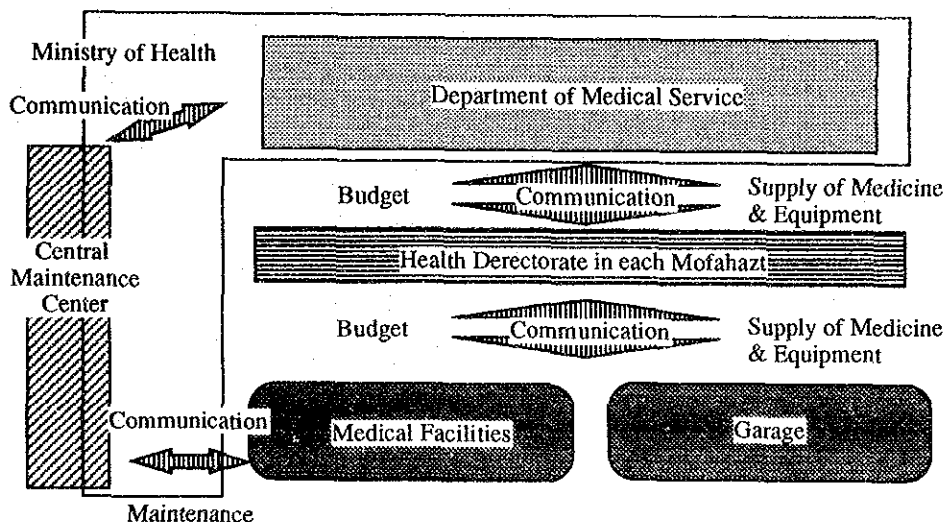


Figure 3-2

(3) Personnel Planning

This project is to procure medical equipment and ambulances for the existing hospitals, so there will be no need of restaffing except for the CT scanners which are introduced on this project. These CT scanners should be staffed with personnel qualified for operating CT scanners. Therefore, the Ministry of Health, which does not have any medical facility equipped with a CT scanner at present, needs to hire medical personnel who has been trained for CT scanning at hospitals under the control of the Ministry of Higher Education. If each CT scanner which is procured on this project is to be operated around the clock, then at least three doctors capable of reading CT images, three operators, and three assistants will be necessary for each medical facility which will receive a CT scanner. As described in the table below, 12 CT diagnosticians, 12 operators, and 12 assistants are necessary.

	Damascus hosp	Derezor Al-Watani hosp	Aleppo Al-Razi hosp	Homs Al-Watani hosp	Total
Doctor for CT	3	3	3	3	12
CT operator	3	3	3	3	12
Worker	3	3	3	3	12

3-3-2 Outline of the Equipment

(1) ICU Equipment

Since most rooms used for the ICU of the emergency departments in the Syrian Arab Republic are laid out to accommodate four hospital beds, a 4-bed ICU room is considered here as the standard for deciding basic equipment arrangements in accordance with the requirements of the hospitals included in this project. The items of medical equipment determined in the section "3-2-5 Examination of the Requested Items" for the procurement on this project is listed below with their uses.

Medical Equipment	Purpose of employment
1 Bedside monitor	1. Monitoring of patient ECG and pulse
2 Respirators (electrical type)	2. Assist patient breathing
3. Resuscitator with a flowmeter	3. Supply oxygen and assist respiratory function of patient
4 Defibrillators	4. Defibrillate patient heart failure
5 Respirators (simple type)	5. Assist patient breathing
6. ECG monitor (with 3 channels)	6. Monitoring patient heart wave form
7 Blood gas analyzers	7. Monitoring patient through blood gas analyzing
8 Ultra sound-diagnostic apparatus	8. Non-invasive patient monitoring apparatus
9 Pulse oximeters	9. Monitoring patient PO ₂ through non-invasive detector

The above described items are then determined for each level of hospitals which are classified in the section "3-2-5 Examination of the Requested Items." The following tables describe the results of the determination, listing the items of medical equipment with their quantities for each hospital level.

1 Level 1 :

1. Bedside monitor	4	units
2. Respirators (simple model)	1	unit
3. Blood gas analyzers	1	unit
4. Suction apparatus	2	units
5. Resuscitator with a flowmeter	4	sets
6. Defibrillators	1	unit
7. ECG monitor (with 3 channels)	1	unit
8. Ultra sound-diagnostic apparatus	1	unit
9. Pulse oximeters	2	units

(Total : 2 facilities)

2 Level 2 :

1. Bedside monitor	4	units
2. Respirators (simple model)	4	units
3. Suction apparatus	2	units
4. Resuscitator with a flowmeter	4	sets
5. Defibrillators	1	unit
6. ECG monitor (with 3 channels)	1	unit
7. Ultra sound-diagnostic apparatus	1	unit
8. Pulse oximeters	2	units

(Total : 11 facilities)

3 Level 3 :

1. Bedside monitor	4	units
2. Respirators (simple model)	1	unit
3. Suction apparatus	2	units
4. Resuscitator with a flowmeter	4	sets
5. Defibrillators	1	unit
6. ECG monitor (with 3 channels)	1	unit
7. Ultra sound-diagnostic apparatus	1	unit
8. Pulse oximeters	1	unit

(Total : 8 facilities)

4 Level 4 :

1. Respirators (simple model)	1	unit
2. Suction apparatus	1	unit
3. Defibrillators	1	unit
4. ECG monitor (with 3 channels)	1	unit
5. Ultra sound-diagnostic apparatus	1	unit
6. Pulse oximeters	1	unit

(Total : 1 facilities)

(2) Ambulances

The main type of ambulances that are procured on this project are not equipped with emergency equipment and are used for local patient transportation. In addition to this main type, each mufahazt receives one vehicle equipped with emergency equipment, which are to be used for long-distance patient transportation, e.g., from local hospitals to those in Damascus and Aleppo. Two four-wheel drive vehicles are procured for Lattakia and Tartus, one for each mufahazt, in order to secure ambulance services for the mountainous regions even during the winter when it snows. And this project is to procure radio-communications equipment for the provincial capital city of each mufahazt except for that of the Mufahazt of Qunaytra and to install a wireless communications instrument in each of all the vehicles procured on this project.

The following table shows the number of the vehicles which has been working for 15 years or more and are to be replaced on this project for each mufahazt, this number being accompanied by the ratio of the number of replacements over the total number of vehicles. The existing vehicles' data used for this calculation are available in the document "Vehicle List" in Chapter 2.

Mufahazt	Renewal total	Total	Renewal rate
Damascus city	21 units	41 units	51.2 %
Damascus suburb	11 units	20 units	55.0 %
Dara mufahazt	14 units	23 units	60.8 %
Sweida	8 units	11 units	72.7 %
Homs	11 units	22 units	50.0 %
Tartus	4 units	13 units	30.7 %
Latakia	8 units	22 units	36.3 %
Hama	9 units	15 units	60.0 %
Aleppo	10 units	36 units	27.7 %
Idlib	11 units	19 units	57.9 %
Derezor	3 units	14 units	21.4 %
Lakka	4 units	14 units	28.6 %
Hasakeh	14 units	18 units	77.8 %
Quneitra	2 units	8 units	25.0 %
Total	130 units	276 units	47.0 %

The implementation of this project will not change the total number of ambulances, but will renew 47% of the existing ambulances.

(3) CT scanners

1) CT scanners are procured for the following four hospitals:

1. Damascus Hospital (Damascus City)
2. Ibn-Rashid Hospital (Aleppo Mufahazt)
3. Al Watani Hospital (Homs Mufahazt)
4. Al Watani Hospital (Deir-ez-zor Mufahazt)

2) Specifications

These CT scanners are of a equipment model which consumes a small amount of electricity, does not require a large-scale air conditioner, and is easily maintainable. Since power shortages or power failures are frequently experienced in the Syrian Arab Republic, instruments for Uninterrupted Power Supply and amperage & voltage regulators are procured together with these CT scanners in order to overcome the problem of power shortages. By applying these additional instruments, the CT scanners can be connected to and powered by emergency power generators, which these hospitals already have.

3-3-3 Maintenance and Operation Plan

(1) Maintenance

1) Medical Equipment Maintenance System

The role of the Health Directorates of the mufahazts is liaison between the local hospitals and the Ministry of Health. Besides conveying requests concerning medical equipment, etc., made by the medical personnel directly involved in providing local medical services, they hold a store of consumables and medicines for the purpose of distributing them to the medical facilities under their administration. It is the Department of Medical Services that is in charge of the selection, purchase, installation, and maintenance of medical equipment for all the hospitals under the control of the Ministry of Health. However, highly sophisticated items of medical equipment such as artificial dialysis apparatus, X-ray apparatus, and ultrasound-diagnostic apparatus, which are installed in the hospitals under the Ministry of Health, are maintained by the respective medical-equipment suppliers in compliance with the maintenance agreements made directly with the Department of Medical Services.

1. Maintenance Center

Real work of medical equipment maintenance is carried out by the Maintenance Center, which is an agency of the Ministry of Health. This center is located on the top of a hill in the southern part of Damascus, where a hospital complex exists. This center has separate buildings for administration, for equipment repairing, and for storage. The Maintenance Center performs checkups and repairs on the medical equipment installed in the hospitals under the control of the Ministry of Health, and it also trains medical personnel. This center has 25 engineers (7 mechanical engineers, 6 electrical engineers, 11 electronics engineers, and 1 clinical engineer) and 19 technicians at present. These engineers are dispatched to any of the hospitals under the Ministry of Health, and they not only repair the medical equipment experiencing breakdowns there but also give some on-the-job training to the engineers stationed in the hospital. However, in special cases where some complex troubles occur, repairs and training are then performed by a lecturer dispatched from the School of Medical Technology in Damascus.

2. Local Hospitals

Each local hospital has a maintenance section, which employs engineers and technicians to perform checkups and simple repairs on the medical equipment installed in the hospital. These engineers stationed at the local hospitals are graduates of the School of Medical Technology in Damascus. The students of the school are obliged to work for the hospitals of their hometowns for six years after their graduation.

The following diagram describes the interrelations among the sections concerned with medical equipment maintenance.

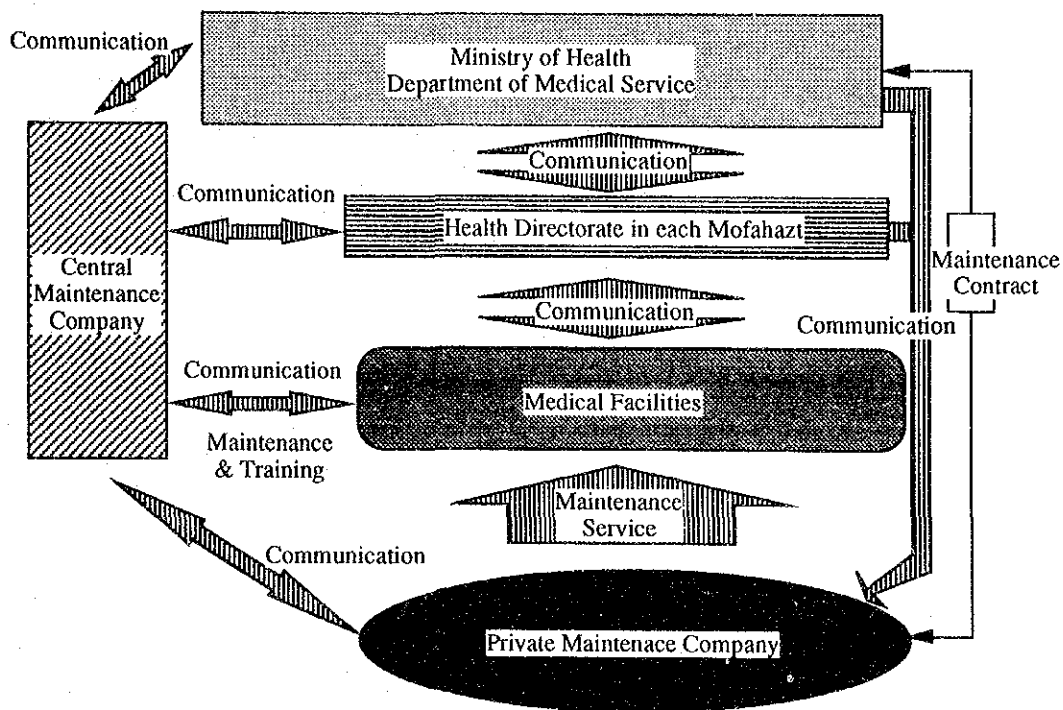


Figure 3-3 : Maintenance system for medical equipments

Repairs can be accomplished through any of the following four ways:

1. If the repairs are possible by the maintenance engineers stationed at the hospital,
 - a. the engineers of the hospital will repair the equipment on their own, or
 - b. the engineers of the hospital will repair the equipment by receiving instructions from those at the Maintenance Center in Damascus;
2. If the repairs are not possible by the engineers stationed at the hospital,
 - a. an engineer who is dispatched from the Maintenance Center with repair tools will repair the equipment;
3. If the repairs are not possible with the tools which are brought by the engineer dispatched from the Maintenance Center,

- a. the equipment, if it is transportable, will be then taken to the Maintenance Center for more repair work, or
 - b. the equipment, if it is not transportable, will receive more repair work here at the hospital with additional tools which are resupplied from the Maintenance Center;
4. If the repairs are not possible by the engineers of the Maintenance Center,
- a. the Department of Medical Services is contacted in order to receive repair work from the supplier of the equipment, who is obliged by under a maintenance contract.

The Syrian Arab Republic has an excellent system as well as brilliant engineers for medical equipment maintenance. Several cases of excellent repair work have been performed on the existing medical equipment. For example, the artificial dialysis apparatus which are used in the provincial hospitals are all in good condition. Moreover, an electrical steam sterilizer whose heater has been damaged is modified to be operated by a gas burner for the generation of steam in the boiler of the sterilizer. Furthermore, in some cases where replacement parts are not available, the equipment is repaired with other similar parts which are modified to fit into where needed. In addition to repair work, the installation of X-ray equipment, which work is quite complicated, is also carried out by the engineers of the Maintenance Center.

2) Maintenance of Ambulances

Ambulances are administered directly either by the Ministry of Health or by the Health Directorate of each mufahazt. These administrative organs have their own garages, where cleaning and daily checking are performed on the vehicles. However, these garages do not perform repair work. In general, repairs needed on the vehicles are carried out at private garages. The mechanics working at these private garages are quite competent, so there is no concern for vehicle maintenance except unavailability of spare parts. This problem is evident in the present state of vehicle maintenance. Many existing vehicles are quite old and require frequent repair work. However, replacement parts are often not available. Especially, for the vehicles made in the former Soviet Union, replacement parts are no longer supplied, so these vehicles are repaired with engines of other manufacturers.

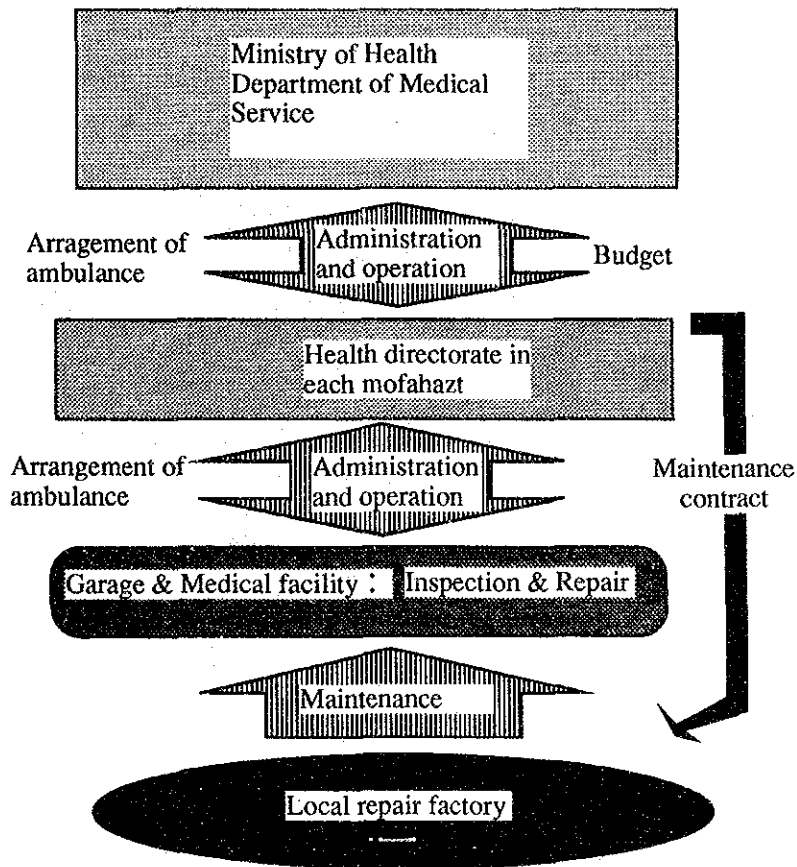


Figure 3-4 : Maintenance system for ambulance

3) Supply of Consumables and Replacement Parts

The Ministry of Health is responsible for the supply of medical equipment and its consumables. A hospital short of any item first asks the local Health Directorate. If the item is available in the storage of the Health Directorate, then the hospital receives it. If not, then the request is conveyed to the Ministry of Health. If the item is available in the storage of the ministry, then it is immediately delivered to the hospital. However, if it is not available, then a purchase order has to be made to a local agent of the manufacturer. In this case, since most local agents do not keep every part for the equipment in which they deal, it takes a long time before the hospital really receives the item it requested.

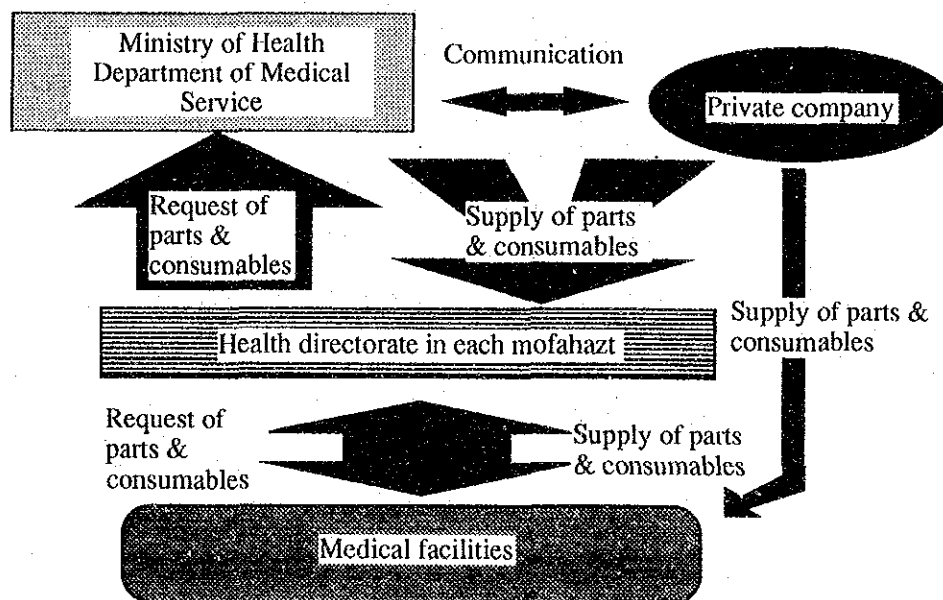


Figure 3-5 : Supply route for spare parts & consumables

3-3-4 Budgeting

The budget for this project can be generally classified into personnel expenses; expenses for medical equipment purchases; expenses for consumables; expenses for medicines and chemicals; expenses for equipment maintenance; and expenses for other things. As far as the personnel expenses are concerned, no consideration is necessary. This is because all items of the medical equipment which are procured on this project are to be operated by the staffers who are already working at the emergency departments of the hospitals included in this project. As for the expenses for medicines and chemicals and for other things, they are the expenses which come up in relation with health and medical care policies executed by the Ministry of Health.

The estimation of these expenses is not carried out here because other various data necessary for the estimation are not available. Thus, estimation is made here only on the expenses for medical equipment including its replacement parts, consumables, and maintenance. Medical services which are provided at the hospitals under the Ministry of Health are free in the Syrian Arab Republic, so the only source of funds for the ministry is an allocation from the national budget. Therefore, for the successful implementation of this project, it is necessary for the Ministry of Health to add the amount estimated here to its ordinary budgetary allocation requested in the national budget.

(1) Maintenance Cost Estimation

1) Expenses for Consumables

The following table shows the estimation of the annual expenses for consumables necessary for each item of the medical equipment which is procured on this project. The quantities of these consumables listed, for a period of one year, are estimated from the annual consumption made by an average Japanese hospital.

Equipment name	Q'ty	Consumables cost(Japanese yen)
Ultra sound diagnose apparatus	22 units	1,430,000 yen
Blood gas analyzer	2 units	1,040,000 yen
CT scanner	4 units	9,600,000 yen
ECG(3 ch)	22 units	8,976,000 yen
Defibrillator	22 units	7,392,000 yen
Total estimated 1 year consumables cost		28,438,000 yen (approx,2,546,000 SL)

2) Expenses for Parts Replaced Periodically

The following table shows the estimation of the annual expenses for replacement parts necessary for each item of the medical equipment. The quantities of these parts listed, for a period of one year, are estimated from the annual consumption made by an average Japanese hospital.

Equipment name	Q'ty	Consumables cost(Japanese yen)
Blood gas analyzer	2 units	520,000 yen
CT scanner	4 units	24,000,000 yen
ECG(3 ch)	22 units	660,000 yen
Defibrillator	22 units	220,000 yen
Respirator	22 units	440,000 yen
Total estimated 1 year consumables cost		25,840,000 yen (approx,2,313,000 SL)

(2) Annual Cost for Periodical Checking Contracts

Blood gas analyzers and CT scanners are considered here as the items of medical equipment which require periodical checking contracts with the local agents of the manufacturers. (The following estimation is made on the condition that the replacement parts for these items are provided by the Ministry of Health, so the local agents only provide engineering services.)

The amounts listed in the following table are estimated from the data available for such contracts made by an average Japanese hospital.

Equipment name	Q'ty	Times	Cost(Japanese yen)
Blood gas analyzer	2 units	4 times / year	720,000 yen
CT Scanner	4 units	2 times / year	720,000 yen
Total estimated 1 year cost			1,440,000 yen (approx, 129,000 SL)

Thus, the total cost for maintenance which is required after the implementation of this project is estimated as follows.

Estimated Annual Maintenance Cost

$$\begin{aligned} &= (1) \text{ Cost for Consumables} + (2) \text{ Cost for Parts Replaced Periodically} + (3) \text{ Cost} \\ &\text{for Periodical Checking Agreements} \\ &= 2,546,000 \text{ SL} + 2,831,000 \text{ SL} + 129,000 \text{ SL} \\ &= 5,000,000 \text{ Syrian pounds} \end{aligned}$$

Chapter 4 Basic Design

Chapter 4 Basic Design

4-1 Design Policies

In designing this project, consideration is paid to the natural and social conditions of the Syrian Arab Republic as well as to the ability of the executing agency of the project and the existing conditions of the hospitals included in the project. Furthermore, this project is to be designed in compliance with the following design policies.

(1) Fundamental Principle

In order to improve the emergency care system of the Syrian Arab Republic, this project should be designed to establish a nationwide network of emergency care in which each of the following functions can work complementary to one another: patient transportation function, patient monitoring function, and sophisticated diagnostic function. The existing patient transportation system is improved by replacing dilapidating ambulances, which are the biggest impediment to the prompt transportation of emergency patients. Moreover, the monitoring provided for patients immediately after their emergency treatment is strengthened at the emergency departments of 22 national hospitals under the Ministry of Health, which are located throughout the country. Furthermore, CT scanners are procured for four hospitals so that the emergency care system will achieve a highly sophisticated diagnostic function, which enables, for example, diagnoses of cerebral damages caused in traffic accidents. Each of these hospitals is supposedly to function as an advanced diagnostic base hospital for one of the four regions of the country.

(2) Policies Concerning Implementation Schedule

It is necessary to arrange the schedule of the implementation of this project in relation with the expansion and renovation work currently carried out in the Syrian Arab Republic for the purpose of accommodating the medical equipment which is to be procured on this project. Attention must be also paid to the budgetary allocation for the construction of accommodations for installing CT scanners as well as to the execution and completion of this construction work. Therefore, this project is implemented in two phases. In the first phase, ambulances, which are urgently needed, are procured, and at the same time, discussions are held with Syrian officials in order to confirm the budgetary allocation and construction schedule for the construction of accommodations

for CT scanners. Then, in the second phase, ICU equipment and CT scanners are procured.

4-2 Basic Design Condition

Basic condition of equipment, as the purpose of utilization, condition and environment for operation and etc., will be considered as the basic design. And it will be adapted to following conditions.

4-2-1 Condition for the determination of equipment.

1. To purchase the products from the third country will not be considered because the spare parts and consumable items for Japanese products are easier to be purchased.
2. Equipment which has the mean for recipient to purchase spare parts, consumables and reagent will be selected as higher priority.
3. Equipment which has the possibility for manufacturer or supplier to carry out training for end user will be selected as higher priority.

4-3 Basic Plan

(1) Medical Facilities Included in This Project

1) Project Hospitals Ranking in Priority

The following table shows the order of priority placed on the hospitals included in this project in accordance with the determination made in the section "3-2-5 Examination of the Requested Items".

Level 1	Damascus hospital Ibn-Rashid hospital	(Damascus) (Aleppo)
Level 2	Al-Watani hospital Al-Watani hospital Al-Watani hospital Al-Watani hospital Al-Watani hospital Al-Watani hospital Al-Watani hospital Al-Watani hospital Al-Watani hospital Duma Al-Jerahi hospital Ibn-Al Naffis hospital Al-Razi hospital	(Homs) (Hama) (Hasakeh) (Idlib) (Latakia) (Tartus) (Derezzor) (Dara) (Lakka) (Sweida) (Damascus) (Damascus suburb)
Level 3	Kahmishili hospital Al-Furaat hospital Ibn Sina hospital Baath Health center Jableh hospital Tadmor hospital Saramihe hospital	(Hasakeh) (Derezzor) (Idlib) (Quneitra) (Latakia) (Homs) (Hama)

The following table lists the hospitals for which ICU equipment is procured.

1.	Damascus city	Damascus hospital	12.	Aleppo	Al-Razi hospital
2.	Damascus city	Ibn Al-Naffis hospital	13.	Aleppo	Ibn-Rashid hospital
3.	Damascus suburb	Duma hospital	14.	Idlib	Al-Watani hospital
4.	Dara	Al-Watani hospital	15.	Idlib	Ibn Sina hospital
5.	Sweida	Al-Watani hospital	16.	Derezzor	Al-Watani hospital
6.	Homs	Al-Watani hospital	17.	Derezzor	Al-Furaat hospital
7.	Homs	Tadmor hospital	18.	Lakka	Al-Watani hospital
8.	Tartus	Al-Watani hospital	19.	Hasakeh	Al-Watani hospital
9.	Latakia	Al-Watani hospital	20.	Hasakeh	Kahmishili hospital
10.	Hama	Al-Watani hospital	21.	Latakia	Jableh hospital
11.	Hama	Saramie hospital	22.	Quneitra	Baath Health center

The following table lists the hospitals for which CT scanners are procured.

The hospitals for which CT scanners are procured			
Damascus city	Damascus hospital	Homs	Al-Watani hospital
Aleppo	Ibn-Rashid hospital	Derrezzor	Al-Watani hospital

The following table lists the mufahazts for which ambulances are procured, along with the garages for which radio communications equipment is procured.

The mufahazts for which ambulances are procured	The garages for which radio communications equipment is procured
Damascus city	Damascus city garages
Damascus suburb	Damascus suburb garages
Dara	Dara garages
Sweida	Sweida garages
Homs	Homs garages
Tartus	Tartus garages
Latakia	Latakia garages
Hama	Hama garages
Aleppo	Aleppo garages
Idlib	Idlib garages
Derezzor	Derezzor garages
Lakka	Lakka garages
Hasakeh	Hasakeh garages
Quneitra	Quneitra garages

(2) Equipment Specifications

1) ICU Equipment

Equipment name	Specification
1 Bedside monitor	1 Monitoring of ECG & Pulse
2 Suction apparatus	2 Rotary type, suction bottle 3,000 cc
3. Resuscitator with a flowmeter	3 Wall mount type, plastic made
4 Defibrillator	4 AC/DC, output 300 Jule or more
5 Respirator	5 Electric type, Volume setting method
6 ECG (3 ch) monitor	6 3 ch, with marker
7 Blood gas analyzer	7 PO ₂ , PCO ₂
8 Ultrasound diagnostic apparatus	8 Liner, sector probe, 5-7 inch monitor
9 Pulse oximeter	9 Sa O ₂ range 1-100%, pulse 20-250 tomes/min.

2) Ambulances

The specifications for the ambulances are as follows:

1. Vehicles with 2000 cc gasoline engines are applied for the ambulances in consideration of the road conditions of the Syrian Arab Republic, the vehicles maintenance, and the air pollution from the vehicles exhaust.
2. Vehicles not furnished with emergency equipment are procured for emergency mobilizations within each mufahazts own administrative region. Vehicles furnished with emergency equipment are procured for long-distant patient transportation. Two 4-wheel drive vehicles are procured, each for the mufahazts of Lattakia and for the of Tartus, and they are mobilized into the mountainous regions in snowy weather conditions.

Items of the emergency equipment furnished for these vehicles are listed in the table below.

1 Ambulance non-equipped	Patient stretcher, Resuscitation set, Auxiliary seat
a. 2 wheel drive	
b. 4 wheel drive	
2 Ambulance equipped	Ditto add defibrilator above equipments

3. Wireless Equipment

for the Centers	for the Vehicles
Frequency range : 135 ~ 175MHz	Frequency range :135 ~ 175MHz
Output : F50W	Output : 50 W
Frequency width : 6 MHz	Frequency width : 6 MHz
Sensitivity : 0.35É Çu	Sensitivity : 0.35É Çu
Frequency width : 4MHz	Frequency width : 4MHz

3) CT scanners

continuously X-ray beam scanning type, scanning time (2,3,5 sec)
resolution : 0.45 mm, CT data display range (approx.: -1,500~+4,000)

4) Items of Equipment and Their Quantities

The following list shows the items of equipment and their quantities which are procured on this project.

1	Bedside monitor	:	84 units
2	Respirator	:	22 units
3	Blood gas analyzer	:	2 units
4	Suction apparatus	:	43 units
5	Resuscitator with a flowmeter	:	84 units
6	Defibrillator	:	22 units
7	ECG (3 ch) monitor	:	22 units
8	Ultrasound diagnostic apparatus	:	22 units
9	Pulse oximeter	:	39 units
10	Ambulance non-equipped	:	111 units
11	Ambulance equipped	:	14 units
12	Ambulance 4 wheel drive	:	2 units
13	Radio equipment for Ambulance	:	126 units
14	Radio equipment for base station	:	13 units
15	CT	:	4 units

4-4 Equipment List

A list of the items of equipment procured for Phase 1 and 2 are prepared for each medical facility in accordance with the determinations made in the previous sections.

	Ambulance non-equipped	Ambulance equipped	Ambulance 4-whee drive	Wireless Equipment for Vehicles	Wireless Equipment for Center
Damascus city	20	1	0	21	1
Damascus surburb	10	1	0	11	1
Dara	13	1	0	14	1
Sweida	7	1	0	8	1
Homs	10	1	0	11	1
Tartus	2	1	1	4	1
Latakia	6	1	1	8	1
Hama	8	1	0	9	1
Aleppo	9	1	0	10	1
Derezor	10	1	0	11	1
Lakka	2	1	0	3	1
Derezor	3	1	0	4	1
Hasakeh	13	1	0	14	1
Quneitra	0	0	2	0	0
Total	113	13	4	128	13

ICU EQUIPMENTS REQUESTED LIST (FOR EACH HOSPITAL)

No	Mofahazi Mame	Equipments Name Hospital Name	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.
			Resuscitation Bed	Bedside Monitor	Ventilator (Pulmovent)	Ventilator (Electrical)	Blood gas Analyzer	Suction device	OxygenFlowmeter & Inhaler	Defibrillator (Stationary)	Defibrillator (Ambulatory)	ECG (3ch)	Ultrasonic Diagnose unit	Pulse Oximeter
1	Damascus	Damascus Hospital	2	4	1	1	1	4	4	2	1	1	1	2
2	Damascus	Ibn Al-Naffis Hospital	1	4	1	1	1	4	4	1	0	1	1	2
3	Damascus Suburb	Duma Al-Jarahi Hospital	1	4	1	0	0	4	4	1	0	1	0	2
4	Allepo	Ibn Roushid Hospital	2	4	1	1	1	4	4	2	1	1	1	2
5	Allepo	Al-Razi Hospital	1	4	1	1	1	4	4	1	0	1	1	2
6	Idlib	Al-Watani Hospital	1	4	1	0	0	4	4	1	0	1	0	2
7	Idlib	Ibn-Sina Hospital	1	4	1	0	0	4	4	1	0	1	0	2
8	Lattakia	Al-Watani Hospital	2	4	1	1	1	4	4	2	1	1	1	2
9	Lattakia	Jableh Hospital	1	4	1	0	0	4	4	1	0	1	0	2
10	Tartous	Al-Watani Hospital	1	4	1	1	1	4	4	1	0	1	1	2
11	Homs	Al-Watani Hospital	2	4	1	1	1	4	4	2	1	1	1	2
12	Homs	Tadmour Hospital	1	4	1	0	0	4	4	1	0	1	0	2
13	Hama	Al-Watani Hospital	1	4	1	1	1	4	4	1	0	1	1	2
14	Hama	Salameih Hospital	1	4	1	0	0	4	4	1	0	1	0	2
15	Hasakeh	Al-Watani Hospital	1	4	1	1	1	4	4	1	0	1	1	2
16	Hasakeh	Al-Kameshli Hospital	1	4	1	0	0	4	4	1	0	1	0	2
17	Deir-ez-zor	Al-Furaat Hospital	1	4	1	0	0	4	4	1	0	1	0	2
18	Deir-ez-zor	Al-Watani Hospital	1	4	1	1	1	4	4	1	0	1	1	2
19	Raqqa	Al-Watani Hospital	1	4	1	1	1	4	4	1	0	1	1	2
20	Raqqa	Al-Watani Hospital	1	4	1	0	0	4	4	1	0	1	0	2
21	Sweida	Al-Watani Hospital	1	4	1	1	1	4	4	1	0	1	1	2
22	Quneitra	Baath Health center	1	4	1	0	0	4	4	1	0	1	0	2
TOTAL			26	88	22	13	12	88	88	26	4	22	12	44

4-5 Building Facility Improvement for the Equipment Installation

As mentioned in chapter 3, expansion and renovation work is currently being carried out on the buildings of the emergency departments of the hospitals included in this project by the Syrian side as part of the Project for Improving the Emergency Care System. The progress of this construction work is different at each hospital. Many hospitals have already completed the construction work while some hospitals have not. Some hospitals are still in the planning process and have not started the construction. In this construction work of the buildings, facilities necessary for the installation of the ICU equipment which are to be procured on this project have to be made available by the Ministry of Health of the Syrian Arab Republic before the equipment arrives to each hospital. Also, since there is no building available for the installation of the CT scanners at present, the following facilities have to be prepared by the Syrian side before the arrival.

(1) Construction work for the Installation of CT scanners:

- 1) Preparing rooms for CT scanners (expansion and renovation work on the buildings),
- 2) Laying power lines for the installation of power distribution boards used for the CT scanners (independent wiring necessary),
- 3) Constructing the walls and partitions with protective shield (including lead glass pane for monitoring patients),
- 4) Grounding for electrical wiring.

Room layouts for accommodating CT scanners were presented by the following four hospitals when the field study was conducted.

a. Damascus Hospital

This hospital is planning to build a room for the CT scanner by expanding the western end of the emergency department. The construction work of the emergency department itself was already completed in February, 1992.

Refer to attached file:

Drawings 1 and 2 "Layout for Damascus Hospital (Example A)"

b. Ibn-Rashid Hospital (Aleppo Mufahazts)

The room presented by this hospital, during the field study, is currently used as a medical equipment storage room.

Refer to attached file:

Drawings 4 "Layout for Ibn-Rashid Hospital (Example B)"

c. Al Watani Hospital (Homs)

This hospital has the room which has a space of 7 m x 7 m and is located close to the X-ray room of the emergency department.

Refer to attached file:

Drawings 5 "Layout for Al Watani Hospital (Example D)"

d. Al Watani Hospital (Deir-ez-zor Mufahazts)

To improve the emergency department, this hospital is currently constructing the first floor on the existing one-story building, which was built in 1913. However, it is best to install the CT scanner on the ground floor in order to avoid vibrations to the equipment as well as structural stress to the building. Installing the equipment on the ground floor also facilitates the work of delivery, installation, and maintenance necessary for the equipment.

The Mufahazt of Deir-ez-zor is in the north of the Syrian Desert, and sand storms in the winter bring fine grains of sand into this region. These specks of sand are quite malicious to some medical equipment and can damage equipment which is complex in electronics. Therefore, the room for the CT scanner should have no windows to the outside in order to protect the equipment. Thus, the space of 5 m x 6.2 m which is currently used for surgery and obstetrics is considered for the CT scanner.

Drawing 7 "Layout for Al Watani Hospital" (refer to Example 5)

4-6 Implementation Plan

4-6-1 Implementation Policy

This project is implemented by the executing agency of the recipient country of Japanese Grant Aid, a consultant, and a supplier of medical equipment in mutual cooperation.

(1) Japanese Grant Aid System

The grant aid for this project will be commenced formally after its approval by a cabinet meeting of the Government of Japan and the signing of Exchange of Notes (E/N) by the Governments of both countries. In the implementation stage, it is the Executing Agency, Ministry of Health of the Syrian Arab Republic, that will conclude a contract with a consultant as well as with a supplier in order to proceed this project. The

Executing Agency will also conduct the work which should be executed by the Syrian side, in relation with this project.

(2) Consultant

After the signing of the above mentioned E/N, the Executing Agency is to conclude a consulting services contract concerning this project with a Japanese consultant firm which is recommended by the Japan International Cooperation Agency, in accordance with the formalities of the system of the Japanese Grant . It is important for the Executing Agency to conclude this consulting services contract immediately after the signing of the E/N in order to implement this project smoothly. After the verification of the said contract by the Government of Japan, the consultant is to prepare a document of detailed design specifications on the basis of this basic design study report in consultation with the Executing Agency. After this document of detailed design specifications is approved by the Executing Agency, the consultant will carry out the work for holding a tender which will select a supplier. Then, the consultant will supervise the procurement work carried out by the supplier.

(3) Supplier

The supplier to carry out this procurement must be a Japanese corporation having a certain qualification, and it is to be selected through a tender. The Executing Agency will conclude a contract, in principle, with the supplier that has been selected by its tender which has shown the lowest price for the work. This contract with the supplier must be also verified by the Government of Japan. The supplier will complete the work of manufacturing, delivery, installation and handing-over of the medical equipment and ambulances which are procured on this project to the Government of the Syrian Arab Republic by the date agreed in the contract.

4-6-2 Scope of Work

This project is to be implemented jointly by both countries in mutual cooperation. The scope of work that should be carried out by each country is described as follows:

(1) Scope of Work by the Government of Japan

The scope of work which should be covered by this Japanese Grant Aid includes the procurement of ambulances and radio communications equipment for the 14

mufahazts of the Syrian Arab Republic as well as the procurement of medical equipment for the hospitals included in this project. It also includes the installation of the equipment and training of staffers. Thus, the scope of work covered by this Japanese Grant Aid specifically includes:

- (a) Procuring the items of equipment which are listed in 4-2 of this report for the hospitals included in on this project;
- (b) Transporting the equipment by sea and then overland to these hospitals in the Syrian Arab Republic;
- (c) Installing the equipment;
- (d) Performing test running of the equipment as well as providing instructions on the operation and maintenance of the equipment;and
- (e) Consulting services in above (a) (b) (c) (d)

(2) Scope of Work by the Government of the Syrian Arab Republic

The scope of work carried out by the Syrian side includes:

- (a) Providing places and facilities necessary for the installation of the equipment;
- (b) Completing the work of preparing the supply of electricity, gas, and water as well as drainage for the installation of some equipment which requires these facilities;
- (c) Providing a temporary storage for the equipment up to the time of installation work;
- (d) Ensuring prompt unloading, tax exemption, customs clearance at the port of disembarkation in the Syrian Arab Republic and prompt internal transportation;
- (e) Exempting Japanese nationals involved in the project from paying customs, internal taxes, value added taxes, and other fiscal levies

which may be imposed in the Syrian Arab Republic with respect to the equipment and services provided under the verified contracts;

- (f) Concluding a banking arrangement (B/A) with an authorized Japanese foreign exchange bank, bearing the necessary commissions in hard currency to the bank for the banking services based on the B/A, issuing necessary Authorization(s) to Pay (A/P), and bearing the payment commissions required for A/P based on the B/A;
- (g) According Japanese nationals whose services may be required in connection with the provision of the equipment and services under the verified contracts such facilities as may be necessary for their entry into the Syrian Arab Republic and stay therein for the duration of their work;
- (h) Securing funds necessary for the maintenance of the equipment procured on this project; and
- (i) Bearing all the expenses necessary for this project other than those to be borne by this Japanese Grant.

4-6-3 Implementation Procedure

This project is implemented in accordance with the system of the Japanese Grant Aid. The Japanese consultant firm which concludes a consulting service contract with the project executing agency of the Syrian Arab Republic will execute the detailed design work and supervisory work of this project. This supervisory work is to verify whether the equipment procured and the services carried out by the supplier are in conformity with the contract or not in order to ensure proper execution of the contents of the contract. In addition, the consultant will provide guidance, advice, and adjustments in unprejudiced manner in order to facilitate the implementation of this project. Thus, the work of the consultant includes the following affairs:

(1) Assistance on Tender and Contract

Detail design completed, the consultant prepares a set of documents necessary for holding a tender to select a best Japanese supplier who will procure and install the equipment procured on this project. Then the consultant executes the following

formalities necessary for holding a tender: publication is made announcing that a tender will be held; applications from prospective tenderers are received; their qualifications are examined; documents describing the tender are issued; the tenders are received; and opened these tenders are evaluated; This evaluation must be agreed by Japanese Government and finally, the supplier for this procurement, is selected. The consultant advises the executing agency of the Syrian Arab Republic for concluding a equipment procurement contract with the supplier. This contract is in forth after it is verified by Japanese Government.

(2) Advising the Supplier

The consultant offers instructions, advice, and adjustments to the supplier concerning the execution plan for the procurement of the equipment.

(3) Examination and Approval of Execution Drawings

The consultant examines the drawings, equipment specifications and other documents submitted by the supplier and receives approval on these documents from the executing agency of the Syrian Arab Republic.

(4) Equipment Inspection at Factories

When it is considered necessary, the consultant attends quality inspections carried out by the supplier on the ambulances and medical equipment at the manufacturers factories in order to assure the quality and performance of the equipment.

(5) Reporting the Progress

The consultant seeing the progress of the work at the project sites reports the progress of this project to government agencies concerned of both countries.

(6) Checking and Testing

After the ambulances and medical equipment are procured and installed, the consultant conducts inspections and testing on the vehicles and equipment. The consultant confirms their specifications in reference to the documents of the equipment procurement contract and then submits an inspection completion document to the Syrian side.

(7) Final acceptance

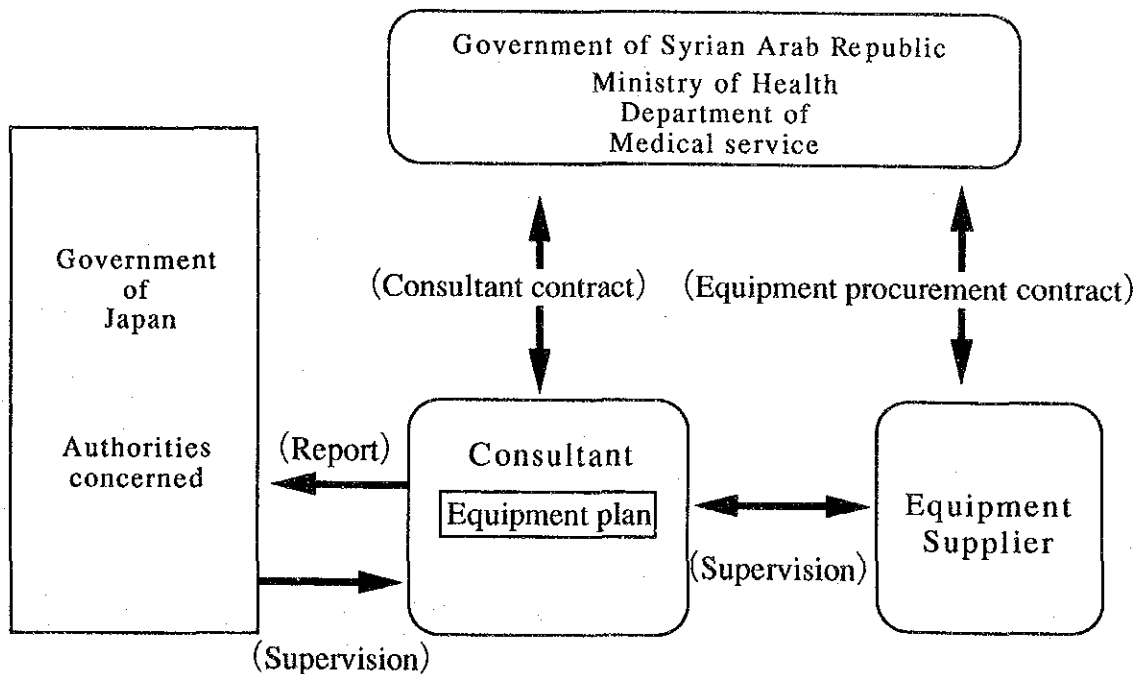
Exécuting Agency of the Syrian Arab Republic issue Handing Over Certificate and take payment procedure according to the contract.

(8) Training

Some items of medical equipment which are procured on this project are quite complex, so it is necessary for the supplier to provide training sessions on the operation of these items as well as on the trouble shooting and repair techniques. The consultant offers advice and instructions on how to carry out these training sessions.

In consideration of the size of this project, in order to carry out the above mentioned tasks smoothly, the consultant dispatches an engineer who will make adjustments, give instructions, and conduct inspections in accordance with the progress of the implementation of this project. The consultant also secures an engineer who will stay in Japan and will specialize himself in this project in order to facilitate communications with those working in the Syrian Arab Republic. This establishes a back-up system for this project. In addition, the consultant will report to the officials concerned with this project, of the Japanese government, on the progress, payment procedures, completion and handing-over, etc., of this project.

The following diagram shows the supervisory system described above, including related agencies.



4-6-4 Procurement Plan

The procurement on this project is carried out in accordance with the following policies.

(1) ICU equipment

In the Syrian Arab Republic, medical equipment are imported from many countries around the world. However, many items of equipment used at the medical facilities of the Syrian Arab Republic are made in Japan, and these Japanese made items are well maintained here. As can be expected from the items of this project and their required maintenance work, most equipment procured on this project will be also made in Japan. However, the items which require special techniques and special consumables should be procured from manufacturers who have local agents with maintenance services. Therefore specification of this Tender document shall be carefully decided considering of this matter.

(2) Ambulances

Many vehicles seen on the roads in Syria are made in Japan. Most vehicle models which are used for ambulances in Syria are also made in Japan. Spare parts for these Japanese vehicles are available through Lebanon and Saudi Arabia. In consideration of vehicle maintenance, the Syrian side has requested vehicles made in Japan for the ambulances which are procured on this project. Therefore, Japanese vehicles are procured for the ambulances, and no consideration is paid to vehicles made in other countries on this project.

(3) CT scanners

The CT scanners procured on this project shall be purchased from the manufacturer which has a record of good sales and maintenance as well as a system to provide replacement parts and consumables in the Syrian Arab Republic. Therefore specification of this Tender document shall be carefully decided considering of this matter.

In case that some equipment are necessary to be procured from third country, Syrian side has to ask approval by the Japanese Government.

4-6-5 Implementation Schedule

After the conclusion of the Exchange of Notes by the Government of the Syrian Arab Republic and the Government of Japan concerning the implementation of this project, the following three processes of work are conducted. This project is implemented in two stages as mentioned 4-1-(2)

(1) Detailed Design

After the executing agency of this project of the Syrian Arab Republic concludes a consulting services contract with a Japanese consultant, this contract must be verified by the Government of Japan. After this verification, the consultant starts designing the procurement plan in detail. In this designing work, the consultant compiles a set of documents necessary for holding a tender to select a best supplier for this procurement. This set of documents consists of equipment specifications and instructions to tenderers. While compiling this set of documents, the consultant discusses, with the Syrian side, the items of equipment which are to be procured. This discussion finally leads to the approval of the set of documents by the Syrian side. It is expected that this work of designing in detail will take 1 and 1.5 months for each of the two phases of this project respectively.

(2) Tender

The following processes will be carried out to select the most suitable supplier for each of the two stages of this project: publication is made announcing that a tender will be held; applications from prospective tenderers are received; their qualifications are examined; documents describing the tender are issued ;tenders are received and opened; these tenders are evaluated; the supplier for the first stage (or second stage) of this project is selected; and a equipment procurement contract is concluded with the supplier. This process requires 1.5 months for each of the two phases of this project.

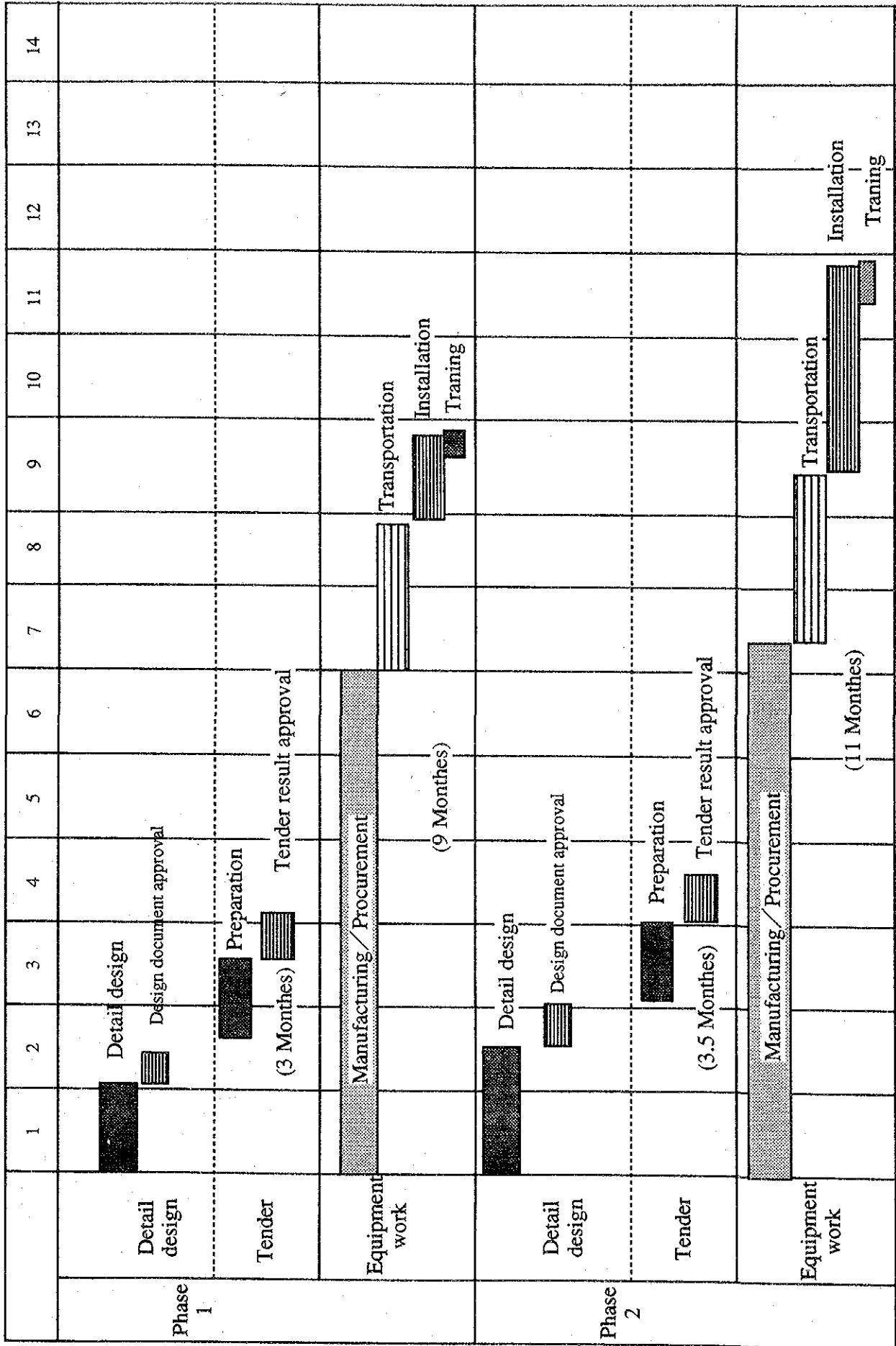
(3) Implementation

The contract concluded with the supplier must be verified by the Government of Japan. After this verification, this project is implemented. Considering the number and state of the medical facilities involved in this project as well as the items procured on this project, the implementation of the first phase of this project is estimated to take about 9

months. By the same reasoning, the implementation of the second phase of this project is estimated to take about 11 months.

The following diagram describes the project implementation schedule for the period from the signing of the first Exchange of Notes to the completion of this project.

Implementation schedule



4-7 Estimated Project Cost

Estimated Cost to be Borne by the Government of the Syrian Arab Republic

For the second phase of this project.

Construction cost for the CT rooms: 5.531 million Syrian pounds

Name of the hospital	Cost (Syrian pounds)
1. Damascus hospital (Damascus city)	SP 2,201,000
2. Ibn Rashid hospital (Aleppo)	SP 1,250,000
3. Al-Watani hospital (Homs)	SP 1,084,000
4. Al-Watani hospital (Derezzor)	SP 996,000
Total	SP 5,531,000

In addition to this construction cost, the following expenses should be also counted in: fees to establish a banking arrangement (B/A) concerning this project, fees to issue Authorization(s) to Pay (A/P), and procedural expenses to facilitate the exemption of government levies and duties on this project.

It is necessary for the Government of the Syrian Arab Republic to conduct budgetary allocations and construction work at appropriate times on the above mentioned matters so that not only this project will be implemented smoothly, but also the medical facilities with the equipment procured on this project can function effectively.

Chapter 5 Project Evaluation and Conclusion

Chapter 5 Project Evaluation and Conclusion

5-1 Project Evaluation

(1) By implementing this project, resulting effects or improvements can be expected as in the following table.

Current Circumstances and Problems	Measures to be Taken on This Project	Effects and Improvements Expected
Ambulance mobilization is not carried out sufficiently because many vehicles are so old that they encounter frequent breakdowns, requiring repairs.	The vehicles which are dilapidated or not repairable are replaced with new vehicles.	Since 47% of the existing vehicles are replaced with new vehicles, requests for ambulance mobilization can be fully answered to save many emergency patients.
A relatively large part of the funds available for emergency care is consumed by the maintenance cost of these dilapidating vehicles.	Furthermore, one vehicle equipped with emergency equipment, which is intended to be used for long-distant patient transportation,	Since 47% of the existing vehicles are replaced with new vehicles, reductions in the maintenance cost enables the future purchase of new vehicles.
The public do not appreciate the emergency services, as requests for ambulance mobilization are often refused due to the unavailability of vehicles which are in good condition.	is procured for each muhafazat in these replacing vehicles in order to enable speedy patient transportation.	Since 47% of the existing vehicles are replaced with new vehicles, speedy patient transportation is possible to benefit the people in their welfare.
The garages have telephones but do not have any means of communication with ambulances on the road. Many patients are not saved because of this ineffective communication.	A wireless communications center is established at the provincial capital of each of the 13 muhafazats, and each of the 128 new vehicles procured on this project is equipped with a radio communications instrument.	Since 47% of the Ambulances are equipped with a radio communications instrument, speedy patient transportation is possible to benefit the people in their welfare.
The emergency departments of local hospitals do not have much ICU equipment, so patients in need of emergency care are transferred to hospitals in Damascus or Aleppo. So the two hospitals are over-crowded.	ICU equipment is procured for the emergency departments of 22 base hospitals around the country.	As 78% of the emergency hospitals are improved in their functions of ICU, the concentration of patient in Damascus and Aleppo can be alleviated. Also, more patients will be saved, which is a benefit for the people of Syria.
The Ministry of Health does not have any CT scanner at the hospitals under its control, so emergency patients with some complex cases are not diagnosed accurately.	CT scanners are procured for four major hospitals to improve the diagnostic function of the emergency care system.	An emergency diagnostic system is established with four CT scanners for each of the four regions, the northern part, southern part, eastern part, and western part of the Syrian Arab Republic. These hospitals enable the diagnoses of emergency patients with cases of cerebral injuries caused in traffic accidents. Thus, more emergency patients will be saved, which is a benefit for the people of Syria.

5-2 Propriety of the Project Implementation

The emergency care system of the Syrian Arab Republic is organized with Damascus Hospital in Damascus and Ibn-Rashid Hospital in Aleppo with their highest medical facilities among the 28 national hospitals with emergency departments which are located in the 14 muhafazats of the country. However, this system does not function sufficiently because not only these hospitals' emergency departments are poorly equipped, but also the medical equipment installed is dilapidated. As patients with severe conditions are not treatable at these emergency departments, these patients have to be transferred to Damascus Hospital in Damascus, the nation's capital city, or Ibn-Rashid Hospital in Aleppo. In addition to these poorly equipped emergency departments, ambulances, which are necessary for emergency patient transportation, are also not prepared to support the emergency care system. The reason is that the vehicles used for ambulances are not easily maintainable for mobilization. This problem of insufficient vehicle maintenance results from the aged vehicles, many of which are more than ten years old. Thus, not much benefit is derived for the the people of the Syrian Arab Republic from the existing emergency care system. To improve this emergency care system, this project is to procure medical equipment for the 22 national hospitals including Damascus Hospital in Damascus and Ibn-Rashid Hospital in Aleppo, and ambulances for the Health Directorates of all 14 muhafazats. These measures taken on this project are to improve about 78% of the hospitals having emergency departments under the Ministry of Health and to replace about 47% of the ambulances which are indirectly owned by the ministry. This project surely benefits the people of the Syrian Arab Republic with many expected effects or improvements in their welfare. Therefore, it is highly appropriate to implement this project. The propriety of implementing this project can be appreciated also in the following sections, "Personnel Arrangement" and "Maintenance."

(1) Personnel Arrangement

There is no need of restaffing the emergency departments of the hospitals since these departments already have sufficient numbers of medical personnel and are operating around-the-clock emergency services. Even if a need of additional personnel arises because of the implementation of this project, it can be dealt in the personnel arrangement of new employees the Ministry of Health hires every year. This annual hiring of medical personnel by the ministry is possible since the people are legally obliged to work for the government for several years immediately after their graduation. Because of this system, there will be also no problem in staffing the CT scanners on this project. Medical personnel capable of CT scanning is available since training courses for CT scanning are

provided at university hospitals which are equipped with CT scanners and are under the control of the Ministry of Higher Education. Also, a staff increase is not required for the part of ambulance procurement on this project. At present, a sufficient number of ambulance drivers are stationed at the garage of the Health Directorate of each muhafazat. Since this project is intended to renew the existing fleets of ambulances by replacing dilapidated vehicles, there is no increase in the total number of ambulances. Therefore, as far as the payroll is concerned, this project requires no additional personnel cost. The Ministry of Health can keep the conventional annual hiring without any change.

(2) Maintenance

1) ICU equipment

ICU equipment requires expenses for electricity, medical gases, jell for ultrasound scanning, recording paper, etc. As seen from "3-3-4 Budgeting", the total cost necessary for maintaining the ICU equipment procured on this project is approx. 1,686,500 Syrian pounds a year. Since the number of items of equipment provided to each hospital is small, the average annual maintenance cost for the ICU equipment of each hospital is about 72,500 Syrian pounds. This amount is absorbable in the annual increase of each hospitals' budget. The Ministry of Health should allocate budget to each hospital funds enough to meet this increase.

2) CT scanners

The expenses required for consumables and replacement parts for maintaining each CT scanner is estimated at about 752,000 Syrian pounds a year. Since X-ray tubes used in CT scanners are expensive, the Ministry of Health should allocate budget appropriately for future purchases of X-ray tubes as spare parts. Furthermore, CT scanners require periodical checks performed by a specialist, and the annual cost for these checks performed for each CT scanner is estimated at about 16,000 Syrian pounds. It is recommendable that the Ministry of Health charge the patients who receive CT scanning the amount enough for maintaining the equipment as done by the hospitals under the Ministry of Higher Education for CT scanning services.

3) Ambulances

Not many problems are expected on the vehicles in the next several years after the procurement. However, oil change, tire replacement, and periodical checks are necessary

for the new vehicles as well as for old ones, so the expenses for these matters of vehicle maintenance must be kept in the budgetary allocation without any tampering.

5-3 Conclusion

As described so far, by implementing this project, the following improvements are expected:

1. About 47% of the existing vehicles are replaced with new vehicles which are equipped with wireless; radio-communications equipment is installed at the garage of the Health Directorate of each muhafazat to strengthen the communications network for ambulance mobilization so that the maximum efficiency of emergency patient transportation is achieved in the elimination of the time wasted by the vacant ambulances on the road;
2. ICU equipment is procured for the emergency departments of 22 national hospitals around the country, so the patient monitoring immediately after emergency treatment can be performed effectively;
3. Since the Ministry of Health has been struggling with the problem of diagnosing emergency patients with cerebral injuries, CT scanners are introduced to some of the hospitals under the ministry, enabling the quick diagnoses of emergency patients; and the procurement of four CT scanners establishes an advanced diagnostic center for each of the four regions, the northern part, southern part, eastern part, and western part of the Syrian Arab Republic, improving the nationwide emergency care system, further.

As can be seen from these improvements, this project is expected to contribute greatly to the health of all the people of the Syrian Arab Republic. Therefore, it is judged appropriate and necessary to implement this project through a grant aid assistance offered by the Government of Japan, and this project is implemented in two phases to secure successful implementation.

5-4 Recommendations

The following recommendations are presented not only to implement this project smoothly but also to secure the effective operation of the emergency care system after the completion of this project.

(1) Prompt Conclusion of Contracts

Since this project is implemented in compliance with the system of the Japanese Grant Aid, there is time restriction on the implementation of this project. Therefore, it is necessary for the executing agency of the Government of the Syrian Arab Republic to promptly conduct the signing of the Exchange of Notes, the conclusion of the consulting services contract, the verification of the documents of detailed designing which are prepared on the basis of this basic design study report, the conclusion of the equipment procurement contract with a supplier, etc.

(2) Prompt Implementation of the Work to be Carried Out by the Syrian Side

Since the study team has explained the system of the Japanese Grant Aid to the officials concerned of the Syrian Arab Republic, the Syrian side understands the necessity of carrying out the work which is assigned to them on this project. It is important for the Syrian side to allocate appropriately the funds necessary for the project at each annual budgetary allocation. Particularly, it is important to complete the construction work which is carried out to expand and renovate the emergency departments as well as to prepare rooms for the CT scanners at the hospitals included in this project before the equipment delivery by the Japanese side starts. Also, funds should be made available for exempting the Japanese side from paying the duties on the equipment and materials brought into Syria.

(3) Maintenance

As previously mentioned, to make best use of the equipment procured on this project, it is essential that appropriate maintenance is carried out by the Syrian side. The operation of the CT scanners and ambulances should be monitored for efficient utilization, and the CT scanners should be maintained by a specialist through a maintenance contract with the manufacturer.

(4) Budgetary Allocation

As previously mentioned, the implementation of this project is possible only in cooperation with the Syrian side, which conducts appropriately its undertaking of this project. Therefore, it is important for the Syrian side to budget for the work at the

appropriate times as described in the section "4-7 Estimated Project Cost" to avoid any delay in the implementation of this project.

Appendices

1. Member List of Basic Design Study Team

(1) Basic Design Study (September 5 - October 10, 1992)

1. TAMOTSU NAKASA	Team Leder	Department of International Cooperation National Medical Center Hospital Ministry of Health and Welfare
2. YOSHINORI HASHIGUCHI	Grant Aid Planner	Study Review and Coordination Division Grant Aid Study & Design Department Japan International Cooperation Agency (JICA)
3. FUKUICHI WATANABE	Project Manager Medical Equipment 1	International Techno Center Co., LTD.
4. TAKASHI YOZA	Medical Equipment 2	International Techno Center Co., LTD.
5. TOSHIRO KAWADA	Facility Engineer	SKY Architect & Engineers INC.
6. SHIGETAKA TOJO	Operation and Management Specialist	International Techno Center Co., LTD.
7. TOSHITUGU ISHIKAWA	Interpreter	International Techno Center Co., LTD.

(2) Explanation of Draft Final Report (January 11 - January 22, 1993)

1. TAMOTSU NAKASA	Team Leder	Department of International Cooperation National Medical Center Hospital Ministry of Health and Welfare
2. SHIGERU OKAMOTO	Grant Aid Planner	Deputy Director First Basic Design Study Division Grant Aid Study & Design Department Japan International Cooperation Agency (JICA)
3. FUKUICHI WATANABE	Project Manager Medical Equipment 1	International Techno Center Co., LTD.
4. SHIGETAKA TOJO	Operation and Management Specialist	International Techno Center Co., LTD.
5. TOSHITUGU ISHIKAWA	Interpreter	International Techno Center Co., LTD.

2. Study Schedule

(1) Basic Design Team (September 5 - October 10, 1992)

- A : GOVERNMENT MISSION SEP.27~OCT.10 (14days)
 B : CONSULTANT (MEDICAL EQUIPMENT, 3person) SEP.5~OCT.10 (36days)
 C : CONSULTANT (FACILITY) SEP.5~OCT.10 (21days)
 D : INTERPRITER SEP.5~OCT.10 (29days)

No	Date	Day	Schedule of Government mission	Schedule of consultant	Survey schedule	
1	9/5	Sat.		BC : Tokyo→Frankfurt	BC : LH711	
2	/6	Sun.		BC : Frankfurt→Damascus	BC : LH668	
3	/7	Mon.		BC : Damascus	BC : Courtesy call Ministry of Health State Planning Commission Embassy of Japan, JICA	
4	/8	Tue.		BC : Damascus	BC : Briefing and discussion State Planning Commission Ministry of Health (Explanation about Japan's Grant Aid System and Inception report, Questionnaire)	
5	/9	Wed.		BC : Damascus	BC : Internal meeting.	
6	/10	Thu.		BC : Damascus	BC : Meeting in Ministry of Health (Discussion about this project)	
7	/11	Fri.		BC : Damascus	BC : Internal meeting	
8	/12	Sat.		D : Tokyo→Frankfurt BC : Damascus→Sweida →Damascus	D : LH711	BC : Survey in Sweida
9	/13	Sun.		D : Frankfurt→Damascus BC : Damascus	D : LH668	BC : General meeting in Ministry of Health
10	/14	月		BCD : Damascus→Aleppo Stay in Aleppo	BCD : Survey in Aleppo	
11	/15	火		BCD : Aleppo→Raqqah →Deir-ez-Zor Stay in Deir-ez-Zor	BCD : Survey in Raqqah	

No	Date	Day	Schedule of Government mission	Schedule of Consultant		Survey schedule	
12	/16	Wed.		BCD : Deir-ez-zor Stay in Deir-ez-zor		BCD : Survey in Deir-ez-zor	
13	/17	Thu.		BCD : Deir-ez-zor→Hassakeh Stay in Deir-ez-zor		BCD : Survey in Hassakeh	
14	/18	Fri.		BCD : Deir-ez-zor→Damascus Stay in Damascus		BCD : move to Damascus	
15	/19	Sat.		BCD : Damascus		BCD : Survey at Damascus Hospital (CT, ICU) : Survey at garage	
16	/20	Sun.		BCD : Damascus		BCD : Survey at IBN Al-Naffis Hospital	
17	/21	Mon.		BCD : Damascus		BCD : Survey in Dar's Al-Watani Hospital Izura Health Center	
18	/22	Tue.		BCD : Damascus		BCD : Survey in Quneitra Baath Health Center Goran Hospital	
19	/23	Wed.		C : Damascus →Frankfurt	BD : Damascus	C : LH669	BD : Survey at M.E.Center : Survey of Agent
20	/24	Thu.		C : Frankfurt →	BD : Damascus	C : LH710	BD : Meeting with WHO (Activity and Programme)
21	/25	Fri.		C : →Tokyo	BD : Damascus	BD : Internal meeting	
22	/26	Sat.		BD : Damascus→Homs →Damascus		BD : Survey at Homs Al-Watani Hospital Polyclinic	
23	/27	Sun.	A : Tokyo→Frankfurt	BD : Damascus		A : LH711	BD : Survey about Marketing and Transportation
24	/28	Mon.	A : Frankfurt→ Damascus	BD : Damascus		A : LH668	BD : Survey at Duma Hospital : Courtesy call of Health Directorate
25	/29	Tue.	A : Damascus	BD : Damascus		ABD : Courtesy call Embassy of Japan JICA office Ministry of Health State Planning Commission	

No.	Date	Day	Schedule of Government mission	Schedule of Consultant	Survey schedule
26	/30	Wed.	A : Damascus	BD : Damascus	ABD : Survey in Damascus Assad Hospital (MOHE) Damascus Hospital
27	10/1	Thu.	A : Damascus	BD : Damascus	ABD : Survey in Hama Al-Watani Hospital Salamieh Hospital
28	/2	Fri.	A : Damascus	BD : Damascus	ABD : Survey at Tadmour Hospital
29	/3	Sat.	A : Damascus→Tartous →Lattakia Stay in Lattakia	BD : Damascus→Tartous →Lattakia Stay in Lattakia	ABD : Survey in Tartous Al-Watani Hospital
30	/4	Sun.	A : Lattakia Stay in Lattakia	BD : Lattakia Stay in Lattakia	ABD : Survey in Lattakia Al-Watani Hospital
31	/5	Mon.	A : Lattakia→Idlib →Damascus	BD : Lattakia→Idlib →Damascus	ABD : Survey in Idlib Al-Watani Hospital : Internal meeting
32	/6	Tue.	A : Damascus	BD : Damascus	ABD : Meeting with Ministry of Health State Planning Commission (Making draft of Minutes)
33	/7	Wed.	A : Damascus	BD : Damascus	ABD : Signing Minutes in Ministry of Health : Report to Embassy of Japan and JICA office
34	/8	Thu.	A : Damascus→Paris	BD : Damascus→Paris	ABD : AF8162
35	/9	Fri.	A : Paris→	BD : Paris→	ABD : AF276
36	/10	Sat.	A : →Tokyo	BD : →Tokyo	

(2) Explanation of Draft Final Report (January 11 - January 22, 1993)

A : Team Leader Jan. 11 ~ Jan. 21 (11 days)
 B : Grant Aid Planner Jan. 11 ~ Jan. 22 (12 days)
 C : Consultant (Medical Equipment) Jan. 11 ~ Jan. 22 (12 days)
 (Operation and Management)
 (Interpreter)

No	Date	Day	Schedule of Government mission	Schedule of Consultant	Survey schedule
1	1/11	Mon.	AB : Tokyo→Frankfurt	C : Tokyo→Frankfurt	ABC : LH711~
2	/12	Tue.	AB : Frankfurt→ Damascus	C : Frankfurt→ Damascus	ABC : LH668
3	/13	Wed.	AB : Damascus	C : Damascus	ABC : Courtesy call JICA office State Planning Commission Ministry of Health
4	/14	Thu.	AB : Damascus	C : Damascus	ABC : Meeting with State Planning Commission Ministry of Health
5	/15	Fri.	AB : Damascus→ Aleppo→Damascus	C : Damascus→ Aleppo→Damascus	ABC : Survey in Aleppo IBN Roushed Hospital Aleppo Garage
6	/16	Sat.	AB : Damascus	C : Damascus	ABC : Meeting with Ministry of Health
7	/17	Sun.	AB : Damascus→ →Damascus	C : Damascus→ →Damascus	ABC : Signing Minutes AB : Survey in Quneitra Baath Health Center C : Survey of Agent
8	/18	Mon.	AB : Damascus	C : Damascus	ABC : Report to Embassy of Japan JICA office
9	/19	Tue.	A : Damascus→Frankfurt B : Damascus	C : Damascus	A : OS722 B : Meeting with Embassy of Japan JICA office C : Survey of Agent
10	/20	Wed.	A : Frankfurt→ B : Damascus→Frankfurt	C : Damascus→Frankfurt	BCD : LH669
11	/21	Thu.	A : →Tokyo B : Frankfurt→	C : Frankfurt→	BCD : LH669
11	/22	Fri.	B : →Tokyo	C : →Tokyo	

3. Member List

(1) Basic Design Team (September 5 - October 10, 1992)

Ministry of State Planning Commission

Dr. ABDUL RAHIM SEBA'Y Director

Ministry of Health

Dr. MOHAMMED EYAD CHATTY	Minister
Dr. MUSTAFA KMMAL BAATH	Vice Minister
Dr. ABDUL LATIFF JAZMATI	Director of Medical Services Directorate
Dr. HUDA HAMED	Director of Statistic Directorate
Dr. MOHAMMED ALI KAROUKLI	Director of of Hospital Furnishing Office
Mr. DAWOOD BISHARA	Officer of Central Administration M.O.H.
Dr. BASLLAN BASLLAN	Director of ALEPPO Health Directorate
Dr. AHMAD MAROUFRADER	Director of LATTAKIA Health Directorate
Dr. SHARAF ABAZA	Director of QUNEITRA Directorate
Dr. WARID AL-TURK	Director of DAMASCUS SUBURB Health Directorate
Dr. HAMDO KHALIL	Director of RAKKA Health Directorate
Dr. JACK AL-FAKEH	Director of HASAKEH Health Directorate
Dr. KAMAL HAMDAN	Director of SWEIDA Health Directorate
Dr. MOHAMMED DIRANIH	Director of DAMASCUS Health Directorate
Dr. BADER AL-DIN BASHIMAN	Director of DAMASCUS Hospital
Dr. ABOUL AL-RAHIM BARMO	Director of DERRAA Health Directorate

Embassy of Japan

Mr. YUZURU KUBOTA	Ambassador
Mr. YMAZAKI	Minister Counselor
Mr. KAZUHIKO KAMATA	

JICA Damascus Office

Mr. KUNIYOSHI MATSUO	Resident Representative
Mr. YUSUKE WATANABE	

(2) Explanation of Draft Final Report (January 11 - January 22, 1993)

Ministry of State Planning Commission

Dr. ABDUL RAHIM SEBA'Y Director

Ministry of Health

Dr. MOHAMMED EYAD CHATTY Minister
Dr. ABDUL LATIFF JAZMATI Director of Medical Services Directorate
Dr. HUDA HAMED Director of Statistic Directorate
Dr. MOHAMMED ALI KAROUKLI Director of of Hospital Furnishing Office
Dr. BASLLAN BASLLAN Director of ALEPPO Health Directorate
Dr. SHARAF ABAZA Director of QUNEITRA Directorate

Embassy of Japan

Mr. YUZURU KUBOTA Ambassador
Mr. YMAZAKI Minister Counselor
Mr. KAZUHIKO KAMATA

JICA Damascus Office

Mr. KUNIYOSHI MATSUO Resident Representative
Mr. YUSUKE WATANABE

4. Minutes of Discussion
(1) Basic Design Study

MINUTE OF DISCUSSIONS
ON
THE BASIC DESIGN STUDY ON THE PROJECT FOR
THE UPGRADING EMERGENCY SERVICES
IN
THE SYRIAN ARAB REPUBLIC

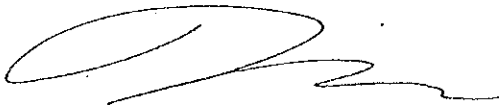
In response to a request from the Government of the Syrian Arab Republic, the Government of Japan decided to conduct a Basic Design Study on the Project for the Upgrading Emergency Services (hereinafter referred to as 'the Project'), and entrusted the study to the Japan International Cooperation Agency (JICA).

JICA sent to Syria a study team, which is headed by M.D. Tamotsu Nakasa, Department of International Cooperation, National Medical Center Hospital, Ministry of Health and Welfare from September 6 to October 8, 1992.

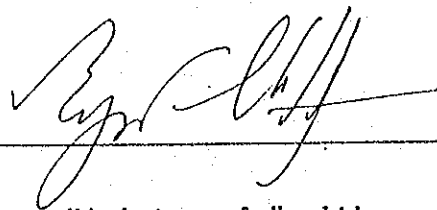
The team had a series of discussions with the official concerned of the Government of Syria and conducted a field survey at the study area.

As a result of discussions and field survey, both sides have confirmed the main items described in the attached sheets. The team will proceed to further work and prepare the Basic Design Study Report.

Damascus, October 7, 1992



M.D. Tamotsu Nakasa
Leader
Basic Design Study Team
JICA



Ministry of Health
The Syrian Arab Republic

ATTACHMENT

1. Objective

The objective of the Project is to improve the emergency services by procurement of the necessary ambulances and equipment.

2. Project Site

The project sites are shown in the Annex 1.

3. Executing Agency

Ministry of Health is responsible for the administration and execution of the Project.

4. Items requested by Syria side

The following items were finally requested by the Syria side in order of priority.

- 4.1 Procurement of Ambulances without equipment
- 4.2 Procurement of Ambulances with equipment
- 4.3 Procurement of I.C.U. equipment
- 4.4 Procurement of CT Scanner

5. Comments by Japanese side on the requested items mentioned in 4. above.

- 5.1 The Japanese side will review the necessary items for the Project according to the priority order proposed by the Syria side.
- 5.2 The final components of the Project may differ, when considered necessary after further studies in Japan.

6. Japan's Grant Aid system

- 6.1 The Syria side understands the system of Japan's Grant Aid as explained by the team.
- 6.2 The Syria side will take necessary measures, as described in Annex 2 for the smooth implementation of the Project on condition that the Grant Aid by the Government of Japan is extended to the Project.

7. Other relevant issues

On condition that Japan's Grant Aid is extended to the Project:

- 7.1 The Ministry of Health will recruit necessary personnel for the Project to secure proper maintenance and operation of the ambulances and equipment included in the Project.
- 7.2 In this connection, the Ministry of Health will assure the adequate provision of funds for maintenance and operation in recurrent budget.
- 7.3 The ministry of Health will maintain adequate performance and utilization data on the ambulances and equipment included in the Project. And these data will be submitted annually to the Japanese side.

8. Schedule of the study

- 8.1 Based on the Minutes of Discussions and the results of the study, JICA will compile a draft report and dispatch a mission in order to explain its contents in the beginnings of 1993.
- 8.2 Upon approval of the said draft report by the Syria side, JICA will complete the final report and submit it to the Government of Syria and the government of Japan around March 1993.

20
D

Annex 1

Equipment	Hospital																	
Resuscitation bed	2	1	1	1	2	1	1	1	1	1	2	1	1	1	1	1	Damascus Hospit (Damascus Cit; Ibn Al-Naffis (Damascus City) Duma Al-Jerahi Damascus Suburb Ibn Roushd (Aleppo) Al- Razi (Aleppo) Al-Watani (Idlib) Ibn-Sina Hosp. (Idlib) Al-Watani (Lattakia) Jableh (Lattaki) Al-Watani (Tartous) Al-Watani (Homs) Tadmour (Homs) Al-Watani (Hama) Salameih (Hama) Al-Watani (Hasakeh) Al-Kameshli (Hasakeh) Al- Furaat (Deir-Ez-Zor) Al-Watani (Deir-Ez-Zor) Al-Watani (Raqqa) Al-Watani (Derra) Al-Watani (Sweida) Baath Health Center(Quneitra) M.O.H. Central Garage	25
2.Bed Side Monitor	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4		84
3.Ventilator (Pimovement)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		21
4.Ventilator (Electrical)	1	1		1	1	1				1	1					1		12
5.Blood Gas Analyzer	1	1			1	1				1						1		12
6.Suction Device	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4		84
7.Oxygen Flowmeter & Inhaler	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4		84
8.Defibrillator (Stationary)	2	1	1	1	2	1	1	1	1	2	1	1	1	1	1	1		25
9.Defibrillator (Ambulatory)	1				1					1								4
10.ECG (3 Channel)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		21
11.Equipped Amb																		
12.NON-Equipped Amb.																		
CT Scanner	*1	1			1													7+6
Level	(1)	2	3	(1)	2	3	3	3	(1)	3	2	(1)	3	2	3	2		
Portable Ultrasonic	1	1		1	1				1									12
Pulse Oximeter	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2		42
4 Wheel Drive									*							*		50

Sophisticated Scanner
(Central Hospital)

Annex 2

Necessary measures to be taken by the Government of Syria on condition that Japan's Grant Aid is extended

1. To provide the land for temporary site office, warehouse and stockyard during the implementation period
2. To ensure prompt unloading, tax exemption, customs clearance at the port of disembarkation in Syria, and prompt internal transportation of imported materials and equipment for the Project
3. To exempt Japanese national from custom duties, internal taxes and other fiscal levies which may be imposed in Syria with respect to the supply of the products and services under the verified contracts
4. To accord Japanese Nationals, whose services may be required in connection with the supply of products and the services under the verified contracts, such facilities as may be necessary for their entry into Syria and stay therein for the duration of their work 20
J
5. To use and maintain properly and effectively all the equipment purchased under the Grant
6. To bear all the expenses other than those to be borne by the Grant, necessary for the procurement of the equipment as well as for the transportation and the installation of the equipment

(2) Explanation of Draft Final Report
MINUTES OF DISCUSSIONS

ON
THE BASIC DESIGN STUDY ON THE PROJECT FOR
THE UPGRADING EMERGENCY SERVICES
IN
THE SYRIAN ARAB REPUBLIC
(CONSULTATION ON DRAFT REPORT)

In September 1992, the Japan International Cooperation Agency (JICA) dispatched a Basic Design Study Team on the Project for the Upgrading Emergency Services (hereinafter referred to as "the Project") to the Syrian Arab Republic, and based on the discussions with the Syrian side and the examination of the results of the field survey, JICA has prepared the draft report of the study.

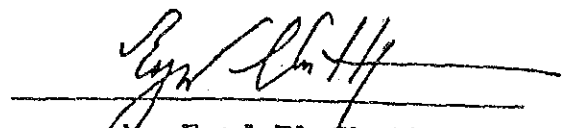
In order to explain and discuss the contents of the draft report, JICA sent to Syria a study team, which is headed by Dr. Tamotsu Nakasa, M.D., Department of International Cooperation, National Medical Center Hospital, Ministry of Health and Welfare from January 12 to 20, 1993.

As a result of discussions, both sides have confirmed the main items described in the attached sheets.

Damascus, January 17, 1993



Dr. Tamotsu Nakasa, M.D.
Leader
Draft Report Explanation Team
JICA



M. Eyad El Shatty
Minister
Ministry of Health
The Syrian Arab Republic

ATTACHMENT

1. Contents of the Draft Report

The Syrian side has agreed and accepted in principle the contents of the Draft Report proposed by the team.

The components to be procured in the Project are summarized in ANNEX I for the first phase and ANNEX II for the second phase.

2. Japan's Grant Aid system

2.1 The Syrian side has understood the system of Japan's Grant Aid as explained by the team.

2.2 The Syrian side will take the necessary measures, as described in ANNEX III for the smooth implementation of the Project on condition that the Grant Aid by the Government of Japan is extended to the Project.

3. Other relevant issues

On condition that Japan's Grant Aid is extended to the Project;

3.1 the Ministry of Health will recruit necessary personnel for the Project to secure proper maintenance and operation of the ambulances and equipment included in the Project.

3.2 in this connection, the Ministry of Health will assure the adequate provision of funds for maintenance and operation in the recurrent budget.

3.3 the Ministry of Health will make an inventory list on the equipment and spare parts included in the Project.

3.4 the Ministry of Health will maintain adequate performance and utilization data on the ambulances and equipment included in the Project. And these data will be submitted annually to the Japanese side.

4. Further Study

JICA will complete the final report with the confirmed items, and send it to the Government of Syria around March 1993.



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ANNEX I

Number of Ambulances for each Muhafazat

Muhafazat	Population	Popul./ Ambul.	Number of Amb ulance Total	Ambulance Replaced		
				non equi	equi pped	4WD
Min. Health & Damascus city	1,473,000	35,926	4 1	2 0	1	0
Damascus Sub.	1,351,000	67,550	2 0	1 0	1	0
Dara	568,000	24,695	2 3	1 3	1	0
Sweida	281,000	25,545	1 1	7	1	0
Homs	1,209,000	54,954	2 2	1 0	1	0
Tartus	644,000	49,538	1 3	2	1	1
Latakia	783,000	34,043	2 3	6	1	1
Hama	1,046,000	68,733	1 5	8	1	0
Aleppo	2,677,000	74,361	3 6	9	1	0
Idlib	870,000	45,789	1 9	1 0	1	0
Derezor	565,000	40,357	1 4	2	1	0
Lakka	485,000	34,642	1 4	3	1	0
Hasakeh	965,000	53,611	1 8	1 3	1	0
Quneitra	41,000	5,125	8	0	0	2
Total			2 7 7	113	13	4
				1 3 0		

Equipment for each Hospital

Hospital	Bedside Monitor	Respirator	Blood Gas Analyzer	Suction Apparatus	Resuscitator w/ Flowmeter	Defibrillator	ECG (3lh)	Ultra-sound App.	Puls Oximeter	CT Scanner
Damascus	4	1	1	2	4	1	1	1	2	1
Aleppo Ibn-Rashid	4	1	1	2	4	1	1	1	2	1
Duma Al-Jerahi	4	1	0	2	4	1	1	1	1	
Homs Al-Watani	4	1	0	2	4	1	1	1	2	1
Hama Al-Watani	4	1	0	2	4	1	1	1	2	
Hasakeh Al-Watani	4	1	0	2	4	1	1	1	2	
Idlib Al-Watani	4	1	0	2	4	1	1	1	2	
Latakia Al-Watani	4	1	0	2	4	1	1	1	2	
Tartus Al-Watani	4	1	0	2	4	1	1	1	2	
Derezor Al-Watani	4	1	0	2	4	1	1	1	2	1
Dara Al-Watani	4	1	0	2	4	1	1	1	2	
Rakka Al-Watani	4	1	0	2	4	1	1	1	2	
Swaida Al-Watani	4	1	0	2	4	1	1	1	2	
Damascus Ibn Al-Nafis	4	1	0	2	4	1	1	1	2	
Aleppo Al-Razi	4	1	0	2	4	1	1	1	2	
Hasakeh Kahalshili	4	1	0	2	4	1	1	1	1	
Derezor Al-furaat	4	1	0	2	4	1	1	1	1	
Idlib Ibn Sina	4	1	0	2	4	1	1	1	1	
Ouneitra Baath Health	0	1	0	1	0	1	1	1	1	
Latakia Jableh	4	1	0	2	4	1	1	1	1	
Homs Tadmor	4	1	0	2	4	1	1	1	1	
Hama Sarakhe	4	1	0	2	4	1	1	1	1	
Total	84	22	2	43	84	22	22	22	36	4

ANNEX III

Necessary measures to be taken by the Government of Syria on condition that Japan's Grant Aid is extended:

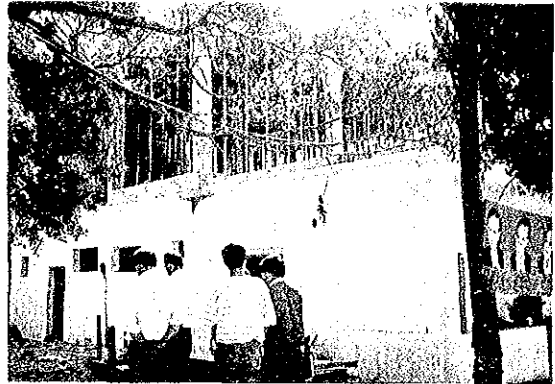
1. To provide the land for temporary site office, warehouse and stock yard during the implementation period
2. To conclude a Banking Arrangement (B/A) with an authorized Japanese foreign exchange bank and bear the necessary commissions to the Japanese foreign exchange bank for the banking services based upon the B/A
3. To issue necessary Authorization(s) to Pay (A/P) and bear the necessary payment commissions for A/P based upon the B/A
4. To ensure prompt unloading, tax exemption, customs clearance at the port of disembarkation in Syria
5. To exempt Japanese nationals from customs duties, internal taxes and other fiscal levies which may be imposed in Syria with respect to the supply of the products and services under the Verified Contracts
6. To accord Japanese Nationals, whose services may be required in connection with the supply of products and the services under the Verified Contracts, such facilities as may be necessary for their entry into Syria and stay therein for the duration of their work
7. To use and maintain properly and effectively all the equipment purchased under the Grant
8. To bear all the expenses other than those to be borne by the Grant, necessary for the procurement of the equipment as well as for the transportation and the installation of the equipment

24

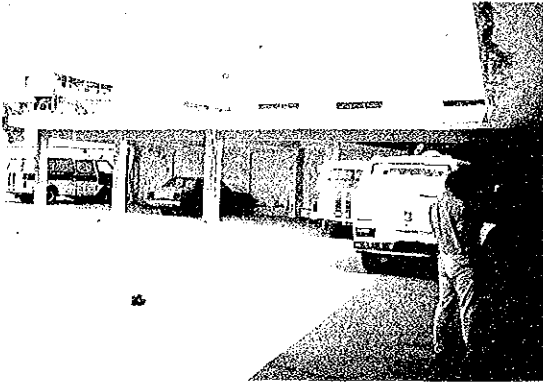
5 PHOTOGRAPHS OF PROJECT SITE



HOMS TADMOUR HOSPITAL GARAGE



TARTOUS AL-WATANI HOSPITAL
CONSTRUCTION SITE



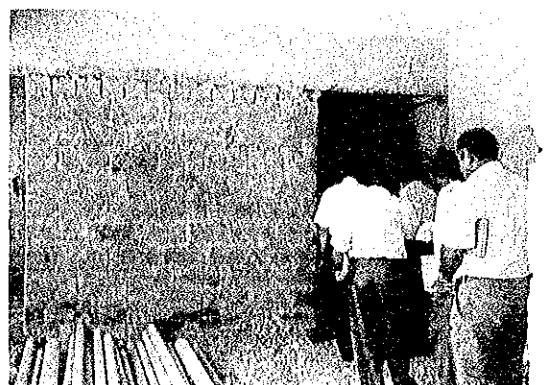
TARTOUS HEALTH DIRECTORATE GARAGE



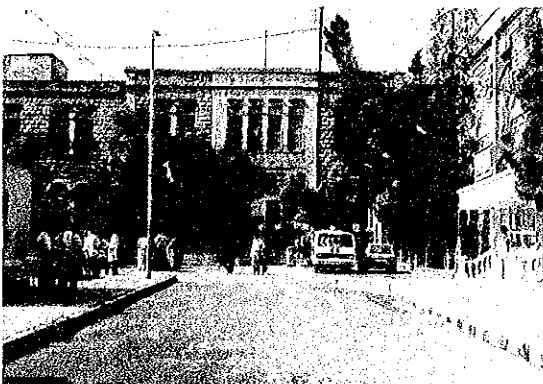
SWEIDA HEALTH DIRECTORATE GARAGE



SWEIDA AL-WATANI HOSPITAL
EMERGENCY DEPARTMENT
OUT PATIENT



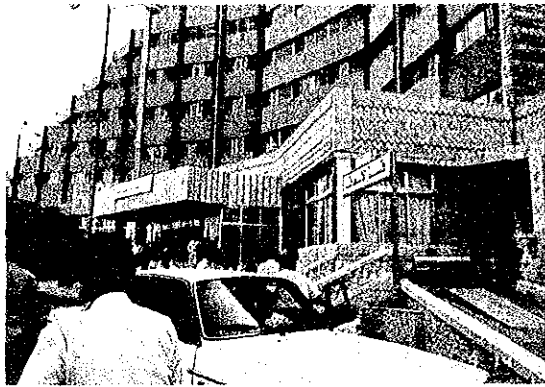
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DEPARTMENT CONSTRUCTION SITE



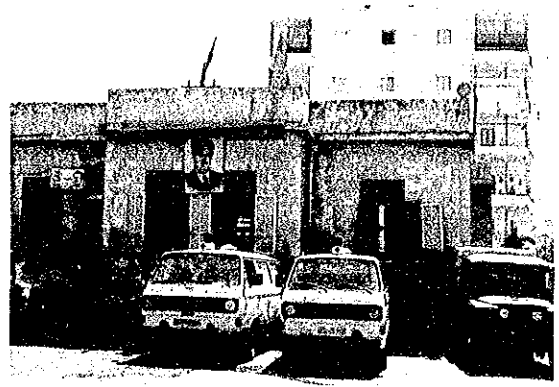
ALEPPO AL-RAZI HOSPITAL



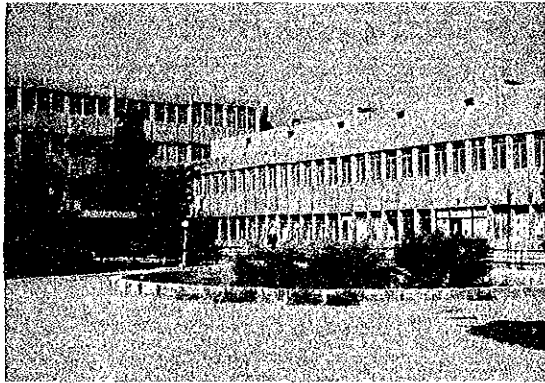
ALEPPO AL-RAZI HOSPITAL GARAGE
(Only Covering Aleppo City)



ALEPPO IBN ROUSHD HOSPITAL



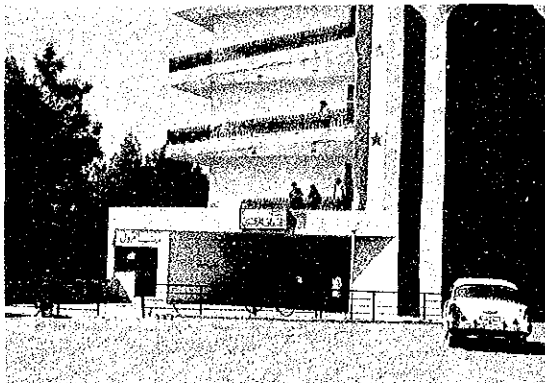
ALEPPO HEALTH DIRECTORATE GARAGE



RAQQAH AL-WATANI HOSPITAL



RAQQAH HEALTH DIRECTORATE GARAGE



DEIR-EZ-ZOR AL-WATANI HOSPITAL



DEIR-EZ-ZOR AL-WATANI HOSPITAL GARAGE



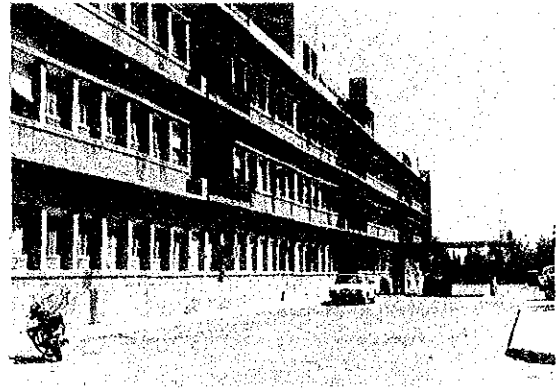
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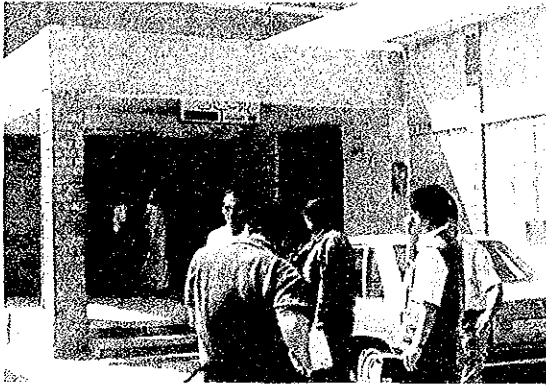
DEIR-EZ-ZOR AL-FURAAT HOSPITAL



DEIR-EZ-ZOR HEALTH DIRECTORATE GARAGE



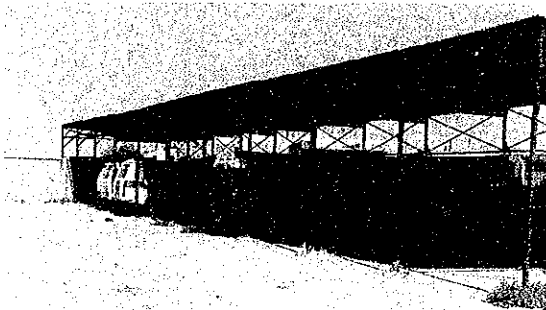
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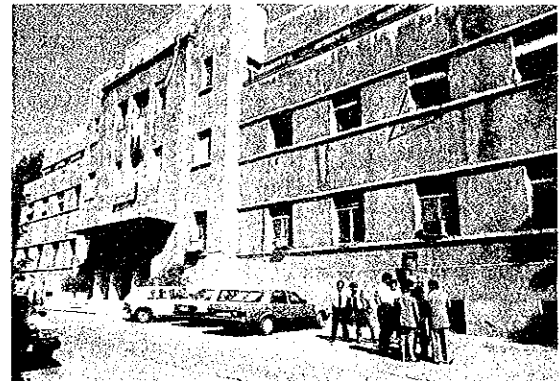
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HASAKEH HEALTH DIRECTORATE GARAGE



HASAKEH HEALTH DIRECTORATE KAMESHILI GARAGE



DAMASCUS CITY DAMASCUS HOSPITAL



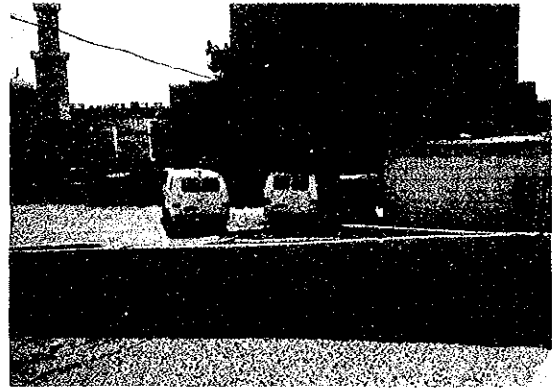
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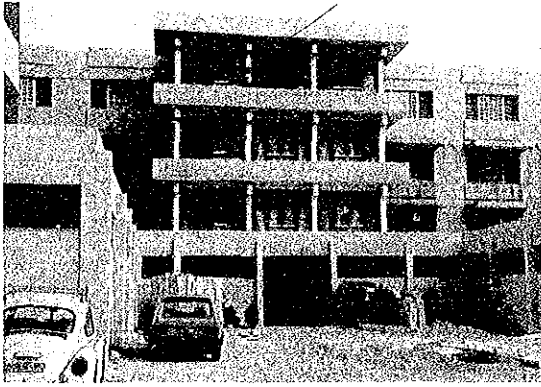
DAMASCUS CITY HEALTH DIRECTORATE GARAGE



DAMASCUS CITY IBN AL-NAFFIS HOSPITAL



DAMASCUS CITY IBN AL-NAFFIS HOSPITAL GARAGE



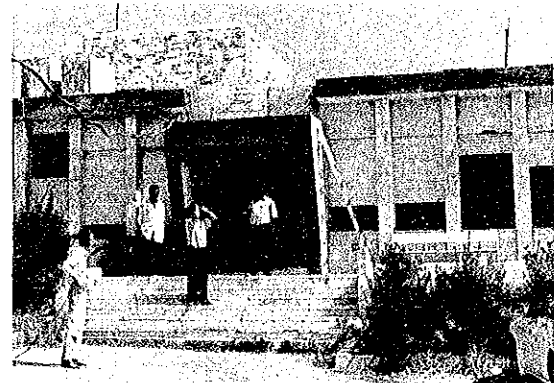
DAR'A AL-WATANI HOSPITAL (Under Renovation)



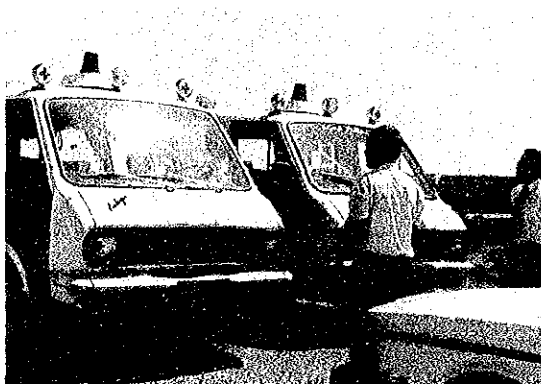
DAR'A HEALTH DIRECTORATE GARAGE (Located in Al-watani Hospital)



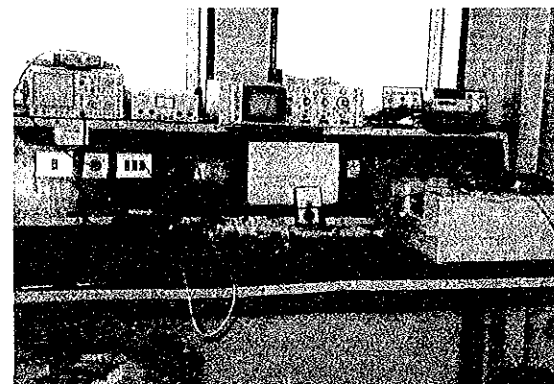
DAR'A IZURA HEALTH CENTER



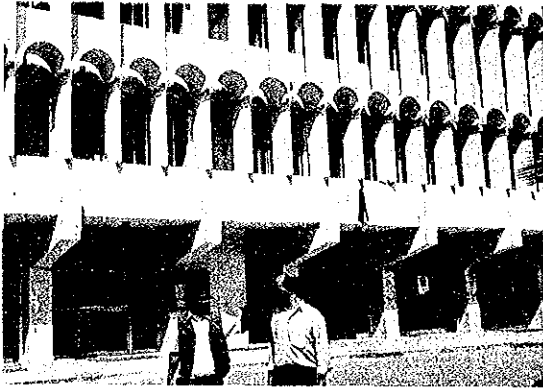
QUNAYTRA BAATH HEALTH CENTER



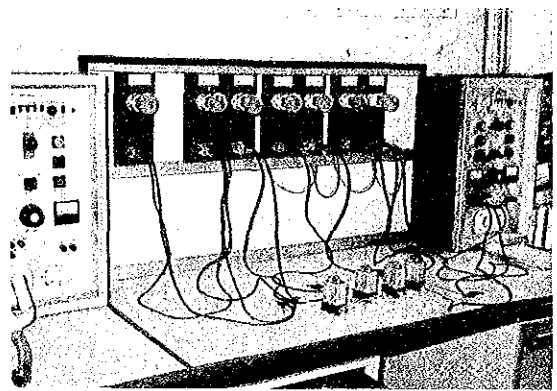
QUNAYTRA BAATH HEALTH CENTER GARAGE



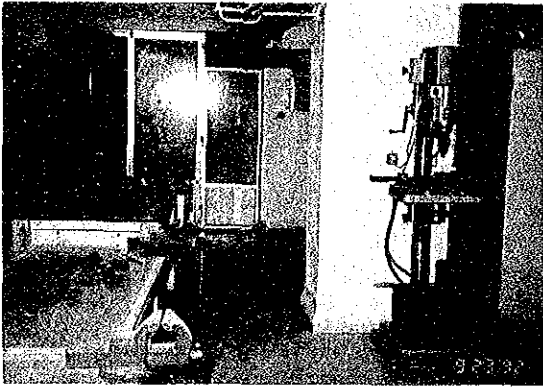
MINISTRY OF HEALTH MAINTENANCE CENTER (Repair Section)



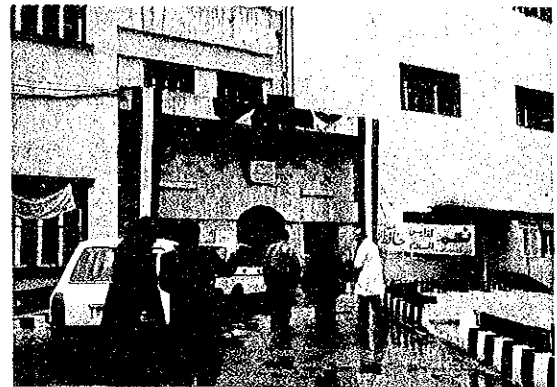
TECHNICAL INSTITUTE OF MEDICINE
(Damascus City)



TECHNICAL INSTITUTE OF MEDICINE
TRAINING ROOM (Electrical)



TECHNICAL INSTITUTE OF MEDICINE
TRAINING ROOM (Mechanical)



HOMS AL-WATANI HOSPITAL



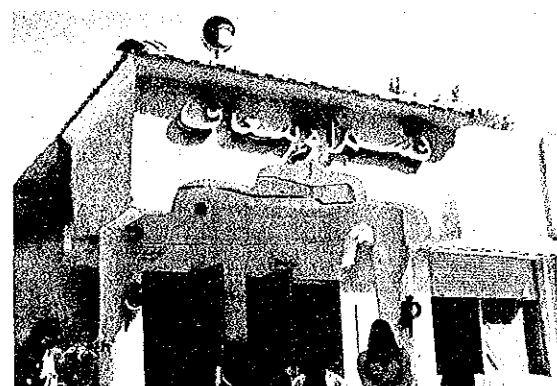
HOMS HEALTH DIRECTORATE GARAGE



HOMS POLICLINIC



DAMASCUS SUBURB DOUMA HOSPITAL



DAMASCUS SUBURB DOUMA HOSPITAL
EMERGENCY OUT PATIENT