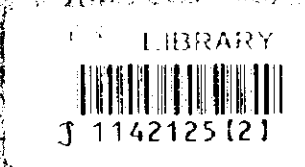


**BASIC DESIGN STUDY REPORT
ON
THE PROJECT
FOR
IMPROVEMENT OF MEDICAL EQUIPMENT
FOR
THE HOSPITALS IN WEST BANK
IN
PALESTINE**

FEBRUARY, 1998



**JAPAN INTERNATIONAL COOPERATION AGENCY
BINKO LTD.**

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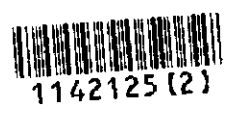
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**MINISTRY OF HEALTH
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PREFACE

In response to a request from the Palestinian Interim Self Government Authority, the Government of Japan decided to conduct a basic design study on the project for Improvement of Medical Equipment for the Hospitals in West Bank in Palestine and entrusted the study to the Japan International Cooperation Agency (JICA).

JICA sent a study team to Palestine from September 16 to October 20, 1997.

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

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

I wish to express my sincere appreciation to the officials concerned of the Palestinian Interim Self Government Authority for their close cooperation extended to the teams.

February, 1998



Kimio Fujita

President

Japan International Cooperation Agency

February, 1998

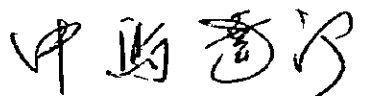
Letter of Transmittal

We are pleased to submit to you the basic design study report on the project for Improvement of Medical Equipment for the Hospitals in West Bank in Palestine.

This study was conducted by Binko Ltd., under a contract to JICA, during the period from August 11, 1997 to March 23, 1998. In conducting the study, we have examined the feasibility and rationale of the project with due consideration to the present situation of Palestine, and formulated the most appropriate basic design for the project under Japan's grant aid scheme.

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

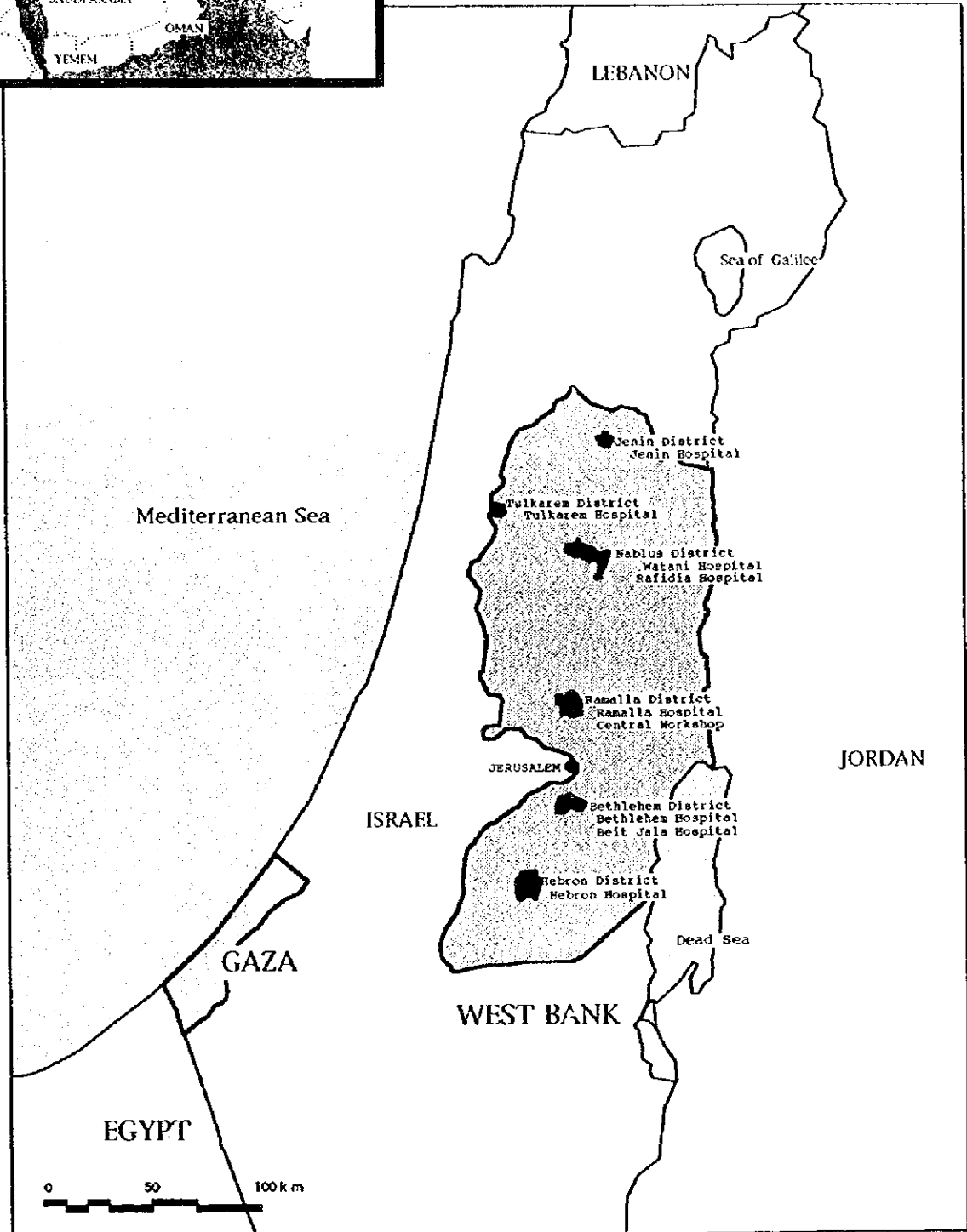
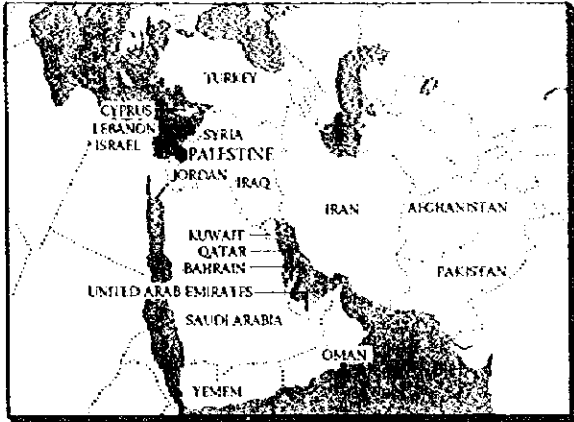
Very truly yours,



Tatsuro Nakajima

Project Manager

Basic Design Study Team on the
Project for Improvement of Medical
Equipment for the Hospitals in West
Bank in Palestine
Binko Ltd.



Abbreviations

B/D	Basic Design
CCU	Coronary Care Unit
CSSD	Central Supply Sterilized Department
E/N	Exchange of Notes
ECG	Electrocardiogram
EEG	Electroencephalograph
ICU	Intensive Care Unit
JICA	Japan International Cooperation Agency
MOH	Ministry of Health
MOPIC	Ministry of Planning and International Cooperation
NGO	Non-governmental Organization
NHP	National Health Plan
ODA	Official Development Assistance
PCH	Palestinian Council of Health
PHC	Primary Health Care
PLO	Palestine Liberation Organization
UNDP	United Nations Development Programme
UNICEF	United Nations International Children's Emergency Fund
UNRWA	United Nations Relief and Works Agency for Palestine Refugees
WHO	World Health Organization
kVA	kilo Volt Ampere
MHz	Megahertz
r.p.m.	Revolutions per minute
VA	Volt Ampere

CONTENTS

Preface

Letter of Transmittal

Location Map / Perspective

Abbreviations

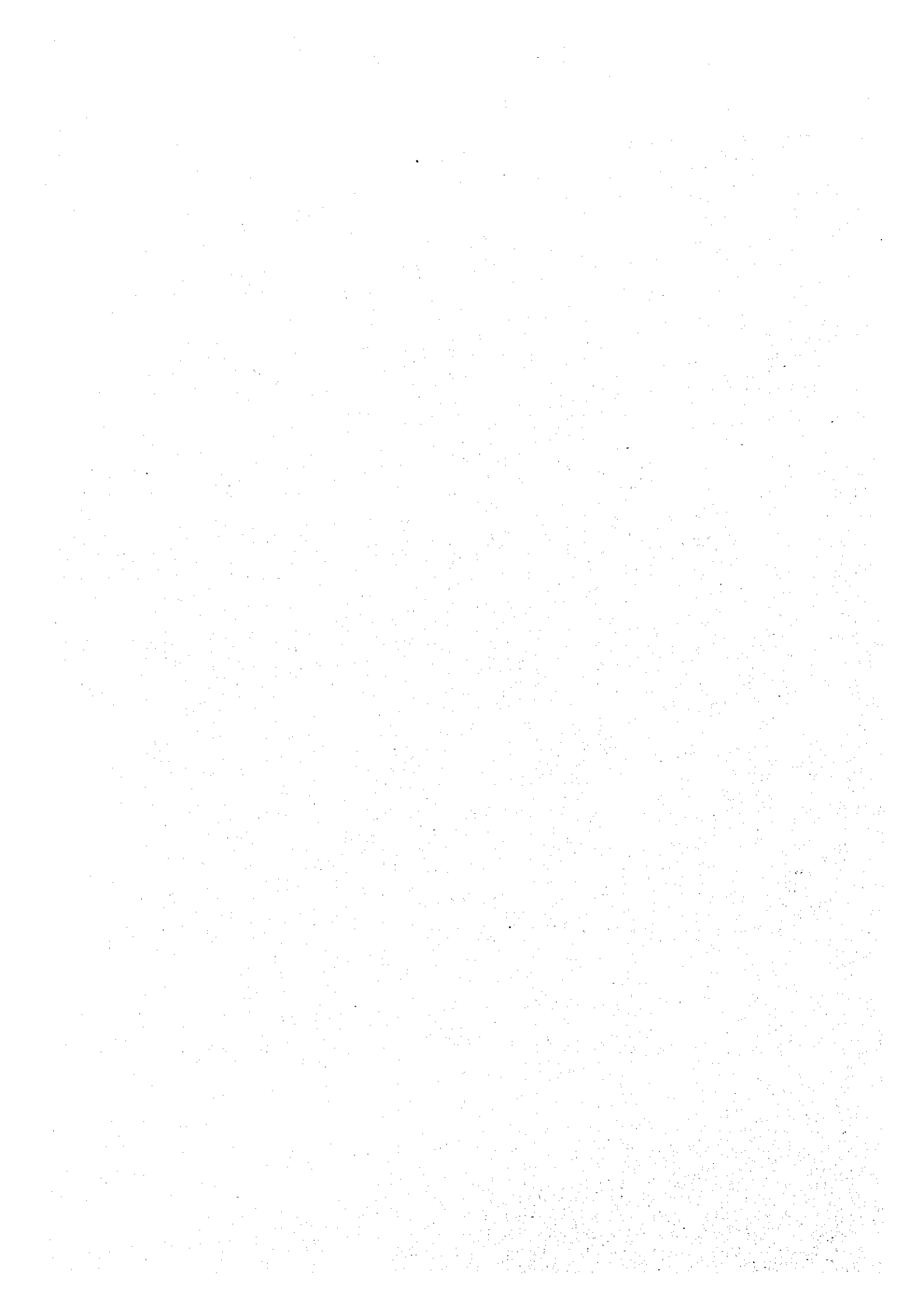
CHAPTER 1. BACKGROUND OF REQUEST.....	1
CHAPTER 2. CONTENTS OF PROJECT	
2-1 Objectives of the Project	6
2-1-1 Objectives of the Project	6
2-1-2 Outline of Designated Facilities of the Project.....	7
2-2 Basic Concept of the Project	23
2-2-1 Confirmation of the Contents of Request	23
2-2-2 Investigation of Requested Contents	35
2-3 Basic Design.....	58
2-3-1 Design Concept	58
2-3-2 Basic Plan	59
2-4 Implementing System of the Project	88
2-4-1 Organization.....	88
2-4-2 Budget.....	90
2-4-3 Personnel and Technical Level	93
CHAPTER 3. IMPLEMENTATION PLAN	
3-1 Implementation Plan	95
3-1-1 Implementation Concept	95
3-1-2 Important Points for Implementation	98
3-1-3 Scope of Works	98
3-1-4 Progress Management Plan	98
3-1-5 Equipment Procurement Plan	103
3-1-6 Project Implementation Schedule	104
3-1-7 Obligations of Recipient Country	108
3-2 Operation and Maintenance Costs	108

CHAPTER 4. EVALUATION OF PROJECT AND RECOMMENDATION.....	117
4-1 Project Effect	117
4-2 Recommendation	118

APPENDICES

1. Member List of the Survey Team
2. Survey Schedule
3. List of Participants in Palestine
4. Minutes of Discussion

CHAPTER 1. BACKGROUND OF REQUEST



CHAPTER 1. BACKGROUND OF REQUEST

1. Details of request

Based on Provisional Palestinian Authority Agreement (Oslo Agreement) jointly made between the Israeli Government and Palestine Liberation Organization (PLO) in September, 1993, Gaza-Jericho Agreement was concluded in May, 1994. As a result, Palestinian Authority (PA) started provisional autonomy in Gaza Strip and Jericho. In September, 1995, as a second-stage of the autonomy, the area was extended to West Bank. Then, an agreement to expand the provisional autonomy was concluded to conduct an election of the Palestinian Council, a legislative organ. After the election was implemented in January, 1996, the Palestinian Interim Self-Government Authority was established.

Authoritative power of health care was transferred from Israel to Palestine at an early stage, and the ministry and government-related agencies in charge of health care administration were set up. Palestinian Council of Health (PCH) had gradually been dissolved and Ministry of Health (MOH) was established instead. Public hospitals controlled by MOH have lowered their functions because maintenance services had not been done satisfactorily at the time of Israeli Occupation. Therefore, they cannot offer sufficient medical services on account of obsolete facilities and medical equipment.

Under these circumstances, PA has been making efforts to improve functions of designated medical facilities: eight public hospitals and the Central Workshop which are expected to play a key role in medical services in each area of West Bank.

2. Summary of request

To summarize request made by PA, the Authority is purposing to procure medical equipment for eight public hospitals and the Central Workshop, providing medical services in each city of West Bank along the Jordan River, which need urgent improvement.

Contents of requested medical equipment were examined through a series of discussions with the Palestinian side at the time of investigation of the basic design, and were analyzed in Japan. Requested equipment are essential and urgently needed equipment for the medical activities. The requested medical equipment are as follows:

Main Requested Equipment

HOSPITAL	TYPE OF EQUIPMENT (QUANTITY)	NAME OF EQUIPMENT
JENIN HOSPITAL	49 (64)	Autoclave, Gastroscope, Obstetric Delivery table, E.C.G. , Defibrillator, Chemistry Analyzer, Transport Incubator, Operating Ceiling Lamps, Anesthesia Machine, Operating Table, Mobile X-ray, Ultrasonic Equipment, Electric Surgery Unit
TULKAREM HOSPITAL	57 (74)	Autoclave, Gastroscope, Colonoscope, Obstetric Delivery table, E.C.G. , Defibrillator , Kitchen Equipment set, Chemistry Analyzer, Transport Incubator, Electric Surgery Unit, Operating Table, X-ray for General Purpose (Bucky), Mobile X-ray, Ultrasonic Equipment, Operating Ceiling Lamps
WATANI HOSPITAL	41 (54)	Holter Analyzer, Gastroscope, Sigmoidoscope, Electroencephalograph (EEG), Central Monitoring System, E.C.G., Chemistry Analyzer, Blood Gas Analyzer, Transport Incubator, Ultrasonic Equipment, Echocardiography machine, Hemodialysis Machine
RAFIDIA HOSPITAL	91 (118)	Autoclave, Laparoscope, Gastroscope, Colonoscope, Obstetric Delivery table, E.C.G. , Defibrillator, Blood Gas Analyzer, Laundry set, Electric Surgery Unit, Anesthesia Machine, Operating Table, X-ray Fluoroscopy, CT Scanner, Ultrasonic Equipment
RAMALLAH HOSPITAL	89 (136)	Holter Analyzer, Autoclave, Laparoscope, Obstetric Delivery table, Central Monitoring System, E.C.G. , Defibrillator, Blood Gas Analyzer, Refrigerated Centrifuge, Transport Incubator, X-ray Fluoroscopy, X-ray for General Purpose (Bucky), Mobile X-ray, Ultrasonic Equipment, Echocardiography machine, Operating Ceiling Lamps, Anesthesia Machine, Hemodialysis Machine
BEIT JALA HOSPITAL	51 (76)	Obstetric Delivery table, Defibrillator, Chemistry Analyzer, Transport Incubator, Electric Surgery Unit, X-ray Fluoroscopy, Mobile X-ray, Ultrasonic Equipment, Autoclave, E.C.G.
BETHLEHEM HOSPITAL	4 (4)	Electroencephalograph (EEG), E.C.G. , Defibrillator
HEBRON HOSPITAL	62 (96)	Holter Analyzer, Laparoscope, Blood Gas Analyzer, Refrigerated Centrifuge, Electric Surgery Unit,

		X-ray Fluoroscopy, X-ray for General Purpose (Bucky), CT Scanner, Mobile X-ray, Ultrasonic Equipment, E.C.G., Operating Table, Operating Ceiling Lamps, Anesthesia Machine, Hemodialysis Machine
CENTRAL WORKSHOP	15 (46)	ECG simulator, Defibrillator tester, Electro surgical unit tester, Oscilloscope
TOTAL	459 (668)	

3. The present condition of medical services in Palestine, and its problems

(1) The present condition of medical activities

There are various problems in social and environmental aspects in Palestine due to falling behind in economic development and worsening of sanitary condition. Basically, Palestinian cultural standards are high and technical level in medical services is above average, therefore necessary conditions to promote enlightenment of medical and sanitary awareness have been already arranged. Health care network in West Bank also consists of a system which can offer primary, secondary, and a part of tertiary medical services.

As for disease condition in West Bank, infectious diseases of the respiratory organs for infants and diseases of the digestive system have mainly been reported, however, diseases distinctive in developing countries such as malnutrition and diarrhea are not shown. Apparently, the primary health care (PHC) system is securely established in this area and vaccinations and sanitary events attended by the population have been well implemented. On the other hand, although health indexes are higher than that of Gaza Strip, they are lower than that of Jordan, the neighboring country; especially, the mortality rate of infants which indicates 40 to 50 per 1,000 persons is twice as many as Jordan. Diabetes and high blood pressure are main diseases for adults. Main causes of death are heart and circulatory ailments and tumors, which shows a typical disease pattern of an advanced country. Average life span of Palestine is low as 62 years old, therefore, a lot of things should be done in order to improve the medical environment.

Although PA started self-support efforts including introduction of medical insurance system, there is limitation of fund available. Meanwhile, public hospitals controlled by MOH had sharply lowered their functions under the occupation by Israel, and they cannot offer sufficient medical services on account of obsolete facilities and medical equipment under these circumstances.

As the provisional autonomy was started in Gaza and Jericho prior to other areas, procurement of medical equipment and construction of hospitals have been implemented in these areas by several donors including Japan to improve medical services. However, since the provisional autonomy started in West Bank except Jericho in September, 1995, the improvement of public hospitals in West Bank has only started.

(2) Problems

Since the Palestinian medical field had been influenced by the Occupation under special circumstances, there are problems such as local differentials, imbalance of technical level, limitation of services, and shortage of medical specialists. However, in general, it is systematically well arranged from PHC and the secondary health care to the referral system of a part of the tertiary health care. The PHC and the tertiary health care are supported by such aid institutions as UNRWA, NGO and governments to offer better medical services. However, although the secondary health care is the key of local health care and the referral system, there are differences between hospitals in quality. Upon considering these circumstances, the following things should be considered in order to reinforce the health care service system as a whole:

1. The secondary health care as the key of local medical services and the referral system should be strengthened.
2. Medical technique should be standardized in order to solve the regional differentials and the difference of technical level of

medical personnel.

3. Financial condition should be kept securely in order to offer good medical services continuously.

4. Obsolete facilities and equipment should be improved.

The most important thing of the health care policies is that public hospitals offer sufficient medical services to the residents. Therefore, it is necessary to expand functions of the public hospitals and to establish a system which enables them to be financially independent to operate.

CHAPTER 2. CONTENTS OF PROJECT

CHAPTER 2. CONTENTS OF PROJECT

2-1 Objectives of the Project

2-1-1 Objectives of the Project

By acquiring the autonomy, the right of self-government in the health care field was transferred to Palestine in May, 1994. Since then, in order to establish a comprehensive health care service system in Palestine, the Ministry of Health (MOH) has been strengthening its medical service system by revitalizing the existing outdated medical facilities, expanding medical facilities and equipment, and reinforcing medical personnel.

Prior to the transfer of autonomy, Palestinian Authority came up with the National Health Plan (NHP) for the Palestinian people in 1993, stating that one of prior matters of health care administration is the establishment of the medical care service system in the Authority and the important subject is to reinforce public hospitals in each district urgently.

Designated hospitals of this project should be the center of the medical care system in each district of West Bank along the Jordan River. However, they have weakened their function due to overage medical facilities and equipment because management and maintenance of the facilities and the equipment had not been done sufficiently during the time of Israeli Occupation. Under such circumstances, the hospitals have not played their roles as the desired medical facilities.

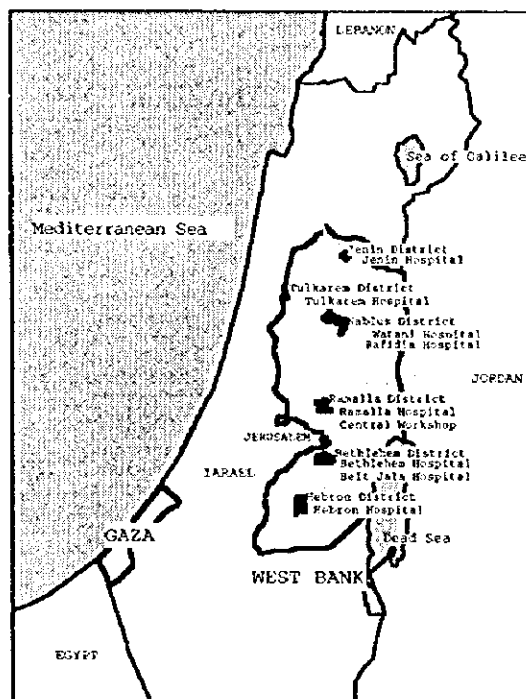
Under such circumstances, Palestinian Authority is expected to play a key role of the health care services in the cities of West Bank. The Authority came up with a medical equipment arrangement plan for eight public hospitals and the Central Workshop (controlled by MOH) which should be improved urgently and has asked the Government of Japan for the grant aid in order to implement the plan.

2-1-2 Outline of Designated Facilities of the Project

The designated medical facilities are following eight public hospitals offering health care services as a core hospital in each district of West Bank and the Central Workshop:

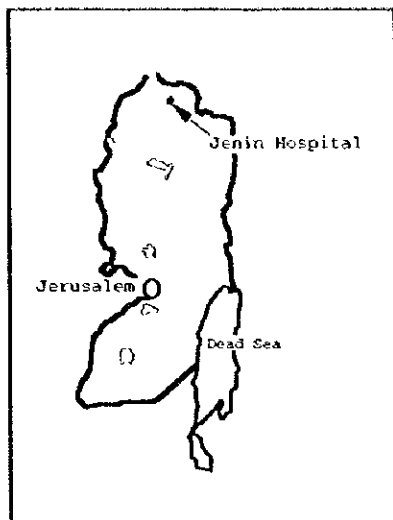
- Jenin Hospital (A local hospital in the Jenin District, northern tip of the West Bank)
- Tulkarem Hospital (A local hospital in the Tulkarem District, northwest of West Bank)
- Watani Hospital (A hospital in Nablus City, north of West Bank)
- Rafidia Hospital (A hospital specializing in surgery in Nablus City, north of West Bank)
- Ramallah Hospital (Top referral hospital of West Bank, locating in the central area)
- Beit Jala Hospital (A local hospital in the Bethlehem, south of West Bank)
- Bethlehem Mental Hospital (The sole mental hospital in West Bank, locating in Bethlehem City)
- Hebron Hospital (A local hospital in the Hebron District, south of West Bank)
- Central Workshop (A core facility handling maintenance services for hospitals and equipment, situated in Ramallah)

A map of the designated hospitals is as follows:



(1) Jenin Hospital

1) Outline of Jenin District



- * Location: Northern part of West Bank
- * Population (1996): 209,697
(9.2% of total Palestinian population)
- * Number of medical facilities: 55
PHC: 54 (Public: 29, NGO: 20, UNRWA: 5)
Hospital: 1 (Public: 1)
- * Public health indexes:

Birthrate	36.6 per 1,000
Mortality	3.8 per 1,000
Number of doctors	3.2 per 10,000
Number of nurses	4.2 per 10,000

2) Summary of Jenin Hospital

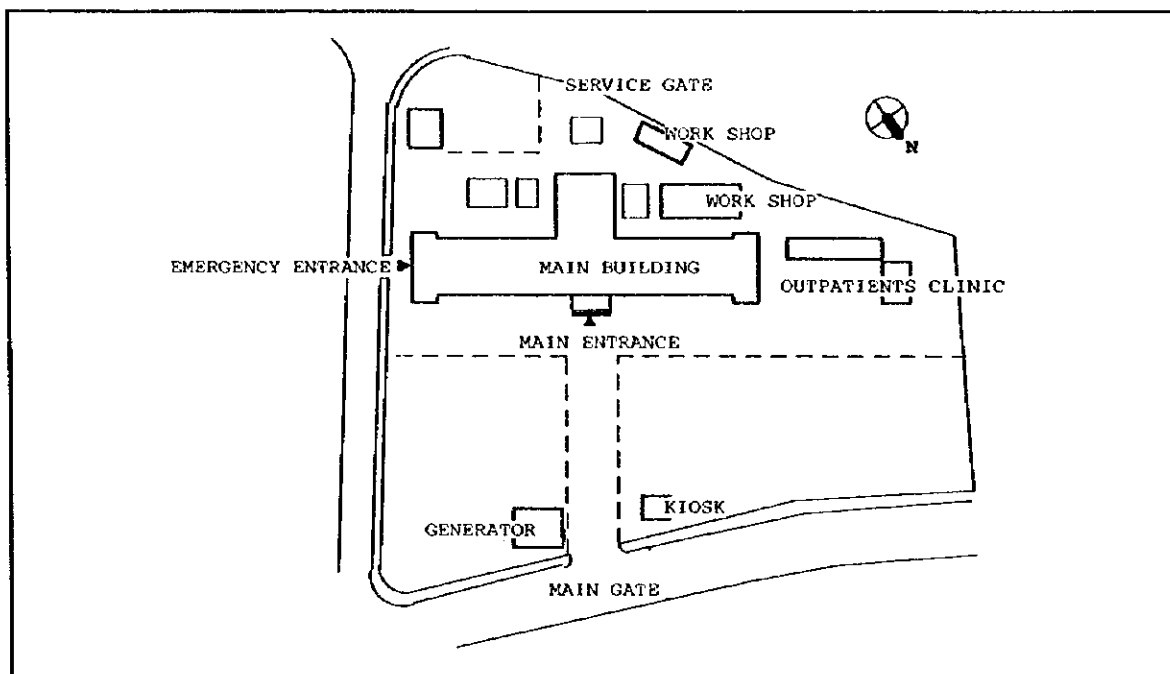
Jenin Hospital, located in the northern tip of West Bank along the Jordan River, offers the secondary medical services. Since it was established in 1960, the building has been getting too old and facility area has been narrowing. In order to serve increasing number of patients, a temporary prefab clinic for outpatients was built in haste. MOH approved extension work of the third floor of the existing building, which was completed in the end of 1997. Furthermore, considering the increasing number of patients, Arab funds will be used for constructing new facilities such as emergency room, operating room, and department of radiology.

Top referral hospitals which cover higher medical services for this hospital are two hospitals in Nablus: Rafidia Hospital for surgery, Watani Hospital for internal care including the kidney hemodialysis. Transfer is done frequently to these referral hospitals.

Major activities of Jenin Hospital

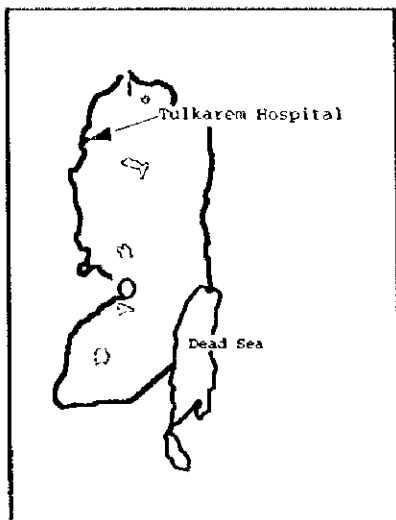
	1995	1996
Number of beds (official number)	86 (55)	
Types of examination	Internal, surgery, pediatrics, maternity, neonatal, plastic surgery, emergency, radiology	
Outpatient	25,034	44,763
Inpatient	11,610	12,435
Beds occupancy rate	75.0%	76.3%
Average number of admission days	2.0 days	1.9 days
Annual number of operations	2,401	2,657
Annual number of X-ray Examination	25,600	28,101
Annual number of clinical tests	115,600	138,713
Number of delivery	2,563	4,583

3) A sketch map of Jenin Hospital



(2) Tulkarem Hospital

1) Outline of Tulkarem District



- * Location: Northwest of West Bank
- * Population (1996): 113,625
(5.0% of total Palestinian population)
- * Number of medical facilities: 72
PHC: 70 (Public: 42, NGO: 23, UNRWA: 5)
Hospital: 2 (Public: 1, UNRWA: 1)
- * Public health indexes:

Birthrate	34.3 per 1,000
Mortality	4.4 per 1,000
Number of doctors	7.3 per 10,000
Number of nurses	10.2 per 10,000

2) Summary of Tulkarem Hospital

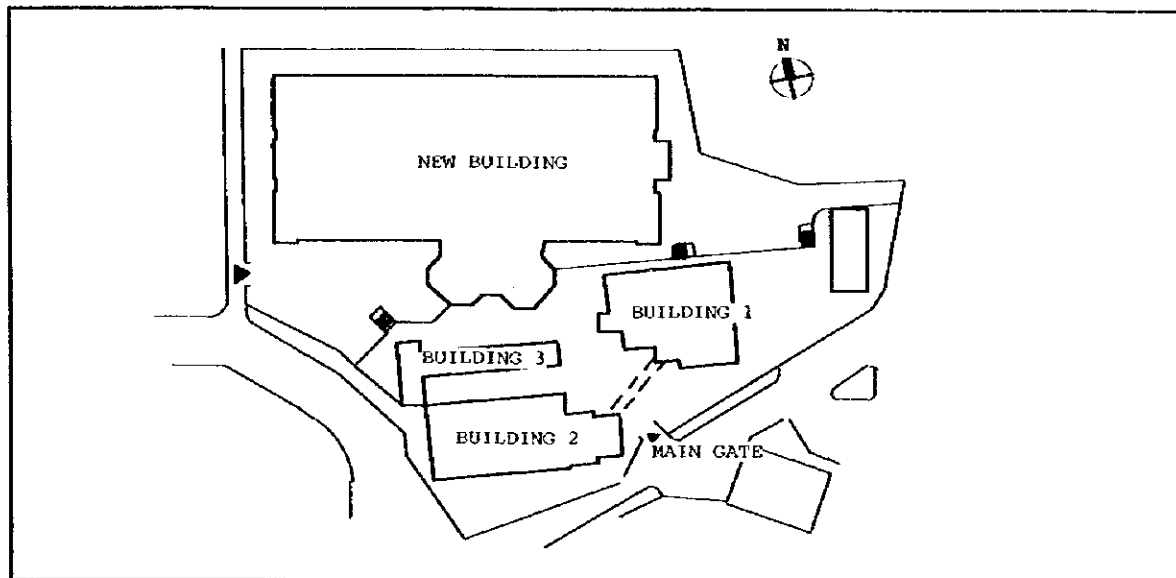
This hospital is located in the northwest of West Bank, close to the boundary of Israel, and in the east approximately 30 km from the Haifa International Seaport. This city is covered by greenery and called "Grapes' Hill." Tulkarem Hospital was built in 1950, and the building has been getting too old. As the UNDP has implemented construction of a new building by funds from Japan, MOH has enough money to build the two-story hospital. Size of the construction will be twice the existing area, increasing the number of beds to 134 from the current 88. Related part to the project is installation places of equipment for the kitchen and the central material room (for autoclaves, etc.).

Since this hospital is expected to treat residents living in Qalqilia District and neighboring refugees camps in the future, the construction has been done hurriedly.

Major activities of Tulkarem Hospital

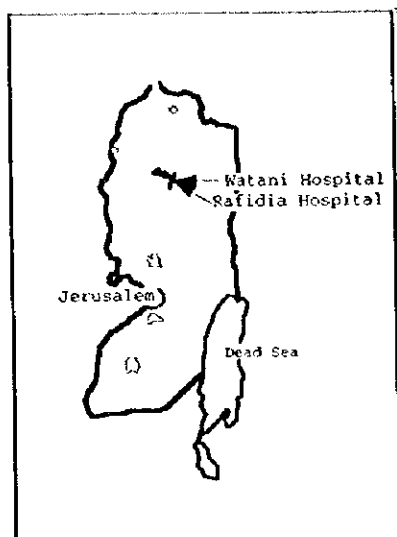
	1995	1996
Number of beds (official number)	67 (64)	
Types of examination	Internal, surgery, pediatrics, maternity, neonatal, radiology, emergency	
Outpatient	35,976	41,040
Inpatient	7,176	9,228
Beds occupancy rate	65.0%	80.3%
Average number of admission days	2.2 days	2.2 days
Annual number of operations	1,290	1,336
Annual number of X-ray Examination	31,500	32,400
Annual number of clinical tests	95,530	108,980
Number of delivery	1,690	1,929

3) A sketch map of Tulkarem Hospital



(3) Watani Hospital and Rafidia Hospital

1) Outline of Nablus District



* Location: Northern part of West Bank

* Population (1996): 217,935
(9.6% of total Palestinian population)

* Number of medical facilities: 55
PHC: 51 (Public: 28, NGO: 19, UNRWA: 4)
Hospital: 4 (Public: 2, NGO: 2)

* Public health indexes:

Birthrate	37.3 per 1,000
Mortality	3.7 per 1,000
Number of doctors	3.4 per 10,000
Number of nurses	4.9 per 10,000

2) Summary of Watani Hospital and Rafidia Hospital

Nablus is the central city of northern part of West Bank along the Jordan River, where an affiliated office of MOH administers health care services in eight districts of West Bank.

Watani Hospital (internal care) and Rafidia Hospital (surgery) are in charge of the secondary and a part of the tertiary (cardiac consultation, hemodialysis, etc.) health care services for local residents in the Nablus District.

① Watani Hospital

This hospital is situated on the slope. Due to several extension work, there is no further capacity with complicated internal layout. Therefore, a new building in a wider location is required. Although MOH is making a construction plan of a new Nablus Hospital comprising Watani and Rafidia Hospitals, it has not yet taken shape.

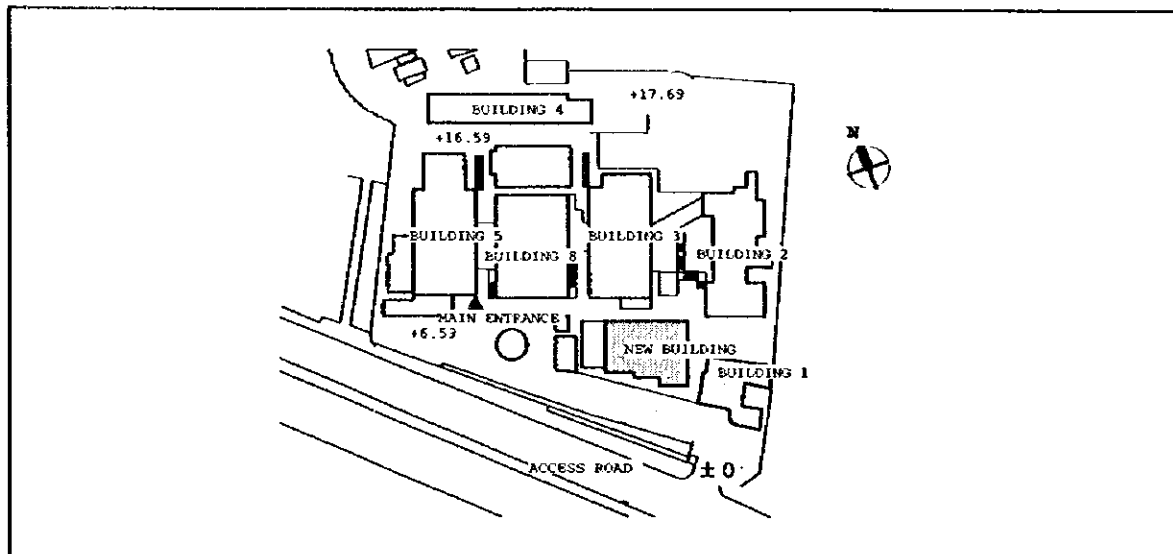
As characteristics of this hospital, it emphasizes treatment of the

heart disease and the kidney disease because of the increasing number of patients, and needs to arrange equipment for ICU/CCU (Coronary Care Unit) immediately. Procurement of central patient monitors, echo cardiographs and artificial hemodialysis machines will be planned in this project.

Major activities of Watani Hospital

	1995	1996
Number of beds (official number)	122 (86)	
Types of examination	Internal, neurology, kidney hemodialysis, oncology, blood dyscrasia, endocrinology, pediatrics, cardiology	
Outpatient	34,685	47,191
Inpatient	7,155	7,340
Beds occupancy rate	69.0%	69.5%
Average number of admission days	3.0 days	3.0 days
Annual number of X-ray Examination	8,600	11,700
Annual number of clinical tests	125,943	179,919

3) A sketch map of Watani Hospital



②. Rafidia Hospital

Besides the internal care facility of the above Watani Hospital, Rafidia Hospital specializing in surgery (including partly the tertiary care) is also the referral hospital. It has around 40 surgeons and 4 operating rooms with full operation.

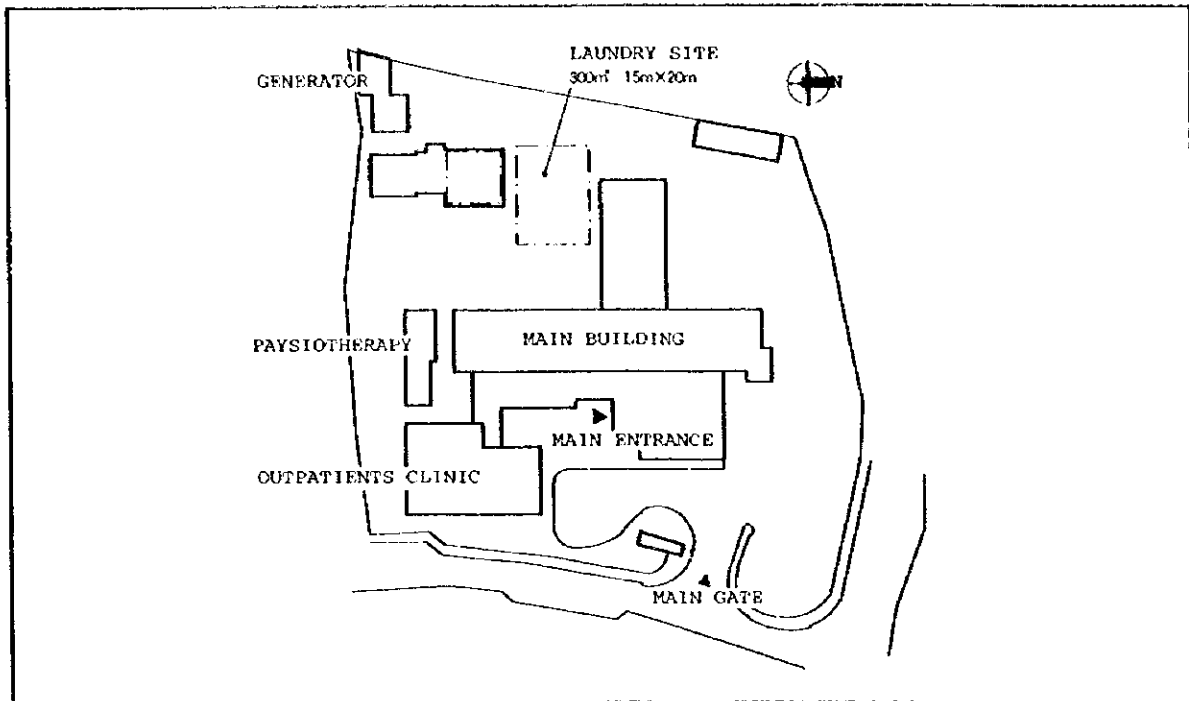
After a CT scanner was given by Ramallah Hospital in 1992, it has contributed to diagnosis of the heart disease and the brain disease. However, because maintenance costs are high due to the outdated equipment, urgent renewal is required.

In this project, it is planned to set a laundry facility in this hospital, which will handle for about 600 beds in total in the northern and central medical facilities of West Bank. The reasons why the laundry facility will be established in this hospital are: it is accessible to five designated hospitals locating in northern and central parts of West Bank, power supply such as a boiler and a compressor are available and it is not necessary to buy new ones.

Major activities of Rafidia Hospital

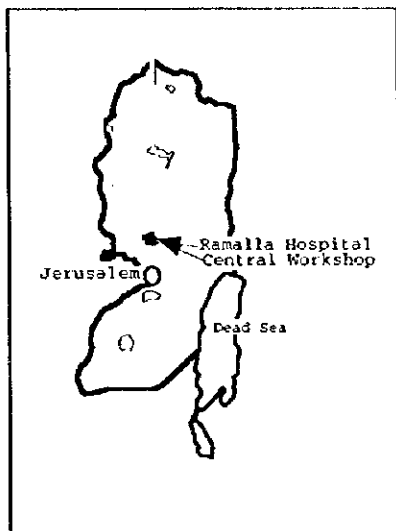
	1995	1996
Number of beds (official number)	144 (138)	
Types of examination	Surgery, burns & scalds, maternity, neonatal, otolaryngology, plastic surgery, physicaltherapy	
Outpatient	36,304	41,375
Inpatient	18,461	17,791
Beds occupancy rate	92.0%	82.5%
Average number of admission days	2.5 days	2.5 days
Annual number of operation	4,060	4,131
Annual number of X-ray Examination	28,316	32,271
Annual number of clinical tests	111,939	139,924
Number of delivery	6,300	7,863

3) A sketch map of Rafidia Hospital



(4) Ramallah Hospital

1) Outline of Ramallah District



- * Location: Central part of West Bank
- * Population (1996): 234,390
(10.3% of total Palestinian population)
- * Number of medical facilities:
PHC: 83 (Public: 28, NGO: 51, UNRWA: 4)
- * Public health indexes:

Birthrate	29.0 per 1,000
Mortality	3.3 per 1,000
Number of doctors	3.9 per 10,000
Number of nurses	4.52 per 10,000

2) Summary of Ramallah Hospital

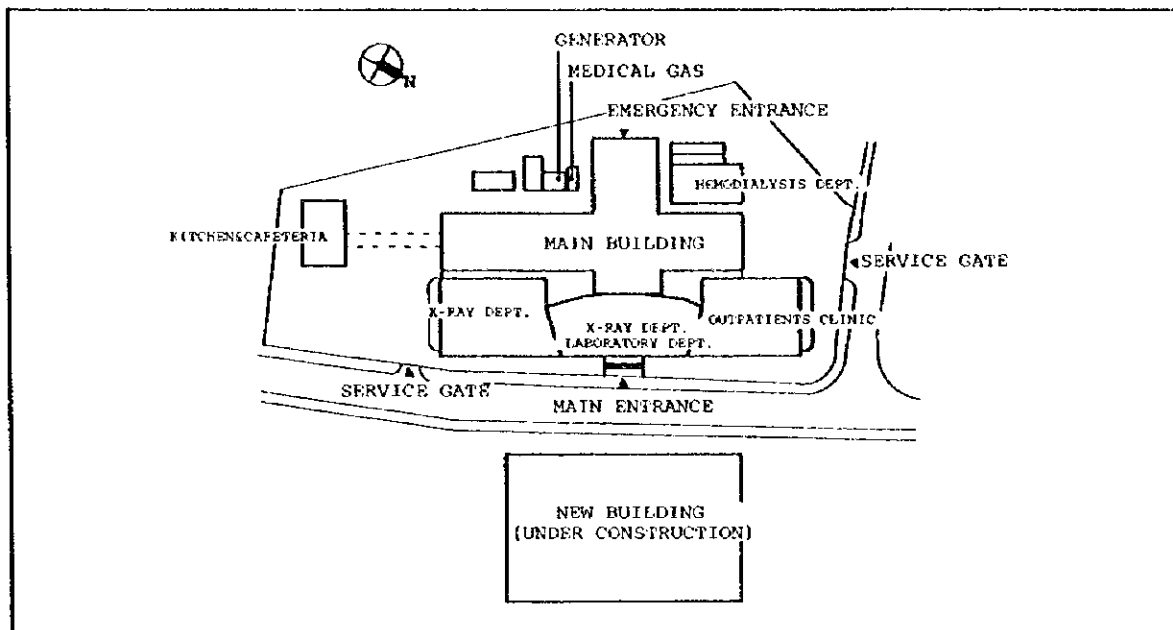
This is the top referral hospital in West Bank. Especially for cardiac and brain surgery, it possesses a cardiac laboratory and necessary equipment like the CT scanner. It offers the secondary and a part of tertiary health care services including high-level medical treatment (cardiac surgery, cerebral surgery, hemodialysis, etc.) by doctors who have trained at medical schools in Europe or in the U.S.

About 20% of the patients are transferred from lower referral hospitals, and the beds occupancy rate always exceeds 80%. In order to serve the increasing number of patients, an emergency center with 20 beds is being built by donation of local residents, which will be completed in 1998.

Major activities of Ramallah Hospital

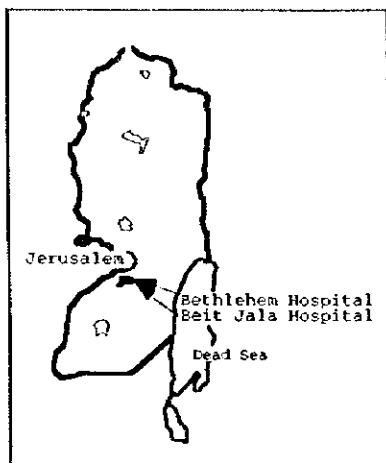
	1995	1996
Number of beds (official number)	159 (142)	
Types of examination	Internal, maternity, pediatrics, plastic surgery, otolaryngology, physicaltherapy, kidney hemodialysis, ophthalmology, urology, neonatal, cardiac surgery, cerebral surgery	
Outpatient	98,000	103,465
Inpatient	12,000	11,501
Beds occupancy rate	89.0%	83.3%
Average number of admission days	3.8 days	3.8 days
Annual number of operation	6,315	6,211
Annual number of X-ray Examination	51,500	52,677
Annual number of clinical tests	258,500	266,931
Number of delivery	1,800	2,581

3) A sketch map of Ramallah Hospital



(5) Beit Jala Hospital and Bethlehem Hospital

1) Outline of Bethlehem District



* Location: Southern part of West Bank

* Population (1996): 113,013

(5.0% of total Palestinian population)

* Number of medical facilities: 36

PHC: 32 (Public: 14, NGO: 16, UNRWA: 2)

Hospital: 4 (Public: 2, NGO: 2)

* Public health indexes:

Birthrate 41.0 per 1,000

Mortality 4.2 per 1,000

Number of doctors 5.4 per 10,000

Number of nurses 4.8 per 10,000

2) Summary of Beit Jala Hospital and Bethlehem Hospital

Bethlehem District is located in the south 20 km from Jerusalem, the Holy Land, known as the Christ's birthplace. Beit Jala Hospital handles the secondary and a part of tertiary medical care, while Bethlehem Hospital is the sole mental hospital in West Bank.

①. Beit Jala Hospital

This hospital, located in Beit Jala City, Bethlehem, is a polyhospital with 6-story building. With the acquisition of autonomy, 3-story annex has been constructed in the east, which will be completed in August, 1998.

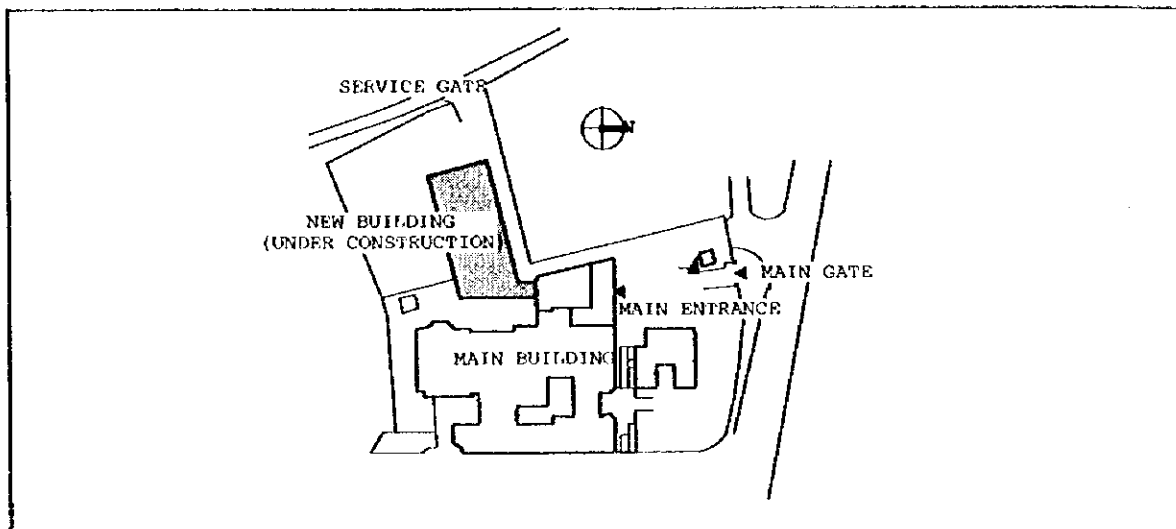
In order to function as the heart disease care center in the southern part of West Bank, repair work of the CCU/ICU room had been constructed and was completed in 1997. This means there will be three heart disease care centers in West Bank: Watani Hospital in the north, Ramallah Hospital in the central area, and Beit Jala Hospital in the south.

This hospital also emphasizes the treatment of cancers, therefore visiting patients of cancers have been increasing in the southern part of West Bank. Most of the treatment at the Oncology Department are done by medicines, but not by radiotherapy or nuclear medicine.

Major activities of Beit Jala Hospital

	1995	1996
Number of beds (official number)	92 (70)	
Types of examination	Internal, surgery, neonatal, maternity, oncology, otolaryngology, plastic surgery, urology, neurology, heart diseases, radiotherapy	
Outpatient	69,743	66,745
Inpatient	5,870	6,390
Beds occupancy rate	76.8%	82.3%
Average number of admission days	3.3 days	3.3 days
Annual number of operation	1,130	1,840
Annual number of X-ray Examination	1,840	20,161
Annual number of clinical tests	185,000	179,621
Number of delivery	1,756	1,831

3) A sketch map of Beit Jala Hospital



② Bethlehem Hospital

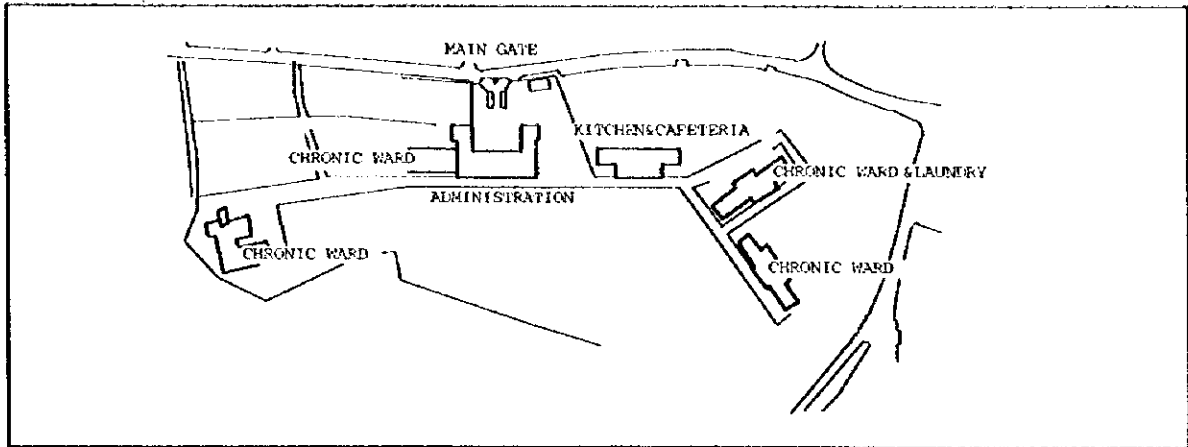
Bethlehem Hospital, established in 1898, is the sole mental hospital in West Bank with capacity of 320 beds.

Due to the prolonged problem of the Middle East, local residents have been burdened with mental pressure heavily. Therefore, morbidity of mental disease is estimated high.

Major activities of Bethlehem Hospital

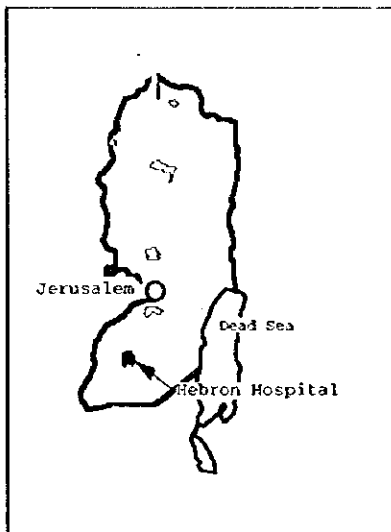
	1995	1996
Number of beds (official number)	320 (320)	
Types of examination	Psychiatry	
Outpatient	3,150	3,366
Inpatient	521	571
Beds occupancy rate	101.0%	109.1%
Average number of admission days	224 days	223 days

3) A sketch map of Bethlehem Hospital



6) Hebron Hospital

1) Outline of Hebron District



- * Location: Southern tip of West Bank
- * Population (1996): 294,116
(13.0% of total Palestinian population)
- * Number of medical facilities: 68
PHC: 65 (Public: 33, NGO: 25, UNRWA: 7)
Hospital: 3 (Public: 2, NGO: 1)
- * Public health indexes:

Birthrate	55.2 per 1,000
Mortality	3.2 per 1,000
Number of doctors	2.2 per 10,000
Number of nurses	3.4 per 10,000

2) Summary of Hebron Hospital

This hospital is located in Hebron, the center city of the south in West Bank, and handles the secondary (partly tertiary) medical care. There is a construction plan of a new building in the north in accordance with the NHP, but it has not been yet taken shape.

Eight hemodialysis machines for kidney diseases have been installed, contributing to the local medical services. The natural population

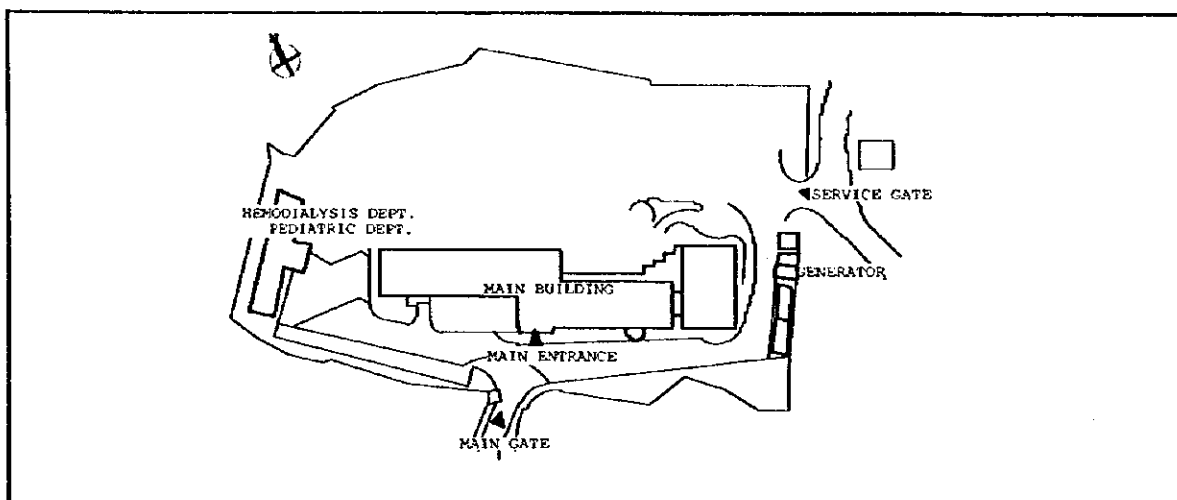
increase rate is 5.3 per 100 persons, showing the highest rate as 5 times as much as other districts.

As one of procured equipment in this project, CT scans are required. This signifies availability of treatment by the CT scan in all areas of West Bank: Rafidia Hospital in the north, Ramallah Hospital in the central area, and Hebron in the south.

Major activities of Hebron Hospital

	1995	1996
Number of beds (official number)	169 (103)	
Types of examination	Internal, surgery, neonatal, maternity, plastic surgery, otolaryngology, kidney hemodialysis, urology, radiotherapy	
Outpatient	103,747	111,907
Inpatient	14,197	16,804
Beds occupancy rate	88.0%	101.9%
Average number of admission days	2.3 days	2.3 days
Annual number of operation	3,723	4,406
Annual number of X-ray Examination	27,813	30,000
Number of delivery	4,650	5,435

3) A sketch map of Hebron Hospital

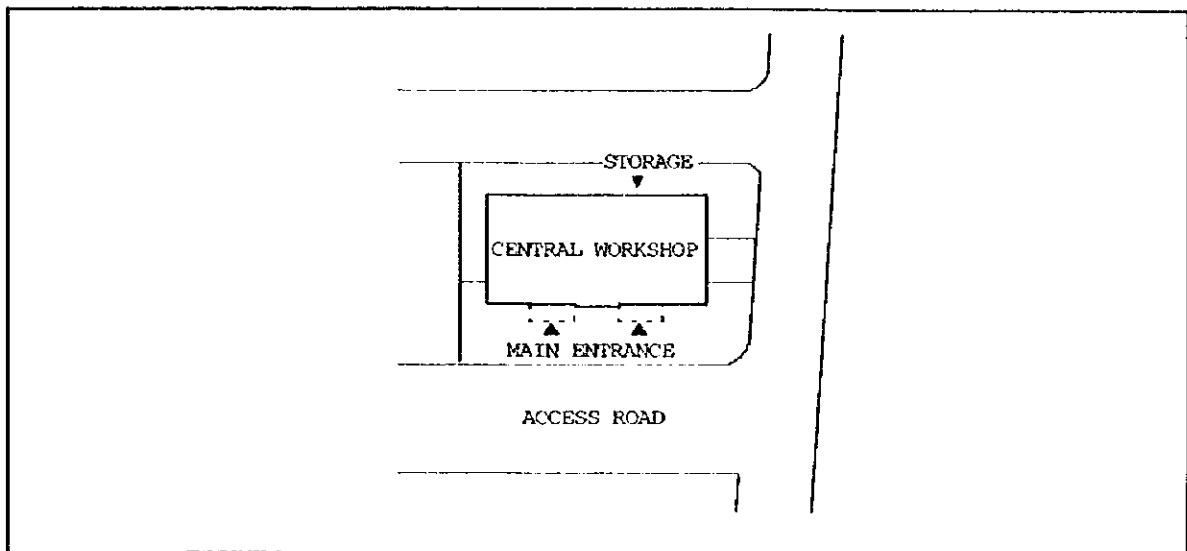


(7) Central Workshop

This facility, directly controlled by the Maintenance Department of MOH, is situated in the city of Ramallah of West Bank. Since it is located in the center of West Bank, it can be accessible to each medical facility within two hours. This workshop handles maintenance services for all hospitals in West Bank, and it will be maintaining procured equipment of the project. It also manages the maintenance department of each hospital and dispatches engineers to each department.

In order to utilize the equipment installed at the hospitals effectively for a long period, equipment for maintenance will be procured in the project.

A sketch map of the Central Workshop is as follows:



2-2 Basic Concept of the Project

This project is the medical equipment improvement plan in order to reinforce the public health care facilities in districts of West Bank.

So far, the tertiary medical care has been done by NGO-operated hospitals and referral hospitals in the neighboring countries such as Israel, Jordan and Egypt. After the transfer of the autonomy, MOH has been making efforts to establish its individual medical care service system as the self-government, to reduce huge costs of referral treatment, and to be able to handle not only the current secondary medical care but also a part of the tertiary medical care including high-level medical treatment (CCU, cerebral surgery, intensive care of the heart disease).

Therefore, MOH assigned a part of the tertiary medical care including neurology, cardiac surgery, intensive care of the heart disease and hemodialysis to Ramallah Hospital as the top referral hospital, Rafidia, Watani, Hebron and Beit Jala Hospitals.

For the implementation of this project based upon the above concept, we have investigated functions of the hospitals needed for achievement of the project and selected equipment applicable to the grant-aid framework.

2-2-1 Confirmation of the Contents of Request

(1) Confirmation of project site

It is confirmed that this project will cover the following eight public hospitals which offer health care services in each district of West Bank and the Central Workshop. Summary of the designated hospitals is in Figure 2-2-1, annexed table.

Table 2-2-1 outline of the Designated Hospitals

Name of Facility	JENIN HOSPITAL	TULKAREM HOSPITAL	WATANI HOSPITAL
Location	Jenin	Tulkarem	Nablus
Rank	General Hospital (Public) Secondary medical care facility	General Hospital (Public) Secondary medical care facility	Professional of Internal medicine Hospital Secondary medical care(part of tertiary medical care) facility
Beneficiaries' Population (in 1996)	210,000	114,000	220,000
Number of Beds (Official) (in 1997)	86 beds (55 beds) Internal medicine: 15, Surgery: 15, Pediatric: 25 Obstetrics & Gynecology: 20, Neonatal: 8, ICU:3	67 beds (64 beds) Internal medicine: 15, Surgery: 19, Pediatric: 15, Obstetrics & Gynecology: 14 Neonatal: 4	122 beds(86 beds) Internal medicine: 50, Hematology: 6, Pediatric:32, Neonatal: 8, ICU: 4 Hemodialysis: 8, CAPD: 2, Oncology: 6,
Number of Those Engaged in Medical Care (in 1997)	182 persons Doctor: 31, Nurse: 30, Midwives:15 Radiologist:5, Laboratory technician: 8, Pharmacists: 4, Dietitian: 1, Engineers of ME: 1 Administrative: 18, Technician of Anesthesia: 2, Others: 67	153 persons Doctor: 28, Nurse: 54, Midwives: 8, Radiologist: 6, Laboratory technician: 8, Pharmacists: 3, Dietitian: 1, Engineers of ME: 1, Administrative: 28, Technician of Anesthesia: 2, Others: 19	193 persons Doctor: 35, Nurse: 78, Radiologist: 3, Laboratory: 10, Pharmacists: 5, Dietitian: 1, Engineers of ME: 1, Administrative: 44, Others: 19
Facility Utilization (per year)			
Number of Outpatients	44,763	41,040	47,191
Number of Inpatients	12,435	9,228	7,340
Bed Operability Rate (%)	76.30%	80.3%	69.5%
Average Admission Days	1.9	2.2	3.0
Main Clinical Departments	Internal medicine, Surgery, Pediatric, Obstetric & Gynecology, Orthopedic, X-ray department Neonatal, Emergency department	Internal medicine, Surgery, Pediatric, Obstetric & Gynecology, Orthopedic, Radiology, Neonatal, Emergency department	Internal medicine, Neurology, Hemodialysis, Oncology, Hematology, Pediatric, Neonatal, Emergency Dept., Cardiology
State of Activity	It is located in Jenin City at Northern West bank. New 3 stories building is under construction. Emergency, Operating room and radiology department building will be constructed by private fund. Refer to Rafidia Hospital in Nablus. There is Outpatient Department beside the main building, due to treating a lot of patients daily.	Located in Tulkarem City, northeastern part of the West Bank. New building is being constructed by UNDP through the Japanese Government fund. The first stage of the construction was finished in 1997. 2nd stage (including Radiology , Outpatient and Laboratory) is not under construction, but a fund for this construction will be offered by the Japanese Government.	Located at Nablus City in West bank. Secondary medical care (parts of tertiary medical care) Hospital, specializing in internal medicine. There are both Watani and Rafidia hospitals in Nablus. Those hospitals provide the secondary medical care and a part of the tertiary medical care services for the residents.
State of Activity of the Existing Equipment	Main equipment of CSSD, Laboratory, Radiation Dept., Operating and Neonatal rooms have been used for more than 10 years. Replacement period of main medical equipment is coming. Most of existing medical equipment manufacturers are European and American.	Lack of CSSD and ICU medical equipment. Replacement period of main medical equipment is coming. Most of manufacturers of the existing medical equipment are European and American.	There are no operating room and Obstetrics & Gynecology dept. Endoscopy are made in Japan. Equipment of ICU are made in Europe and America Hemodialysis: There are 8 dialysis machines in the room. Equipment are made in Europe and America, which have been used for over 13 years. Laboratory equipment are made in America and Japan.
Equipment to be Procured for Each Department	Secondary medical care equipment: (CSSD, Endoscopy, Obstetrics, ICU , Laboratory, Operation room, Radiology equipment) Details are as per attached sheets.	Secondary medical care equipment: (CSSD, Endoscopy, Obstetrics, ICU, Laboratory, Operation room, Radiology equipment) Others: Kitchen equipment Details are as per attached sheets.	Secondary medical care equipment: (ICU, Laboratory, Pediatric, Radiology department) Tertiary medical care equipment (Cardiology, Hemodialysis) *Details are as per attached sheets.
State of Facility			
Number of Floor	2-story	2-story	3-story
Structure	Reinforced concrete	Reinforced concrete	Built of stone , Reinforced concrete
Voltage	216 - 218V	214 - 217V	219V
Electric Capacity	400KVA	630KVA	700KVA
Water Supply	City water	City water	City water
Drainage	City sewer pipe	City sewer pipe	City sewer pipe
Medical Waste	Segregated collection	Segregated collection	Segregated collection
Extension Work	3rd Floor (under construction)	New building is under construction.	Expansion plan of outpatient building

Table 2-2-1 outline of the Designated Hospitals

Name of Facility	RAFIDIA HOSPITAL	RAMALLAH HOSPITAL	BEIT JALA HOSPITAL
Location	Nablus	Ramallah P.O. Box 1100	Bethlehem P.O.Box 67
Rank	Professional Surgical Hospital Secondary medical care(part of tertiary medical care) facility	Top referral hospital in West Bank Secondary medical care(part of tertiary medical care) facility	General Hospital (Public) Secondary medical care(a part of tertiary medical care) facility
Beneficiaries' Population (in 1996)	220,000	1,400,000(Population in West Bank)	113,000
Number of Beds (Official) (in 1997)	144 beds (138 beds) Surgery: 32, Burn: 6, Obstetrics & Gynecology: 49, Neonatal: 14, ICU: 3, ENT: 10 Orthopedic: 20, Urology: 10	159 beds (142 beds) Surgery: 42, Internal medicine: 28, Pediatric: 31, Obstetrics & Gynecology: 27, Neonatal: 12, ICU: 6, Hemodialysis: 5, Orthopedic: 8, Urology: 4	92beds (70 beds) Internal medicine: 10, Surgery: 14, Pediatric: 6, Obstetrics & Gynecology: 14, Hematology & Oncology: 16, ENT: 2, Orthopedic: 4, Urology: 12, Neurology: 14.
Number of Those Engaged in Medical Care (in 1997)	289 Persons Doctor: 42, Nurse: 114, Radiologist: 10, Laboratory: 16, Pharmacists: 5, Dietitian: 1, Engineers of MS: 1, Anesthetist: 2, Administrative: 70, Physiotherapy: 05, Midwives: 21, Others: 19	313 persons Doctor: 70, Nurse: 122, Radiologist: 11, Laboratory: 19, Pharmacists: 5, Dietitian: 1, Engineering of ME: 2, Anesthetist: 2, Administrative: 75, Midwives: 21, Others: 6	174 Person Doctor: 20, Nurse: 41, Obstetrics & Gynecology: 12, Radiology: 6, Laboratory: 12, Pharmacists: 4, Dietitians: 1, Engineer for ME: 1, Administrative: 49, Anesthetist: 2, Others: 26
Facility Utilization (per year)			
Number of Outpatients	41,375	103,465	66,745
Number of Inpatients	17,791	11,501	6,390
Bed Operability Rate (%)	82.5%	83.3%	82.3%
Average Admission Days	2.5	3.8	3.3
Main Clinical Departments	Surgery, Burn, Obstetric & Gynecology, Neonatal, E.N.T, Orthopedic, Physiotherapy, Radiology, Emergency Dept.	Internal medicine, Surgery, Pediatric, Obstetrics & Gynecology, ENT, Physiotherapy, Emergency Dept., Ophthalmology, Pediatric, Cardiac surgery, Brain surgery	Internal medicine, Surgery, Neonatal, Obstetrics & Gynecology, Orthopedic, Radiology, Emergency Dept., Hematology, ENT, Urology, Neurology, Cardiology
State of Activity	Located at Nablus City in West bank. Secondary medical care (a part of tertiary medical care) Hospital, specializing in surgery.	Top referral hospital at Ramallah City in West Bank. Secondary medical care (a part of tertiary medical care) hospital. It is well known for open-heart surgery in West Bank. Emergency department building is under construction (20 beds) now.	Hospital at Bethlehem in West Bank, which offers the secondary and a part of tertiary medical care services to the residents. It will be functioned as the center of cardiology in southern part of West Bank.
State of Activity of the Existing Equipment	All of the existing medical equipment have been used for more than 10 years, especially, equipment for Radiology have been used for over 13 years. Computed tomograph is available.	All of the medical equipment have been used for over 10 years; especially medical equipment of radiology, open-heart surgery dept. and CSSD have been used for over 15 years.	Equipment of CSSD and Radiology have been used for more than 12 years. CSSD, Pediatric, Obstetrics and Gynecology Dept. will remove to a new building. Shortage of medical equipment in CSSD.
Equipment to be Procured for Each Department	Secondary medical care equipment (CSSD, Endoscopy, ICU, Laboratory, Operation room, Obstetric & Gynecology, Pediatric, Pediatric surgery, Radiology) Tertiary medical care equipment (Autopsy, Orthopedic, Plastic Surgery, CT), Others: Laundry equipment. *Details are as per attached sheets.	Secondary medical care equipment (CSSD, Endoscopy, Obstetrics & Gynecology, ICU, Laboratory, Operating room, Pediatric, Radiology.) Tertiary medical care equipment: (Open-heart surgery, Hemodialysis, Orthopedic, Plastic surgery) *Details are as per attached sheets.	Secondary medical care equipment (CSSD, Endoscopy, Obstetrics & Gynecology, ICU, Laboratory, Operating room, Pediatric, Radiology) *Details are as per attached sheets.
State of Facility			
Number of Floor	Basement 1, 4-story	3-story and 4-story	5-story
Structure	Reinforced concrete	Reinforced concrete	Reinforced concrete
Voltage	230- 224V	212-216V	233-236V
Electric Capacity	630KVA	500KVA	2000KVA
Water Supply	City water	City water	City water
Drainage	City sewer pipe	City sewer pipe	City sewer pipe
Medical Waste	Segregated collection	Segregated collection	Segregated collection
Extension Work	Expansion plane of laundry building	Emergency building is under construction	Under construction of new building

Table 2-2-1 outline of the Designated Hospitals

Name of Facility	BETHLEHEM HOSPITAL	HEBRON HOSPITAL	Central workshop of MOH
Location	Bethlehem	Hebron P.O. Box 18	Ramallah city
Rank	The sole mental care hospital in West Bank	General Hospital (Public) Secondary medical care (a part of tertiary medical care) facility	Maintenance center controlled by MOH
Beneficiaries' Population (in 1996)	1,400,000 (Population in West Bank)	300,000	All public hospitals in the West Bank
Number of Beds (Official) (in 1997)	320 beds (320 beds) Mental care: 320	162 beds (169 beds) Internal medicine: 30, Surgery: 24, Pediatric: 30, Obstetrics & Gynecology: 30, Neonatal: 10, ICU: 7, Hemodialysis: 10, ENT: 4, Orthopedic: 10, Urology: 7	
Number of Those Engaged in Medical Care (in 1997)	139 Person Doctor: 21, Nurse: 71, Pharmacists: 1, Dietitians: 1, Engineer for ME: 5, Administrative: 11, Anesthetist: 1, Others: 29	230 Person Doctor: 43, Nurse: 102, Midwives: 11, Radiologist: 5, Laboratory technician: 16, Pharmacist: 5, Pharmacist: 5, Dietitian: 1, Engineer for ME: 1, Administrative: 36, Anesthetist: 2, Physiotherapy: 1, Others: 26	
Facility Utilization (per year)			
Number of Outpatients	3,366	111,907	
Number of Inpatients	571	16,804	
Bed Operability Rate (%)	109.1%	101.9%	
Average Admission Days	223	2.3	
Main Clinical Departments	Mental care	Internal medicine, Surgery, Neonatal, Obstetrics & Gynecology, Orthopedic, Radiology, Emergency Dept., ENT, Hemodialysis, Urology, Cardiology	Maintenance for medical equipment and facilities at public hospitals. Purchase and distribution of spare parts and consumable goods.
State of Activity	Hospital at Bethlehem in West Bank. It is only one mental care hospital in West Bank.	Hospital at Hebron in West Bank. Secondary medical care (a part of tertiary medical care) hospital, specializing in surgery. It will be functioned as the center of cardiology and Hemodialysis in southern part of West Bank.	The only maintenance center in West Bank. It dispatches engineers to the maintenance department of each hospital.
State of Activity of the Existing Equipment	EEG and ECG being used at present have been used for more than 10 years.	Existing equipment of ICU and Laboratory are not enough. Ultrasonic cleaner and tube washing machine in CSSD. Existing radiology equipment have been used for over 14 years.	Although equipment used for repairing are well-arranged, medical equipment are in short supply since the repairing department has been newly established.
Equipment to be Procured for Each Department	Electroencephalograph, Electrocardiograph, Defibrillator *Details are as per attached sheets.	Secondary medical care equipment (Endoscopy, ICU, Laboratory, Operating room, Pediatric, Radiology.) Tertiary medical care equipment (Cardiology, Hemodialysis, Orthopedic, CT) *Details are as per attached sheets.	Defibrillator tester, Electro-surgical unit tester, Analog IC tester, etc.
State of Facility			
Number of Floor	2-story	3-story	4-story
Structure	Built of stone, Reinforced concrete	Reinforced concrete	Reinforced concrete
Voltage	222-224V	227-230V	227-230V
Electric Capacity	200KVA	500KVA	
Water Supply	City water	City water	City water
Drainage	City sewer pipe	City sewer pipe	City sewer pipe
Medical Waste	Segregated collection	Segregated collection	
Extension Work			

Table 2-2-1 (2) Present Conditions of Medical Activities at the Designated Hospitals in 1996

Hospitals	Number of beds	Number of treatment	Number of death	Number of operation		Number of delivery	Number of daycare	Bed occupancy rate	Average admission days	Number of outpatients
				Serious operation	Small operation					
West Bank										
Jenin	55	12,435	180	1,575	1,082	4,583	23,667	117.60	1.90	44,763
Tulkarem	64	8,418	159	928	408	1,929	18,800	80.30	2.20	45,866
Al Watani	86	7,340	361	N/A	N/A	N/A	21,867	69.50	3.00	47,191
Rafidia	138	16,573	138	2,855	1,276	7,863	41,678	82.50	2.50	78,352
Ramallah	142	11,501	304	4,562	1,649	2,581	43,301	83.30	3.80	103,465
Beit Jala	70	6,390	115	1,029	811	1,830	21,085	82.30	3.30	66,745
Jericho	50	3,133	25	499	381	557	9,001	49.20	2.90	33,124
Hebron	103	16,804	182	2,236	2,170	5,435	38,401	101.90	2.30	111,907
Bethlehem Mental	320	571	4	N/A	N/A	N/A	127,823	109.10	223.90	3,366
Gaza District										
Shifa	402	36,743	848	3,907	7,744	9,811	121,591	82.90	3.30	148,358
Khan Younis	213	24,182	336	6,931	2,989	6,073	65,200	83.70	2.70	49,100
Gaza Pediatric	105	10,393	307	N/A	N/A	N/A	31,926	83.30	3.10	8,219
Gaza Ophthalmic	31	1,751	0	10,301	1,091	N/A	6,990	61.80	4.00	67,557
Gaza Mental	34	602	0	N/A	N/A	N/A	10,140	81.70	16.80	24,922

Source: "The 1997 Annual Report," Ministry of Health

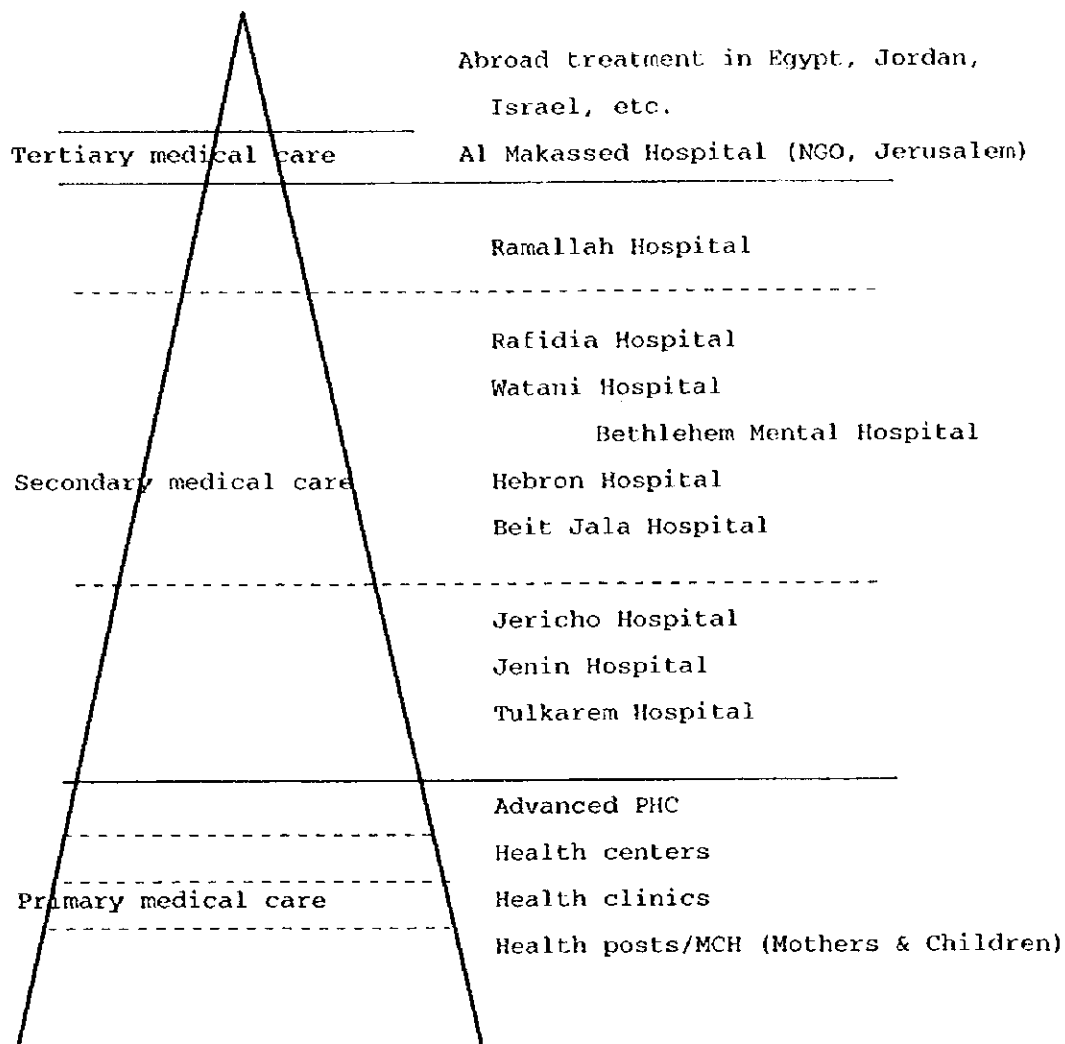
DISTRICT	DESIGNATED HOSPITALS	
1. Jenin City	Jenin Hospital	Secondary medical care, local hospital in the northern tip
2. Tulkarem City	Tulkarem Hospital	Secondary medical care, local hospital in the northwest
3. Nablus City	Watani Hospital	Secondary (partly tertiary) medical care, specializing in internal care
4. Nablus City	Rafidia Hospital	Secondary (partly tertiary) medical care, specializing in surgery
5. Ramallah City	Ramallah Hospital	Top referral hospital of West Bank, excellent in cardiac surgery
6. Bethlehem City	Bethlehem Hospital	The sole mental hospital in West Bank with 320 beds
7. Bethlehem City	Beit Jala Hospital	Secondary (partly tertiary) medical care with CCU/ICU facilities
8. Hebron City	Hebron Hospital	Secondary (partly tertiary) medical care, referral hospital in the south
9. Ramallah City	Central Workshop	Maintenance services

1) Public health care system in West Bank

The public health care system has been implemented by dividing into three divisions: northern, central, and southern areas.

Northern area : Jenin, Tulkarem and Nablus administrative area
 Central area : Ramallah, Jerusalem and Jericho administrative area
 Southern area : Bethlehem and Hebron administrative area

All the designated hospitals are referral hospitals to offer health care services in West Bank. The referral organization chart is as follows:



2) Summary of designated hospitals and facilities

Please refer to Table 2-2-1 "Outline of the Designated Hospitals" and Table 2-2-1-2) "Present Conditions of Medical Activities at the Designated Hospitals in 1996."

- ① In order for the designated hospitals to function well according to its position and expected roles under the public health care system set by MOH, we came up with the improvement plan of the medical facilities as well as we conducted a survey on their architectural structures and infrastructures such as electricity and drainage. At present, several construction work such as repair work for overage hospitals, extension work and new construction work have

been done at the designated facilities. Actually all the designated hospitals are operated on a daily basis, therefore, there will be no obstacle to install the procured equipment in terms of places for installation and infrastructures.

Extension and reconstruction work of facilities which are related to installation of the equipment for the project have started at Tulkarem Hospital, Rafidia Hospital and Hebron Hospital, while a new building for the laundry should be constructed at the Rafidia Hospital. Since the construction work will be completed within 1998, it can be judged that this will not conflict with the project.

- ② Watani Hospital is utilizing a building on the steep slope which was built about 100 years ago. During the Jordanian and the Israeli Occupation, extension work and remodeling of the building had been done several times, and there is no further capacity on the site. Besides, more refugees have returned to their homeland because of the transfer of the autonomy. Therefore, the medical facility should be improved in order to correspond to the increasing number of patients.
- ③ Although this project is the medical equipment improvement plan for the public hospitals in the West Bank; Jericho Hospital, one of the public medical facilities for the secondary health care, is excluded from this project. For this hospital, the facility and medical equipment improvement project was implemented in 1993 through the "Urgent Aid for Disasters" by the Red Cross of Japan. Besides, the New Jericho Hospital Construction Project under the 1996 grant-aid plan of the Government of Japan has been implemented, for which medical equipment also has been renewed.
- ④ In order to utilize the procured equipment of this project effectively for a long term, improvement of equipment for the Central Workshop (controlled by MOH) in Ramallah will be included in this project. The Central Workshop is functioning as the maintenance center for the public hospitals; it instructs and

supervises them in cooperation with the maintenance department of each hospital.

(2) Contents of requested equipment

1) List of requested equipment

Based upon the final list of requested equipment proposed by MOH in September, 1997, equipment to be procured were confirmed by both MOH and designated hospitals at the time of research on the basic design. And the equipment were divided into four phases by priority, that was written in the minutes.

Main requested equipment are in Figure 2-2-1, annexed table.

Hospital	Final list of requested equipment		Attached list to the B/D Minutes		Order of Priority			
	Type	Piece	Type	Piece	Piece			
					A	B+	B	C
Jenin	64	105	66	108	56	0	6	46
Tulkarem	57	92	59	94	51	1	3	39
Watani	49	108	50	110	43	0	4	63
Rafidia	93	178	97	189	98	1	4	86
Ramallah	100	237	103	235	113	0	18	104
Beit Jala	65	128	65	129	66	0	12	51
Bethlehem	24	28	34	38	4	0	6	28
Hebron	70	154	74	146	73	4	16	53
Central Workshop	5	7	6	8	0	0	1	7
TOTAL	527	1,037	554	1,057	504	6	70	477

Note) As for equipment for the kitchen and the laundry, a piece of equipment was selected respectively because details of them were unknown. Total number of types of equipment is cumulative figures per hospital.

In preparing the list of equipment attached to the Minutes (including the order of priority), the research group set up the standards of selection by position of the designated hospitals. According to the

standards, the group made up an alternative plan to discuss with the Palestinian side. Upon the discussion, 554 types of equipment and 1,057 pieces of equipment were confirmed and written in the Minutes. And the list stating the order of priority by four phases was made up.

Four phased priorities:

- A: TOP PRIORITY (a must for the hospitals)
- B+: HIGHER MEDIUM PRIORITY (necessary for hospital activities)
- B: LOWER MEDIUM PRIORITY (necessary, but lower priority)
- C: LOW PRIORITY (not included in the project)

Table 2-2-1-(2) Major Equipment

Department	Description
JENIN HOSPITAL	Autoclave, Gastroscope, Obstetric Delivery table, E.C.G. , Defibrillator, Chemistry Analyzer, Transport Incubator, Operating Ceiling Lamps, Anesthesia Machine, Operating Table, Mobile X-ray, Ultrasonic Equipment, Electric Surgery Unit
TULKAREM HOSPITAL	Autoclave, Gastroscope, Colonoscope, Obstetric Delivery table, E.C.G. , Defibrillator , Kitchen Equipment set, Chemistry Analyzer, Transport Incubator, Electric Surgery Unit, Operating Table, X-ray for General Purpose (Bucky), Mobile X-ray, Ultrasonic Equipment, Operating Ceiling Lamps
WATANI HOSPITAL	Holter Analyzer, Gastroscope, Sigmoidoscope, Electroencephalograph (EEG), Central Monitoring System, E.C.G., Chemistry Analyzer, Blood Gas Analyzer, Transport Incubator, Ultrasonic Equipment, Echocardiography machine, Hemodialysis Machine
RAFIDIA HOSPITAL	Autoclave, Laparoscope, Gastroscope, Colonoscope, Obstetric Delivery table, E.C.G. , Defibrillator, Blood Gas Analyzer, Laundry set, Electric Surgery Unit, Anesthesia Machine, Operating Table, X-ray Fluoroscopy, CT Scanner, Ultrasonic Equipment
RAMALLAH HOSPITAL	Holter Analyzer, Autoclave, Laparoscope, Obstetric Delivery table, Central Monitoring System, E.C.G. , Defibrillator, Blood Gas Analyzer, Refrigerated Centrifuge, Transport Incubator, X-ray Fluoroscopy, X-ray for General Purpose (Bucky), Mobile X-ray, Ultrasonic Equipment, Echocardiography machine, Operating Ceiling Lamps, Anesthesia Machine, Hemodialysis Machine
BEIT JALA HOSPITAL	Obstetric Delivery table, Defibrillator, Chemistry Analyzer, Transport Incubator, Electric Surgery Unit, X-ray Fluoroscopy, Mobile X-ray, Ultrasonic Equipment, Autoclave, E.C.G.
BETHLEHEM HOSPITAL	Electroencephalograph (EEG), E.C.G. , Defibrillator
HEBRON HOSPITAL	Holter Analyzer, Laparoscope, Blood Gas Analyzer, Refrigerated Centrifuge, Electric Surgery Unit, X-ray Fluoroscopy, X-ray for General Purpose (Bucky), CT Scanner, Mobile X-ray, Ultrasonic E.C.G. , Operating Table, Operating Ceiling Lamps, Anesthesia Machine, Hemodialysis Machine
CENTRAL WORKSHOP	ECG simulator, Defibrillator tester, Electro surgical unit tester, Oscilloscope

2) Selection of equipment

In selecting the equipment, we checked each hospital's functions and roles, and effectiveness produced by this project. After the discussion, we made up the list of designated equipment with four phased priorities which was attached to the September 28, 1997, Minutes.

Priority standards

- (1) Equipment basically and essentially needed for hospital activities.
- (2) Renewal of the existing equipment
- (3) Equipment which meet the requirements of the hospitals by level of medical care service
- (4) Equipment with which demand (the number of patients and specimens) in diagnosing and curing activities can be confirmed fully.
- (5) Equipment of which operation and maintenance are possible technically.
- (6) Equipment of which maintenance are affordable, including purchase of consumables and replacement parts.
- (7) For installation of the equipment, infrastructures are available

Deletion standards

- (1) Equipment which need introduction of new staff and new technologies.
- (2) Equipment of which installation is impossible judging from infrastructures situations (instruments which require additional construction and major improvement of facility).
- (3) Equipment of low cost performance (low demand despite expensive prices).
- (4) Equipment overlapped with the list of requested equipment, existing facilities or other aid organizations.
- (5) Equipment which may violate rules on treatment of wastes and radioactive substances.
- (6) Equipment of which maintenance is difficult technically or financially.

2-2-2 Investigation of Requested Contents

As regards the requested medical care equipment, their priority orders, quantities and grades were investigated in detail according to the aforementioned "Basic concept of equipment plan" and "Evaluation standards for equipment selection." In carrying out the investigation, the contents of agreement with the Palestinian side on the equipment selection are as follows, and the agreements were taken into consideration for the final selection of objective equipment:

1) Coherence between the existing equipment and requested equipment

We investigated the existing equipment of the eight designated hospitals and discussed specifications of the requested equipment with doctors, nurses and paramedical staff of the hospitals, while we checked the infrastructures on sites such as electricity, water supply, drainage, etc. which are related to installation of the equipment.

2) Equipment procured by a third country

Based upon the research on situations of the designated hospitals, most of the existing equipment are made in Europe, USA or Israel. Therefore, it is necessary to consider procurement of equipment from a third country, for which it should be fully investigated whether 1) staff are familiar with operating equipment, 2) delivery routes of consumables and replacement parts are established, 3) an agent is available on sites.

3) Avoidance of overlapped equipment with grant-aid programs from other donation

According to the transfer of the autonomy to West Bank in 1995, grant-aid projects from other countries such as France and Spain have been implemented. We have checked equipment granted by these countries thoroughly so that the equipment procured by this project will not overlap them.

4) Maintenance of the equipment

①. Maintenance system of MOH

The Central Maintenance Department of MOH in Ramallah is handling a maintenance system of public hospitals and medical equipment in West Bank. Its roles include staff assignment, purchase of equipment (procurement of replacement parts) and budget plans for each hospital.

Specifically, there are workshops at the hospitals where maintenance staff such as mechanical engineers work on a regular basis and machine tools are available for daily maintenance and easy repairs.

For the implementation of the project, the maintenance system should be well-planned and systematic for daily, monthly and regular inspections. Therefore, the system should be improved in terms of a maintenance contract of high-priced equipment (CT scans, ultrasonic diagnosis machines, hemodialysis machines, central patient monitors, etc.) with an agent/agents in Palestine, and training of maintenance staff.

MOH announced that the Palestinian Authority concluded the official contract with the Italian Government with regard to establishment of Polytechnic College. Its curriculums include a paramedical training course for 20 to 30 students. As MOH will employ graduates in this course on a regular basis, it will help to make a staff plan.

②. Conditions of Palestinian agents handling medical equipment

In terms of advanced equipment such as CT scans, ultrasonic diagnosis machines, hemodialysis machines, central patient monitors, etc., equipment which can be maintained by the Palestinian agents should be selected. At least, it should designate manufacturers who have its official agent in the Middle East, for example in

Egypt or Jordan, and cover the whole areas of Palestine.

5) Contents of request for main equipment

①. CT scans (for Rafidia and Hebron Hospitals)

Medical treatment system for heart and brain diseases will be established in three areas: Rafidia Hospital in the north, Ramallah Hospital in the central area, and Hebron Hospital in the south. Medical personnel engaging in this are well-trained after completing a training course at Ramallah Hospital. Rafidia Hospital has used the CT scan which was bought about 15 years ago and transferred from Ramallah Hospital. Since it takes huge maintenance costs due to the overage equipment, a new one is required.

At present, only Ramallah Hospital has main equipment such as CT scans and echo cardiographs as well as medical specialists of this field.

②. X-ray units of fluorescent type (for Ramallah and Hebron Hospitals)

The designated hospitals have used X-ray units made in Israel (Elsint) for years, which have been getting too old. Because Israeli products are difficult to obtain maintenance service, it is requisite to select equipment which can be maintained by Palestinian agents.

③. Central patient monitors (for Watani and Ramallah Hospitals)

In order to strengthen functions of ICU and CCU, hospitals offering the secondary and a part of the tertiary health care services (Ramallah, Rafidia, Watani, Beit Jala and Hebron Hospitals) requested the central patient monitors. Reviewing the current situations based on the on-site research, it was judged that Watani and Ramallah Hospitals should be the designated hospitals.

- ④. Color Doppler ultrasonic diagnosis machines or echo cardiographs
(for Watani and Ramallah Hospitals)

As well as the above CT scans, in order to treat the heart disease in three areas, Watani (in the north), Ramallah (in the central area) and Beit Jala (in the south) Hospitals requested the equipment. The existing equipment used at Ramallah Hospital will be transferred to Beit Jala Hospital, therefore, two pieces of equipment were selected for Watani and Ramallah Hospitals.

- ⑤. Hemodialysis machines (for Watani, Ramallah and Hebron Hospitals)

In order to tackle the increasing number of patients of chronic diseases, especially of kidney diseases, treatment conditions should be improved urgently. 18 hemodialysis machines will be installed at three hospitals: Watani, Ramallah, and Hebron Hospitals.

2-2-2 (3) List of Investigation of Requested Equipment

As for "Priority of standards" and "Deletion standards," please refer to "Selection of equipment" on Page 34.

Total evaluation

- A: Equipment which should be procured
- B: Equipment which are not included in this project
- C: Equipment which were turned down at the time of discussion on the draft report with the hospitals

Jenin Hospital

Item No	Department	Description	Required Quantity	Required Priority			Criteria For Priority							Criteria For Deletion						Evaluation	Result of Quantity								
				A	B+	B	C	1	2	3	4	5	6	7	1	2	3	4	5			6							
JN- 7	Cardiology	Holter Monitor	1																								B	—	
JN- 8	Cardiology	Holter Analyzer	1																									B	—
JN- 140	Cardiology	Treadmill machine	1																									B	—
JN- 9	CSSD	Autoclave, 250 L w/ steam generator	1																									A	1
JN- 10	CSSD	Ultrasonic cleaner unit	1																									A	1
JN- 11	CSSD	Drying machine	1																									B	—
JN- 12	CSSD	Tube Washing Machine	1																									A	1
JN- 13	CSSD	Sealing Machine	1																									A	1
JN- 14	CSSD	Water Softener for Sterilizer	1																									A	1
JN- 144	Emergency	Parent Trolley	5																									B	—
JN- 23	Endoscopy	Laparoscope	1																									B	—
JN- 24	Endoscopy	Gastroscope	1																									A	1
JN- 26(A)	Endoscopy	Sigmoidoscope	1																									A	1
JN- 27(A)	Endoscopy	Arthroscope, rtdged type	1																									B	—
JN- 33	General	E.C.G. One Channel	2																									A	1
JN- 34	General	Suction Mobil	3																									A	1
JN- 36	General	Instrument cabinet	2																									B	—
JN- 38	Gyn. Obst.	Vacuum Extractor	2																									A	1
JN- 39	Gyn. Obst.	Fetal Monitor(Tocardiograph)	2																									A	1
JN- 40	Gyn. Obst.	Obstetric Delivery table	1																									A	1
JN- 42	ICU	ICU Bed	2																									B	—
JN- 43	ICU	Electrocardiograph, 3 channels	2																									A	1
JN- 44	ICU	Ultrasonic Nebulizer	2																									B	—
JN- 46	ICU	Syringe Pump	4																									B	—
JN- 47	ICU	Respirator for Adult	1																									B	—
JN- 49	ICU	Defibrillator	1																									A	1
JN- 50	ICU	Blood Gas Analyzer	1																									B	—
JN- 51	ICU	External Pacemaker	1																									A	1
JN- 52	ICU	Pulse Oximeter	3																									A	3
JN- 53	ICU	Blood Pressure Meter, Automatic/Electric measures	2																									A	1
JN- 41(A)	ICU	Central Monitoring System for 5 beds	1																									B	—
JN- 48(B)	ICU	Respirator for Adult/child	2																									A	2
JN- 56	Kitchen	Kitchen equipment set	1																									B	—
JN- 75	Laboratory, B.Bank	Water Distiller (automatic) 4L/h	1																									A	1
JN- 76	Laboratory, B.Bank	Blood Donor's Chair	1																									B	—
JN- 77	Laboratory, B.Bank	Hematology (Blood) Cell Counter	1																									A	1
JN- 79	Laboratory, B.Bank	Centrifuge up to 12000rpm	1																									A	1
JN- 80	Laboratory, B.Bank	Binocular Microscope	2																									A	1
JN- 81	Laboratory, B.Bank	Blood Gas Analyzer	1																									B	—
JN- 149	Laboratory, B.Bank	Bilirubin meter	2																									A	1
JN- 150	Laboratory, B.Bank	Blood bank Refrigerator	1																									A	1
JN- 151	Laboratory, B.Bank	Cell Washer Centrifuge	1																									B	—
JN- 154	Laboratory, B.Bank	Deep Freezer -35°C	1																									B	—

Tulkarem Hospital

Item No	Department	Description	Required Quantity	Required Priority			Criteria For Priority							Criteria For Defect						Evaluation	Result of Quantity				
				A	B+	B	C	1	2	3	4	5	6	7	1	2	3	4	5			6			
TK- 106	Pediatric	Transport Incubator	1	1																			A	1	
TK- 107	Pediatric	Apnea Alarm	2	2																				A	2
TK- 108	Pediatric	Oxygen Monitor	1	1																				A	1
TK- 109	Pediatric	Phototherapy Unit	3	3																				A	3
TK- 124	Pediatric Surgery	Warming Mattress	2	2																				A	2
TK- 125	Pediatric Surgery	Basic Pediatric Surgical Inst. set	2	1					1															A	1
TK- 130	Radiology	X-ray for General Purpose (Bucky)	1	1																				A	1
TK- 132	Radiology	Mobile X-ray	1	1																				A	1
TK- 133	Radiology	Ultrasound Equipment, Ob/Gyn	1	1					1															B	—
TK- 134	Radiology	Ultrasound Equipment, General Use w/probe	1	1																				A	1
TK- 135	Radiology	Ultrasound Equipment, Portable	1	1																				A	1
TK- 136	Radiology	Automatic Film Processor	1	1																				A	1
TK- 137	Radiology	Protection Gown	5	5					5															B	—
TK- 157	Others	Ambulance	1	1																				B	—
TK- 158	Others	Transport Van	1	1																				B	—

Watan Hospital

Item No	Department	Description	Required Priority			Criteria For Priority							Criteria For Deletion						Evaluation	Result of Quantity			
			A	B+	B	C	1	2	3	4	5	6	7	1	2	3	4	5			6		
WT- 7	Cardiology	Holter Monitor	1																		A	1	
WT- 8	Cardiology	Holter Analyzer	1																			A	1
WT- 139	Cardiology	Echocardiography machine	1																			A	1
WT- 14	CSSD	Water Softener for Sterilizer	1																			B	—
WT- 144	Emergency	Patient Trolley	5																			B	—
WT- 24	Endoscopy	Gastroscope	1																			A	1
WT- 26	Endoscopy	Sigmoidoscope	1																			A	1
WT- 33	General	E.C.G. One Channel	2																			A	2
WT- 34	General	Suction Mobil	2																			B	—
WT- 37	General	E.M.G. (Electro myograph)	1																			B	—
WT- 172	General	Electroencephalograph (EEG) 7 channel	1																			A	1
WT- 42	ICU	ICU Bed	4																			A	3
WT- 43	ICU	Electrocardiograph, 3 channels	2																			A	1
WT- 44	ICU	Ultrasonic Nebulizer	4																			B	—
WT- 46	ICU	Syringe Pump	4																			B	—
WT- 47	ICU	Respirator for Adult	2																			B	—
WT- 50	ICU	Blood Gas Analyzer	1																			B	—
WT- 51	ICU	External Pacemaker	1																			A	1
WT- 52	ICU	Pulse Oximeter	4																			B	—
WT- 53	ICU	Blood Pressure Meter, Automatic/Electric measures	3																			B	—
WT- 41(B)	ICU	Central Monitoring system for 6 beds	1																			A	1
WT- 48(B)	ICU	Respirator for Adult/child	2																			A	2
WT- 54	Kidney Hemodialysis	Hemodialysis Machine	5																			A	2
WT- 55	Kidney Hemodialysis	Hemodialysis Chair	10																			A	2
WT- 56	Kitchen	Kitchen equipment set	1																			B	—
WT- 75	Laboratory, B.Bank	Water Distiller (automatic) 4L/h	2																			A	1
WT- 77	Laboratory, B.Bank	Hematology (Blood) Cell Counter	1																			A	1
WT- 79	Laboratory, B.Bank	Centrifuge up to 12000rpm	2																			A	1
WT- 80	Laboratory, B.Bank	Binocular Microscope	2																			A	1
WT- 81	Laboratory, B.Bank	Blood Gas Analyzer	1																			A	1
WT- 84	Laboratory, B.Bank	Tissue Processor	1																			B	—
WT- 85	Laboratory, B.Bank	Embedding Machine	1																			B	—
WT- 149	Laboratory, B.Bank	Bilirubinometer	3																			A	1
WT- 150	Laboratory, B.Bank	Blood bank Refrigerator	1																			B	—
WT- 151	Laboratory, B.Bank	Cell Washer-Centrifuge	1																			B	—
WT- 154	Laboratory, B.Bank	Deep Freezer -35°C	1																			B	—
WT- 78(B)	Laboratory, B.Bank	Spectrophotometer	1																			A	1
WT- 48(A)	ICU	Respirator for newborn	3																			A	1
WT- 105	Pediatric	Infant Incubator, Double Wall	10																			A	6
WT- 106	Pediatric	Transport Incubator	1																			A	1
WT- 107	Pediatric	Apnea Alarm	2																			A	1
WT- 108	Pediatric	Oxygen Monitor	1																			A	1
WT- 109	Pediatric	Phototherapy Unit	3																			A	2

Rafidya Hospital

Item No	Department	Description	Required Quantity			Required Priority			Criteria For Priority							Criteria For Delection						Evaluation	Result Of Quantity						
			A	B+	B	C	A	B	C	1	2	3	4	5	6	7	1	2	3	4	5			6					
RF- 122	Orthopedic	Laminectomy Instrument set	1	1																						A	1		
RF- 123	Orthopedic	Pneumatic Bone Drill	1	1																							A	1	
RF- 105	Pediatric	Infant Incubator, Double Wall	6	4		2																					A	4	
RF- 106	Pediatric	Transport Incubator	1			1																					B	—	
RF- 107	Pediatric	Apnea Alarm	4	4																							A	4	
RF- 108	Pediatric	Oxygen Monitor	1	1																							A	1	
RF- 109	Pediatric	Phototherapy Unit	3	2		1																					A	2	
RF- 124	Pediatric Surgery	Warming Mattress	3	3																							A	3	
RF- 125	Pediatric Surgery	Basic Pediatric Surgical Inst. set	2	1		1																					A	1	
RF- 126	Pediatric Surgery	Basic Infant Surgical Inst. set	2	1		1																					A	1	
RF- 127	Pediatric Surgery	Vascular Surgical Inst. set	2	1		1																					A	1	
RF- 128	Plastic Surgery	Plastic Surgery Instruments set	2	1		1																					A	1	
RF- 129	Radiology	X-ray Fluoroscopy	1			1																					A	1	
RF- 130	Radiology	X-ray for General Purpose (Bucky)	1	1																							C	—	
RF- 131	Radiology	CT Scanner (Continuous), Laser Imager	1	1																							A	1	
RF- 133	Radiology	Ultrasound Equipment, Ob/Gyn	1			1																					B	—	
RF- 134	Radiology	Ultrasound Equipment, General Use w/probes	1	1																							A	1	
RF- 135	Radiology	Ultrasound Equipment, Portable	2	1		1																					A	1	
RF- 136	Radiology	Automatic Film Processor	1	1																							A	1	
RF- 137	Radiology	Protection Gown	10			10																					B	—	
RF- 157	Others	Ambulance	1			1																					B	—	
RF- 158	Others	Transport Van	1			1																					B	—	
TOTAL			98	1	4	86																							

Beit Jala Hospital

Item No	Department	Description	Required Quantity			Required Priority			Criteria For Priority						Criteria For Deletion						Evaluation	Result Of Quantity				
			A	B+	B	C	A	B+	B	C	1	2	3	4	5	6	7	1	2	3			4	5	6	
BJ- 76	Laboratory, B. Bank	Blood Donor's Chair	1																						B	—
BJ- 77	Laboratory, B. Bank	Hematology (Blood) Cell Counter	2	1			1																		A	1
BJ- 79	Laboratory, B. Bank	Centrifuge up to 12000rpm	2	1			1																		A	1
BJ- 80	Laboratory, B. Bank	Binocular Microscope	2				2																		B	—
BJ- 81	Laboratory, B. Bank	Blood Gas Analyzer	1				1																		B	—
BJ- 149	Laboratory, B. Bank	Bilirubinometer	2	1			1																		A	1
BJ- 150	Laboratory, B. Bank	Blood bank Refrigerator, small type	1	1																					A	1
BJ- 151	Laboratory, B. Bank	Cell Washer Centrifuge	1	1																					A	1
BJ- 154	Laboratory, B. Bank	Deep Freezer -35C	1				1																		B	—
BJ- 78(B)	Laboratory, B. Bank	Spectrophotometer	1	1																					A	1
BJ- 112	Operating Room	Elec. Surgery Unit	1	1																					A	1
BJ- 105	Pediatric	Infant Incubator, Double Wall	6	4			2																		A	4
BJ- 106	Pediatric	Transport Incubator	1	1																					A	1
BJ- 107	Pediatric	Apnea Alarm	2	2																					A	2
BJ- 108	Pediatric	Oxygen Monitor	1	1																					A	1
BJ- 109	Pediatric	Phototherapy Unit	3	3																					A	3
BJ- 124	Pediatric Surgery	Warming Mattress	2	2																					A	2
BJ- 125	Pediatric Surgery	Basic Pediatric Surgical Inst. set	1	1																					A	1
BJ- 126	Pediatric Surgery	Basic Infant Surgical Inst. set	1				1																		B	—
BJ- 129	Radiology	X-ray Fluoroscopy	1				1																		A	1
BJ- 130	Radiology	X-ray for General Purpose (Bucky)	1	1																					C	—
BJ- 132	Radiology	Mobile X-ray	1	1																					A	1
BJ- 133	Radiology	Ultrasound Equipment, Ob/Gyn	1				1																		B	—
BJ- 134	Radiology	Ultrasound Equipment, General Use	1	1																					A	1
BJ- 135	Radiology	Ultrasound Equipment, Portable	1	1																					A	1
BJ- 136	Radiology	Automatic Film Processor	1	1																					A	1
BJ- 137	Radiology	Protection Gown	5				5																		B	—
BJ- 157	Others	Ambulance	1				1																		B	—
BJ- 158	Others	Transport Van	1				1																		B	—
TOTAL			66	0	12	51	129																			

General

Item No	Department	Description	Required Quantity	Required Priority			Criteria For Priority							Criteria For Deletion						Evaluation	Result Of Quantity		
				A	B+	B	C	1	2	3	4	5	6	7	1	2	3	4	5			6	
GE- 141	Central workshop	Truck 8t	1				1														B	--	
GE- 142	Central workshop	Truck with lift 8t	1				1															B	--
GE- 143	Central workshop	Fork- lift 2.5t	1				1															B	--
GE- 157	MOH	Ambulance	2				2															B	--
GE- 158	MOH	Transport Van	2				2															B	--
GE- 104	Central workshop	Equipment for Central Maintenance Shop	1			1																A	1