Ministry of Health, Federation of Bosnia and Herzegovina
Ministry of Health and Social Welfare, Republic of Srpska
Bosnia and Herzegovina

BASIC DESIGN STUDY REPORT ON THE PROJECT FOR IMPROVEMENT OF MEDICAL EQUIPMENT IN THE HOSPITALS IN BOSNIA AND HERZEGOVINA

JANUARY 1998

JAPAN INTERNATIONAL COOPERATION AGENCY
CRC OVERSEAS COOPERATION Inc.

Ministry of Health, Federation of Bosnia and Herzegovina
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PREFACE

In response to a request from the Government of Bosnia and Herzegovina, the Government of Japan decided to conduct a basic design study on the Project for Improvement of Medical Equipment in the Hospitals and entrusted the study to the Japan International Cooperation Agency (JICA).

JICA sent to Bosnia and Herzegovina a study team from July 9 to August 16, 1997.

The team held discussions with the officials concerned of the Government of Bosnia and Herzegovina, 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 Bosnia and Herzegovina in order to discuss a draft basic design, and as this result, the present report was finalized.

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

I wish to express my sincere appreciation to the officials concerned of the Government of Bosnia and Herzegovina for their close cooperation extended to the teams.

January, 1998

Kimio Fujita
President
Japan International Cooperation Agency

January, 1998

Letter of Transmittal

We are pleased to submit to you the basic design study report on the Project for Improvement of Medical Equipment in the Hospitals in Bosnia and Herzegovina.

This study was conducted by CRC Overseas Cooperation Inc., under a contract to JICA, during the period from July 3, 1997 to January 30, 1998. In conducting the study, we have examined the feasibility and rationale of the project with due consideration to the present situation of Bosnia and Herzegovina and formulated the most appropriate basic design for the project under Japan's grant aid scheme.

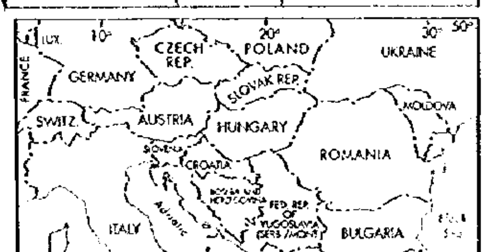
Finally, we hope that this report will contribute to further promotion of the project.

Very truly yours,

Keiji IIMURA

Project manager,
Basic design study team on
the Project for Improvement of
Medical Equipment in the
Hospitals
in Bosnia and Herzegovina
CRC Overseas Cooperation Inc.

Map of Bosnia and Herzegovina



★ : Project Site

Photo 1: Obsolete Operating Table, State Hospital

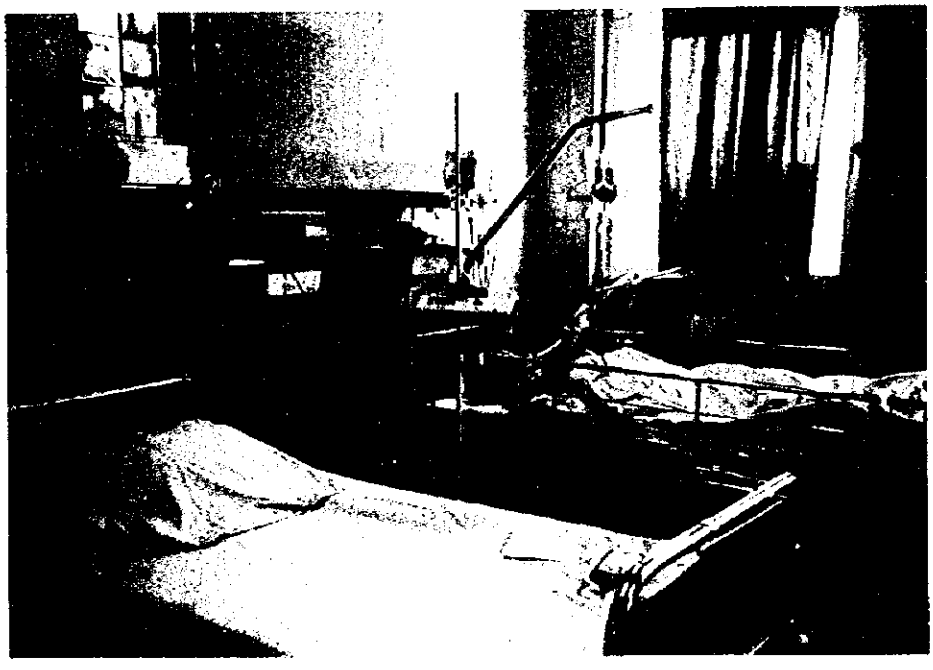


Photo 2: Current Status of ICU, Kosevo Clinical Center

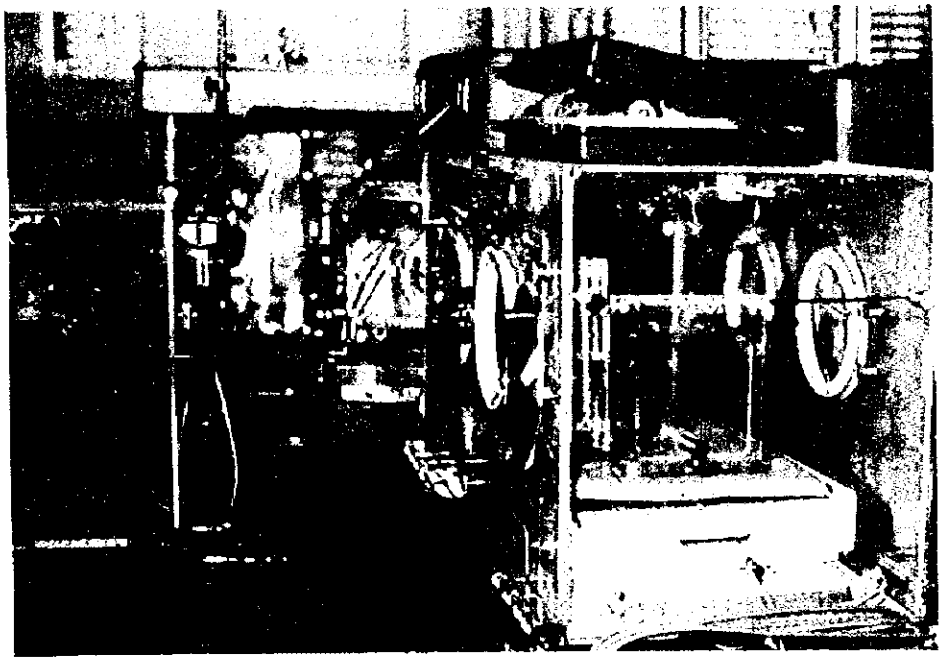


Photo 3: Obsolete Infant Incubator, Tuzla Clinical Center

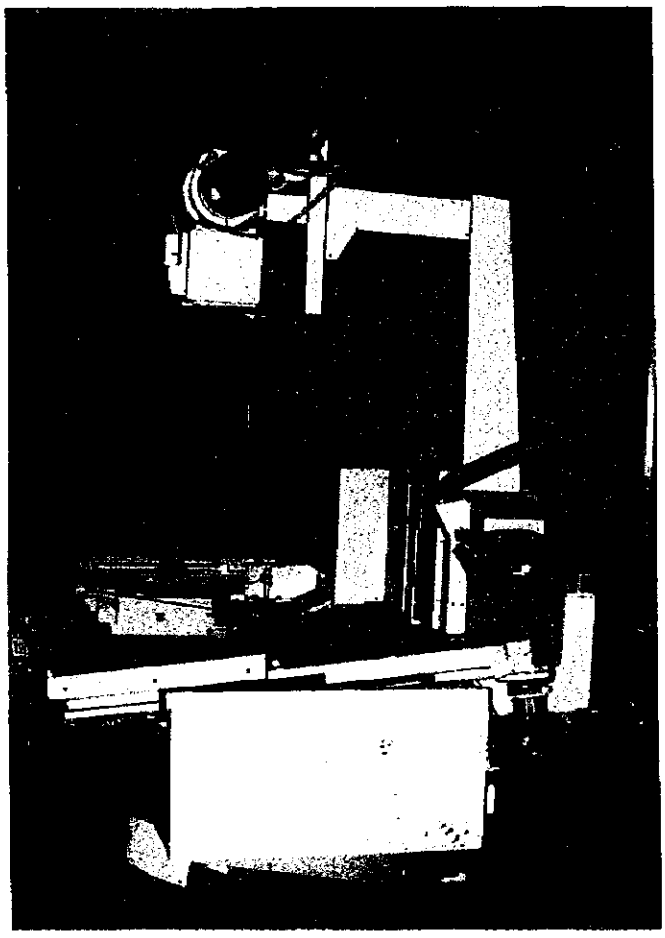


Photo 4: Broken X-ray unit, Mostar Clinical Center

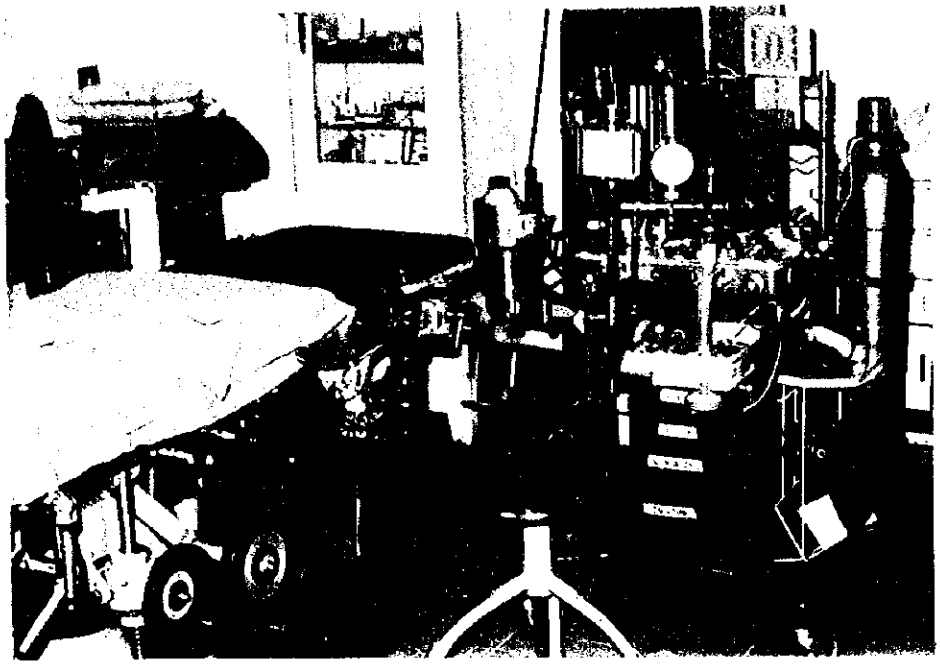


Photo 5: Current Status of Operation Room, Kasindo General Hospital

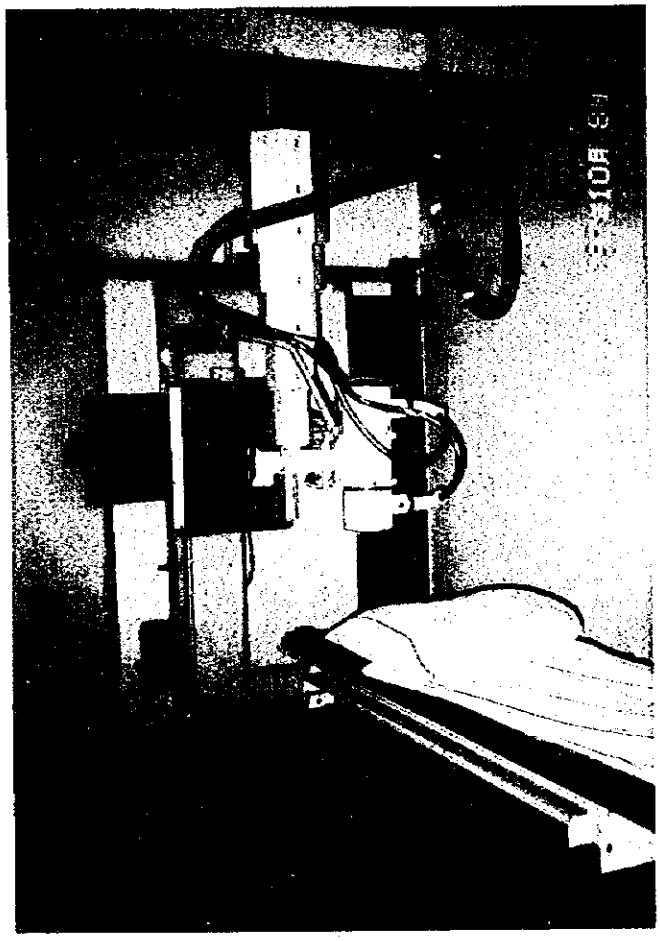


Photo 6: Obsolete X-ray apparatus, Srbinje General Hospital

Abbreviations

AVF	Automatic Voltage Frequency
BHN	Basic Human Needs
BiH	Bosnia and Herzegovina
C.C.	Clinical Center
CCU	Coronary Care Unit
CSSD	Central Sterilizer System Division
CT	Computed Tomography
DEN	Denar
DM	Deutsch Marks
DZ	DOM ZDRAVLJA
E/N	Exchange of Notes
EC	European Community
ECG	Electrocardiogram
EHSP	Essential Hospital Services Project
ENT	Ear, Nose and Throat
EU	European Union
FD	Federation of Bosnia and Herzegovina
GDP	Gross Domestic Product
HIF	Health Insurance Fund
ICU	Intensive Care Unit
JICA	Japan International Cooperation Agency
MDM	Medicine De Monde
MFK	Maxilofacial Surgery
M/M	Minutes of Meeting
MOH	Ministry of Health
MOFA	Ministry of Foreign Affairs
MRI	Magnetic Resonance Imaging
NICU	Neonatal Intensive Care Unit
ODA	Official Development Assistance
OECD	Organization for Economic Co-operation and Development
PIU	Project Implementation Unit
PTT	Post and Telecommunications
RS	Republic of Srpska
SEA	Scottish European Aid
UNDP	United Nations Development Programme
US$	U.S. Dollar
USAID	U.S. Agency for International Development
WHO	World Health Organizaiton

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Chapter 1

Background of the Project

Chapter 1 Background of the project

1-1 Background

The civil war that broke out in 1992 in Bosnia and Herzegovina resulted in over 200,000 casualties, left over half the population (some 2.7 million) as refugees, and destroyed nearly half of the country's medical facilities. Since the end of the war, the country has been striving to recover with support from various donor countries, but still has a long way to go. The state is now divided into two entities, the Federation of Bosnia and Herzegovina(hereinafter referred to as "FD") and the Republic of Srpska(hereinafter referred to as "RS"). The division has weakened the region's economic infrastructure. The war also resulted in extensive damage to a significant part of the industrial infrastructure and directly led to an unemployment rate of over 50% in both political entities.

There is little doubt that this three-and-half-year war has also had serious effects on the local population' s health. The main causes are inadequate medical services, deterioration in the living environment, malnutrition and psychological stress. The infant mortality rate in Sarajevo, is currently 30 to 40 deaths for every 1,000 new-borns, double the prewar figure. The major effects of the war are summarized below.

(1) 200,000 casualties, including 50,000 children;

(2) More than 13,000 have been left handicapped;

(3) Cases of infectious diseases have tripled;

(4) Number of premature babies and stillbirths have increased;

(5) Medical facilities were destroyed (FD:approx.50%, RS:approx.35%);

(6) 35% of hospital beds were lost; and

(7) Chronic shortage of medicines and consumables.

Restoration and reconstruction of war-torn states like Bosnia and Herzegovina are crucial issues, and the international community supporting an aid scheme met in December 1995 and in April 1996 to prepare an aid totaling U.S.$1.83 billion for 1996. The Government of Japan has committed U.S.$500 million over a four-year period from 1996 to 1999. In the wake of years of intense fighting, proper hygiene, housing, education and the restoration of an economic infrastructure are the urgent and essential conditions to stabilize the livelihood of the population.

Target hospitals of the Project for Improvement of Medical Equipment in the Hospitals in Bosnia and Herzegovina (hereinafter referred to as "The Project"), to be described later, are likewise experiencing difficult conditions. Less than two years after the end of the civil war, the country itself is still in the stage of economic reconstruction, and the operating costs of these hospitals are mostly covered with aid from supporting nations. While the RS side sustained direct setbacks, such as the destruction of buildings and medical equipment, both entities were subjected to secondary damage like shortages in funds and human resources. Under the current circumstances, these secondary effects have become so severe that the quality of medical services rendered have been significantly degraded due to brain drain and insufficient medical equipment caused by financial shortcomings. Hospitals have become completely unable to function as they should.

For the sake of improving such circumstances, the FD and RS have secured the cooperation of the WHO and World Bank to prepare a reconstruction scheme for the medical sector of each entity and to bring the plan to prompt realization. In August 1997, in accordance with the "Essential Hospital Services Project," the World Bank had a tender to procure a part of necessary fundamental medical equipment.

To remedy this dire situation, it is of the utmost importance to renew the medical equipment that has become obsolete, and aid the hospitals and restore their function as secondary medical facilities. Based on the present health care situation, the Government of Bosnia and Herzegovina(hereinafter referred to as the "Government") submitted a request to the Japanese government asking for equipment for six core hospitals: the State Hospital, Kosevo Clinical Center, Tuzla Clinical Center and Mostar Clinical Center in the FD, and the Kasindo General Hospital, and Srbinje General Hospital in the RS. Upon receiving the request, the Japan International Cooperation Agency (JICA) dispatched the Basic Design Study Team to the area from July 9 through August 16. Based on this study and relevant discussions with the Government, a basic design was established for the Project, and relevant information was consolidated into an overview draft. Accordingly, another study team was dispatched for further briefings and consultations from October 5 through October 18, 1997.

The Project, targeted at the above six hospitals, aims to repair or upgrade medical equipment that was either damaged and/or rendered obsolete or unusable during the war. In the long run, the Project is also intended to improve the effectiveness of medical services

and to enhance the general level of health care in Bosnia and Herzegovina.

Furthermore, the Project supports the Essential Hospital Services Project (EHSP), which was drawn up with the cooperation of the World Bank and WHO in 1996, by supplying part of the required medical equipment. The total budget for the EHSP was set at U.S.$191.6 millions (Total valued of medical equipment at U.S.$79.8 millions), with only U.S.$33.6 millions (Total valued of medical equipment at U.S.$13.6 millions) thereof accounted for as of the end of 1996. Donor nations will be responsible for the remainder.

1-2 Outline of the Project

(1) Request	:	A request was filed in November 1996
(2) Authorities concerned	:	Ministry of Health, Federation of Bosnia and Herzegovina Ministry of Health and Social Welfare Republic of Srpska
(3) Responsible Agency	:	FD; State Hospital Kosevo Clinical Center Tuzla Clinical Center Mostar Clinical Center RS; Kasindo General Hospital Srbinje General Hospital
(4) Contents	:	Procurement and installation of medical equipment to be provided to the Six hospitals.

1) State Hospital

This hospital is located in the city center of Sarajevo and is a general hospital of the secondary medical care category in referral system. Providing medical services to a population of 450,000, the hospital has 250 beds and nine departments staffed with 62 doctors and 176 nurses.

Requested Equipment (60 items) ;

Remote Control Fluoroscopy X-ray unit, General Diagnostic X-ray unit, Doppler Ultrasound Diagnostic System, Blood Cell Counter, Automatic Biochemical Analyzer, Electrophoresis System, Instrument for Enzyme Immuno Assy for Cancer Maker, etc.

2) Kosevo Clinical Center

Also located in the city center of Sarajevo, the Kosevo Clinical Center is a leading hospital in federal medical sector, providing tertiary medical care and serving as an educational hospital. Providing medical services to a population of 600,000, the hospital has 11 departments and 1,990 beds and a staff of 552 doctors and 1,018 nurses.

Requested Equipment (59 items) ;

CT scanner, Doppler Ultrasound Diagnostic System, Multipolar Densitometer, Amino-acid Analyzer, Deep Freezer, Fundus camera, Argon laser, Yag-laser, Endoscope, Ventilator, etc.

3) Tuzla Clinical Center

Located in the city center of Tuzla, the Tuzla Clinical Center is the core of the medical sector in the northern part of the Federation. Responsible for tertiary care, it also serves as an educational hospital. The hospital provides medical diagnosis and treatment services in 19 departments to a population of some 700,000. It has a total of 1,760 beds and is staffed by 268 doctors and 948 nurses.

Requested Equipment (58 items) ;

Ultrasound diagnostic System, Central Monitoring System, Surgical Operating Table, Surgical Instrument Set, Sterilizer, Blood Cell Counter, Automatic chemistry Analyzer, Spectrophotometer, Blood Gas Analyzer, Endoscope, etc.

4) Mostar Clinical Center (Mostar C.C.)

Located in the center of Mostar, Mostar Clinical Center is the core of the medical sector in the eastern part of the Federation. It provides tertiary medical care and serves as an educational hospital. Its 36 diagnosis/treatment departments provide care for a population of some 600,000. The hospital has 810 beds and is staffed by 155 doctors and 448 nurses.

Requested Equipment (122 items) ;

Remote Control Fluoroscopy X-ray Unit, General Diagnostic X-ray Unit, Ultrasound Diagnostic System, Blood Cell Counter, Blood Gas Analyzer, Surgical Instrument set, Monitoring system, Endoscope, Infusion pump, stress test system, Sterilization unit, etc.

5) Kasindo General Hospital

Located in the city center of Srpska Sarajevo, Kasindo General Hospital is the core hospital for the eastern part of the RS and a general hospital providing secondary medical care. It has 21 departments serving a population of 150,000. It has a total of 250 beds and is staffed by 68 doctors and 181 nurses.

Requested Equipment (95 items) ;

Remote Control Fluoroscopy X-ray Unit, General Diagnostic X-ray Unit, Operating Light, Operating Microscope, Anesthesia Apparatus, Surgical X-ray Unit, Endoscope, Dental Unit, Biochemistry Analyzer, Ultrasound Diagnostic Apparatus, etc.

6) Srbinje General Hospital

Located in the city center of Srbinje (Foca), this secondary general hospital is the core of the medical sector of the eastern part of the RS. It has 12 departments providing services to a population of 130,000, and has a total of 386 beds and staffed by 30 doctors and 160 nurses.

Requested Equipment (85 items) ;

CT scanner, Diagnostic X-ray Apparatus, Central Monitoring System, Operating Light, Operating Microscope, Surgical X-ray Unit, Operating Table, Ultrasound Diagnostic Apparatus, Blood Cell Counter, Sterilizer, etc.

Chapter 2

Contents of the Project

Chapter 2 Contents of the Project

Although the direct damage inflicted by the war on medical facilities was more conspicuous in the FD than in the RS, the two entities sustained similar levels of secondary damage. Medical services have deteriorated greatly, as many skilled physicians fled the country and financial factors (shortage of consumables and spare parts, lack of regular inspections, etc.) caused insufficient provision of medical equipment. Existing equipment has been used for 20 to 25 years, and more than 40% thereof has become obsolete and unusable. Since the average duration of medical equipment is set at eight years in OECD countries, several units of said equipment should have been replaced many years ago.

The civil war has a direct or indirect impact for this troubled situation, but there are other factors that are peculiar to a socialistic nation as follows:

(1) shortage of specialists capable of conducting inspections or repairs for failed equipment and/or tools;

(2) shortage of facilities or equipment used for repair;

(3) shortage of spare parts, and consumables;

(4) shortage of operating funds;

(5) equipment becoming obsolete; and

(6) incomplete manuals.

To improve this situation and ensure better medical services, it is necessary to renew the equipment that has been damaged and rendered obsolete by the fighting during the civil war.

2-1 Project Objectives

The Project, targeted at the six hospitals located in the two entities of Bosnia and Herzegovina, aims to repair or upgrade medical equipment that was either damaged and/or rendered obsolete or unusable during the war. In the long run, the Project is also intended to improve the effectiveness of medical services and to enhance the general level of health care in Bosnia and Herzegovina.

Furthermore, the Project supports the Essential Hospital Services Project (EHSP), which was drawn up with the cooperation of the World Bank and WHO in 1996, by supplying part of the required medical equipment . The total budget for the EHSP was set at U.S.$191.6 millions (valued of medical equipment at U.S.$79.8 millions), with only

U.S.$33.6 millions (valued of medical equipment at U.S.$13.6 millions) thereof accounted for as of the end of 1996. Other donor nations will be responsible for the remainder.

2-2 Project Basic Plan

2-2-1 Basic Concept

The plan is to recover the functions of the Six Hospitals by first striving to replace or upgrade medical equipment that was either damaged by the war or rendered obsolete and unusable, and to improve the medical services by renewing and providing 480 types of basic medical equipment required for diagnosis and treatment.

The basic concept of the Basic Design Study is described below.

(1) State Hospital

This hospital is located in the city center of Sarajevo and is a general hospital of the secondary medical care category in referral system. Providing medical services to a population of 450,000, the hospital has 250 beds and nine departments staffed with 62 doctors and 176 nurses. War damages are considerable. One operation room and two X-ray unit rooms are completely destroyed. Existing medical equipment has been in use for 20 to 30 years and is significantly out-of-date.

The plan provides equipment for the radiology, Clinical Chemistry, Micro Biology, D.E.N.T, Blood Transfusion, Endoscopy, Pulmology, Obstetrics and Gynecology, Ophthalmology, Pediatric, Pharmacy, Neurology, Internal medicine, and Urology departments, and to the operation and central sterilization rooms. Under the plan, equipment to be supplied is mostly renewal equipment of 60 types, including Remote Control Fluoroscopy X-ray units, general diagnostic X-ray units, ultrasound diagnostic systems and anesthesia machines.

Aid from Greece is currently helping to restore the hospital's building from shelling. In additional, the X-ray rooms where the remote-controlled X-ray unit and general diagnostic X-ray units are scheduled to be installed, which suffered heavy damage.

(2) Kosevo Clinical Center

Also located in the city center of Sarajevo, the Kosevo Clinical Center is a leading hospital in federal medical sector, providing tertiary medical care and serving as an educational hospital. Providing medical services to a population of 600,000, the hospital has 11 departments and 1,990 beds and a staff of 552 doctors and 1,018 nurses. The plan is to provide equipment to the Radiology, Laboratory, Microbiology, Pathology, Obstetrics and Gynecology, Plastic Surgery, Ophthalmology, Gastroenterology, Abdominal Surgery, and to the CCU, and ICU.

Although it does currently provide advanced medical services, direct and indirect damages inflicted on the hospital by the civil war have been severe. During the five years of the war, medical equipment received no maintenance, resulting in severe deterioration. To cope with such problems, many countries have provided medical equipment including high-tech radiology equipment such as CT scanner and X-ray unit, but there is a shortage of basic equipment in the ophthalmology, pathology, orthopedics, and gastrology departments for secondary medical care services.

Equipment scheduled to be supplied under the current plan is mostly renewal equipment of 59 types, including a CT scanner, operating microscope, ultrasound diagnostic unit, ventilator, endoscopic, among others.

(3) Tuzla Clinical Center

Located in the city center of Tuzla, the Tuzla Clinical Center is the core of the medical sector in the northern part of the Federation. Responsible for tertiary care, it also serves as an educational hospital. The hospital provides medical diagnosis and treatment services in 19 departments to a population of some 700,000. It has a total of 1,760 beds and is staffed by 268 doctors and 948 nurses. Equipment is to be provided to Internal medicine, Obstetrics and Gynecology, E.N.T, Surgery, Orthopedics, and Urology departments, and to rooms used for surgical operations, surgical ICU, endoscopy, Admission office and clinical Laboratory. Some medical equipment has already been provided by U.S. aid organizations and the World Bank. Upgrading of highly obsolete equipment should be examined, with such equipment taken into account. The majority of required equipment would be renewals. The main items include a surgical table, operating-instrument sets, and an ultrasound diagnostic unit, for a total of 58 types.

Overall, much of the equipment in the hospital does not work due to a lack of maintenance; for example, the high-pressure steam sterilizers adjacent to the operating room is not working, equipment for obstetrics and gynecology is generally superannuated, and equipment for the operating room, including the operating table and other items, require total replacement. Plans for the total improvement of basic equipment shall be examined.

(4) Mostar Clinical Center (Mostar C.C.)

Located in the center of Mostar, Mostar Clinical Center is the core of the medical sector in the eastern part of the Federation. It provides tertiary medical care and serves as an educational hospital. Its 36 diagnosis/treatment departments provide care for a population of some 600,000. The hospital has 810 beds and is staffed by 155 doctors and 448 nurses. The plan is to provide equipment to the Radiology, Surgery, Pediatrics, Internal medicine, the Blood transfusion, Endoscopy, ICU, and for the Clinical Laboratory and C.S.S.D.

Medical equipment, especially basic equipment, is generally in short supply or nonexistent. For example, the surgical department is staffed by medical specialists, while basic equipment is virtually nonexistent. The majority of the requested items are basic equipment indispensable to a secondary medical care, including items of 123 types, among them an Remote Control Fluoroscopy X-ray unit, a general X-ray unit, and operating instruments sets. Additionally requested 27 types of basic equipment consist of items required for internal medicine and CCU.

(5) Kasindo General Hospital

Located in the city center of Srpska Sarajevo, Kasindo General Hospital is the core hospital for the eastern part of the RS and a general hospital providing secondary medical care. It has 21 departments serving a population of 150,000. It has a total of 250 beds and is staffed by 68 doctors and 181 nurses. The plan is to provide equipment to the departments of Internal medicine, Pediatrics, Obstetrics and Gynecology, Dermatology, E.N.T, Ophthalmology, Dentistry, Radiology, Hemodialysis, and Endoscopy, Clinical Laboratory, Bacteriology Laboratory, Surgery, ICU, pharmacy and C.S.S.D, Operation room, admission Office, among others.

This hospital was initially built as a sanitarium exclusively for patients suffering from chest disease. Accordingly, it has insufficient basic equipment. Although there are plans to upgrade it to a tertiary medical facility, current medical equipment is not coordinated and is inadequate for providing services as a secondary medical facility. Much of the existing equipment is superannuated or nonfunctional, so that even a simple operation can not be performed despite the presence of highly skilled doctors. To cope with the situation, basic equipment should be introduced to enable the hospital to provide minimum services as a secondary medical facility.

The requested equipment consists of a total of 95 types, including an Remote Control Fluoroscopy X-ray unit, a general diagnostic X-ray unit, and endoscopy and operating instruments sets, among others.

(6) Srbinje General Hospital

Located in the city center of Srbinje (Foca), this secondary general hospital is the core of the medical sector of the eastern part of the RS. It has 12 departments providing services to a population of 130,000, and has a total of 386 beds and staffed by 30 doctors and 160 nurses. The plan is aimed for providing equipment to the departments of Internal medicine, Neurology, Pediatrics, Obstetrics and Gynecology, Ophthalmology, Radiology, Urology, Delivery, Post Mortem, Emergency treatment, ICU and Clinical Laboratory, Bacteriology Laboratory, Function test , Endoscopic, Operating rooms and C.S.S.D.

The Ministry of Health and Social Welfare of the RS plans to make the hospital the core of medical care in the eastern region. Despite its high standing in the RS medical system, it is unable to provide sufficient services due to a lack of medical equipment. Patients who cannot be examined at this facility are sent to Belgrade, but "New Yugoslavia" (Federal Republic of Yugoslavia) is now reluctant to accept them for financial reasons. To improve the situation, it is all the more important to equip the Srbinje General Hospital with the minimum required equipment as soon as possible to make it function as a secondary medical facility. Requested items are basic equipment indispensable for secondary medical care. The Hospital is urgently requesting the introduction of a CT scanner, but such a unit requires periodic technical service, and the expenses must be borne by the hospital. Therefore, confirmation that necessary budgetary measures are taken is required.

Requested equipment totals 85 types, including a CT scanner, ultrasound diagnostic unit, general diagnostic X-ray unit, operating table illuminator, patient monitoring system, automatic (photographic) developing unit and operating instruments sets.

2-2-2 Conclusion - Requested Equipment Investigation

The Basic Design Study Team of the Project for Improvement of Medical Equipment for the Hospitals in Bosnia and Herzegovina (hereafter referred to as "The Project") investigated all the requested medical equipment for the six hospitals concerned, directly interviewing doctors and personnel in the subject departments, collecting various data relative to diagnosis and treatment, and holding consultations concerning the overall situation. The results of such deliberations were presented to the Ministry of Health of both entities. After consultations, a priority list of medical equipment to be procured was prepared.

The amount of equipment initially requested by Bosnia and Herzegovina and of the equipment agreed upon with the Ministries of Health of both entities and the Six Hospitals are given in the **Table 2-1** and **Table 2-3** equipment list. From an initial request for 444 types of equipment, 84 were deleted and 119 were newly requested. The final list has 479 types of equipment.

Table 2-1 Adjusted Result of Requested Equipment

Name of entity	Federation				Republic of Srpska		
Name of Hospitals	State Hospital	Kosevo C.C.	Tuzla C.C	Mostar G.H	Kasindo G.H	Srbinje G.H.	Total
Initially requested items	54	21	54	128	99	88	444
Deleted items	3	10	6	33	16	16	84
Newly requested items	9	48	10	27	12	13	119
Total	60	59	58	122	95	85	479

Approximately one year passed following the preparation of the first request list in August 1996, when the Basic Study was conducted. During this time, many aid schemes were planned or implemented by international organizations and Western states. As a result, some items overlap while others require some changes in the original list. In this study, a plan for the provision of medical equipment that is actually required by the Six Hospitals,

achieves adequate level and is suitable for control, has been drafted in accordance with the basic policy that *"Secondary Medical Equipment, in principle, shall be procured"*. To avoid overlap and make effective use of the limited aid funds, consultations with concerned organizations, including PIC (an organization established within the Ministry of Health of the Federation and the RS for the purpose of providing equipment required for the "Essential Hospital Service Project" as planned by the World Bank) and others, were held.

The priority list for procurement was first prepared by classifying items as positive or negative, in accordance with the matters requested by the Japanese side as per Annex 5 - Minutes of Discussions. A detailed investigation was conducted for each item. According to such investigation, positive or negative points were given to each item and noted on the prepared list. A study for providing CT scanner (Computer Tomography scanner) was conducted with reference to WHO's installation standard. The results are as per **Table 2-3** Equipment List.

Priority		
A:	(Equipment to be supplied)	276
A':	(Equipment to be provided if economic evidence for its maintenance and administration can be confirmed)	86
B:	(Equipment to be provided if Priority budget permits)	120
C:	(Equipment deleted as not subject to plan or not manufactured)	3
D:	(Equipment deleted because of overlap with other aid organizations)	81

The request for an Extracorporeal Shockwave Lithotripsy Device (ESWL) by the Kosevo Clinical Center was examined, and the need for it was acknowledged. However, the device was only recently introduced in large-scale medical facilities for curing calculus in place of surgery, as it is very expensive and included in the tertiary medical care category in Japan. Therefore, it was deleted from the present plan. The adaptometers for the dark adaption, visuscope, and entiscope were also dropped from the supply list, as they were no longer manufactured.

The investigation results for the CT scanner included, among the requested expensive medical equipment, are as follows:

(1) CT Scanner for Kosevo Clinical Center

The CT scanner scheduled to be installed at the Center is a renewal of the existing equipment. The Center provides tertiary medical care services using four CT scanner units (one mobile unit), including a non-functional unit and one MRI (currently out of order). Prior to the outbreak of the civil war, all the units were fully operational. However, most of them are currently out of order and unusable, due either to their obsolescence or a lack of repair parts. The only CT scanner currently working was purchased in 1991 and has been used to diagnose some 7,300 patients annually. It cannot meet the requirements of all patients requiring CT scanner diagnosis, who must wait more than a month for diagnosis. The primary causes of death in the country are ailments related to circulatory diseases, malignant tumors in the digestive system, wounds, respiratory diseases, etc. As described above, the CT scanner that is effective in examining and treating such patients cannot currently be utilized, and hospital doctors and officials at the Federation's Ministry of Health emphasize the emergent need to introduce CT scanners. It has been concluded that prompt introduction of the unit is necessary. Under the circumstances, and with the results of an overall investigation taken into consideration, the following points were specified and the appropriateness of its introduction has been confirmed:

* Patients demands is great.
* It satisfies the installation standards of the WHO and the Ministry of Health's Commission (refer to **Table 2-2**).
* A number of CT scanners were in use prior to and during the civil war, and there has been no problem with their maintenance or administration, or any technical problems.
* A minimum budgetary amount can be secured for its maintenance and administration.
* A strong request has been made by the Federation's Ministry of Health and the Clinical Center that it be provided.

(2) CT Scanner for the Srbinje General Hospital

The Srbinje General Hospital serves as the medical school of Sarajevo University in the RS. Although it is one of the country's finest medical institutions, medical equipment has not been renewed for more than 20 years due to financial difficulties. As a result, most of its medical equipment is obsolete, broken, or unusable, including the X-ray unit, and is left unrepaired, because it is so old that the original manufacturer no longer makes repair parts.

For these reasons, the hospital's diagnostic system is in extremely poor condition. The CT scanner that is currently being investigated would be a significantly effective piece of equipment for a general hospital charged with the diagnosis and treatment of patients. On the other hand, the CT scanner would be an expensive new model entailing high maintenance and administrative expenses for the hospital. After all the points described below were investigated, however, it was concluded that a CT scanner should be listed among the items to be procured.

* As the current state of the general hospital's diagnostic equipment is extremely poor and the hospital has no high-powered equipment for diagnosis such as a CT scanner, many patients are transferred to other countries, particularly to "New Yugoslavia", for diagnosis. The hospital can provide virtually no appropriate diagnosis treatment. Moreover, "New Yugoslavia" is reluctance to accept patients due to problems involving payment of diagnostic expenses.
* Although circulatory ailments, malignant tumors in the digestive and respiratory systems, wounds, etc., are the primary causes of death in the country, it is virtually impossible for the hospital to diagnose patients without the powerful and helpful CT scanner.
* It satisfies the installation standards of both WHO and the Ministry of Health's commission (refer to **Table 2-2**).
* No CT scanner unit is available in the eastern part of the RS.
* As for maintenance and administration of the unit, there will be no technical problems because professors and doctors of the RS's Sarajevo University Medical School, who have extensive overseas experience in using the CT scanner for diagnostic and treatment purposes, should be posted in the event a unit is introduced.
* The RS's Ministry of Health is assured of the allocation of the minimum required budget for the unit's maintenance and administration.
* The Ministry of Health of the RS and the general hospital have strongly requested the supply of a CT scanner.

Table 2-2 WHO Standard for CT Scanner and Actual Situation of the Hospitals

WHO Standard	Actual Situation of the Hospitals	
1. Activities of the X-Ray Department	Kosevo Clinical Center	Sibinje General Hospital
1) 50,000 cases of exposure p.a.	Although the number of cases is down recently due to obsolescence of X-ray equipment and the war's aftermath, cases exceeded 80,000 cases in 1996 and may reach 150,000 p.a.	The number of cases of exposure has declined in light of X-ray equipment obsolescence and the war's aftermath. Cases during 1997 are expected to number around 9,000. If one patient requires five to six exposures, the total number of exposures per annum would come to approximately 50,000.
2) General radiography including Topography	Being performed	Although medical specialists exist, such procedures are not performed due to lack of equipment
3) Angiography	Being performed	Not performed for lack of equipment, although medical specialists exist
4) Photographing of spinal column	Being performed	Not being performed due to lack of equipment, although medical specialists exist
5) Ultrasound Diagnosis (by the radiology department)	Being Performed in an X-Ray Unit	Being performed by the obstetrics and gynecology department (Radiology department lacks equipment)/
6) Well-trained radiologist and engineer	25 radiologists, 9 residents 49 well-trained engineers	two medical specialists (a professorial doctor with extensive CT scanner experience) and seven trained radiologists
2. Establishment sought afterwards as a hospital		
1) 500 beds	Clinical center with 1,990 beds	General hospital with 385 beds
2) General Surgery	Clinical center	General hospital
3) Diagnosis in Brain Surgery	Being performed	A brain surgeon is available but performs no such procedures for lack of equipment for diagnosis
4) Out-Patient Service including Traumatology	Has an emergency department	Has an emergency department
5) Technical Surgery (Cardio-Surgery, Vascular Surgery, Orthopedic Surgery, Urology)	A general hospital providing tertiary medical care services	A general hospital which provides secondary medical care services
6) Neuro-surgery	Being performed	Being performed
7) Oncology Tumor Unit (Preferably treated by X-Rays)	MRI to be introduced this year	No equipment and not being performed
3. Infrastructure condition		
1) Stable Power Supply (Including Stabilizer, Compressor)	Conformity	Conformity
2) Easy access to Air Conditioner	Conformity	Conformity

(ref. : WHO Technical Report Series Vol 689, 1983.)

2-3 Basic Design

2-3-1 Design Policy

(1) Policy for Natural Climatic Conditions

For medical equipment to be provided under this plan, no items would be directly affected by natural climatic conditions, with the exception of electronic equipment. The states are located in the middle of the Balkan Peninsula, and the climate is of the continental type, with annual mean temperature ranging between 11 and 15 degrees Celsius, dropping to some 20 to 30 degrees below zero Celsius between the latter half of November and February, the severe winter months. The Kosevo Clinical Center and Sarajevo State Hospital are located in Sarajevo, the Federation's capital, Tuzla Clinical Center 220km north and Mostar Clinical Center 200km south of Sarajevo, respectively. Travel to either Tuzla or Mostar from Sarajevo requires travel through mountainous regions; in winter, often through heavy snowfall and over frozen and slippery roads.

Kasindo General Hospital of the RS is located 35km east of Sarajevo. The Srbinje General Hospital is located some 150km further south in Srbinje (formerly called Foca). Both general hospitals are located in a mountainous region, and snowfall and frozen roads will pose the same problems during the winter months. Plans will be made to transport equipment before the severe winter months, before November. Electronic equipment provided by the plan may be affected by climate typical for the region. For example, if medical equipment is kept in an unheated storage in the hospital's premises in December, condensation will occur when the items are brought into a heated building as the temperature may drop to some 20°C to 30°C below zero. It is crucial that equipment having electronic components should be installed before the winter months. This point will be carefully considered when finalizing the plan.

(2) Policy for Third-Party Nation Procurements

Among other materials, Bosnia and Herzegovina heavily relies on imports for medical supplies. Following equipment delivery, it is desirable that the Ministry of Health of both political entities receive procurements of technical services, spare parts, and consumables, reliably and at reasonable prices. Neighboring European nations are good sources for superior medical equipment. Plans will be drawn considering procurements from third-party nations.

(3) Policy for Maintenance/Administrative Capacity of Execution Organization

The doctors, technicians and nurses of the Six Hospitals are of sufficient technical skill and number to properly maintain and administer equipment to be supplied.

In general, the technical skill of practitioners in the region is acquired through practice and technical training in various Western nations as well as through extensive experience within their country. With the exception of CT scanner, it is certain that no special training will be required. (The Kosevo Clinical Center currently has a CT scanner, so no operational problems should be encountered there.) In order to ensure long-term maintenance and use of the equipment, a technical transfer from the manufacturer will be arranged.

For the CT scanner to be introduced to Srbinje General Hospital, arrangements will be made to post experienced doctors there. At the same time, a plan will be drawn up for the equipment manufacturer to schedule a technical transfer period of some two weeks.

For the sake of sustainable maintenance and use of X-ray unit and ultrasound diagnostic systems, plans will be made for relevant technical transfer from their respective manufacturers.

(4) Policy for Scope and Grade of Equipment

1) Policy for Basic Medical Equipment

In consideration of the status quo of the medical equipment and from the viewpoint that equipment necessary for diagnoses and treatment at the Six Hospitals should be provided for basic medical equipment, plans will be made to supply appropriate number of items. Specifications in the plan will be determined by considering the technical systems in light of maintenance and administrative capacity for each specific item.

Again, based on the infrastructural context of the Six Hospitals, auxiliary equipment will be introduced as required for effective use of equipment. The details are provided below:

* Water supply and drainage system to and from the Six Hospitals are connected and operate smoothly. Since the supplied water contains a considerable amount of calcium,

installation of water softeners will be considered for equipment using large quantities of water.

* For electrical power, both entities are now in the course of repairing their power plants and transmission lines. Since blackouts and voltage drops occur regularly, some equipment will have voltage stabilizers installed.

2) Basic policy towards consumables and spare parts

In the two years since the end of the civil war, the degree of reconstruction has varied between the two entities. For example, the Health Insurance Fund has led to a fair rate of recovery in the FD, but near non-existent rate in the RS. Accordingly, it will be several years yet before the Fund can be properly utilized in either side. The Project is intended to promote an efficient recovery from devastation weaken by the war. Although consumables will basically not be supplied, some consumables essential for the recovery, such as spare parts or reagents, should be procured in order to optimize use of any introduced equipment under this project. In this respect, RS's Minister of Health and Soecial Welfare had sent a letter to the Leader of Basic Study Team, asking Japan to bear the relevant costs **(Appendices-5)**.

The Health Insurance Fund provides the necessary resources for efficient operation in the two entities. Before the civil war, the entire medical sector was operated under this type of fund. When Bosnia's economy regains its healthy conditions and the Fund is restored to its pre-war state, the consumables can be accommodated as required..

3) Basic policy towards CT scanner

It has been agreed that a spiral-type CT scanner will be introduced into the Kosevo Clinical Center due to the large number of patients who are treated using CT scanners at that site. There seems to be no problems at this clinical center, since the maintenance costs are borne by the patients as has been done for the existing equipment. Meanwhile, a conventional-type CT scanner, which features lower annual maintenance costs, is to be introduced in the Srbinje General Hospital. RS's minister promised to budget relevant operating costs, and also sent a letter to the afore-mentioned leader of the study team **(Appendices-1)**.

4) Endoscope policy

All six core hospitals requested that they be provided with an endoscope. Most responsible physicians at the hospitals are qualified to conduct endoscopic operations in terms of technique as well as experience. In addition, a cleaner and cabinet are to be provided to the hospitals that require them.

(5) Policy for Inland Transportation

It will be planned to use the Slovenian route by way of Kopper in Croatia as the inland transportation route.

(6) Policy for Term of Work

Term of work for the plan will be prepared according to the policy that, in principle, it will be possible to implement it within a Japanese fiscal year. Because in Bosnia-Herzegovina winter conditions such as snow fall and frozen roads may hamper transport from the end of November through February. Work will be scheduled to permit completion of equipment delivery by the end of November to ensure smooth delivery and installation of the equipment.

2-3-2 Basic Plan

(1) Overall Plan

Since the end of the three-and-a-half-year civil war in 1995, Bosnia and Herzegovina has grappled with resuscitating its economy, with the support of international institutions and foreign aid. Within the Federation, some believe the domestic economy began to revive in 1997. But the civil war has demolished most of the country's industrial base, and reconstructing its economy will not be an easy task. The circumstances are nearly identical in the RS, but because less foreign aid is provided here than in the Federation, its circumstances are much more grave. Given the current state of the economy, a budget to purchase spare parts and consumables required to maintain and administer medical equipment is greatly restricted. The plan projects provision of medical equipment, which is the cause of the deterioration of medical services, to make efficient use of limited aid funds to restore core hospital functions. It also gives due consideration to problems such as maintenance/administration, and inspection and repair of equipment after delivery, and

estimates the required spare parts and consumables taking into consideration the frequency of use of the equipment.

Recognizing the harsh conditions that prevail during postwar rebuilding, the plan will provide for supplying spare parts and consumables at levels on par with equipment supplied by the World Bank. In addition, adequate provision will be made for equipment that requires spending for consumables. The plan will also consider a continuous supply system for technical services, spare parts and consumables.

(2) Equipment Plan

Each item requested, and the priority for these items, was carefully considered in light of several considerations: the need to avoid overlapping equipment, effective operation once installed, efficient use of limited aid funds. As a result, a final priority list comprising 479 types of equipment was prepared. An equipment plan will be prepared based on this list indicated in **Table 2-3.** The extracorporeal shockwave lithotripsy device requested by the Kosevo Clinical Center was judged to be tertiary medical care equipment and removed from the list.

With the exception of the CT scanner for the Srbinje General Hospital, mostly medical equipment in the current supply scheme qualifies as renewals for equipment that has become obsolete. Such equipment is central to basic diagnoses and treatment at core hospitals, and meet the objectives of the current cooperation efforts. The main equipment are listed below.

a) CT Scanner (Kosevo Clinical Center)

The CT scanner scheduled to be installed at this clinical center will be a renewal or replacement of the existing equipment. The one currently available CT scanner was purchased in 1991 and diagnoses some 7,300 patients annually. The existing sole CT scanner is incapable of meeting current demand for patients suffering from circulatory ailments of head, digestive system and respiratory system tumors of head, digestive system ailments, and wounds, which constitute the main causes of death in the country, and for those requiring treatment from wounds suffered in the war. The current demand for this one machine leads to delays of a month or longer.

Diagnosis using a CT scanner is common in present-day medical care, and the equipment is considered an indispensable piece of basic equipment. If the proposed CT scanner is to be introduced by current cooperative efforts, it will not only reduce waiting times, but significantly improve diagnostic accuracy and overall treatment and medical service. It is judged that introduction of the CT scanner to the Kosevo Clinical Center is appropriate for the situation and will significantly improve the qualitative and quantitative aspects of its medical diagnostic and treatment activities, especially in brain diagnostics.

b) CT Scanner (Srbinje General Hospital)

The Srbinje General Hospital serves as the medical school for the RS's Sarajevo University and is one of the most prominent medical institutions in the country. Despite being the only general hospital in the eastern part of the RS, financial constraints up to now have made renewals and improvements in medical equipment impossible. Consequently, most all of the medical equipment available, including the X-ray unit, is obsolete, and the hospital's diagnostic capability is extremely weak. It has no CT scanners, and patients suffering from circulatory system ailments, digestive system or respiratory tumors and digestive system ailments, the leading causes of death in the country, and those requiring treatment from wounds suffered in the war, as well as many who have been injured in traffic accidents, go abroad for diagnoses and other treatment, mainly to "New Yugoslavia." From January to June 1997, the number of patients transferred to "New Yugoslavia" for difficulties in diagnosis or treatment totaled 350. Again, "New Yugoslavia," which formerly accepted these patients, is now increasingly reluctant due to payment problems originating from diagnoses and treatment. Under such circumstances, the RS Ministry of Health and the Srbinje General Hospital are urgently requesting the introduction of a CT scanner. Providing a CT scanner would significantly improve diagnostic/treatment functions available in the eastern part of the RS and greatly improve medical services. However, CT scanner involves high maintenance and administration costs.

A system for supply plan will be prepared based on the circumstances described above, subsequent to reconfirmation with the RS Ministry of Health of budgetary measures required for maintenance and administration of the system.

(3) Equipment Arrangement Plan

An arrangement plan for X-ray Apparatus is as per **Appendices-7**.

Table 2-3

Equipment List

Table 2-3 Equipment List

State Hospital

Department	Description of Equipment	Q'ty	Priority
X-ray	R/F X-ray Unit w/TV Monitor	1	A'
	General Diagnostic X-ray Unit	1	A
	Doppler Ultrasound Diagnostic System	1	A
Clinical Chemistry	Blood Cell Counter	1	A
	Automatic Biochemical Analyzer	1	A'
	Coagulation Meter	1	A
	Hematocrit Centrifuge	2	A
	Centrifuge	2	A
	Instrument for Enzyme Immuno Assy for Cancer Marker	1	A'
	Electrophoresis System w/Densitometer	1	A'
Micro Biology	Autoclave	3	A
	Binocular Microscope	3	A
D.E.N.T	Electrosurgical Unit	1	A
	Tympanometer	1	A
	Aspirator	2	A
	Constant Angular Acceleration (Electric Rotary Apparatus)	1	A'
Blood Transfusion	Blood Bank Refrigerator	2	A
	Binocular Microscope	1	A
	Agitator for Blood	1	A
	Centrifuge	1	A
Endoscopy	Fiber Gastroscope set	1	A
	Fiberscope Washing Machine w/Trolley	2	A
	Fiber Sigmoidscope w/Light Source and Acc.	1	A'
	Fiber Colonoscope w/Light Source and Acc.	1	A
	Ultrasound Diagnostic System	1	A'
Pulmology	Automatic Film Processor	2	A
	Fiber Bronchoscope w/Light Source, TV Monitor and Acc.	1	A
	Aspirator for Bronchoscope	1	A
Gy. and Ob.	Binocular Microscope	1	A
	Colposcope	1	A
	Ultrasound Diagnostic System	1	A
Ophthalmology	Fundus Camera	1	A
	Static Perimeter	1	A
	Ultrasound Apparatus for Operating Cataract	1	A
	Ophthamology Operatico Microscope	1	A
	Video Printer for Ultrasound Apparatus	1	A
Pediatrics	Oxygen Gas Concentrator	1	A
	ECG	1	A
Pharmacy	Spectrophotometer, w/Thermo Controlled Cell	1	A'
	Flame Photometer	1	A'
	pH Meter	1	A
	Osmometer	1	A'
	Conduction Meter Digital Type	1	B

Table 2-3 Equipment List

State Hospital

Department	Description of Equipment	Q'ty	Priority
Operation room	Opeartion Table with traction	1	B
	Universal Operation Table	4	B
	Operation light, ceiling type	4	B
	Operation light, mobile type	5	B
	Electrical Aspirator	10	B
	Respirator	2	B
	Anesthesia machine	3	B
	Electrosurgical unit	5	B
Neurology	ECG	1	A
	Respirator (Old:Apparatus for oxygen Therapy)	1	A
	Aspirator	1	A
Internal Medicine	Holter ECG w/Analyzer and Recorder	1	A
	Doppler Ultrasound Diagnostic System	1	A'
Urology	Resectoscope	1	A
	Cystoscope for Operation	2	A
	Ultrasound Diagnostic System	1	A'
C.S.S.D.	Autoclave	1	B

Table 2-3 Equipment List

Kosevo C.C.

Department	Description of Equipment	Q'ty	Priority
Radiology	CT Scanner	1	A'
	Doppler Ultrasound Diagnostic System	1	A
Laboratory	Multipolar Densitometer for Electrophoresis Proteins and Lipoproteins	2	A
	Amino-acid Analyzer	1	A'
	Water Purification System for automatic analyzer	1	A
Microbiology	Binocular Microscope	5	A
	Autoclave (50 l)	3	A
	Deep Freezer (-70C)	1	A
	Deep Freezer (-20C)	2	A
Pathology	Fumehood	1	B
	Medical Refrigerator	2	B
	Deep Freezer (-30C)	1	B
	Thermostat based on 60 deg.C	1	B
	Thermostat based on 37 deg.C	1	B
	Analytical scale up to 500g	1	B
	pH-meter	1	B
	Automatic tissue processor	1	B
	Paraffin oven	1	B
	Freezing microtome	1	B
	Freezing microtome	1	B
	Large sledge microtome	1	B
	Rotally Microtome	1	B
	Automatic staining machine	1	B
	Instrument for the slide mounting	1	B
	Single-use knives for the glass knives	1	B
	Instrument for the de-calcination of the bones	1	B
	multi-use microtomical cutting knives	3	B
	Binocular microscope	1	A
	Waterbath with thermoregulation	2	B
CCU	Temporary Pacemaker	1	A
	Color Doppler Ultrasound System	1	A
ICU	Anesthesia Apparatus	1	A
	Ventilator	1	A
	Pulse Oximeter	4	A
Gy & Ob	Defibrillator	1	B
Plastic Surgery	Surgical drill set	1	B
	Electrical aspirator	1	B
	Pneumatic mattress	1	B
	Surgical magnifying glass	1	B

Table 2-3 Equipment List

Kosevo C.C.

Department	Description of Equipment	Q'ty	Priority
Ophthalmology	Operating microscope	1	B
	Ultrasound Diagnostic System	1	B
	Computerized perimeter	1	B
	Fundus cameta	1	B
	Argon laser	1	B
	Yag-laser	1	B
	Vitrectom	1	B
	Equipment for phacoemulsification	1	B
	Channel units for electroretinography and electrooculography	1	B
	Slit lamps	3	B
	Direct ophthalmoscope	9	B
	Computerized refractometer	3	B
	Sinoptophore	1	B
Gastroenterology	Endoscopic electrosurgical unit	2	B
	Gastroscope set	1	B
	Duodenoscope set	1	B
	Video trolley	2	B
	Liver biopsy gun	1	B
	Dry oven	1	B
Abdominal Surgery	Laparoscopic surgery set	1	B

Table 2-3 Equipment List

Tuzla C.C.

Department	Description of Equipment	Q'ty	Priority
Internal Medicine	Ultrasound Diagnostic System	1	A
	Central Monitoring System (Bedside monitor)	12	A
	Infusion Pump	3	B
Gy. and Ob.	Fetal Monitor (Bedside monitor for NICU)	2	A
	Infant Incubator	2	A
	Surgical Operation Table	3	B
	Aspirator	3	B
	Electrosurgical Unit	1	B
	Patient Monitor	3	B
	Infusion Pump	9	B
ENT	Electrosurgical unit	1	A
	Surgical Operation Table for ENT	1	A
	Surgical Aspirator	2	A
	Patient Monitor	1	B
Surgery	Gastrectomy Instruments Set	2	A
	Cholecytotomy Instruments Set	2	A
	Nephrectomy Instruments Set	1	A
	Prostatomy Instruments Set	1	A
	Thyroidotomy Instruments Set	1	A
	Emergency Tracheotomy Instruments Set	1	A
	Emergency Chest Operating Instruments Set	2	A
	Appendectomy Instruments Set	4	A
	Venotomy Instruments Set	2	A
	Instruments Set for Carotid Arterial Endarterectomy	1	A
	Operating Instruments Set	2	A
	Surgical Instruments Set, for Infant	2	A
	Neurosurgery Instrument Set	1	A
	Anterior Spinal Instrument Set	1	A
	Hand Surgery Operating Set	1	A
	Standard Plastic Surgery Set	1	A
Operating Room	Operating Table	6	A
	Aspirator	6	A
	Electrosurgical Unit	4	A
	High Pressure Steam Sterilizer	5	A
	Patient Monitor	6	A
	Surgical Lamp (Ceiling Type)	4	A
	Defibrillator	1	B
ICU	Reamination Set	1	A
	Infusion Pump	7	A'
	Central Monitoring system	1	A
	Defibrillator	1	A
	Ultrasound Diagnostic System	1	A
	Fibre Bronchoscope w/Light source	1	A'
	Cleaner for Endoscopy Instruments	1	A'
Ulorogy	Cystoscope,Ureterorenoscope w/Light source	1	B
Admition office	Small Operation Instruments Set	10	A
Orthopedics	Arthroscope w/Light source	1	A

Table 2-3 Equipment List

Tuzla C.C.

Department	Description of Equipment	Q'ty	Priority
Clinical Laboratory	Blood Cell Counter	1	A
	Automatic Chemistry Analyzer	1	A'
	Spectrophotometer w/Thermo-controlled Cell for Enzyme	1	A
	Centrifuge	1	A
	Blood Gas Analyzer	1	B
	Microscope	2	A
	Laboratory Balance	1	A
	Electrophoresis System w/Densitometer	1	A
	Washing Machine - lab.Glassware	1	A'
Endoscopy	Sterilization cabinet for endoscope	2	B
	Fibre Gastroscope w/Light source	1	A

Table 2-3 Equipment List

Mostar C.C.

Department	Description of Equipment	Q'ty	Priority
Radiology	R/F X-ray Unit w/I V Monitor	2	A'
	General Diagnostic X-ray Unit	1	A
	Ultrasound Diagnostic System	1	A
Laboratory	Binocular Microscope	2	A
	New Generation Power and Economy System Microscope	2	A
	Autoclave	1	A
	Blood Bank Refrigerator	1	A
	Blood Cell Counter	1	A
	Analyzer Glucose	1	A
	Analyzer Bilirubin	1	A
	Electrolyte Analyzer Parameter	1	A
	Glycated Hemoglobin A1c Analyzer	1	A
	Blood Gas Analyzer	1	A'
	Table-top Centrifuge	1	A
	Electric Analytical Balance	1	A
	Spectrophotometer w/Thermo Controlled Cell	1	A
	Washing Machine for Lab-glassware	1	A'
Surgical	Pneumatic Tourniquet	1	A
	Balfour Abdominal Retractor	1	A
	Finocchieto Rib Spreader	1	A
	Bailey Rib Contractor	1	A
	Sigmoidoscope Set	1	A
	Rectoscope Stainless Steel	1	A
	Light Supply for Rectoscope	1	A
	Biopsy Forceps	1	A
	Hemorrhoid Ligature Set	1	A
	Rectal Speclum	1	A
	Hojo Perineal Retractor	1	A
	Operating Instrument set	1	A
	Gastrectomy Instruments Set	1	A
	Cholecystomy Instruments Set	1	A
	Thyroidectomy Instruments Set	1	A
	Emergency Chest Operating Instruments Set	1	A
	Venotomy Instruments Set	1	A
	Retractor for Heart	1	A
	Peripheral Forcep	1	A
	Arterial Forcep	1	A
	Satinskey Arterial Forcep	1	A
	Arterial Forcep Heavy Curved	1	A
	Arterial Forcep Curved	1	A
	Satinskey Aorta Clamp	1	A
	Satinskey Vascular Clamp	1	A
	Aorta Clamp curved	1	A
	Bottalo Duct Forceps straight	1	A
	Satinskey Peripheral Vascular Clamp	1	A
	Peripheral Vascular Clamp	1	A
	Satinskey Peripheral Vascular Clamp	1	A
	Peripheral Vascular Clamp	1	A
	Satinskey Vascular Clamp	1	A
	Infant Aorta Clamp	1	A
	Sugita Aneurysm Clips Set	1	A
	Instrument Set for Carotid Arterial Endarterectomy	1	A
	Solid State Bipolar Coagulator Unit	1	A

Table 2-3 Equipment List

Mostar C.C.

Department	Description of Equipment	Q'ty	Priority
Surgical	Patient Monitor	3	A
	Ultrasound Diagnostic System	1	A
	Micro-Neuro Surgery Operation Table	1	A
	Electrosurgical Unit	1	A
I.C.U.and Anesthesia	Anesthesia Unit. w/Ventilator	1	A
	Endotracheal Set (Anesthesia reanimation)	5	A
	ECG	1	A
	Monitoring System	4	A
	Bronchoscope	1	B
	Pulse oximeter	2	B
	Aspirator	3	B
	Ventilator	2	B
	Endotracheal Set	6	B
	Blood gas analyzer	1	B
Pediatrics	EEG	1	A
	Blood Gas Analyzer	1	A'
	Microspirometer	1	A'
	ECG for NICU	1	A
	ECG, Portable Type	1	A
	Infant Incubator (Servo Control)	2	A
	Infant Warmer	1	A
	Syringe Infusion Pump	5	A'
	Infusion Pump	3	A'
	Bilirubin Analyzer	1	A
	Ultrasonic Nebulizer	1	A
	Phototherapy Unit	2	A
	Ultrasound Diagnostic System	1	A
	Bedside Monitor	3	A
	Ventilator for Neonatal Infants and Adults	1	A
Blood Transfusion	Table-top Centrifuge	4	A
	Water Bath testtube	2	A
	Blood Bank Refrigerator	2	A
	Medical Refrigerator	1	A
	Ultra-Low Temperature Freezer	1	A
	Incubator	2	A
	Drying Oven	1	A
	Distilling Apparatus	1	A
	Autoclave	1	A
	Blood Cell Counter	1	A'
	Electronic Analytical Balance	1	A
	Micro pipette + Dispenser	1	A
Endoscopy	Fibre Gastroscope w/Light Source + Video system	2	A
	Fibre Colonoscope w/Light Source	2	A
	Cystoscope	1	A
	Fibre Bronchoscope	1	A
	Arthroscope	1	A
	Colposcope	1	A
	Cleaner for Endoscopy Instruments	1	A'

Table 2-3 Equipment List

Mostar C.C.

Department	Description of Equipment	Q'ty	Priority
Internal Medicine	Automatic weighing scale	2	B
	Screen	2	B
	Sphygmomanometer aneroid	3	B
	Sphygmomanometer mercurial	7	B
	Jamshidi's marrow biospy needle	3	B
	ECG	1	B
	Ultrasound Diagnostic System	1	B
	Infusion Pump	10	B
	Dressing carriage	6	B
	Hair shampooning basin trolley	2	B
	Instrument carriage	6	B
	Endotracheal Set	1	B
	Measuring rod	2	B
	Drying Oven	2	B
	X-ray film illuminator	2	B
	Electrical Aspirator	2	B
	Stress test system	1	B
	ECG	1	B
	Central monitoring system	1	B
	Holter ECG	1	B
C.S.S.D.	Sterilization Unit for Central	1	A

Table 2-3 Equipment List

Kasindo G.H.

Department	Description of Equipment	Q'ty	Priority
Operating Room	Shadowless Operating Light Floor Stand Type	2	A
	Operating Microscope w/camera	1	A'
	Anesthesia Apparatus w/Ventilator	1	A
	Electro Surgical Unit w/Trolley	1	A
	Surgical X-ray Unit(C-arm)	1	A
	Defibrillator	1	A
	Patient Monitor	2	A'
	Electric Bone Drill Unit	1	A
	Aspirator	3	B
	Operation Table	1	B
C.S.S.D	Washing Machine for Clothes	2	A
	Dryer for Clothes	2	A
Pharmacy	Prescription Counter	1	A'
	Water Purifier	1	A
	Counter Balance	1	A
	Medical Refrigerator	1	B
Gy. and Ob.	Gynecological Examining Table	2	A
	Obstetrics Delivery Table	2	A
	Colposcope w/Camera	1	A
Dermatology	Coagulation Unit (Bipolar)	1	A'
	Oscillograph	1	A'
	Medical Refrigerator	1	A'
	Instrument Sterilizer	1	A
	Infrared Lamp and Ultraviolet Lamp	1	A'
Ear, Nose and Throat	Bronchoscope Hard Type, w/Light Source	1	A
	Tympanometer	1	A'
	Nebulizer Apparatus	1	A'
	Suction Unit (Aspirator)	1	A
	Laryngostroboscope with Light source	1	A
	Electro Response Audiometer with Silence room	1	A'
	Electronystagmograph	1	A'
	Evoked potencial measuring system	1	A'
	Optokinetic Nystagmus Stimulator	1	A'
Ophthamology	Ophthalmoscope	2	A
	Instrument Cabinet	1	A
	Slit Lamp	1	A
	Ophthalmic Ultrasound unit	1	A'
	Photocoagulation Laser	1	A'
	Perimeter	1	A'
	Trial Lens Set	1	A
	Auto Refractometer	1	A'
	Non-contact Tonometer	1	A'
Dentistry	Dental Instrument	1	A
	Ultrasound scaler	1	A'
	Dental Unit w/chair	1	A
	Amalgam Mixer	1	A
	High Speed Sterilizer (Steam)	1	A
	X-ray for dental	1	B
Endoscopy	Endoscopic Table	2	A'
	Fiber Gastroscope w/Light Source	1	A'
	Fiber Optic Bronchoscope w/Light Source	2	A'
	Fiber Laparoscope w/Light Source	1	A'

Table 2-3 Equipment List

Kasindo G.H.

Department	Description of Equipment	Q'ty	Priority
Clinical Laboratory	Water Purifier	1	A
	Biochemistry Analyzer	1	A'
	Electrophoresis Apparatus System w/Densitometer	1	A
	Shaker	2	A
	Urine Analyzer Dry System	1	A'
	Blood Cell Counter	1	A
	Differential Counter	1	A
	Blood Coagulation Test Instrument	1	A'
	Bilirubinmeter	1	A'
	Spectrophotometer	1	B
Bacteriology Labo.	Incubator	2	A
	Incubator	1	A
	Autoclave	2	A
	Electric Digital Balance	1	A
	Medical Refrigerator	2	A
	Deionizer (Water Purifier)	1	A
	Digital Electronic pH meter	1	A'
	Magnetic Stirrer w/Hot Plate	3	A'
	Rotator for mixing of the Specimen	3	A'
	Sartorius Stainless Steel with Membrance Filter	1	A'
X-ray Diagnostic	Diagnostic X-ray Unit w/Bucky Table and Stand	1	A
	Diagnostic X-ray Apparatus R/F w/TV	1	A'
	Automatic X-ray Film Processor	1	A
	Film Loading Desk	1	A
	Ultrasound Diagnostic Equipment Standard Type	1	A'
I.C.U.	ICU Bed w/Mattress	6	A
	Central Monitoring System	1	A
	Mattress Type : Prevent Pressure Ulcer Development	3	A'
	Bedpan Washer for Sanitary	1	A'
	Respirator	1	A
	Aspirator	1	B
Hemodialysis	ECG	1	A
	Defibrillator	1	A
	Oxygen apparatus	1	B
Internal Medicine	ECG Holter Type w/Analyzer	1	A'
	ECG	1	B
Pediatrics	Instrument Sterilizer (Dry Oven)	1	A
	Oxygen tent	1	B
	Oxygen flowmeter w/mask	2	B
	Aspirator	1	B
	Incubator w/phototherapy unit	1	B
General	Sphygnomanometer w/stethoscope	15	A
Admission Office	Emergency Resuscitation Equipment	2	A

Table 2-3 Equipment List

Srbinje G.H.

Department	Description of Equipment	Q'ty	Priority
Operation Dept.	Shadowless Operating Light Ceiling Type	4	A
	Operating Microscope with Camera	2	A
	Anesthesia Apparatus with Ventilator	4	A
	Air conditionar	4	A'
	Electro Surgical Unit	2	A
	Electric Dermatome	1	A
	Surgical X-ray Unit (C-Arm TV Unit)	1	A
	Defibrillator	2	A
	Aspirator	2	A
	Microsurgery Instrument Complete Set	2	A
	Operating Table	4	A
	Ophthalmic Magnet	1	A
	Patient monitor	4	B
Neurology	EEG	1	A
Pediatrics	High Speed Sterilizer (DRY OVEN)	1	A
	Infant Incubator	1	B
Gy. and Ob.	Colposcope w/Camera	1	A
	Centrifuge	1	A'
	Medical Refrigerator	1	A
	Fetal Actocardiograph (Fetal Monitor)	1	A
	Gynecological Examining Table	2	A
	Kymographic Apparatus	1	A'
	Ultrasound Diagnostic Apparatus	1	B
Urology	Endoscopic Light Source	1	A
	Cystourethroscope w/Instrument Cabinet	1	A
Opthalmology	Fundus Camera	1	A'
	Photocoagulation Laser	1	A'
	Keratometer	1	A
	Trial Lens Set	1	A
Emergency	Shadowless Operating Light Floor Stand Type	1	A
	Respirator	1	A
	Defibrillator	1	A'
	Emergency Cart	1	A
	Emergency Resuscitation Equipment w/Laryngoscope	2	A'
	ECG	1	A'
Fuction Test Room	Ultrasound Diagnostic Apparatus	1	A'
	Electromyograph	1	A'
Endoscope Room	Laparoscope Complete Set w/Light source	1	A'
Clinical Labo.	Water Purifier	1	A
	Binocular Microscope	2	A
	Flame Photometer	1	A
	Blood Gas Analyzer	1	A
	Urine Analyzer	1	A'
	Blood Cell Counter	1	A
	Blood Coagulation Instrument	1	A'
	Bilirubinmeter	1	A'
	Electrophoresis with Densitometer	1	B
Bacteriology Labo.	Medical Refrigerator	1	A
	Binocular Microscope	2	A
	Autoclave	1	A
	Water Bath	1	B
	Incubator	1	B
	Water Purifier	1	B

Table 2-3 Equipment List

Srbinje G.H.

Department	Description of Equipment	Q'ty	Priority
C.S.S.D	High Speed Sterilizer (Steam Steilizer)	2	A
Post Mortem & Patho.	Mortuary Refrigerator	2	A
	Freezing Microtome	1	A
	Automicrotome Knife Sharpener	1	A'
	Paraffine Oven	1	A'
	Microscope	3	A
	Medical Refrigerator	1	A
	Autopsy Instrument Set	2	A
	Auto-Stainer	1	A'
	Vacuum Tissue Processor	1	A'
X-ray Dept.	CT Scanner	1	B
	Automatic X-ray Film Processor	1	A
	Slide Film Projector w/screen	1	A
	Diagnostic X-ray Apparatus	1	A'
	Name Printer	2	A'
	X-ray Film Cassette w/Intensifying screen	5	A
I.C.U.	ICU Bed	7	A
	Bedside Monitor	1	A'
	Central Monitor system	1	A'
	Defibrillator	1	A
	ECG with Cart	1	A
	Stimulator	1	B
	Doppler for Arterial	1	B
	Respirator	1	B
Delivery Dept.	Vacuum Extractor	1	A
	Instrument Trolley	2	A
	Obstetric Delivery Table	2	A
General	X-ray Film Illuminator Wall Hang Type	10	A
	Hot Sterilizer	9	A
Internal Medicine	Probe for Ultrasound Diagnostic aparatus	1	B
	ECG 3ch	1	B
	Ergometer with Monitoring system	1	B

Chapter 3

Implementation Plan

Chapter 3 Implementation Plan

3-1 Implementation Plan

3-1-1 Implementation Concept

Implementation of the Project will be carried out following the signing of the Exchange of Notes (E/N) by the governments concerned, and a Japanese national consulting corporation will manage and control all phases of work on behalf of the Ministry of Health of the Federation of Bosnia and Herzegovina, and the Ministry of Health and Social Welfare of the Republic of Srpska through the use of respective contracts, beginning with the detailed design study, preparation of Tender Documents, submission and evaluation of tenders, management and inspection of the process of transport/installation, and delivery.

On detailed design study, the convenience of operation, maintenance, inspection, and repair work following delivery should be fully taken into consideration. At the same time, the necessary quantity of spare parts and consumables shall be estimated. (The quantity shall be determined under the assumption that it will take approximately one year for the both Ministries to receive the spare parts and consumables from the date of order.) The type and quantity of each item will be determined by taking into account its frequency of use, conditions, and consumption. Manufacturers shall be held responsible for the trial run and operational guidance for certain types of equipment, while the maximum care shall be taken to ensure that factory tests and inspection are conducted prior to shipment.

Personnel including laborers required for the installation of equipment, shall be secured in the vicinity of each hospital, in principle, while engineers shall be dispatched from Japan and other countries to supply equipment requiring special skills and techniques of engineers.

The equipment that requires the dispatch of engineers and the period of guidance will be as follows:

(Four hospitals in the Federation of Bosnia and Herzegovina)

X-ray system, Diagnosis system, Endoscope, Sterilization machine, Monitoring system, Laboratory equipment, Operating table and lighting system

(Two hospitals in Republic of Srpska)

X-ray system, Diagnosis system, Endoscope, Sterilization machine, Monitoring system, Laboratory equipment, Operating table/lighting system, Dental instruments, Washing machine

The procedure for test runs and adjustment of the equipment to be procured will be planned to allow enough time for technological transfers to the doctors and engineers concerned at each hospital. Concerning the technological transfers, consultations with the Ministries of each entity and each hospital in advance will be required. There will be no problems with the installation of CT scanner at Kosevo Clinical Center, as it is simply a renewal. Srbinje General Hospital will introduce CT scanner for the first time. Accordingly, installation of the equipment and technological transfers must be supported by experienced staff members at the hospital and technical guidance must be provided by the manufacturer for approximately two to three weeks. The periods for the dispatch of X-ray specialists to The Federation of Bosnia and Herzegovina and the Republic of Srpska are fixed at 2.74 months and 1.37 months, respectively.

As much of the medical equipment being considered for supply are renewals of those that have become obsolete, no problems should be encountered at the place of installation, with a few exceptions requiring repairs. Equipment requiring repairs in part are described below.

1) Kosevo Clinical Center

The CT scanner for the radiology department is a renewal of existing equipment. At installation, some reinforcement/improvements will be necessary for the floor on which it will be installed. Since the autoclave proposed for the inspection room consumes significant amounts of electricity, enlarging electrical distribution and capacity will be required.

2) State Hospital

The X-ray units to be introduced to the radiology department (one Remote Control Fluoroscopy X-ray Apparatus and one general use, a total of two) are scheduled to be

installed after the existing obsolete unit is dismantled.

However, as the walls and other components of the X-ray room itself have been damaged, repair work is necessary. Again, the location where the large sterilizer is to be installed will require partial improvements/repairs.

3) Mostar Clinical Center

The X-ray units (two Remote Control Fluoroscopy X-ray Apparatus and one general use, a total of three) will be installed after the existing obsolete equipment is dismantled. Since the X-ray room as is does not satisfy environmental standards, X-ray protection must be installed on the walls. In light of plans to remove the X-ray room to a new hospital now under construction, affixing X-ray protective panels to the walls will also be considered, rather than substantive repair or improvement work. Installation of the large sterilizers will also require some improvement and reinforcement work.

4) Kasindo General Hospital

The X-ray units (one general use and one Remote Control Fluoroscopy X-ray Apparatus, a total of two) are renewals of existing equipment, and no problem is expected for their installation. However, since the existing X-ray control room controls two pieces of equipment, a extension of control room must be planned. Its scheduled location will require some improvements. Again, as the X-ray room floor is of suspended construction, reinforcements and improvements are necessary.

5) Srbinje General Hospital

Preparations have already been made for installation of the CT scanner. Although there is no problem regarding space and X-ray protection, the floor will require reinforcement and improvements due to its suspended construction.

In addition to the work described so far, installing equipment will entail various associated improvements pertaining to power source, water supply, drainage, and so on. Thorough and relevant discussions will take place before installation for time/method of delivery, installation and procedures.

The parties responsible for the implementation of the Project, the Consultant, and work involving the procurement of equipment shall be as follows:

(1) Parties responsible for the implementation of the Project

The responsible parties of the Recipient Country are the Ministry of Health of the Federation of Bosnia and Herzegovina, and the Ministry of Health and Soccial Welfare of the Republic of Srpska. Both Ministries of Health will act as the contracting parties of the Recipient Country. Both Ministries of Health shall be responsible for implementing the Project. In implementing the Project, each Ministry is required to cooperate in regard to the appointment of the responsible persons concerned for each hospital and work necessary for unpacking, delivery, and assembly/trial run of the equipment. Each hospital will cooperate with regard to the following:

- Connection of utilities at the designated points for the equipment work
- Preparation of a work schedule for the technological transfer concerning trial run/operational guidance/troubleshooting for the equipment
- Appointment of officials in charge of the above duties

The Ministry of Foreign Affairs and both Ministers of Health shall be responsible for customs clearance, inland transportation, and so forth.

(Note: The above matters should be confirmed with both ministries.)

(2) Consultant

Following the signing of the Exchange of Notes (E/N) between the governments concerned, the both Ministries of Health shall sign a Consultation Agreement with a Japanese national consulting corporation for the implementation design of the equipment to be procured under the Project, and the work associated with tendering and management of the installation. The agreement will be validated subject to approval by the Japanese Government. The Consultant shall be responsible for implementation of the following work under the Agreement:

1) Detailed design phase

Preparation of implementation design documents, technical specifications, and other technical documents, preparation of the tender procedure; and preparation of contract documents

2) Tendering phase

Evaluation of the contents of the Tender and assistance in concluding the contract

3) Implementation phase

Supervision of project implementation, inspections based on design documents, control of the work schedule, issuance of certificates and the like, and coordination/liaison work

(3) Suppliers of the equipment

Based on the Exchange of Notes (E/N) and in accordance with the "Guidelines for Procurement" under Japan's Grant Aid Scheme, both Ministries of Health shall sign the Procurement Agreement with Japanese national suppliers that shall be determined on the basis of open tenders on the equipment to be procured. The Agreement shall be validated subject to the approval of the Japanese Government. The suppliers shall implement the following under the Agreement:

1) Procurement, transport, and delivery of the equipment
2) Installation of the equipment, and technical guidance concerning operation, maintenance, and repair

In addition, the suppliers shall be responsible for assistance with maintenance and parts procurement, as well as the provision of technical assistance during the free-of-charge warranty period following delivery.

3-1-2 Implementation Conditions

It is important that the equipment and materials be transported prior to the onset of severe winter weather (from the latter half of November to February). All possible measures shall be taken to ensure the implementation and a complete procedure for installation is required that will ensure the quick and efficient completion of the tender, the contract for procurement, transport, and delivery of the equipment.

Plans for transport and installation of the equipment and materials shall be carefully drafted, as there are as many as four target hospitals in the Federation of Bosnia and Herzegovina, and two in the Republic of Srpska, and they are located far from each other. Therefore, consultations with officials concerned are essential prior to customs clearance of the equipment, removal of old equipment, preparation of routes for carrying them in, etc.

3-1-3 Scope of Work

The work necessary to implement the Project is divided between the Recipient Country and Japanese Grant Aids, as follows:

(1) Work to be carried out by the both entities

- Removal of existing equipment to make room for large incoming equipment
- Partial renovation of rooms in which the equipment will be installed
- Connection of utilities at the designated points for the equipment work

(2) Work to be covered by Japanese Grant Aid

- Procurement of medical equipment
- Transport of medical equipment to the six hospitals
- Delivery, installation, and trial run of the medical equipment
- Technical transfer on operation and maintenance of the medical equipment

3-1-4 Consultant Supervision

The Japanese national Consulting Corporation shall provide fair guidance, advice, and coordination throughout the design phase, tendering phase, and implementation phase of the Project, and shall do whatever is necessary in order to ensure the smooth implementation of the Project in accordance with the Grant Aid Scheme of the Japanese Government and the Basic Design Study Report.

(1) Details of Implementation Supervision

1) Design phase

Preparation of implementation design documents, preparation for tendering, preparation of contract documents, and the approval of the Recipient Country is obtained

2) Tendering phase

Implementation of a tendering, evaluation of the contents of the tender, and conclusion of a contract

3) Implementation phase

Implementation supervision (inspection/approval of equipment specifications, inspection/approval of equipment, shipment, supervision of ocean transportation and

inland transportation, guidance in supervision of installation, and supervision of work to be carried out by the counterpart), report on the state of progress, issuance of certificates, and the approval of the Recipient Country is obtained.

4) Completion of work

The Consultant will be deemed to have completed its work when the equipment is completely installed, it is confirmed that all conditions of the contract have been met, the official delivery of the equipment is witnessed, and the approval of the Recipient Country is obtained.

(2) Personnel Plan

The consultants required for the supervision of detailed design/implementation shall be as follows; the Project Manager, Cost Planner, and Interpreter shall serve for both the Federation of Bosnia and Herzegovina and the Republic of Srpska.

1) Project Manager One (1)

This project manager shall be responsible for the comprehensive supervision of work.

[Federation]

2) Equipment Planner (I) One (1)

This person shall be responsible for the examination of the equipment to be procured and the preparation of specifications.

He or She shall be in charge of confirming on-site facilities and supplementary matters during the Basic Design Study.

He or She shall be responsible for the supervision of procurement work, including bidding and installation.

3) Equipment Planner (III) One (1)

This person shall be responsible for the analysis and preparation of specifications.

He or She shall be in charge of examining on-site facilities and supplementary matters during the Basic Design Study.

He or She shall be responsible for the supervision of procurement work, including bidding and installation.

[RS]

4) Equipment Planner (II) One (1)

This person shall be responsible for the examination of the equipment to be procured and the preparation of specifications.

He or She shall be in charge of confirming on-site facilities and supplementary matters during the Basic Design Study.

He or She shall be responsible for the supervision of procurement work, including bidding and installation.

5) Equipment Planner (IV) One (1)

This person shall be responsible for the analysis and preparation of specifications.

He or She shall be in charge of examining on-site facilities and supplementary matters during the Basic Design Study.

He or She shall be responsible for the supervision of procurement work, including bidding and installation.

[Common]

6) Cost Planner One (1)

This person shall be responsible for inspection from the viewpoint of a medical doctor of all equipment to be installed .

He or She shall provide technical guidance whenever necessary.

7) Interpreter One (1)

This person shall be responsible for interpretation in the recipient country.

3-1-5 Procurement Plan

(1) Procurement of the equipment

Procurement of the equipment under the Project shall in principle take place within Japan, but certain items that will require regular maintenance, frequent procurement of consumables, or those that come with doctors' convenience such as operating instruments, etc., may be procured from third-party countries, as detailed in item (2).

(2) Procurement from third-party countries

Following the official delivery of the equipment, both Ministries shall be promptly provided with technical services and spare parts/consumables at reasonable prices. The procurement plan for medical equipment shall be drafted so to favor either manufacturers that have agents capable of providing technical services (repair and maintenance services) in the Recipient Country or in neighboring countries, or those that have a sufficient stockpile of spare parts/consumables. Special care should be taken regarding the following equipment:

CT Scanner (Computer Tomography Scanner)

This equipment requires periodic inspection three to four times per year following delivery. X-ray tubes require replacement virtually every year, though it varies depending on the usage frequency. The equipment is sophisticated, and is designed to conduct diagnostic examinations using its computer tomogram. It shall also be used for many other purposes, so the usage frequency is expected to be high at each hospital. When it breaks down it should be repaired immediately due to the importance of its functions. Accordingly, in the design of the technical specifications of the tender document, it shall be taken into account that equipment that will meet the following conditions shall be given priority for procurement.

1) The manufacturer of the equipment to be procured shall have their agents in the Recipient Country or surrounding countries.
2) The agent shall have a plurality of engineers who are able to repair and inspect the above equipment. The agent shall sign a contract with each Ministry of Health to provide technical services for the repair and inspection of the above equipment.
3) In principle, they shall have a stockpile of spare parts and consumables for general use.

Of the other equipment that does not meet the above requirements, procurement from third-party countries may be examined if the equipment is equivalent in performance to the equipment procured from Japan, less expensive, and eligible to receive prompt maintenance and technical services, as well as spare parts/consumables. As part of the Basic Design Study of the Project a survey on the procurement of equipment from third-party countries was consigned to a German consultant in Dusseldorf, and 24 items related to the Project were examined.

When the equipment is supplied by manufacturers who have tendered the lowest estimate, 430 items will be procured from Japan, and 49 items from third-party countries.

(3) Inland transportation route

It was agreed to use the Slovenian route by way of Koper in Croatia as the inland transportation route.

The following are the estimated periods required for transportation of the equipment from Japan to the destination in the Federation of Bosnia and Herzegovina:

From Japan to Koper	Approx.	45-50 days
From Koper to Sarajevo	Approx.	Two to three days
Overland transport from Germany to Sarajevo	Approx.	Seven to nine days

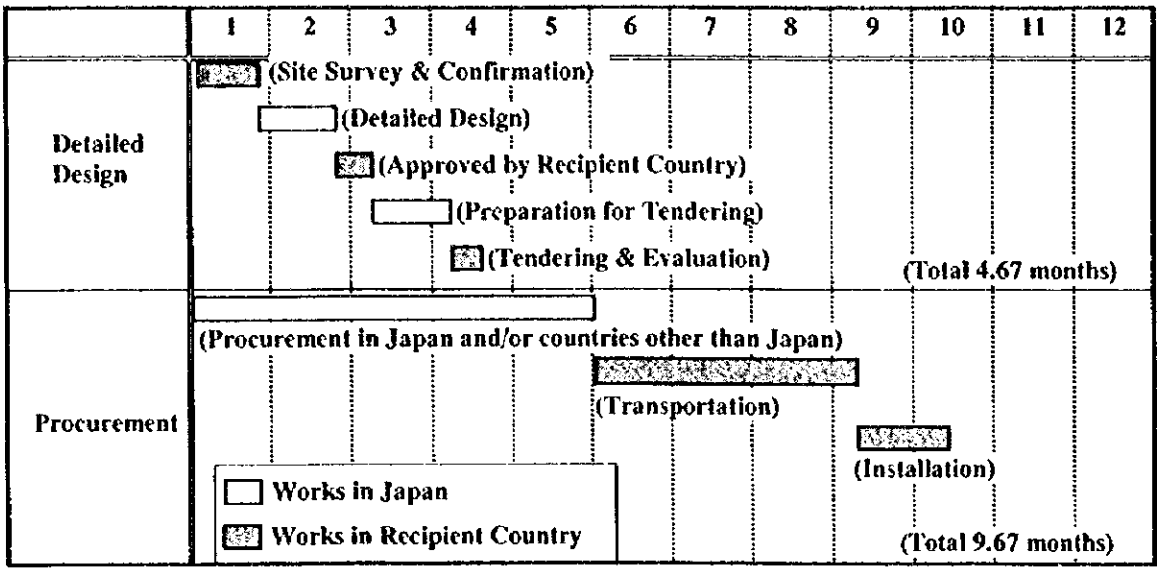
Estimated transportation from Japan to the destination in the Republic of Srpska.

From Japan to Koper	Approx.	45-50 days
From Koper to Kasindo	Approx.	three to four days
From Germany to Kasindo	Approx.	seven to nine days

3-1-6 Implementation Schedule

The Project implementation schedule is given in **Table 3-1.**

Table 3-1 Project Implementation Schedule



3-1-7 Obligations of the Recipient Country

The Recipient Country and the Ministries of Health of both entities shall work to achieve the following goals with the Exchange of Notes (E/N):

1) To secure enough budget necessary for proper recurrent cost of the equipment procured
2) To exempt customs duties, internal taxes, and other fiscal levies that may be imposed in the Recipient Country with respect to the supply of the equipment and the provision of services under the verified contracts
3) To ensure prompt customs clearance in the Recipient Country and a procedure for internal transportation therein of the medical equipment brought from Japan and third-party countries
4) To provide Japanese nationals and third-party country engineers working on the Project with every convenience to facilitate their entry into the Recipient Country and their stay therein
5) To ensure the issuance of permits required by the laws of the Recipient Country for the implementation of the Project, and other permits, including tax exemption.
6) To ensure that the equipment procured under the Grant Aid Scheme is maintained and used properly and effectively for the Project
7) To confirm that the Recipient Country bears all the expenses other than those covered by the Japanese government

3-2 Project Cost Estimation

3-2-1 Condition of Cost Estimation

Estimated as of	: September, 1997
Exchange rate	: US$ 1.00 = Yen 119.0
	: DM 1.00 = Yen 68.0
	US$: US dollar, DM: deutsche mark
Implementation schedule	: Refer to **Table 3-2**
Others	: The Project shall be implemented in accordance with Japan's Grant Aid Scheme.

3-2-2 Expenses Borne by the Recipient Country

The Project is intended primarily to replace aged equipment. The installation site is nearly prepared, and basic conditions for the installation of utilities have been met. The X-ray unit, CT scanner, etc., which require extra work on the rooms in which they are to be installed, shall be arranged as shown in **ANNEX-3.** Each room has sufficient height and width for the equipment, but partial renovation work on the floor and wall is necessary.

Expenses for the work shall in principle be borne by the both entities. Expenses of each hospital is shown in **Table 3-3.**

(Federation of Bosnia and Herzegovina)

Expenses for the removal of existing equipment : DM 7,416

(Republic of Srpska)

Expenses for the removal of existing equipment : DM 7,208

Table 3-3 Breakdown for Expenses Borne by the Recipient Country

Unit : DM

	State Hospital	Kosevo C.C.	Tuzla C.C.	Mostar C.C.	Kasindo G.H.	Srbinje G.H.
Removal cost for existing equipment (1999)	1,000	2,416	1,000	3,000	5,520	1,688
Maintenance/Consumable (2002:Full operation)	432,000	669,000	433,000	784,000	344,900	760,000

3-2-3 Operation and Maintenance Cost

Medical doctors and other staff members at the six hospitals have been trained and have much a great deal of experience with the job in the Recipient Country. It is clear they have the high-level skills necessary to utilize the equipment to be provided under the Project at full capacity and the size of the staff will also be sufficient. As for CT scanner, the X-ray unit, and other equipment that requires substantial technical knowledge, a system for maintenance and repair works should be established through the use of contracts for technical service.

A projection of expenses for maintenance, spare parts/consumables, etc. of the equipment to be introduced is given in **Table 3-4 and 3-5.** The expenses that will arise prior to the operation of the equipment should be covered by the hospitals, the Ministries of Health, and the Health Insurance Fund.

Table 3-4 Projection of Operation and Maintenance Cost during the First Year and under Full Operation

Unit: DM

	1999 年	2002 年
Total Expenditure	1,731,124	3,422,900
Removal cost for existing equipment	14,624	0
Maintenance and Consumable	1,716,500	3,422,900

Table 3-5 Breakdown for Projection of Operation and Maintenance Cost under Full Operation (2002)

Unit : DM

	State Hospital	Kosevo C.C.	Tuzla C.C.	Mostar C.C.	Kasindo G.H.	Srbinje G.H.
CT Scanner	0	407,800	0	0	0	407,800
Diagnostic X-ray apparatus Remote Control Fluoroscopy	58,000	0	0	106,600	0	0
Diagnostic X-ray Unit w/Bucky	36,600	0	0	47,000	0	84,500
Surgical X-ray Unit	0	0	0	0	200	60
Ultrasound Diagnostic system	87,200	407,800	58,300	537,600	282,600	254,900
Blood Cell Counter	19,500	0	32,400	38,900	9,700	12,140
Blood Gas Analyzer	0	0	5,000	10,100	0	600
Automatic Biochemical Analyzer	8,950	0	52,500	0	52,400	0
Electrolytes Analyser	0	0	0	5,200	0	0
Instrument for Enzyme Immuno assy for Cancer Maker	207,720	0	0	0	0	0
Doppler Ultrasound System	14,030	158,600	235,900	0	0	0
Amino-acid Analyzer	0	29,500	0	0	0	0
Water Purification System for Automatic Analyzer	0	13,800	0	0	0	0
Infusion Pump	0	0	48,900	38,600	0	0
Multipolar Densitometer for Electorphoresis Protein and Lipoprotein		12,000				
Total	432,000	669,000	433,000	784,000	344,900	760,000

Chapter 4

Evaluation of the Project, and Recommendation

Chapter 4 Evaluation of the Project, and Recommendation

4-1 Demonstration and Verification of Validity, and Resultant Benefits

(1) Strengthening of Diagnostic/Treatment Functions of the Hospitals

As described above, the MOH of both entities have striven to reestablish medical care systems and organizations as well as to restore and renew medical facilities and equipment with the cooperation of international organizations, in order to improve medical services of hospitals, where approximately 40% of the facilities have been rendered obsolete and/or were damaged during the civil war. The Project is expected to contribute to a series of such improvement activities. Summarized below are the main hospital functions to be covered:

1) Central Patient Monitoring System is to be introduced in the ICUs of the hospitals (excluding the Sarajevo State Hospital and Kosevo Clinical Center) where a patient monitoring device has not been installed. Critically ill or seriously injured patients, and post-operation patients would then be more properly monitored.
2) The introduction of a CT scanner into the Kosevo Clinical Center will reduce patient waiting time (currently over one month), and improve the effectiveness of treatment.
3) The introduction of a CT scanner will enable the Srbinje General Hospital to examine patients that have hitherto been sent overseas, and accordingly render better services.
4) The renewal of examining devices, such as x-ray units, ultrasound diagnostic systems, and endoscopes, will improve examination capacity and provide patients with access to better treatment.
5) The accuracy of operations, which has deteriorated due to the shortage in operative equipment, will be improved with the renewal thereof, and erroneous treatment caused by inadequate equipment will be avoided.
6) The renewal of testing devices will increase opportunities for patients to receive better treatment and prevent improper treatments caused by incomplete information.
7) The renewal of sterilization system will improve sanitary environment and upgrade the quality of medical services rendered.

The Project is thus expected to contribute considerably to the improvement of overall health care services in Bosnia and Herzegovina, once medical equipment has been substantially upgraded and diagnosis and treatment functions enhanced.

(2) Contribution made to the level of care in Bosnia and Herzegovina

In the six hospitals, medical equipment was installed from the 1960's through 1970's, and has scarcely been renewed since due to the severe economic conditions in the former Yugoslavia as well as the succeeding civil war, which has resulted in more than half of such equipment becoming obsolete, damaged, and/or unusable. These hospitals are obviously incapable of fulfilling their assigned functions. Direct damage suffered by medical facilities during the war was more extensive on the FD side, but the two entities were subjected to similar levels of secondary damage. Medical services have deteriorated greatly, as many skilled physicians fled the country and financial factors (shortage of consumables and spare parts, lack of regular inspections, etc.) caused insufficient provision of medical equipment. Existing equipment has been used for 20 to 25 years, and more than 40% thereof has become obsolete and unusable. Since the average duration of medical equipment is set at eight years in OECD countries, several units of said equipment should have been replaced many years ago. Now, 479 pieces of medical equipment are to be provided under the Project to replace said obsolete ones, improve the current situation, upgrade deteriorated medical services, and restore the hospitals to their original functions.

In addition, insufficient diagnostic/examination facilities have thus far forced patients to seek appropriate treatment outside the country. The introduction of these devices will make effective domestic care available to the patients, especially in the event of emergency. **Table 4-1** shows the number of people supposed to reap benefits.

Table 4-1 Scale of Beneficiaries

Name of Hospitals	No. of Beneficiaries
State Hospital	450,000
Kosevo Clinical Center	600,000
Tuzla Clinical Center	700,000
Mostar Clinical Center	600,000
Kasindo General Hospitals	115,000
Srbinje General Hospitals	60,000
Total	2,525,000

(3) Contribution of the renewal of medical equipment to the smooth operation of the patient payment system

As mentioned earlier, said renewal contributes not only to the improvement of medical services, but also to the smooth operation of the patient payment system. The MOH of both entities have attempted to improve the health insurance system with the

cooperation of the WHO and the World Bank. The focus is on the reconstruction of the Health Insurance Fund, and on establishing a collection system of medical payments. A truly functional collection system, however, can not be established until operational equipment that would enable high-quality health care is made available.

(4) Initial investment necessary for reconstruction

The Project comprises a part of the restructure scheme for secondary medical facilities, which in turn is a major component of the reconstruction of Bosnia and Herzegovina's health sector. Given that sources for budget of MOH and the Health Insurance Fund have been weakened, reduction of initial investment necessary for Bosnia and Herzegovina's health sector will shorten the length of time required to procure the necessary funds on one hand, and also facilitate the recovery of the health sector with the introduction of patient payment system.

(5) Conclusion

When the six hospitals have been provided with said 479 pieces of medical equipment as secondary medical facilities, the quality of medical services in Bosnia and Herzegovina will be greatly improved. In addition, with the increase in revenues deriving from payment of medical bills as well as in the form of dividends from the Health Insurance Fund as depicted in the reconstruction scenario, medicines and consumables, thus far provided by international organizations and supporting nations, could then be procured by these hospitals on their own, enabling independent operations.

4-2 Technical Cooperation, Coordination with Donor Nations

Since, under the Project, the six hospitals are to be provided with medical equipment to replace for obsolete ones, these hospitals are well-qualified to handle these new units. The technology of medical equipment, however, makes rapid progress and demands constant learning on the part of the specialists concerned. Accordingly, sufficient technology transfer must be rendered as the equipment is installed, which will be the responsibilities of experts who will be dispatched to train local physicians. This is vital to ensure proper implementation and use of the new equipment.

4-3 Recommendation

(1) Maintenance system

Effective and constant maintenance/control of medical equipment provided under the Project requires maintenance staff. The Biomedical Technology Center was established in the Kosevo Clinical Center of the FD with the cooperation of the UNDP (invested by the Japanese government) in order to train specialists capable of maintaining and controlling the medical equipment.

Given the sever economic conditions that both entities are currently subjected to, the maintenance costs of the equipment would be a heavy burden to bear for the hospitals. Should a failure occur in any equipment, the supplier concerned would not be readily available to conduct repairs due to the geographical position of the country, which would force hospitals to cease medical care activities.

Therefore, it would be of utmost importance for said center to recruit such specialists and have them take charge in the maintenance of said equipment. It is also desirable for the center to accept and train specialists from the RS, so that they acquire the necessary techniques to contribute to the maintenance of the hospitals in their region. Each entity should also establish a workshop conducting the maintenance of medical equipment on its own.

(2) Redundancy

Many nations are still proposing aid packages to help Bosnia and Herzegovina (the FD in particular) recover from the damage it sustained during the civil war, especially in terms of medical equipment. It is highly probable that said assistance would be provided coincidentally with the delivery and installation of the equipment to be supplied under the Project. For example, the Ministries of the FD and RS have already established the EHSP with the cooperation of the WHO and World Bank. Under these circumstances, the Government is expected to respond flexibly to situational changes, clearly specify the role of each aid program, avoid redundancy, and utilize valuable aid funds optimally to ensure the smooth execution of its reconstruction plan.

Since the current detail design stage is the last chance for Japan to coordinate its efforts with the other supporting nations, comprehensive and accurate aid-related information should be collected from them to facilitate coordination during this stage.

(3) Environmental Impact

As for x-ray protection work, the general x-ray examination room of a surgery ward at the Mortar Clinical Center, and the x-ray examination room of the Kasindo General Hospital have not satisfied the environment standard of Bosnia and Herzegovina. Lead walls and lead glass must be repaired.

In each hospital targeted in the project, development liquid for x-ray films is discharged untreated from automatic developers as sewage. At least, the liquid should be diluted before discharging.

Appendices

Appendices-1 Member List of the Survey Team

(1) Field Survey

1	Mr. Tomiaki ITOH	Leader	Grant Aid Project Study Department Japan International Cooperation Agency
2	Mr. Yoshitaro WATANABE	Leader (Republic of Srpska)	Austria Office Japan International Cooperation Agency
3	Mr. Youichi HORIKOSHI	Technical Adviser	Surgery, Expert Service Division, Bureau of International Cooperation International Medical Center of JAPAN
4	Mr. Keiji IIMURA	Project Manager/ Operation and Maintenance Planner	CRC Overseas Cooperation Inc.
5	Mr. Kinji TOSAKI	Equipment Planner 1	CRC Overseas Cooperation Inc.
6	Dr. Tsuguhisa ISA	Equipment Planner 2	CRC Overseas Cooperation Inc.
7	Mr. Tomoyuki Kuroda	Facilities Planner 1	CRC Overseas Cooperation Inc.
8	Mr. Chihiro FUKAMI	Facilities Planner 2	CRC Overseas Cooperation Inc.
9	Mr. Wataru TAKADA	Cost Planner	CRC Overseas Cooperation Inc.

(2) Explanation of Draft Report

1	Mr. Tomiaki ITOH	Leader	Grant Aid Project Study Department Japan International Cooperation Agency
2	Mr. Youichi HORIKOSHI	Technical Adviser	Surgery, Expert Service Division, Bureau of International Cooperation International Medical Center of JAPAN
3	Keiji IIMURA	Project Manager/ Operation and Maintenance Planner	CRC Overseas Cooperation Inc.
4	Kinji TOSAKI	Equipment Planner 1	CRC Overseas Cooperation Inc.
5	Tomoyuki Kuroda	Facilities Planner 1	CRC Overseas Cooperation Inc.

Appendices-2 Survey Schedule

(1) Field Survey

No.	Date		Activities	Accommodation
1	7/9	Wed.	(Official Team, A*1) Tokyo -> Vienna (OS556)	Vienna
2	10	Thu.	(Official Team, A) Courtesy call on the Embassy of Japan and JICA office in Vienna (a.m.) Vienna -> Sarajevo (OS831) Courtesy call on the MOFA, Bosnia and Herzegovina and WHO	Sarajevo
3	11	Fri.	(Official Team, A) Courtesy call on the MOH, Bosnia and Herzegovina	Sarajevo
4	12	Sat.	(Official Team, A) Day-off	Sarajevo
			(Equipment Planner 2, Cost Planner) Tokyo -> Vienna (OS556)	Vienna
5	13	Sun.	(Official Team, A) Day-off	Sarajevo
			(Equipment Planner 2 ,Cost Planner) Vienna -> Sarajevo (OS831)	
6	14	Mon.	(Project Manager) Visit to the WB, Kosevo C.C. and FDMOH	Sarajevo
			(Equipment Planner 1,2, Facilities Planner 1,2) Visit to Kosevo C.C.	
7	15	Tue.	(Project Manager) Visit to Kosevo C.C. and FDMOH	Sarajevo
			(Official Team, Cost Planner) Visit to Kosevo C.C.	
			(Equipment Planner 1, Facilities Planner 1) Visit to Tuzla C.C.	Tuzla
			(Equipment Planner 2, Facilities Planner 2) Visit to Mostar C.C.	Mostar
8	16	Wed.	(Project Manager) Visit to FDMOH	Sarajevo
			(Equipment Planner 1, Facilities Planner 1) Visit to Tuzla C.C.	
			(Official Team,Cost Planner) Visit to .Mostar C.C.	Mostar
9	17	Thu.	(Project Manager) Visit to FDPIU and the State Hospital	Sarajevo
			(Equipment Planner1,2,Facilities Planner1,2) Visit to Kosevo C.C. and the State Hospital	
10	18	Fri.	(Project Manager) Visit to FDMOH and Kosevo C.C.	Sarajevo
			(Equipment Planner1,2,Facilities Planner1,2) Visit to the State Hospital	
11	19	Sat.	(All member) Discussion about Request Item and Review of collected data with the survey team	Sarajevo
12	20	Sun.	(All member) Day-off	Sarajevo
13	21	Mon.	(Project Manager) Visit to the PIU	Sarajevo
			(Official Team, Equipment Planner 1,2, Facilities Planner 1,2) Visit to Kosevo C.C.	
14	22	Tue.	(Project Manager) Making of M/M at FDMOH, Visit to the PIU	Sarajevo
			(Official Team, Equipment Planner 1,2, Facilities Planner 1,2) Visit to the State Hospital	
15	23	Wed.	(Project Manager) Visit to the MOFA and FDMOH	Sarajevo
			(Equipment Planner1,2,Facilities Planner1,2) Visit to Mostar C.C.	Mostar
16	24	Thu.	(Project Manager) Leave for Mostar	Sarajevo
			(All member) Visit to Mostar C.C.	Mostar
17	25	Fri.	(All member) Visit to Mostar C.C.	Sarajevo

No.	Date		Activities	Accommodation
18	26	Sat.	(All member) Meeting with the survey team	Sarajevo
19	27	Sun.	(Project Manager) Day-off	Sarajevo
			(Equipment Planner 1,2, Facilities Planner 1,2) Leave for Tuzla	Tuzla
			(Cost Planner) Sarajevo → Vienna (OS832) Vienna → Dusseldorf (OS155)	Dusseldorf
20	28	Mon.	(Project Manager) Leave for Tuzla	Tuzla
			(Equipment Planner1,2,Facilities Planner1,2) Visit to Tuzla C.C.	
			(Cost Planner) Supplementary Survey for Agent in Dusseldorf	Dusseldorf
21	29	Tue.	(Project Manager) Visit to Tuzla C.C., Leave for Sarajevo, Visit to RSMOH	Sarajevo
			(Equipment Planner 1,2, Facilities Planner 1,2) Visit to Tuzla C.C., Leave for Sarajevo	
			(Cost Planner) Supplementary Survey for Agent in Dusseldorf	Dusseldorf
22	30	Wed.	(except for Cost Planner) Visit to Kosevo C.C. and the State Hospital	Sarajevo
			(Cost Planner) Dusseldorf → Frankfurt (by Bus) Frankfurt →	
23	31	Thu.	(Mr. Watanabe, JICA Austria Office) Vienna →Sarajevo	Sarajevo
			(Project Manager) Discussion with FDMOH, Meeting with RSMOH	
			(Equipment Planner 1, Facilities Planner 1,2)	
			(Equipment Planner 2)Sarajevo → (OS832)	Vienna
			(Cost Planner) → Tokyo (JL408)	
24	8/1	Fri.	(Project Manager) Discussion with RSMOH	Sarajevo
			(Equipment Planner 1, Facilities Planner 1,2)	
			(Equipment Planner 2) Vienna →	
25	2	Sat.	(Mr. Watanabe JICA Austria Office) Sarajevo →Vienna	
			(Project Manager) Discussion with the FDPIU	Sarajevo
			(Equipment Planner 1, Facilities Planner 1,2) Review of collected data about the hospital at FD	
			(Equipment Planner 2) → Tokyo (OS555)	
26	3	Sun.	(A) Day-off	Sarajevo
27	4	Mon.	(Project Manager ,Facilities Planner 1) Visit to RSMOH	Sarajevo
			(Equipment Planner 1, Facilities Planner 2) Visit to Srbinje G.H.	Srbinje
28	5	Tue.	(Project Manager, Facilities Planner 1) Visit to RSMOH and FDMOH, the MOFA	Sarajevo
			(Equipment Planner 1, Facilities Planner 1,2) Visit to Srbinje G.H.	Srbinje
29	6	Wed.	(Project Manager) Visit to RSMOH and Srbinje G.H.	Sarajevo
			(Equipment Planner 1, Facilities Planner 1,2) Visit to Srbinje G.H.	
30	7	Thu.	(A) Visit to Kasindo G.H., FDMOH and the MOFA	Sarajevo

No.	Date		Activities	Accommodation
31	8	Fri.	(Project Manager) Discussion with RSPIU, Survey of Kasindo G.H. and MOH of Canton, Visit to the MOFA	Sarajevo
			(Equipment Planner 1, Facilities Planner 2) Meeting with Private Company, Supplementary work at FD	
32	9	Sat.	(A) Review of collected data, Supplementary work at FD	Sarajevo
33	10	Sun.	(A) Day-off	Sarajevo
34	11	Mon.	(Mr. Watanabe JICA Austria Office) Vienna →Sarajevo	Sarajevo
			(A) Discussion with RSPIU, Meeting with Survey Team, Making of the Equipment List	
35	12	Tue.	(Project Manager) Making of M/M at RSMOH, Visit to the MOFA	Sarajevo
			(Equipment Planner 1, Facilities Planner 1, 2) Visit to Kasindo G.H., Srbinje G.H.	
36	13	Wed.	(Project Manager, Facilities Planner 2) Meeting with the Minister at RSMOH, Visit to the MOFA	Sarajevo
			(Equipment Planner 1, Facilities Planner 1) Collecting data at the WB	
37	14	Thu.	(Mr. Watanabe JICA Austria Office) Sarajevo →Vienna	
			(Project Manager) Visit to FDMOH and the MOFA Sarajevo → Vienna (OS832) Report on the study in Bosnia and Herzegovina to the Embassy of Japan and JICA office in Vienna	Vienna
			(Equipment Planner 1, Facilities Planner 1,2) Sarajevo → Vienna (OS832)	
38	15	Fri.	(A) Vienna → Frankfurt (LH3441) Frankfurt →	
39	16	Sat.	(A) → Tokyo (LH714)	

*Official Team
(A) Project Manager, Facilities Planner
(B) Equipment Planner, Cost Planner
FDMOH: Ministry of Health, Federation of Bosnia and Herzegovina
RSMOH: Ministry of Health and Social Welfare, Republic of Srpska
FDPIU: Project Implementation Unit, Ministry of Health, Federation of Bosnia and Herzegovina
RSPIU: Project Implementation Unit, Ministry of Health and Social Welfare, Republic of Srpska

(2) Explanation of Draft Report

No.	Date		Activities	Accommodation
1	10/5	Sun.	Tokyo → Frankfurt (LH711) Frankfurt → Vienna (LH3438)	Vienna
2	6	Mon.	Vienna → Sarajevo (OS831) Courtesy call on the Embassy of Japan in Vienna Liaison Office	Sarajevo
3	7	Tue.	(Project Manager)Visit FDMOH, RSMOH, the MOFA and the Embassy of Japan in Vienna Liaison Office (Equipment Planner 1, Facilities Planner 1)Visit RSMOH and Kasindo G.H.	Sarajevo
4	8	Wed.	(Project Manager)Visit the Embassy of Japan in Vienna Liaison Office and RSMOH (Equipment Planner1, Facilities Planner 1)Visit Kasindo G.H.	Sarajevo
5	9	Thu.	(Project Manager)Visit FDMOH and the MOFA (Equipment Planner1, Facilities Planner 1)Visit Srbinje G.H.	Sarajevo
6	10	Fri.	(Project M it Kosevo C.C., RSMOH and the MOFA (Equipment Planner1, Facilities Planner 1)Visit Kosevo C.C.	Sarajevo
7	11	Sat.	(Project Manager)Visit FDMOH (Equipment Planner1, Facilities Planner 1)Visit the State Hospital	Sarajevo
8	12	Sun.	Review of collected data	Sarajevo
9	13	Mon.	Visit Mostar C.C.	Sarajevo
10	14	Tue.	(Project Manager)Visit FDMOH, FDPIU, the MOFA (Equipment Planner1, Facilities Planner 1)Visit Tuzla C.C.	Sarajevo
11	15	Wed.	Project Manager)Visit the MOFA(M/M), the PIU, FDMOH, RSMOH (Equipment Planner1)Visit the MOFA(M/M) Supplementary Survey (Facilities Planner 1)Visit the MOFA(M/M) and FDMOH Supplementary Survey	Sarajevo
12	16	Thu.	(Project Manager)Visit the MOFA and FDMOH Sarajevo → Vienna (OS832)	Vienna
13	17	Fri.	Visit the Embassy of Japan and JICA Office in Vienna (Report on the study in Bosnia and Herzegovina) Vienna → Frankfurt (LH3441) Frankfurt →	
14	18	Sat.	→ Tokyo (LH714)	

FDMOH: Ministry of Health, Federation of Bosnia and Herzegovina
RSMOH: Ministry of Health and Social Welfare, Republic of Srpska
FDPIU: Project Implementation Unit, Ministry of Health, Federation of Bosnia and Herzegovina
RSPIU: Project Implementation Unit, Ministry of Health and Social Welfare, Republic of Srpska

Appendices-3 List of Party Concerned in the Recipient Country

(1) Ministry of Foreign Affairs, Bosnia and Herzegovina

Affiliation	Position & Specification	Name
Ministry of Foreign Affairs	Reconstruction and International Assistance	Mr. Aziz HADZIMURATOVIC
		Mr. Vildana BIJEDIC

(2) Federation of Bosnia and Herzegovina

Affiliation	Position & Specification	Name
Federal Ministry of Health	Minister	Minister Bozo LjuBic
	Adviser	Mr. Bakir NAKAS
		Mr. Boris HRABAC
		Mr. Drazenka RADOS
	Expert	Dr. Zlatko CARDAKLIJA
	PIU	Mr. Antun LOVRINCEVIC
		Mr. Sulejman PITIC
State Hospital	Director	Prim. Dr. Bakir NAKAS
	Internal Medicine	Prim. Dr. Jarosiav SUDI
	Neurology	Prim. Dr. Esad CERIC
	Ophthalmology	Mr. Ph. Vaskovic OLIVERA
	Biochemical Clinic Laboratory	Mr. Ph. Mujacic VILDANA
	Respiratory	Prim. Dr. Sarija AGIC
	Endoscopy	Purisic Dr. BEDRIJA
	ICU	Prim. Dr. Vesna CENGIC
	Surgery	Covic Dr. RANKO
	Biochemical Clinic Laboratory	Prim. Dr. Mirza BEGOVIC
	Oto-rhinolaryngology	Med. Tchn. Seada BEGOVIC
		Prim. Dr. Milan MANDILOVIC
	Microbiology	Prim. Dr. Abdurahim CATIBUSIC
	Radiology	Prim. Dr. Ibrahim FAZLAGIC
	Obstetrics and Gynecology	Masic Dr. SALKO

Affiliation	Position & Specification	Name
Kosevo C.C.	Radiology	Doc. Catic DZEMILA, M.D., MS, Ph.D
	Biochemistry	Enver SULJEVIC, M.D., MS
	Microbiology	Prof. Kemal SERIC, V.D., MS, Ph.D
	Pathology	Prof. Aleksandar NIKULIN, M.D., MS, Ph.D
	CCU	Doc. Marko BUKSA, M.D., MS, Ph.D
	ICU	Doc. Amira DURIC, M.D., MS, Ph.D
	Plastic Surgery	Prof. Halid HUJIC, M.D., MS, Ph.D
	Ophthalmology	Prof. Ljiljana MILANOVIC, M.D., MS, Ph.D
	Abdominal Surgery	Prof. Dinko RADNIC, M.D., MS, Ph.D
	Gastroenterohepatology	Nadja BOROVAV, M.D., MS
Tuzla C.C.	Director, Urology	Prim. Dr. Huzeir Durakovic
	ICU	Mirsad BABOVIC
	Surgery	Jerkic ZORAN
	Internal Medicine	Kusljugic ZUMRETA
	Biochemical Clinic Laboratory	Mulalic EMIR
	Dentistry	Mehikic GORDANA
	Gynecology	Serak INDIRA
	Gastroenterology	Pavlovic-Calic NADA
	Plastic Surgery	Vujadinovic ALEKSANDAR
	Oto-rhinolaryngology	Aksamic NEDZAD
Mostar C.C.	Director	Prim. Dr. Antunovic ZORAN
	Manager Assistant	Mr. Slavko Raguz
	ICU	Dr. Mariria BERA
	Pediatrics	Dr. Darinka Sumanovic-Glamuzina
	Radiology	Dr. Goran OPSENICA
	Transfusion	Dr. Ruzica Papoci
	Internal Medicine	Dr. Nada Skobic-Bovan
	Internal Medicine	Dr. Mladen MIMICA
	Urology	Dr. Davor POMIC
	Laboratories	Blacica Loncar
	Pulmonary	Dr. Iva BAKULA
	Gynecology	Mr. Dr. Zvonko JOCE

(3) Republic of Srpska

Affiliation	Position & Specification	Name
Ministry of Health and Social Welfare	Minister	Prof.dr.sci.med. Mirko SOSIC
	Deputy Minister	Dr. Yiyana KARADZIC
	President of HIF	Mr. Limo LAZOVIC
	PIU	Mr. Zoran ZPZLEC
		Dr. Miladin Babic
Kasindo G.H.	Director	Dr. Slavko ZDRALE
	Microbiology	Dr. Spomenka JANJIC
	Anesthesia	Dr. Ranka KRTINIC
	Internal Medicine	Dr. Trninic BOZIDAR
	Radiology	Dr. Golijanin MIROSLAV
	Ophthalmology	Dr. Vucinic DANICA
	Internal Medicine	Dr. Velkou Nemana
	Obstetrics and Gynecology	Prof. Dr. Darko MIJATOVIC
	Clinical Laboratories	Ing. Rade POPOVIC
	Otorhinolaryngology	Prim. Dr. Milan PEJIC
	Pediatrics	Dr. Pandurevic KOSA
	Hemodialysis	Dr. Radovic BRANA
	Dermatology	Dr. Abramovic RENATA
	Dentistry	Dr. Lucic DRENA
	Pharmacy	Ph.D. Vitkovic MILENA
	I.C.U.	Dr. Ranka KRTINIC
Srbinje G.H.	Director	Dr. Veljko Maric
	Obstetrics and Gynecology	Dr. Lecic RADOSLAVKA
	Pediatrics	Dr. Tatjana STANKOVIC
	Operation Dept.	Dr. Supic KOSTA
	I.C.U.	Dr. Dostic MILIVOJE
	Internal Medicine	Dr. Begenisic MILENA
	X-ray	Dr. Milovan JOBRILOVIC
	Pathology	Prof. Dr. Borisa STAROVIC
	Urology	Dr. Lisov MILADIN
	Ophthalmology	Dr. Radovic MILA
	Bacteriology	Dr. Mrgud RADA
	Clinical Lab.	Dr. Milutinovic DANICA
	Surgery	Doc. Dr. Veljno MKRIC
	Plastic surgery	Prof. Borisa A. Starovic M.D., Ph.D

(4) International Organization

Affiliation	Position & Specification	Name
WHO	Regional Health Care Service	Dr. Jean Lallberte
	Primary Health Care Service	Dr. Marten Kvist, M.D.,PhD
World Bank	Human Resource	Ms. Virginia Hutton Jackson

(5) Embassy of Japan, Vienna

Affiliation	Position & Specification	Name
Embassy of Japan	Minister	Mr. Yoshiyuki MOTOMURA
	Counsellor	Mr. Masato WATANABE
		Mr. Keiji MIURA
	First Secretary	Mr. Makoto OTA
		Mr. Tatsuya MACHIDA

(6) JICA Office, Vienna

Affiliation	Position & Specification	Name
JICA Office	Resident Representative	Mr. Yoshitaro WATANABE
		Mr. Yasuto TAKEUCHI
	Project Formulation Advisor	Mr. Tuneo TURUSAKI

Appendices-4 Minutes of Discussion

MINUTES OF DISCUSSIONS
BASIC DESIGN STUDY
ON
THE PROJECT FOR IMPROVEMENT OF MEDICAL EQUIPMENT IN THE HOSPITALS
IN
BOSNIA AND HERZEGOVINA

In response to a request from the Government of Bosnia and Herzegovina (hereinafter referred to as "the Government"), the Government of Japan decided to conduct a Basic Design Study on the Project for the Improvement of Medical Equipment in the Hospitals in Bosnia and Herzegovina (hereinafter referred to as "the Project"), and entrusted the study to the Japan International Cooperation Agency (hereinafter referred to as "JICA").

JICA sent to Bosnia and Herzegovina a study team, which is headed by Mr. Tomiaki ITO, First Project Study Division, Grant Aid Project Study Department, JICA, and is scheduled to stay in the country from 10 to 24 July, 1997.

The teams held discussions with the officials concerned of the Government and conducted field surveys at the study area.

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

Sarajevo, 22 July,1997

Mr. Tomiaki ITO
Leader
Basic Design Study Team
JICA

Bozo Ljubic, MD,PhD, Associate Prof.
Minister of Health,
Federation of Bosnia and Herzegovina

pp Mr.Aziz HADZIMURATOVIC
Head of
Department of Reconstruction and International Assistance
on Behalf of
Ministry of Foreign Affairs of
Bosnia and Herzegovina

ATTACHMENT

1. Objectives of the Project

The objective of the project is to improve the function of Hospitals by the upgraded medical activities in project sites, using the procured equipment under Japanese Grant Aid.

2. Project Sites

(1) State Hospital,

(2) Kosevo Clinical Center,

(3) Mostar Clinical Center,

(4) Tuzla Clinical Center,

3. Responsible Ministry and Executing Agency

Responsible Ministry	:	Ministry of Health
Executing Agency	:	Ministry of Health Department for organization of health care

4. Items requested by the Government

After discussions with the team, the items shown in ANNEX-I were finally requested by the Government.
However, the final components of the Project may differ from the above items, if it is judged necessary after further studies.

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

The Government will take following necessary measures:
-to secure enough budget necessary for proper running and maintenance of the equipment
-to ensure prompt unloading and custom clearance at ports of disembarkation in the Bosnia and Herzegovina and internal transportation therein of the products purchased under the Grants
-to secure the places and facilities for the installation and proper use of the equipment.
-to provide facilities for the distribution of electricity, water supply and drainage and other incidental facilities in and around sites.

The equipment be included in the project is;

- the equipment to be utilized for treatment of the common diseases including diagnostic treatment and prevention
- the equipment to be replaced with the existing equipment which is already deteriorating

While, the equipment be excluded from the Project is;

- the equipment required for tertiary level of medical services
- the equipment not required for health care services such as diagnosis treatment and prevention,
- the simple equipment/furniture available locally,
- the most advanced equipment to be utilized for research activities,
- the equipment with some difficulties on installation/infrastructure conditions,
- the expensive equipment less utilized because of small number of testing/less number of patients,
- the equipment hazardous to environmental control,
- the equipment only utilized with exclusive reagent kit available from the specific manufacturer, and
- the equipment with financial/marketing difficulties on the procurement of consumable and spare parts etc.

6. Japan's Grant Aid Programme

(1) The Government has understood the system of Japanese Grant Aid system explained by the team. (See ANNEX-2)

(2) The Government take necessary measures, described in ANNEX-3, for smooth implementation of the Project on condition that the Grant Aid Assistance by the Government of Japan is extended to the Project.

7. Schedule of the Study

(1) The team will proceed to further studies in Bosnia and Herzegovina until August 3,1997.

(2) JICA will prepare the draft report in English and dispatch a mission in order to explain its contents in November 1997.

(3) In case that the contents of the report is accepted in principle by the Government, JICA will complete the final report and send it to the Government by the end of January, 1998.

8. Monitoring of the Project

The Executing Agencies have responsibility for monitoring the progress of all phases of the Project such as allocation of funds, training and maintenance and operation of the Hospitals .

9. Others

Extracorporeal Shockwave Lithotripsy Device (ESLD) requested by Kosevo Clinical Center is placed in the category of tertiary level of medical services. The ESLD should be excluded under the above mentioned Criteria in Item 5., however, the government requested to the team to discuss about this request in Japan. The team took note to convey the request to concerned Agencies in Japan.

ANNEX

ANNEX-1 Equipment list requested

i.

	Depatment	Item	Remarks
1	X-ray	R/F X-ray Unit w/TV Monitor	
2	X-ray	General Diagnostic X-ray Unit	
3	X-ray	Ultrasound Apparatus	
4	Clinical Chemistry	Blood Cell Counter	
5	Clinical Chemistry	Automatic Biochemical Analyzer	
6	Clinical Chemistry	Coagulation Meter	
7	Clinical Chemistry	Hematocrit Centrifuge	
8	Clinical Chemistry	Centrifuge	
9	Clinical Chemistry	Instrument for Enzyme Immuno Assy for Cancer Marker	
10	Micro Biology	Autoclave	
11	Micro Biology	Binocular Microscope	
12	Micro Biology	Instrument for Enzyme Immuno Assy ELISA Method for AIDS	
13	Clinical Chemistry	Electrophoresis System w/Densitometer	
14	D.E.N.T	Electrosurgical Unit	
15	D.E.N.T	Tympanometer	
16	D.E.N.T	Aspirator	
17	D.E.N.T	Constant Angular Acceleration (Electric Rotary Apparatus)	
18	Blood Transfusion	Blood Bank Refrigerator	
19	Blood Transfusion	Binocular Microscope	
20	Blood Transfusion	Agitator for Blood	
21	Blood Transfusion	Centrifuge	
22	Blood Transfusion	Instrument for Enzyme Immuno Assay	
23	Neurology	ECG	
24	Neurology	Respirator (Old:Apparatus for oxygen Therapy)	
25	Neurology	Aspirator	
26	Urology	Resectoscope	
27	Urology	Cystoscope for Operation	
28	Urology	Ultrasound Diagnostic System	
29	Internal Medicine	Holter ECG w/Analyzer and Recorder	
30	Internal Medicine	Ultrasound System	
31	Endoscopy	Fiber Gastroscope set	
32	Endoscopy	Fiberscope Washing Machine w/Frolley	
33	Endoscopy	Fiber Sigmoidscope w/Light Source and Acc.	
34	Endoscopy	Fiber Colonoscope w/Light Source and Acc.	
35	Endoscopy	Ultrasound Diagnostic System for Abdomen.	
36	Pulmology	Automatic Film Processor	
37	Pulmology	Fiber Bronchoscope w/Light Source, TV Monitor and Acc.	
38	Pulmology	Aspirator for Bronchoscope	
39	Gy. and Ob.	Binocular Microscope	
40	Gy. and Ob.	Colposcope	
41	Gy. and Ob.	Ultrasound Diagnostic System	
42	Ophthalmology	Fundus Camera	
43	Ophthalmology	Static Perimeter	
44	Ophthalmology	Ultrasound Apparatus for Operating Cataract	
45	Ophthalmology	Ophthamology Operation Microscope	
46	Ophthalmology	Video Printer for Ultrasound Apparatus	
47	Pediatrics	Oxygen Gas Concentrator	
48	Pediatrics	ECG	
49	Pharmacy	Spectrophotometer, w/Thermo Controlled Cell	
50	Pharmacy	Flame Photometer	
51	Pharmacy	pH Meter	
52	Pharmacy	Osmometer	
53	Pharmacy	Conduction Meter Digital Type	

	Depatment	*Item*	*Remarks*
54	*Operation room*	Opeartion Table with traction	NEW
55	*Operation room*	Universal Operation Table	NEW
56	*Operation room*	Operation light, ceiling type	NEW
57	*Operation room*	Operation light, mobile type	NEW
58	*Operation room*	Electrical Aspirator	NEW
59	*Operation room*	Respirator	NEW
60	*Operation room*	Anesthesia machine	NEW
61	*Operation room*	Electrical Surgical unit	NEW
62	*C.S.S.D.*	Autoclave	NEW

	Depatment	Item	Remarks
1	Radiology	CT Scanner	
2	Radiology	Doppler Ultrasound Diagnostic System	
3	Laboratory	Multipolar Densitometer for Electrophoresis Proteins and Lipoproteins	
4	Laboratory	Amino-acid Analyzer	
5	Laboratory	Water Purification System for automatic analyzer	
6	Microbiology	Binocular Microscope	
7	Microbiology	Autoclave (50 l)	
8	Microbiology	Deep Freezer (-70C)	
9	Microbiology	Deep Freezer (-20C)	
10	Pathology	Digester	NEW
11	Pathology	Refrigerator	NEW
12	Pathology	Cooling instrument	NEW
13	Pathology	Thermostat based on 60 deg.C	NEW
14	Pathology	Thermostat based on 37 deg.C	NEW
15	Pathology	Analytical scale up to 500g	NEW
16	Pathology	pH-meter	NEW
17	Pathology	Paraffinator	NEW
18	Pathology	Instrument for the paraffin melting	NEW
19	Pathology	Cutting instrument for the frozen materials	NEW
20	Pathology	Cutting cryostat"ex. Temp.Biops."	NEW
21	Pathology	Gliding microtom for the cutting of the parafifn materials	NEW
22	Pathology	Rotational microtom for the cutting of semi-thin materials(lymph nodes work)	NEW
23	Pathology	Coloring instrument for slides	NEW
24	Pathology	Instrument for the slide mounting	NEW
25	Pathology	Single-use knives for the glass knives	NEW
26	Pathology	Instrument for the de-calcination of the bones	NEW
27	Pathology	multi-use microtomical cutting knives	NEW
28	Pathology	Binocular microscope	NEW
29	Pathology	Waterbath with thermoregulation	NEW
30	CCU	Temporary Pacemaker Complete+E64 Electrodes+E37	NEW
31	CCU	Color Doppler Ultrasound System	NEW
32	ICU	Anethesia Apparatus	
33	ICU	Ventilator	
34	ICU	Pulse Oximeter	
35	Gy & Ob	Defibrillator	NEW
36	Plastic Surgery	Surgical drill set	NEW
37	Plastic Surgery	Electric aspirator	NEW
38	Plastic Surgery	Pneumatic mattress	NEW
39	Plastic Surgery	Surgical magnifying glass	NEW
40	Opthalmology	Operating microscope	NEW
41	Opthalmology	Ultrasound system	NEW
42	Opthalmology	Computerized perimeter	NEW
43	Opthalmology	Fundus camera	NEW
44	Opthalmology	Adaptometer for the dark adaptation	NEW
45	Opthalmology	Argon laser	NEW
46	Opthalmology	Yag-laser	NEW
47	Opthalmology	Vitrectom	NEW
48	Opthalmology	Equipment for phacoemulsification	NEW
49	Opthalmology	Channel units for electroretinography and electrooculography	NEW
50	Opthalmology	Slit lamps	NEW
51	Opthalmology	Direct ophthalmoscope	NEW
52	Opthalmology	Computerized refractometer	NEW
53	Opthalmology	Visuscope	NEW

	Depatment	Item	Remarks
54	Opthalmology	Entiscope	NEW
55	Opthalmology	Sinoptophore	NEW
56	bdominal Surger	Laparoscopic surgery set	NEW
57	Gastroenterology	Endoscopic electrosurgical unit	NEW
58	Gastroenterology	Gastroscope set	NEW
59	Gastroenterology	Duodenoscope set	NEW
60	Gastroenterology	Video trolley	NEW
61	Gastroenterology	Liver biopsy gun	NEW
62	Gastroenterology	Dry oven	NEW

	Depatment	Item	Remarks
1	Radiology	R/F X-ray Unit w/TV Monitor	
2	Radiology	General Diagnostic X-ray Unit	
3	Radiology	Ultrasound Diagnostic Apparatus	
4	Laboratory	Binocular Microscope	
5	Laboratory	New Generation Power and Economy System Microscope	
6	Laboratory	Autoclave	
7	Laboratory	Blood Tank Refrigerator	
8	Laboratory	Blood Cell Counter	
9	Laboratory	Analyzer Glucose	
10	Laboratory	Analyzer Bilirubin	
11	Laboratory	Electrolyte Analyzer Parameter	
12	Laboratory	Glycated Hemoglobin Aic Analyzer	
13	Laboratory	Blood Gas Analyzer	
14	Laboratory	Table-top Centrifuge	
15	Laboratory	Electric Analytical Balance	
16	Laboratory	Spectrophotometer w/Thermo Controlled Cell	
17	Laboratory	Microscope	
18	Laboratory	Washing Machine for Lab-glassware	
19	Surgical	Pneumatic Tourniquet	
20	Surgical	Balfour Abdominal Retractor	
21	Surgical	Finocchieto Rib Spreader	
22	Surgical	Bailey Rib Contractor	
23	Surgical	Sigmoidscope Set	
24	Surgical	Resectoscope Stainless Steel	
25	Surgical	Light Supply for Resectoscope	
26	Surgical	Biopsy Forceps	
27	Surgical	Hemorrhoid Ligature Set	
28	Surgical	Rectal Speclum	
29	Surgical	Hojo Perineal Retractor	
30	Surgical	Operating Instrument set	
31	Surgical	Gastrectomy Instruments Set	
32	Surgical	Cholecystomy Instruments Set	
33	Surgical	Thyroidomy Instruments Set	
34	Surgical	Emergency Chest Operating Instruments Set	
35	Surgical	Venotomy Instruments Set	
36	Surgical	Retractor for Heart	
37	Surgical	Peripheral Forcep	
38	Surgical	Arterial Forcep	
39	Surgical	Satinskey Arterial Forcep	
40	Surgical	Arterial Forcep Heavy Curved	
41	Surgical	Arterial Forcep Curved	
42	Surgical	Satinskey Aorta Clamp	
43	Surgical	Satinskey Vascular Clamp	
44	Surgical	Aorta Clamp curved	
45	Surgical	Bottalo Duct Forceps straight	
46	Surgical	Statinskey Peripheral Vascular Clamp	
47	Surgical	Peripheral Vascular Clamp	
48	Surgical	Statinskey Peripheral Vascular Clamp	
49	Surgical	Peripheral Vascular Clamp	
50	Surgical	Satinskey Vascular Clamp	
51	Surgical	Infant Aortha Clamp	
52	Surgical	Sugita Aneurysm Clips Set	
53	Surgical	Instrument Set for Carotid Arterial Endarterectomy	

	Depatment	Item	Remarks
54	Surgical	Solid State Bipolar Coagulator Unit	
55	Surgical	Patient Monitor	
56	Surgical	Pulse Oximeter	
57	Surgical	Ultrasound System Multi Function	
58	Anethesia	I.V.Hanger Stand	
59	Surgical	Laundry Cart	
60	Surgical	Sphygnomanometer Mercurial	
61	Surgical	Operating Light Halogen Bulb	
62	Surgical	Micro-Neuro Surgery Operation Table	
63	Surgical	Electrosurgical Unit	
64	I.C.U.and Anethesia	Anaesthesia Unit. w/Ventilator	
65	I.C.U.and Anethesia	Endotracheal Set (Anaesthesia reanimation)	
66	I.C.U.and Anethesia	Intensive Care Bed w/Mattress	
67	I.C.U.and Anethesia	ECG	
68	I.C.U.and Anethesia	Central Monitoring System	
69	I.C.U.and Anethesia	Laryngoscope with fiberoptic illumination	NEW
70	I.C.U.and Anethesia	Fibre Broncoscope	NEW
71	I.C.U.and Anethesia	Defibrillator	NEW
72	I.C.U.and Anethesia	Pulse oximeter	NEW
73	I.C.U.and Anethesia	Electirc Suction unit	NEW
74	I.C.U.and Anethesia	Ventilator	NEW
75	I.C.U.and Anethesia	Endotracheal Set	NEW
76	I.C.U.and Anethesia	Blood gas apparatus	NEW
77	Pediatrics	EEG	
78	Pediatrics	Blood Gas Analyzer	
79	Pediatrics	Microspirometer	
80	Pediatrics	ECG, w/Analyzer	
81	Pediatrics	ECG, Portable Type	
82	Pediatrics	Infant Incubator	
83	Pediatrics	Infant Incubator (Servo Control)	
84	Pediatrics	Infant Transport Incubator	
85	Pediatrics	Infant Warmer	
86	Pediatrics	Syringe Infusion Pump	
87	Pediatrics	Infusion Pump	
88	Pediatrics	Bilirubin Analyzer	
89	Pediatrics	Ultrasonic Nebulizer	
90	Pediatrics	Phototherapy Unit	
91	Pediatrics	Ultrasound Scanner Portable Type	
92	Pediatrics	Bedside Monitor	
93	Pediatrics	Ventilator for Neonates Infant and Adults	
94	Blood Transfusion	Table-top Centrifuge	
95	Blood Transfusion	Water Bath testtube	
96	Blood Transfusion	Blood Bank Refrigerator	
97	Blood Transfusion	Medical Refrigerator	
98	Blood Transfusion	Ultra-Low Temperature Freezer	
99	Blood Transfusion	Incubator	
100	Blood Transfusion	Drying Oven	
101	Blood Transfusion	Distilling Apparatus	
102	Blood Transfusion	Autoclave	
103	Blood Transfusion	Blood Cell Counter	
104	Blood Transfusion	Electronic Analytical Balance	
105	Blood Transfusion	Micro pipette	
106	Endoscopy	Fibre Gastroscope w/Light Source + Camera + Monitor	

	Depatment	*Item*	*Remarks*
107	*Endoscopy*	Fibre Colonoscope w/Light Source + Camera + Monitor	
108	*Endoscopy*	Cystoscope	
109	*Endoscopy*	Fibre Bronchoscope	
110	*Endoscopy*	Arthroscope	
111	*Endoscopy*	Colposcope	
112	*Endoscopy*	Cleaner for Endoscopy Instruments	
113	*Internal Medicine*	Automatic weighing scale	NEW
114	*Internal Medicine*	Screen	NEW
115	*Internal Medicine*	Sphygmomanometer aneroid	NEW
116	*Internal Medicine*	Sphygmomanometer mercurial	NEW
117	*Internal Medicine*	Jamshidi's marow biospy needle	NEW
118	*Internal Medicine*	ECG Analysis System	NEW
119	*Internal Medicine*	Bedside Monitor	NEW
120	*Internal Medicine*	Pacient monitor system	NEW
121	*Internal Medicine*	Ultrasound system	NEW
122	*Internal Medicine*	Infusion Pump	NEW
123	*Internal Medicine*	Dressing carriage	NEW
124	*Internal Medicine*	Hair shampooning basin trolley	NEW
125	*Internal Medicine*	Instrument carriage	NEW
126	*Internal Medicine*	Endotracheal Set	NEW
127	*Internal Medicine*	Measuring rad	NEW
128	*Internal Medicine*	Drying Oven	NEW
129	*Internal Medicine*	X-ray film iluminator	NEW
130	*Internal Medicine*	Electric suction unit	NEW
131	*Internal Medicine*	Stress test system	NEW
132	*Internal Medicine*	ECG monitor	NEW
133	*Internal Medicine*	Central monitoring system	NEW
134	*Internal Medicine*	Fibre Duodenoscope	NEW
135	*Internal Medicine*	Fibre Gastroscope	NEW
136	*Internal Medicine*	Fibre Colonoscope	NEW
137	*Internal Medicine*	Holter ECG	NEW
138	*C.S.S.D.*	Sterilization Unit for Central	

	Depatment	Item	Remarks
1	Internal Medicine	Defibrillator	
2	Internal Medicine	Diagnostic Ultrasound System	
3	Internal Medicine	Infusion Pump	NEW
4	Internal Medicine	Central Monitoring System	
5	Gy. and Ob.	Fetal Monitor	
6	ENT	Electric surgical unit	
7	Gy. and Ob.	Surgical Operation Table	NEW
8	ENT	Surgical Operation Table for ENT	
9	ENT	Surgical Aspirator	
10	Operation room	Surgical Lamp Floor Type	
11	Surgery	Gastrectomy Instruments Set	
12	Surgery	Cholecytotomy Instruments Set	
13	Surgery	Nephrectomy Instruments Set	
14	Surgery	Prostatomy Instruments Set	
15	Surgery	Thyroidotomy Instruments Set	
16	Surgery	Emergency Tracheotomy Instruments Set	
17	Surgery	Emergency Chest Operating Instruments Set	
18	Surgery	Appendectomy Instruments Set	
19	Surgery	Venotomy Instruments Set	
20	Surgery	Instruments Set for Carotid Arterial Endarterectomy	
21	Surgery	Operating Instruments Set	
22	Admition office	Small Operation Instruments Set	
23	Surgery	Surgical Instruments Set, for Infant	
24	Surgery	Neurosurgery Instrument Set	
25	Surgery	Anterior Spinal Instrument Set	
26	Surgery	Hand Surgery Operating Set	
27	Surgery	Standard Plastic Surgery Set	
28	Gy. and Ob.	Infant Incubator	
29	Operating Room	Operating Table	
30	Gy. and Ob.	Aspirator	NEW
31	Operating Room	Aspirator	
32	Gy. and Ob.	Electrosurgical Unit	NEW
33	Operating Room	Electrosurgical Unit	
34	Operating Room	High Pressure Steam Sterilizer	
35	ICU	Reanination Set	
36	Gy. and Ob.	Patient Monitor	NEW
37	ENT	Patient Monitor	NEW
38	Operation Room	Patient Monitor	
39	Gy. and Ob.	Infusion Pump	NEW
40	ICU	Infusion Pump	
41	Operation room	Defibrillator	NEW
42	ICU	Central Monitoring system	
43	ICU	Defibrillator	
44	ICU	Ultrasound System	
45	Endoscopy	Fibre Gastroscope w/Light source	
46	Ulorogy	Cystoscope w/Light source	NEW
47	Endoscopy	Fibre Bronchoscope w/Light source	
48	Endoscopy	Arthroscope w/Light source	
49	Endoscopy	Cleaner for Endoscopy Instruments	
50	Clinical Laboratory	Blood Cell Counter	
51	Clinical Laboratory	Automatic Chemistry Analyzer	
52	Clinical Laboratory	Spectrophotometer w/Thermo-controlled Cell for Enzyme	
53	Clinical Laboratory	Refrigerated Centrifuge	

	Depatment	Item	Remarks
54	Clinical Laboratory	Blood Gas Analyzer	
55	Clinical Laboratory	Microscope	
56	Clinical Laboratory	Laboratory Balance	
57	Clinical Laboratory	Electrophoresis System w/Densitometer	
58	Clinical Laboratory	Washing Machine - lab.Glassware	
59	Endoscopy	Sterilization cabinet for endoscope	NEW

ANNEX-2 Japan's Grant Aid

Japan's Grant Aid

1. Japan's Grant Aid System

(1) What is Grant Aid ?

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

(2) Exchange of Notes (E/N)

Japan's Grant Aid is extended in accordance with the Notes exchanged by the two Governments concerned, in which the objectives of the project, period of execution, conditions and amount of the Grant Aid, etc., are confirmed.

(3) "The period of the Grant Aid" means the one fiscal year which the Cabinet approves the Project for. Within the fiscal year, all procedures such as exchanging of the Notes, concluding contracts with (a) consultant firm(s) and (a) contractor(s) and final payment to them must be completed.
However in case of delays in delivery, installation or construction due to unforeseen factors such as whether, the period of the Grant Aid can be further extended for a maximum of one fiscal year at most by mutual agreement between the two Governments.

(4) Under the Grant Aid, in principle, Japanese products and services including transport or those of the recipient country are to be purchased.
When the two Governments deem it necessary, the Grant Aid may be used for the purchase of the products or services of a third country.
However the prime contractors, namely, consulting constructing and procurement firms, are limited to "Japanese nationals". (The term "Japanese nationals" means persons of Japanese nationality or Japanese corporations controlled by persons of Japanese nationality.)

(5) Necessity of the "Verification".

The Government of the recipient country or its designated authority will conclude contracts denominated in Japanese yen with Japanese nationals.

Those contracts shall be verified by the Government of Japan. This "Verification" is deemed necessary to secure accountability to Japanese taxpayers.

(6) Undertaking required of the Government of the Recipient Country.

In the implementation of the Grant Aid project, the recipient country is required to undertake such necessary measures as the following:

1) To secure land necessary for the sites of the Project and to clear, level and reclaim the land prior to commencement of the construction.

2) To provide facilities for the distribution of electricity, water supply and drainage and other incidental facilities in and around the sites.

3) To secure buildings prior to the procurement in case the installation of the equipment.

4) To ensure all the expenses and prompt execution for unloading, customs clearance at the port of disembarkation and internal transportation of the products purchased under the Grant Aid.

5) To exempt Japanese nationals from customs duties, internal taxes and other fiscal levies which will be imposed in the recipient country 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 the products and services under the Verified Contracts, such facilities as may be necessary for their entry into the recipient country and stay therein for the performance of their work.

7) "Proper Use"

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

8) "Re-Export"

The products purchased under the Grant Aid should not be re-exported from the recipient country.

9) Banking Arrangements (B/A)

a) The Government of the recipient country or its designated authority should open an account in the name of Government of the recipient country in an authorized foreign exchange bank in Japan (hereinafter referred to as "the Bank"). The Government of Japan will execute the Grant Aid by making payments in Japanese yen to cover the obligations incurred by the Government of the recipient country or its designated authority under the Verified Contracts.

b) The payments will be made when payment requests are presented by the Bank to the Government of Japan under an authorization to pay issued by the Government of the recipient country or its designated authority.

2. Grant Aid Procedures

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

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

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

Secondly, JICA conducts the Study (Basic Design Study), using (a) Japanese consulting firm(s).

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

Fourthly, the project, once approved by the Cabinet, becomes official with the Exchange of Notes signed by the Governments of Japan and the recipient country.
Finally, for the implementation of the project, JICA assists the recipient country in such matters as preparing tenders, contracts and so on.