

**BASIC DESIGN STUDY REPORT  
ON  
THE PROJECT FOR IMPROVEMENT OF  
MEDICAL EQUIPMENT OF  
DA NANG HOSPITAL  
IN  
THE SOCIALIST REPUBLIC OF VIET NAM**

**JULY, 2004**

**JAPAN INTERNATIONAL COOPERATION AGENCY  
THE CONSORTIUM OF  
FUJITA PLANNING CO., LTD. AND  
MEDICAL ENGINEERING & PLANNING CO., LTD.**

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## PREFACE

In response to a request from the Government of the Socialist Republic of Viet Nam, the Government of Japan decided to conduct a basic design study on the Project for Improvement of Medical Equipment for Da Nang Hospital and entrusted the study to the Japan International Cooperation Agency (JICA).

JICA sent to Viet Nam a study team from February 15 to March 11, 2004.

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

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

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

July, 2004

Yasuo Matsui

Vice-President

Japan International Cooperation Agency

July, 2004

### **Letter of Transmittal**

We are pleased to submit to you the basic design study report on the Project for Improvement of Medical Equipment for Da Nang Hospital in the Socialist Republic of Viet Nam.

This study was conducted by the joint venture between Fujita Planning Co., Ltd. and Medical Engineering & Planning Co., Ltd., under a contract to JICA, during the period from February, 2004 to July, 2004. In conducting the study, we have examined the feasibility and rationale of the Project with due consideration to the present situation of Viet Nam 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,

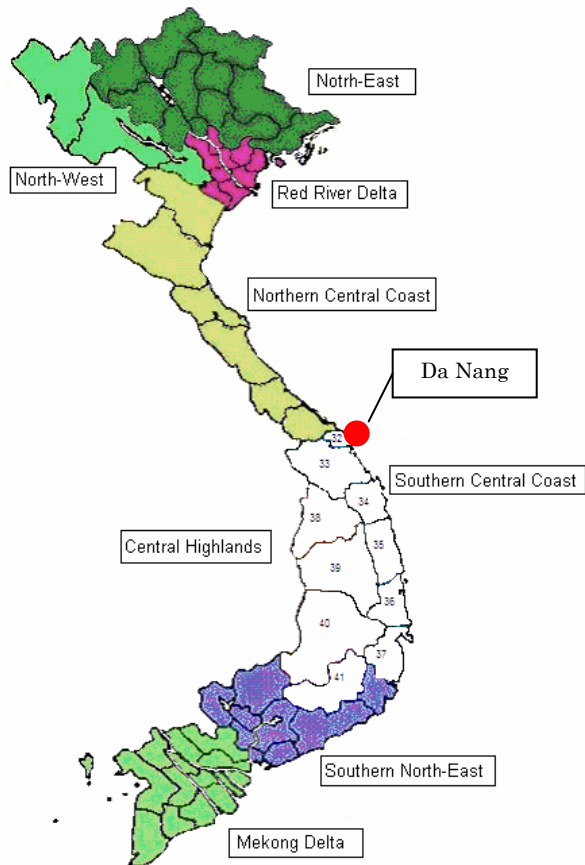
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Basic design study team on  
The Project for Improvement of Medical  
Equipment for Da Nang Hospital  
In the Socialist Republic of Viet Nam  
The consortium of  
Fujita Planning Co., Ltd. and  
Medical Engineering & Planning Co., Ltd.

## Map of Veit Nam (Classification Area of Health Administration)



Covered Regional of Da Nang Hospital

Region	No.	Province, City
Southern Central Coast	32	TP. Da nang
	33	Quang nam
	34	Quang ngai
	35	Binh dinh
	36	Phu yen
	37	Khanh hoa
	Central Highlands	38
39		Gia lai
40		Dac lac
41		Lam dong



Map of Da Nang City



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## Abbreviations

A/P	Authorization to Pay
AVR	Automatic Voltage Regulation
B/A	Banking Arrangement
BHN	Basic Human Needs
CHC	Commune Health Center
CT	X-ray Computed Tomography Scanner
DOHA	Direction Office of Healthcare Activity
EMW	East Meets West Foundation
E/N	Exchange of Notes
FIDR	Foundation for International Development/Relief
GDP	Gross Domestic Product
ICU	Intensive Care Unit
MRI	Magnetic Resonance Imaging System
NGO	Non-Governmental Organization
UNFPA	United Nations Population Fund
UPS	Uninterruptible Power System
VND	Viet Nam Dong

## Summary



## Summary

The central region in the Socialist Republic of Viet Nam (hereinafter referred to as “Viet Nam”) is lagging behind the northern and southern regions in economic development and has a higher percentage of people living in poverty. In the mountainous areas and other rural regions of this part of the country, poor access to transportation and low agricultural productivity are also affecting health levels. Mortality rates for pregnant and parturient women, the aggregate rate of special births, the rate of low-birthweight children aged five and under, and other fundamental indices are worse than the national averages. In many of the prefectures, the number of villages with physicians falls below the national average. Common medical problems include malnutrition, bronchial disease induced by the inhalation of smokes from heat cooking, malaria, and so on.

The Ministry of Health is working hard to secure investment funds for the field of health and medical care, strengthen the operation and management systems, enhance the capabilities of medical facilities, and train the necessary human resources. Unfortunately, the facilities and equipment at many of the medical care installations that actually receive patients have been deteriorating from long years of use. This makes it very difficult to provide patients with adequate medical care services.

With respect to “Health Care and Protection Strategy for the period of 2001 to 2010 years” and “The Master Plan for the Development of the Hospital Network in Viet Nam until 2005 and 2010,” Viet Nam’s Ministry of Health has divided the country into eight regions and designated three of them in the central south—Da Nang City, Quy Nhon City, and Nha Trang City—as regions requiring additional investment to strengthen existing regional medical centers as core medical facilities.

Refurbishment of the base hospitals in the southern and northern parts of the country is progressing well. Due to the long, narrow shape of Viet Nam, however, the available medical services at base hospitals in the central part of the country are separated by wide distances, and the level of healthcare is lagging behind those in the north and south. Hue Central Hospital in the northern half of the central region and Da Nang Hospital in the southern half both serve as final referral hospitals. However, much of the equipment and many of the supplies in Da Nang hospital have deteriorated over the past 20 years or more of use, and this hinders the efforts of the hospital to provide appropriate medical services. Therefore, improvement in these medical

services through refurbishment is urgently needed. In a step to ameliorate these problems, the Government of Viet Nam requested Grand Aid from Japan for the improvement of the medical equipment of Da Nang Hospital, the only major referral hospital in the 10 provinces of the central southern region of Viet Nam and their population of approximately 11 million. In addition, in the Hue Central Hospital, a project is now underway to construct facilities and improve equipment with the cooperation of our country.

In line with the foregoing requests, as well as the results of the project formulation study carried out by the Japan International Cooperation Agency (JICA) from July to August, 2002, the Government of Japan resolved to implement a preparatory study and had JICA dispatch a preparatory study team to Viet Nam in January 2003. After confirming the validity to implementation as Japan's Grand Aid, the JICA basic design study team was dispatched to Viet Nam from February 15 to March 11, 2004. The team held discussions with the officials concerned from the Government of Viet Nam and conducted a field study in the study area. Further studies were conducted after the team returned to Japan. Later, from April 13 to April 22, 2004, JICA sent a mission to Viet Nam to explain the draft basic design with the Government of Viet Nam and discuss the details.

By replacing principal equipment urgently needed and/or lacking in quantity for treatment, this Project seeks to recover and improve medical services, which now are in a state of decline. The project equipment plan has been formulated according to the following policies.

#### Criteria for the Selection of Equipment by the Study Team

- (1) Core equipment that has been in use for 8 years or longer and is frequently out of service is to be upgraded.
- (2) Equipment lacking in quantity for the current level of medical treatment will be covered in this project.
- (3) New equipment that the hospital personnel are capable of handling technically will be selected.
- (4) The purpose, in selecting equipment, will be to recover the standard of the health and medical services that the hospital should essentially provide.
- (5) Equipment considered necessary within the respective wards of the facilities will be selected.

Table S-1 below lists the equipment items selected for each section based on the above policies:

**Table S-1 Outline of the Planned Equipment**

Department	Name of Equipment
Imaging Diagnosis	X-ray Fluoroscopic Machine, X-ray General Machine, Ultrasound (Color Doppler), Ultrasound
Operation	Anesthesia Machine with Ventilator, Operation Table, Electrosurgical Unit, Operation Lamp, Patient Monitor, Electro Suction Pump, Surgical Instrument Set, Broncho Fiberscope, Syringe Pump, Steam Sterilizer
ICU	X-ray Mobile Machine, Defibrillator, Patient Monitor, Ventilator, Electrocardiograph, Electric Suction Pump, Syringe Pump
Emergency	Defibrillator, Operation Lamp, Patient Monitor, Ventilator, Electrocardiograph, Electro Suction Pump
Ob./Gy.	Fetal Actocardiograph, Ultrasound
Neonate	Infant Incubator, Phototherapy Unit, Bilirubin Analyzer
Examination	Gastrointestinal Fiberscope, Colono Fiberscope, ERCP Endoscopy, Stress Test System, Microscope, Steam Sterilizer (Vertical type), Refrigerator for Blood Bank
Sterilization	Steam Sterilizer, Instrument Washing Machine

This Project, if approved, would start with the exchange of notes (E/N) between the government of Viet Nam and Japan, followed by the conclusion of contracts with equipment suppliers. The entire process would require an estimated eleven months for completion. About four months would be needed for the detailed design and tendering procedures. Procurement, transportation, and installation of equipment would take an estimated seven months following the approval of procurement by the Japanese Government.

The total cost of this Project is estimated at 327 million yen.

Implementation of this Project is expected to bring the following effects and benefits:

(1) Direct Beneficial Effects

1) Improvement of diagnosis / medical treatment accuracy

- The recovery of the proper functions of the target facility will enable the hospital to serve as a top referral facility providing enriched technical guidance to other medical facilities and appropriate medical care for referred patients.
- The supply of equipment will improve the diagnosis and medical treatment in the hospital.

2) Condition of Medical Equipment

- A 15% increase in the number of total patients diagnosed by X-ray (actual figure in 2003: 71,549) in the 2nd year after the handover.
- A 15% increase in the number of total patients diagnosed by ultrasound (actual figure in 2003: 21,702) in the 2nd year after the handover.
- A 15% increase in the number of total patients diagnosed by endoscopy (actual figure in 2003: 4,800) in the 2nd year after the handover.

3) Clinical activities

A 35% increase in the number of annual outpatients (actual figure in 2003: 179,357) in the 2nd year after the handover.

(2) Indirect Beneficial Effects

- Newly prepared medical equipment enables effective medical service; improved treatment accuracy reduces the physical and mental burdens of inpatients and outpatients.
- Improvement of equipment now frequently out of service secures the safety of diagnosis and medical treatment.

Incidentally, project participants should pay attention to the following points in order to conduct smooth and effective operation after the installation of equipment to the hospital under this Project. The Vietnamese side will also have to undertake the work appropriately, as well.

(1) Operation and Maintenance of the Equipment

Daily inspection by the operator is essential for the effective utilization of the equipment to be procured. For precision instruments that need servicing by specialists or equipment that requires regular replenishment of consumable items, the facility should keep a good relationship with the local agent of the equipment manufacturer to ensure proper

maintenance and an uninterrupted supply of expendables. It is important for the facility to designate personnel in charge of controlling the documentation related to the equipment, such as maintenance manuals, operation manuals, circuit diagrams, and the inventory list, in order to ensure efficient coordination with outside service providers and effective use of the equipment.

(2) Sufficient Appropriations

Although the maintenance cost of the equipment to be procured has been confirmed to be within the affordable range, it is desirable to create a contingency fund at the facility so that unexpected breakage, etc., can be coped with swiftly without suspending the medical activities.

It will be necessary to reserve funds for the renewal of the equipment in the future through means not covered in the scope of this Project. Projections concerning the service life and aging of equipment should be made for this purpose.

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## Chapter 1 Background of the Project

## Chapter 1 Background of the Project

### 1-1 Background of the Request

Until now, Japan's support to Viet Nam has included Japanese Grant Aid to refurbish Cho Rai Hospital in the south of Viet Nam and technical cooperation projects seeking to improve the medical treatment standards and hospital management at that facility. In the north, Japan has extended Grant Aid to expand the facilities at Back Mai Hospital, a major hospital in Hanoi, and technical cooperation projects to strengthen the clinical functions at that facility and improve the regional healthcare services covering the northern region.

Refurbishment of the major hospitals in the southern and northern parts of the country is progressing well. On the other hand, the central regions of Viet Nam are geographically remote from the major hospitals in the north and south due to the long and narrow shape of the country. The level of healthcare in those regions lags considerably behind those in the north and south. Hue Central Hospital in the northern half of the central region and Da Nang Hospital in the southern half both serve as final referral hospitals. However, much of the equipment in these hospitals has been in use for 20 years or more, and the heavy wear and poor performance of this equipment is hindering the provision of appropriate medical services to patients. The improvement in medical services through refurbishment is a pressing need. On this basis, the Government of Viet Nam requested Japanese Grant Aid for the improvement of medical equipment and the construction of a facility for the hospitals of the central region.

In July and August of 2002, a Project Formulation Study was implemented to formulate a technical cooperation project targeting these hospitals. At its conclusion, this study proposed a cooperation plan combining Japan's Grant Aid and technical cooperation for the hospitals in the central region. The basic scheme paralleled those implemented earlier at Cho Rai Hospital and Back Mai Hospital.

With respect to technical cooperation, long-term experts are being dispatched to provide project formation support through "central health and medical cooperation" from 2003 to 2005, and studies on future methods of cooperation are still underway.

In parallel with various investigations to clarify the current situation at the pertinent hospitals, a study was performed in January 2003 to investigate the relevance of possible cooperation



involving the refurbishment of major hospitals in the central region in the form of Japanese Grant Aid. A preliminary study was also conducted to clarify the range and content of cooperation. Based on this latter study, the Study Team judged that it would be appropriate to strengthen the two hospitals in the pertinent areas in order to improve healthcare in the central region. With respect to the Hue Central Hospital, a Basic Design Study was completed in June 2003. In the case of the Da Nang Hospital, it had been decided that an American NGO would build the facilities described in the initial request. As such, the changes in the contents of the request for this facility were confirmed.

### **1-2 Summary of the Request**

- Date of Request: January, 2003

- Description of Request: Improvement of medical equipment of the Da Nang Hospital

A DSA system with Monoplane, An X-ray TV Machine, Ultrasound machines, Ventilators, Patient Monitors, Operation Tables, Surgical Instrument Sets, Steam Sterilizers, etc. Total 51 items

## **Chapter 2 Contents of the Project**

## Chapter 2 Contents of the Project

### 2-1 Basic Contents of the Project

Under the “Healthcare and Protection Strategy for the period 2001 to 2010 years” and “The Master Plan for the Development of the Hospital Network in Viet Nam until 2005 and 2010,” Viet Nam’s Ministry of Health has divided Viet Nam into eight regions and designated three in the central southern part of the country—Da Nang City, Quy Nhon City, and Nha Trang City—as regions requiring additional investment to strengthen the existing regional medical centers serving as core medical facilities.

The Hue Central Hospital and Da Nang Hospital serve as the two top core hospitals in the central region of the country. However, these facilities are separated geographically by the Hai Van Pass, and this completely divides both the communities and medical treatment services into north and south. Accordingly, the Da Nang Hospital is functioning as the top referral hospital in the 10 provinces of the central southern region and their population of approximately 11 million.

However, much of the equipment in Da Nang Hospital has deteriorated during the more than 20 years in use, hindering the provision of emergency and basic healthcare services. For this reason, the Government of Viet Nam has requested Grand Aid from Japan for the purpose of providing equipment short in supply and updating faulty and outdated equipment at the Da Nang Hospital. With the provision of new and updated equipment, the Vietnamese government hopes to improve the health and medical care services at this hospital and in the central southern region of the country.

This Project, if implemented, will also “improve the quality of healthcare services at all levels from the first to the third referrals” called for under the National Development Plan; and “the realization of access to high-quality medical services” presented in the plan for health development.

The Da Nang Hospital serving the central southern region of Viet Nam is regarded as a core hospital in the region. In terms of importance, this facility ranks as high as the Bach Mai Hospital in the northern region, Hue Central Hospital in the north central region, and Cho Ray Hospital in the southern region.

The purpose of this Project is to improve and revitalize the target facility and establish a system to provide more effective care and services by providing basic medical equipment. The table below outlines the Project contents that have been confirmed by the authorities concerned, including those on the Viet Nam side.

**Table 2-1 An Overview of the Project**

Overview of the Project
<i>[Overall Objective]</i> To improve the medical services in the central southern region
<i>[Project Objective]</i> To enhance the medical services of Da Nang Hospital.
<i>[Outcome of the Project]</i> The Target hospital will be provided with replacement equipment.
<i>[Input]</i> Japanese side: Procure medical equipment Viet Nam side: Strengthen the Operation/maintenance cost Vi
<i>[Direct Beneficial Populations]</i> About 720,000 in Da Nang City
<i>[Indirect Beneficial Populations]</i> About 11 million in central southern regions

**Table 2-2 Verifiable Indicators for the Project**

Indices	<u>Baseline</u> Actual of 2003	Percentage Increase in the Second Year after the Handover
Main medical equipment (Number of Patients)		
• X-ray Machine	71,549	15%
• Ultrasound	21,702	15%
• Endoscopy	4,800	15%

## **2-2 Basic Design of the Requested Japanese Assistance**

### **2-2-1 Design Policy**

Prior to formulating the basic design of the Project, the following policies were set up respecting the surrounding and related environment.

#### **(1) Basic Policy**

Basic guidelines for the proposed Japanese Assistance Project are as follows:

- The Project should be under the national development plan of the Viet Nam Government for the health/medical sector.
- The Project should be manageable within the framework of the Grand Aid system of Japan.
- The Project should not duplicate the activities of other donor countries and organizations.
- The Medical equipment to be procured by this Project should be operated and maintained with the resources of the Viet Nam side.

#### **(2) Policy on Facility Infrastructure**

Automatic voltage regulators (AVRs) shall be supplied for equipment easily disrupted by power surges and other fluctuations in power supply. Uninterrupted power supply (UPS) shall be supplied for equipment affected by blackouts, considering that, though transiently, power failure has occurred. Battery-powered equipment will not be covered under this Project.

#### **(3) Policy on Local Procurement, Local Representatives, and Third-Country Products**

There is production of equipment such as cots and cupboards in Viet Nam, but no production of medical equipment. Thus, the equipment will be procured in Japan, the U.S., or European Countries. For major equipment, priority will be given to manufacturers with local agents in Viet Nam for after-sales service.

#### **(4) Policy on the Maintenance/Management Capability of the Implementing Agency**

In order to achieve the goals of the Project, it will necessary to have a system that enables the equipment procured by the Project to be utilized effectively. Due to differences in the functions of equipment, some equipment is used daily for diagnosis and treatment while others is used only in emergencies. However, all types of equipment must be maintained in properly functioning order at all the time regardless of the frequency of use.

At the same time, establishing routines to reinforce daily preventive maintenance, for

example, the cleaning of the equipment before and after its use, will be a very effective approach. We suggest the following methods for the maintenance of the equipment.

**1) Maintenance work by the hospital**

Standard maintenance work required for the equipment procured by the Project should be provided by the hospital in accordance with the procedures described in the operation and maintenance manuals that come with the equipment.

**2) Repair work by the local representatives of manufacturers**

Ideally, the Project should select equipment that can be easily maintained on a daily basis at the hospital. However, more and more medical devices today are electronically controlled and cannot be easily repaired when broken. Without engineers familiar with these devices, it can be extremely difficult to identify the faulty parts within the complicated mechanisms. Examples of such items include Patient Monitor, Anesthesia Machine, Ventilator, Ultrasound, and X-ray Diagnostic Machine. These items need to be serviced by local agents of the equipment manufacturers.

**3) Facility maintenance system and development of a management system**

A checkup before and after each use is essential for keeping the performance of any type of equipment at the optimum level. Suchlike daily maintenance should be executed by medical staff who actually use the equipment. Therefore, it will be necessary to provide the medical staff with training programs enabling them to perform daily maintenance procedures for the equipment. Ideally, equipment suppliers should provide daily maintenance training in addition to ordinary operational training when the equipment is installed. In reality, however, the training sessions provided by suppliers are very basic with limited contents. Thus, in this Project, the consultant will consider including additional instructions in the Tender Documents to supplement the operational training provided by the suppliers and help hospital staff understand the importance of maintenance. The consultant will also be establishing a system of the type mentioned above to enable the hospital staff to perform daily maintenance procedures and repair work.

**(5) Policy on Determining the Scope and Grades of Medical Equipment**

The scope and the grades of the equipment to be procured under this Project shall be determined according to the following guidelines:

- Core equipment that has been in use for 8 years or longer and is frequently out of service is to be upgraded.
- Equipment currently too short in supply to satisfy the required level of medical treatment will be covered.
- New equipment that the hospital personnel are capable of handling technically will be selected.
- The purpose, in selecting equipment, will be to recover the standard of the health and medical services that the hospital should essentially provide.
- Equipment considered necessary within the respective wards of the facilities will be selected.

## **2-2-2 Basic Plan**

### **(1) Overall Plan**

The basic guidelines for the procurement of medical equipment are to supply the basic items indispensable to provide healthcare services at the hospital and replace outdated and non-functioning equipment.

### **(2) Equipment Plan**

The equipment plan summarizes the criteria used to determine the project policy on the scope and grades of medical equipment mentioned in the above paragraph.

The tender stipulates the presence of local agents to supply spare parts and consumables. For this reason, no spare parts are to be provided with the equipment. Only consumables necessary for 2 weeks of trial operation will be supplied.

#### **1) Outpatient Examination/Treatment**

The contents of the equipment include the general and basic equipment for outpatient examination and treatment. Our study found that many of the current items were originally acquired with donor support from foreign countries some 15 to 20 years ago, with no replacements or supplementation since. As a result, this equipment is worn, broken, or in short supply. By taking into account the types of medical activities, medical personnel, and state of the existing equipment of the hospital, the plan will call for measures to replace, add, or procure the equipment as needed.

This Project will procure an X-ray Diagnostic Machine, Ultrasound machines, Endoscopic Apparatus, Electrocardiographs, and a Stress test system.

#### **2) Operation**

This equipment is indispensable for operation, much of which must be renewed due to wear. Procurement of equipment will be planned in consideration of the activities, the personnel, and the present state of the existing equipment of the hospital.

This Project will provide Operation tables, Operation lamps, an Electro Surgical Unit, Electric Suction Pumps, Syringe Pumps, and Surgical Instrument sets.

#### **3) ICU**

The equipment will include general and basic equipment for the Intensive Care Unit. The Project will provide Ventilators, Patient Monitors, Electric Suction Pumps, Defibrillators,



X-ray Mobile Machines, Electrocardiographs, and Syringe pumps.

**4) Mother and Child**

Fundamental equipment will be renewed for the obstetrics, gynecology, and baby wards. Worn and broken equipment will be replaced. The Project will provide a Fetal Actocardiograph, Ultrasound devices, Infant Incubators, a Phototherapy unit, and a Bilirubin Analyzer.

**5) Hematology and Blood bank**

The Project seeks to improve the examination function by renewing the worn equipment that frequently breaks down.

This Project will procure Microscopes and a Refrigerator for the Blood Bank.

**6) Sterilization**

This Project will procure a Steam Sterilizer and a Washing Machine for Plastic and Rubber Instruments. The Project will also replace a 20-year old Steam Sterilizer with a new one for the operation room.

Table 2-3 is the final list of the equipment to be procured for the Project. Table 2-4 lists the specifications and purposes of the main equipment to be procured for the Project.

**Table 2-3 List of Medical Equipment**

Code No.	Equipment Name	Department Name	Room Name	Rep./Add./New	Qty
1	X-ray Fluoroscopic Machine	Imaging Diagnosis	Fluoroscopy	Rep.	1
2	X-ray General Machine	Imaging Diagnosis	X-ray General	Rep.	1
3	X-ray Mobile Machine	ICU	ICU-1	New	1
4	Ultrasound, Color Doppler	Imaging Diagnosis	Ultrasound examination	Rep.	1
5	Ultrasound A	Imaging Diagnosis	Ultrasound examination	Rep.	1
6	Ultrasound B	OB/GY Examination	OB/GY Examination	Rep.	1
7	Anesthesia Machine with Ventilator	Operation	Operation	Rep.	7
8	Operation Table, Multipurpose	Operation	Operation	Rep.	9
9	Electro Surgical Unit	Operation	Operation	Rep.	5
10	Defibrillator	Emergency	Treatment	Rep.	1
	Defibrillator	ICU	ICU-1	Rep.	1
11	Operation Lamp, Ceiling and Combination type	Operation	Operation	Rep.	8
12	Operation Lamp, Stand type	Emergency	Operation	Rep.	1
13-1	Patient Monitor A	Pediatric	ICU	Rep.	1
	Patient Monitor A	SICU	SICU	Add.	5
	Patient Monitor A	Emergency	Treatment	New	2
	Patient Monitor A	ICU	ICU-1	Rep.	5
13-2	Patient Monitor B	Operation	Operation	Rep.	7
14	Fetal Actocardiograph	Delivery	Delivery	Rep.	1
15	Ventilator	SICU	SICU	Add.	5
	Ventilator	Emergency	Treatment	New	2
	Ventilator	ICU	ICU-1	Rep.	5
	Ventilator	Pediatric	ICU	Rep.	1
16	Electrocardiograph	Pediatric	ICU	Rep.	1
	Electrocardiograph	Emergency	Treatment	Rep.	1
	Electrocardiograph	ICU	ICU-1	Rep.	1
17	Electro Suction Pump	SICU	SICU	Rep.	3
	Electro Suction Pump	Pediatric	ICU	Rep.	2
	Electro Suction Pump	Emergency	Treatment	Rep.	2
	Electro Suction Pump	ICU	ICU-1	Rep.	3
	Electro Suction Pump	Operation	Operation	Rep.	9
18	Thorax Surgical Instrument Set	Operation	Operation	Rep.	2
19	Abdomen Surgical Instrument Set	Operation	Operation	Rep.	2
20	Arthrosis Surgical Instrument Set	Operation	Operation	Rep.	1
21	Neurosurgery Instrument Set	Operation	Operation	Rep.	1
22	Spinal Surgical Instrument Set	Operation	Operation	Rep.	1
23	Odonto-maxillo Facial Surgical Instrument Set	Operation	Operation	Rep.	1
24	Infant Incubator	Pediatric	Pathological neonate	Rep.	5
25	Phototherapy Unit	Pediatric	Pathological neonate	Rep.	4
26	Gastrointestinal Fiberscope	Endoscopic Diagnosis	Endoscopic room	Rep.	1
27	Broncho Fiberscope	Operation	Operation	Rep.	1
28	Colono Fiberscope	Endoscopic Diagnosis	Endoscopic room	Rep.	1
29	ERCP Endoscopy	Endoscopic Diagnosis	ERCP room	New	1
30	Bilirubin Analyzer, Skin type	Pediatric	Pathological neonate	New	1
31	Stress Test System	Cardiovascular	Cardiovascular examination	New	1
32	Syringe Pump	Pediatric	ICU	Rep.	2
	Syringe Pump	ICU	ICU-1	Rep.	4
	Syringe Pump	Operation	Operation	Rep.	4
33	Microscope	Hematology	Hematology examination	Rep.	2
34	Refrigerator for Blood Bank	Blood Bank	Blood bank	Rep.	3
35	Steam Sterilizer A	Sterilization	Sterilization	Rep.	1
36	Steam Sterilizer B	Operation	Sterilization	Rep.	1
37	Steam Sterilizer, Vertical type	Microbiology	Lab. Sterilization	Rep.	2
38	Instrument Washing Machine	Sterilization	Sterilization	New	1

**Table 2-4 Specifications of Main Equipment**

No.	Name of Equipment	Spfications or Composition	Q'ty	Purpose and Appropriateness of the Grade of Equipment
1	X-ray Fluoroscopic Machine	Digital type with Laser imager, Output: 50kW or more, Tube voltage: 150kV or wider, Tube current: 630mA or wider	1	Used for obsrving abdomen and various fluoroscopy by using contrast agent for digestive tract.
2	X-ray General Machine	Out put: 30kW or more, Tube voltage: 125kV or more, Tube current: 500mA or more with Bucky stand	1	Used for observing orthopedic as well as head, breast and abdomen. Equivalent grade to the present one.
3	X-ray Mobile Machine	Type: Inverter, Cordless, Motor driven Tube voltage:40 to 125kV	1	Used for inpatients. Equivalent grade to the present one.
4	Ultrasound, Color Doppler	Mode: B, M, B/M Monitor: Color and 15 inches or more Probe: 5 kinds	1	Used for cardiac examinations, imaging diagnosis of disease morphology and tissue conditions.
5	Ultrasound A	Mode: B, M, B/M Monitor: B&W and 12 inches or more Probe: 4 kinds	1	Used for outpatient examinations, imaging diagnosis of disease morphology and tissue conditions. Equivalent grade to the present one.
6	Ultrasound B	Mode: B, M, B/M Monitor: B&W and 12 inches or more Probe: 2 kinds	1	Used for OB/GY examinations, imaging diagnosis of disease morphology and tissue conditions. Equivalent grade to the present one.
7	Anesthesia Machine with Ventilator	2 gases ( O <sub>2</sub> , Air ) type for child to adult, Two vaporizers of halothane and isoflurane, Low-oxygen safety mechanism, Mode for respirations: SIMV/CMV/PEEP/CPAP or more, Tidal volume: approx. 20ml to 1400ml/min, with humidifier	7	For carrying out operations safely without pains to patients. Equivalent grade to the present one.
8	Operation Table, Multipurpose	Type: Electrohydraulic type, Vertical moving range: 70 to 100cm, Longitudinal rotation: 15 ° up/down, Lateral rotation: 20°left/right	9	For placing patients on to be operated. Its positions and shapes can be adjusted to change the posture of the patient according to the type of surgery.
9	Defibrillator	Setting range of energy: 2 to 200 J , Display: Approx. 5 inches, Mode: defibrillation and monitor with external pacemaker	2	Used for reanimating cardiac arrest by giving electric shock and removing a veniricle and atrial fibrillation. Equivalent grade to the present one.
10	Operation Lamp, Ceiling and Combination type	Main light: 8 or more bulbs and 135,000Lux or higher, Auxiliary light: 4 or more bulbs and 90,000Lux or higher	8	For properly lighting the region of the patient to be operated so that surgery can be performed efficiently. Equivalent grade to the present one.
13-1	Patient Monitor A	Display: 10 inches or more, Measurement: electrocardiogram, blood pressure, respiration, body temp., pulse, SpO <sub>2</sub> , invasive and non-invasive	13	Used for monitoring a serious patient's circulatory organs, respiration and recording its vital situation etc. for ICU. Equivalent grade to the present one.
13-2	Patient Monitor B	Display: 10 inches or more, Measurement: electrocardiogram, blood pressure, respiration, body temp., pulse, SpO <sub>2</sub> , invasive and non-invasive, and anesthesia gases	7	Used for monitoring a serious patient's circulatory organs, respiration and recording its vital situation etc. for anesthesia machine. Equivalent grade to the present one.
15	Ventilator	For Adult and Child, Mode for respiration: 4 kinds or more	13	Used for acting respiratory functions of patient's breathing stop or lowered it. Equivalent grade to the present one.
18	Thorax Surgical Instrument Set	62 instruments	2	Used for operation to thorax surgical. Equivalent grade to the present one.
19	Abdomen Surgical Instrument Set	78 instruments	2	Used for operation to abdomen surgical. Equivalent grade to the present one.
20	Arthosis Surgical Instrument Set	26 instruments	1	Used for operation to arthosis surgical. Equivalent grade to the present one.
21	Neurosurgery Instrument Set	60 instruments	1	Used for operation to neurosurgical. Equivalent grade to the present one.
23	Odonto-maxillo Facial Surgical Instrument Set	32 instruments	1	Used for operation to odonto-masillo facial surgical. Equivalent grade to the present one.
26	Gastrointestinal Fiberscope	Flexible endoscope with light source, suction pump, surgical unit, and video	1	Used for observation and curing of upper gastrointestinal organs. Equivalent grade to the present one.

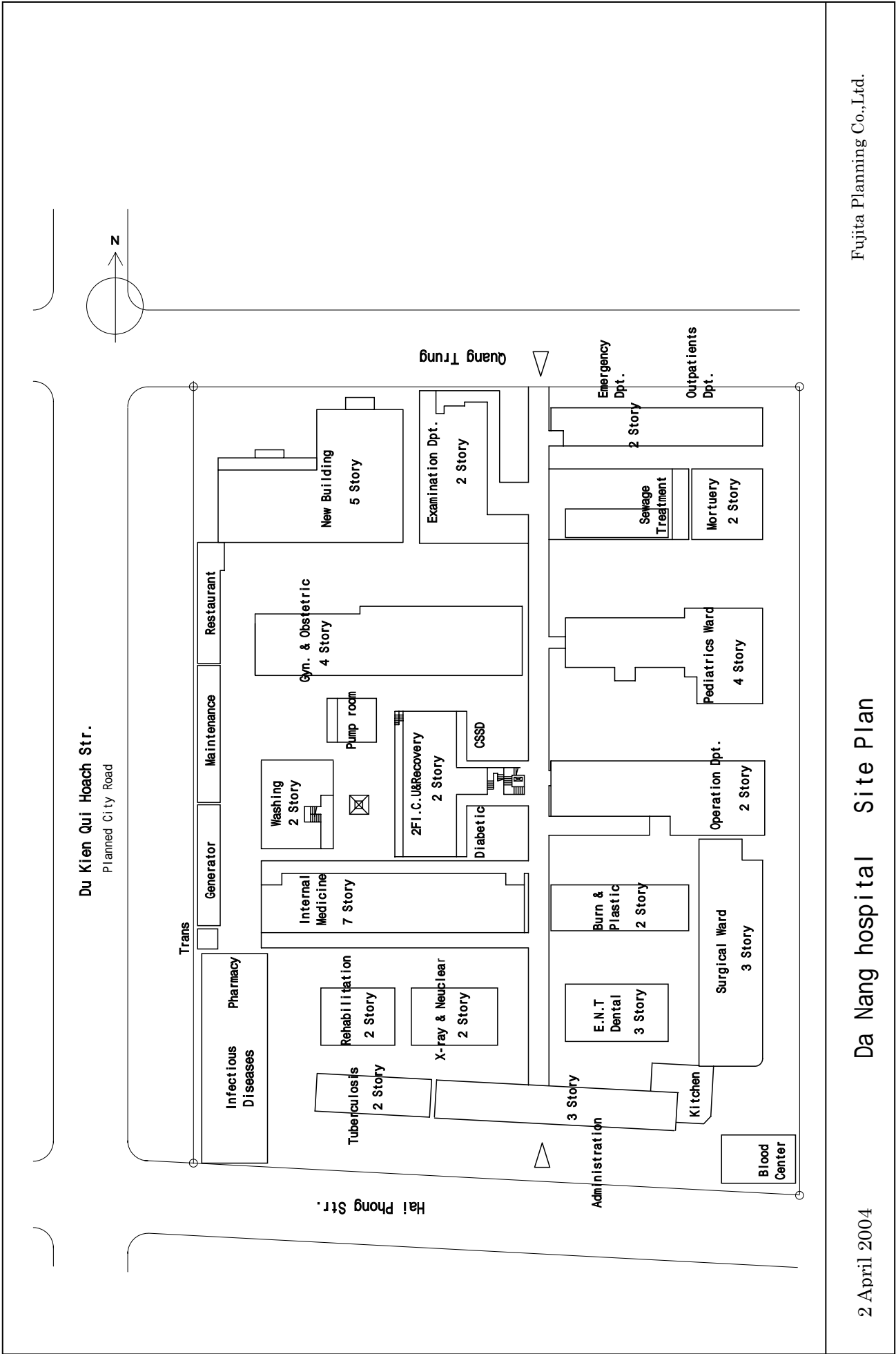
No.	Name of Equipment	Specifications or Composition	Qty	Purpose and Appropriateness of the Grade of Equipment
27	Broncho Fiberscope	Flexible endoscope with light source, suction pump, surgical unit, and video	1	Used for observation and curing of bronchia. Equivalent grade to the present one.
28	Colono Fiberscope	Flexible endoscope with light source, suction pump	1	Used for observation and curing of lower gastrointestinal organs. Equivalent grade to the present one.
29	ERCP Endoscopy	Flexible videoendoscope with light source, suction pump, surgical unit, and video	1	Used for observation and curing of duodenum and bile duct.
31	Stress Test System	With Treadmill and Electrocardiograph	1	Used for checking cardiopulmonary
35	Steam Sterilizer A	Effective volume: 500L or more Type: Single door with water softer	1	Used for sterilizing instruments for sterilization room. Equivalent grade to the present one.
36	Steam Sterilizer B	Effective volume: 230L or more Type: Single door with water softer	1	Used for sterilizing instruments for operation room. Equivalent grade to the present one.
38	Instrument Washing Machine	Effective volume: 200L or more	1	Used for washing plastic and rubber instruments.

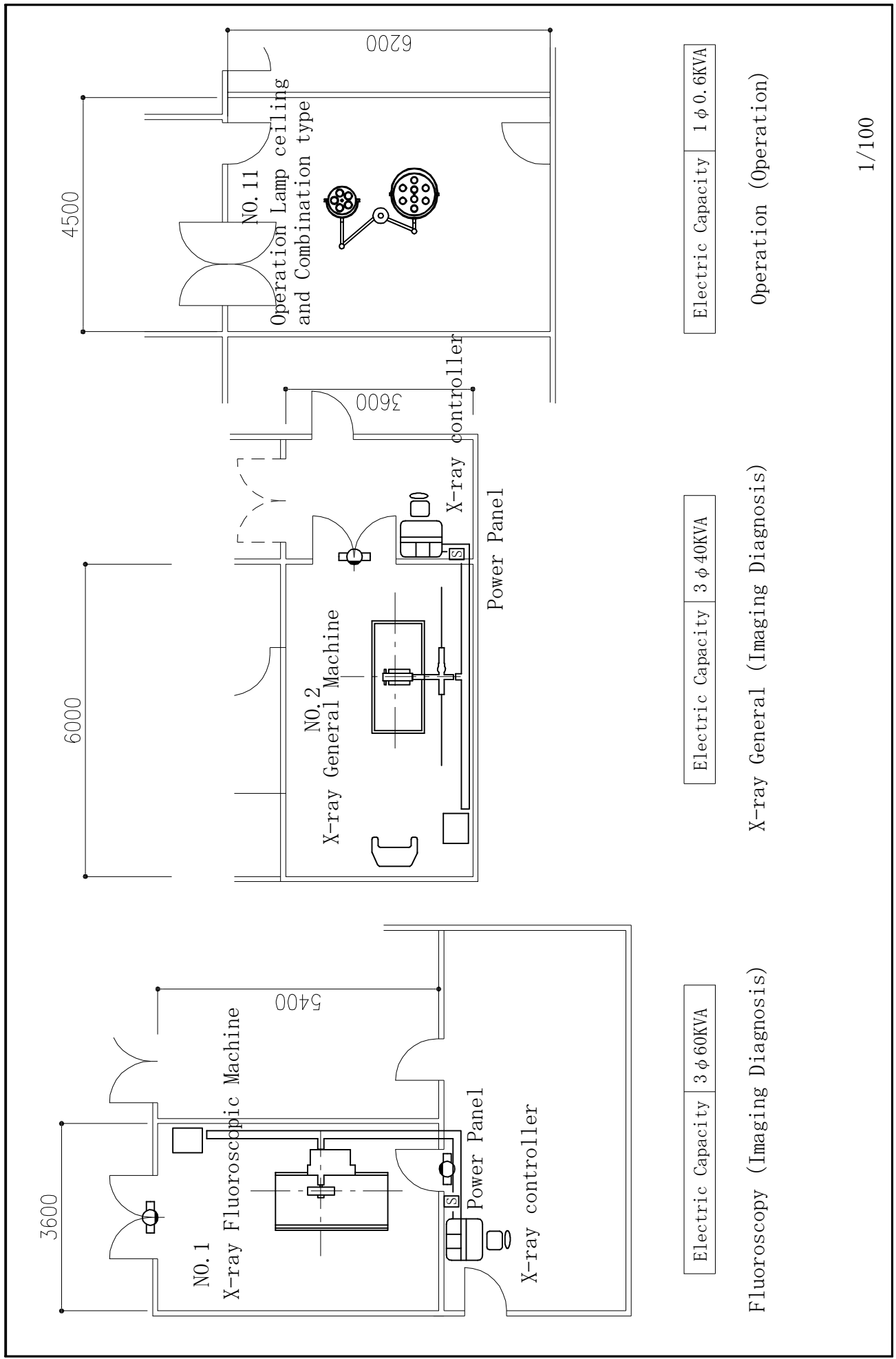
### 2-2-3 Basic Design Drawing (Site and Installation Plan for the Major Equipment)

The Site Drawings and installation plans for the X-ray Fluoroscopic Machine, X-ray General Machine, Steam Sterilizer, Instrument Washing Machine, and Operation Lamps are covered in the following figures:

**Table 2-5 List of Drawings**

No.	Name of Drawing	Scale
1	Site Plan of Da Nang Hospital	1/1000
2	X-ray Fluoroscopic Machine X-ray General Machine Operation Lamp, Ceiling and Combination type	1/100
3	Steam Sterilizer A Steam Sterilizer B Instrument Washing Machine	1/100





Electric Capacity 3 φ 60KVA

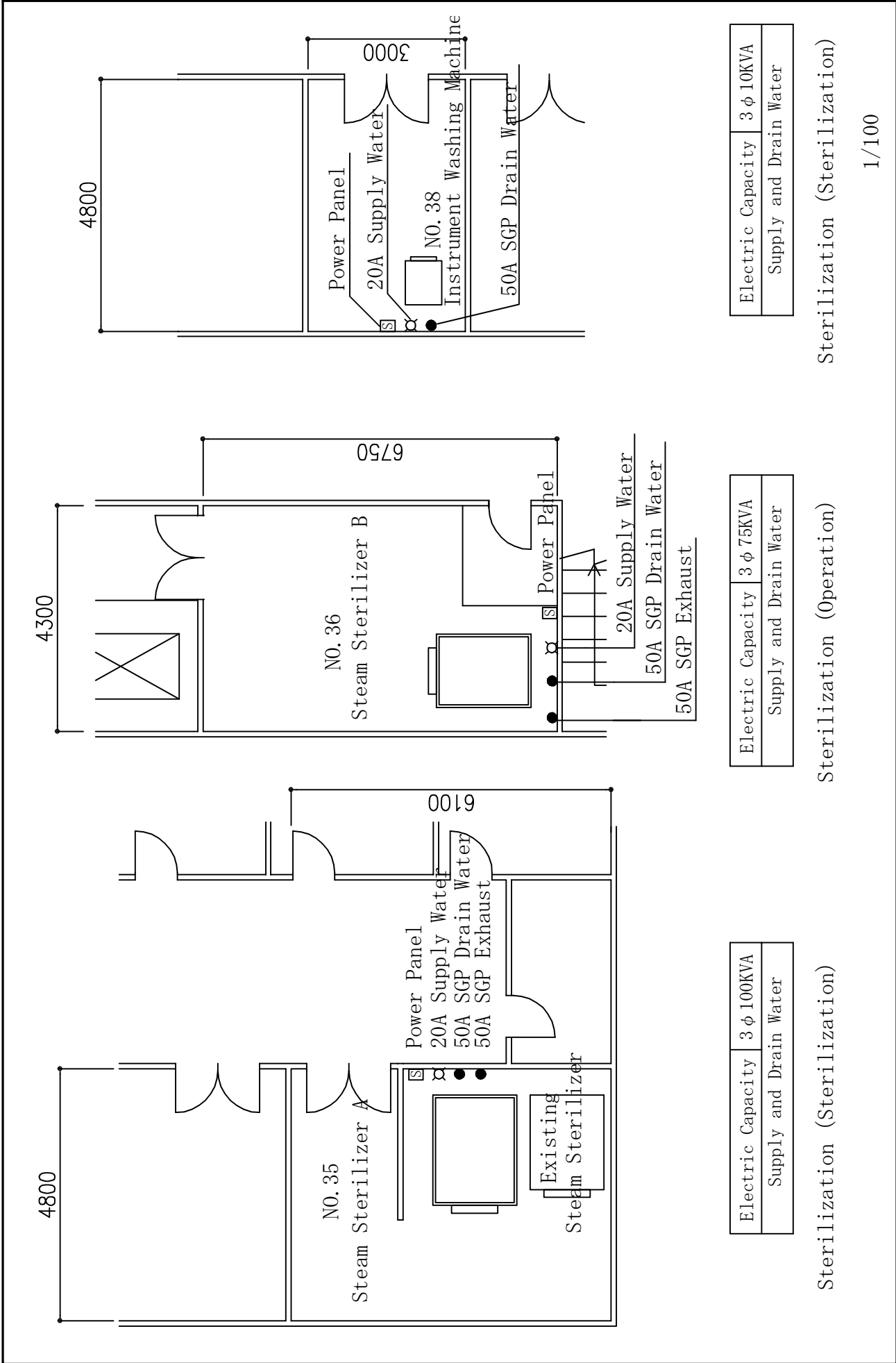
Fluoroscopy (Imaging Diagnosis)

Electric Capacity 3 φ 40KVA

X-ray General (Imaging Diagnosis)

Electric Capacity 1 φ 0.6KVA

Operation (Operation)





## **2-2-4 Implementation Plan**

### **2-2-4-1 Implementation Policy**

#### **(1) Standard implementation procedure**

Based on this Project, related government agencies of Japan will review the contents of this proposed Project. Soon thereafter, following approval by the Japanese Cabinet, the Exchange of Notes (E/N) will be officially executed by and between the governments of Japan and Viet Nam under the framework of the Grand Aid system of the Japanese government. In accordance with the E/N, the consultant and equipment suppliers for this Project will conclude agreements with the government of Viet Nam (to be approved by the Japanese government).

#### **(2) Implementation schedule**

This Project consists of the procurement and installation of medical equipment and will have to be implemented without interrupting the medical activities of the hospital. The entire work process is estimated to take about eleven months.

#### **(3) Procurement procedure**

The equipment supplier will be selected through a competitive tender open to Japanese companies in accordance with the Grand Aid scheme.

#### **(4) Project implementation system**

The Project will be implemented under the supervision of the Da Nang Hospital. The Da Nang Hospital will be the party on the Viet Nam side responsible for concluding the Design / Supervision Contract, Equipment Procurement Contract, Banking Arrangement (B/A), Authorization to Pay (A/P), and other such agreements necessary for this Project. The Project Planning and Execution department of Da Nang Hospital, the departments with jurisdiction over the hospital, are in charge of coordinating discussions on the technical matters and other matters related to the Project.

#### **(5) Roles of the consultant and equipment supplier**

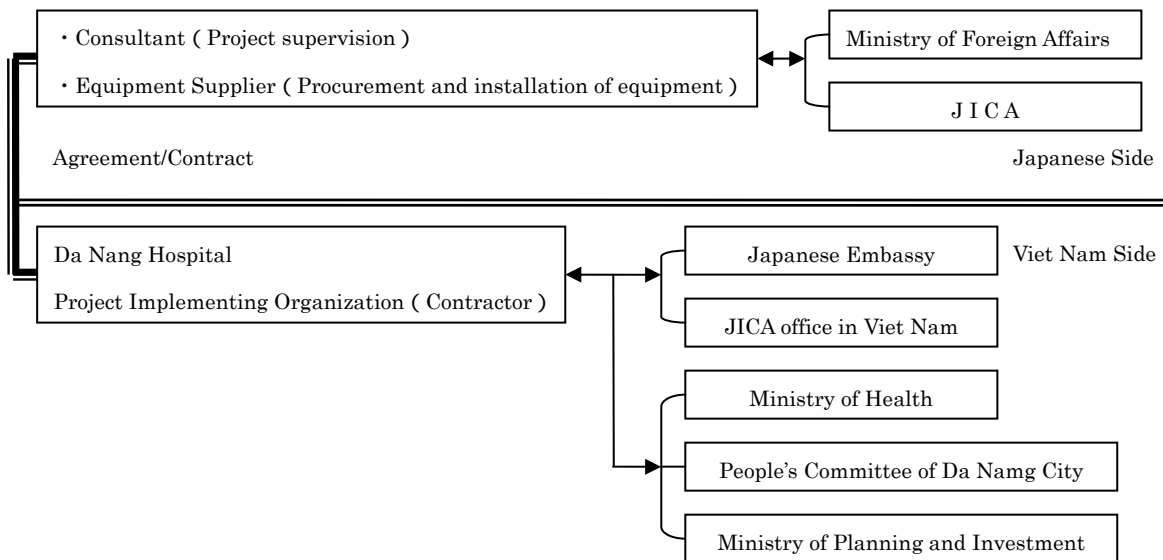
##### **1) Consultant**

After the signing of the E/N, the Da Nang Hospital will conclude a consultancy agreement on tender-related works and the supervision of the Project with the Japanese consultant company, whereupon the Japanese government will verify the said agreement. For the

smooth implementation of the Project, it will be important to conclude the agreement immediately after the signing of the E/N. After the Japanese government verifies the agreement, the consultant will start preparing the tender documents, obtaining the approval, conducting the tender, supervising the implementation of the Project, and so on.

## 2) Equipment Supplier

The contractor to procure and install the equipment for the Project will be selected through tender. As a rule for the tender, the bidder offering the lowest price will be awarded the contract. The contractor will then conclude the supply contract with the successful bidders of the equipment and obtain the verification of the Japanese government. The contractor will complete the required works in the contract and hand over the equipment to the Da Nang Hospital after the final inspection.



**Figure 2-1 Project Implementation System**

## **2-2-4-2 Implementation Conditions**

Special attention will be paid to the following points in implementing the Project.

### **(1) To minimize the interruption of medical services during the installation period**

The health facility covered by the Project will continue its daily medical care services during the installation work. For this reason, the interruptions of services must be kept to an absolute minimum. To accomplish this, the process of equipment procurement will be strictly supervised, and the installation and inspection schedule will be formulated through discussion in advance and strictly observed by persons directly involved with the health facility. At the time of installation, strict safety measures will be taken to protect the patients and medical staff.

### **(2) Customs clearance and tax exemption procedure**

In implementing the Project, the procured equipment and the services conducted by Japanese nationals such as the consultant and equipment suppliers will be exempted from all taxes imposed by the domestic law of Viet Nam. However, since difficulties may be anticipated during the course of customs clearance and tax exemption procedure, it will be necessary for the consultant to pay sufficient attention to those issues by alerting the related agencies and confirming the necessary procedures.

### **2-2-4-3 Scope of Works**

The Project shall be implemented under the cooperation of the government of Viet Nam and Japan.

The Works to be borne by both parties are as follows.

#### **(1) Works to be carried out by the Government of Japan**

The Japanese side shall:

- 1 ) execute the procurement of the equipment for the Project,
- 2 ) transport the equipment to the hospital (including both marine transportation and inland transportation in Viet Nam),
- 3 ) install and set up the equipment, and
- 4 ) perform test runs, give instructions on operation and maintenance, and perform final inspections for all of the equipment.

#### **(2) Works to be carried out by the Government of Viet Nam**

The Viet Nam side shall:

- 1) present data, documents, and other information necessary for the installation and setting of the equipment,
- 2) remove old equipment and prepare the rooms in which the new equipment is to be installed,
- 3) prepare facility infrastructure such as electricity, water supply, and sewage lines at the sites where the new equipment is to be installed,
- 4) provide places to unload the equipment,
- 5) provide temporary storage space for the equipment until installation,
- 6) secure delivery routes for the equipment.

#### **2-2-4-4 Consultant Supervision**

Based on the Japanese Grand Aid scheme, the Japanese consultant shall conclude the consultancy agreement with the Da Nang Hospital. In compliance with this agreement, the consultant will plan and hold a tender and oversee the implementation of the Project. In reviewing the documents prepared by the tenderers, the consultant will check whether the procurement can be executed as scheduled, whether the procured equipment meets the specifications stipulated in the tender documents, etc. The purpose of this work is to ensure proper execution by the equipment suppliers. The consultant will offers advice and guidance for any adjustments in the implementation of the Project. This supervisory work includes the following.

**(1) Assisting with tender procedures and contracting**

To select a Japanese trading company to take charge of the equipment procurement/installation work, the consultant will prepare tender documents, announce a tender publicly, accept applications from applicants, distribute tender documents to tenderers, accept tenders offered, evaluate the results, and give advice to the recipients to conclude a contract with the successful tenderer.

**(2) Instructions, advice, and coordination for the supplier**

The consultant will examine the work schedules and provide instructions and advice to the suppliers.

**(3) Inspection and approval of the manufacturing documents and installation layout**

The consultant will examine and approve the manufacturing documents, installation layout, and other necessary documents submitted by the supplier.

**(4) Report of the progress of the work**

The consultant will inspect the conditions of the sites, review the implementation of the Project, and report the progress of the works to the authorities of both Governments.

**(5) Inspection and testing upon completion**

The consultant will attend the on-site inspections and trial operations of the equipment in order to confirm that the equipment is consistent with the provisions of the contract. Final inspection reports shall be submitted to the authorities concerned on the Viet Nam side.

**(6) Training in maintenance and operation of the equipment**

The personnel to operate the equipment to be procured for the Project require basic maintenance and operation skills. It will be necessary to train the medical and maintenance staff in operation and troubleshooting for the equipment during the installation, adjustment, and test running. The consultant will give necessary instructions on the training programs.

## 2-2-4-5 Procurement Plan

The following points shall be noted in procuring the equipment for the Project.

### (1) Guidelines on the origins of the equipment

Since no electric medical equipment is produced in Viet Nam, equipment will be procured from other countries. As explained in the basic design policy, the main equipment such as an X-ray Diagnostic Machine, Ultrasound machines, etc. will be procured from Japan or third countries.

**Table 2-6 Summary of Equipment Procurement**

No.	Name of Equipment	Q'ty	Procurement		
			Local	Japan	Third Country
1	X-ray Fluoroscopic Machine	1		*	
2	X-ray General Machine	1		*	
3	X-ray Mobile Machine	1		*	
4	Ultrasound, Color Doppler	1		*	
5	Ultrasound A	1		*	
6	Ultrasound B	1		*	
7	Anesthesia Machine with Ventilator	7			*
8	Operation Table, Multipurpose	9		*	
9	Electro Surgical Unit	5			*
10	Defibrillator	2		*	
11	Operation Lamp, Ceiling and Combination type	8		*	
12	Operation Lamp, Stand type	1		*	
13-1	Patient Monitor A	13		*	
13-2	Patient Monitor B	7			*
14	Fetal Actocardiograph	1		*	
15	Ventilator	13			*
16	Electrocardiograph	3		*	
17	Electro Suction Pump	19		*	
18	Thorax Surgical Instrument Set	2		*	
19	Abdomen Surgical Instrument Set	2		*	
20	Arthrosis Surgical Instrument Set	1		*	
21	Neurosurgery Instrument Set	1		*	
22	Spinal Surgical Instrument Set	1		*	
23	Odonto-maxillo Facial Surgical Instrument Set	1		*	
24	Infant Incubator	5		*	
25	Phototherapy Unit	4		*	
26	Gastrointestinal Fiberscope	1		*	
27	Broncho Fiberscope	1		*	
28	Colono Fiberscope	1		*	
29	ERCP Endoscopy	1		*	
30	Bilirubin Analyzer, Skin type	1		*	
31	Stress Test System	1		*	
32	Syringe Pump	10		*	
33	Microscope	2		*	
34	Refrigerator for Blood Bank	3		*	
35	Steam Sterilizer A	1			*
36	Steam Sterilizer B	1		*	
37	Steam Sterilizer, Vertical type	2		*	
38	Instrument Washing Machine	1			*

**(2) Transportation period**

The medical equipment to be procured from Japan or third countries is to be shipped by sea to Da Nang Sea Port. From the port to Da Nang Hospital, the equipment will be shipped overland in commercial trucks. The Marine and Inland transportation will be executed by Grand Aid.

Some sensitive equipment will be susceptible to shocks, humidity, and high temperatures during transportation. This equipment will require special protective packaging.

The marine transportation of the equipment to be procured from Japan and third countries will require approximately one week and three weeks, respectively. With another two days added for customs clearance and inland transportation, the total transportation time comes to 9 to 24 days, respectively.



#### **2-2-4-6 Implementation Schedule**

After the signing of the E/N by both Governments, the Project will be implemented in the following two stages: 1) tender and tender-related works; 2) procurement and installation of the equipment.

##### **(1) Tender and tender-related works**

The preparation of tender and tender-related works will commence as soon as the Da Nang Hospital and consultant sign the consultancy agreement between them and the agreement is verified by the Government of Japan. The tender and tender-related works include final confirmation of the technical specifications of the equipment and preparation of the instructions to tenderer(s). Once these documents are approved by the Viet Nam side, the consultant will announce the tender publicly and call for applications for tendering, distribute the tender documents to applicants, hold the tender, evaluate the submitted documents from applicants, nominate the winner, and help to conclude the supply contract between the Da Nang Hospital and suppliers. This stage will take about four months.

##### **(2) Procurement and installation of the equipment**

After the Japanese Government verifies the supply contract between the Da Nang Hospital of Viet Nam and the equipment suppliers, the suppliers will start procuring the equipment in compliance with the contract documents. The works related to the equipment procurement, transportation, and installation in the hospital will take about seven months.

The implementation of the Project is scheduled from the signing of the E/N to the completion of the works, as shown in Figure 2-2.

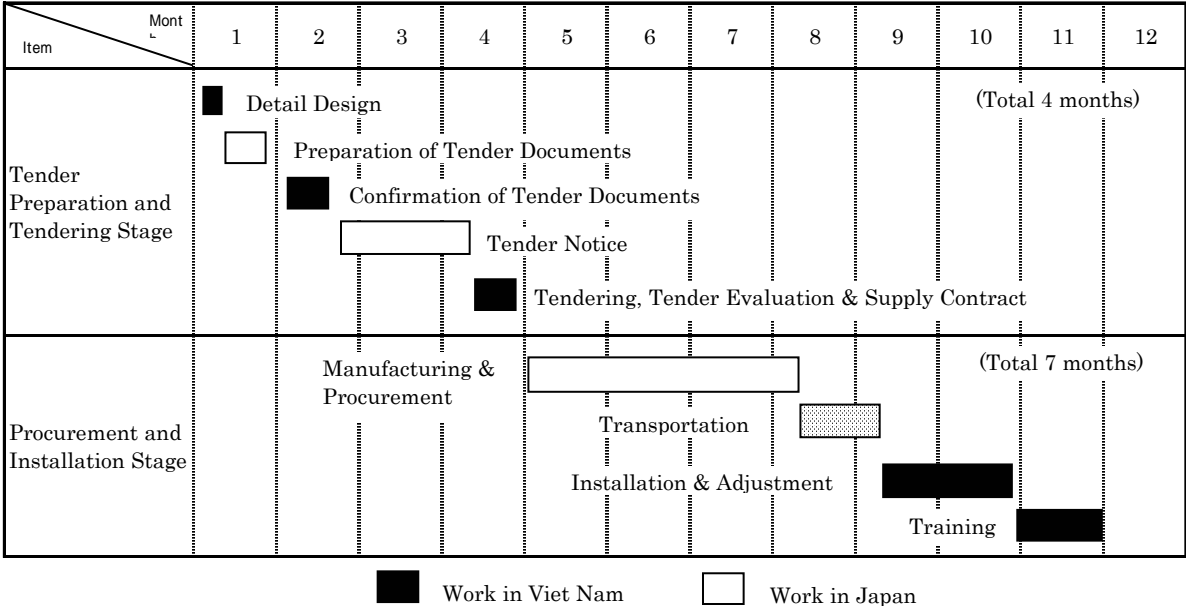


Figure 2-2 Implementation Schedule

## 2-3 Obligations of the Government of Viet Nam

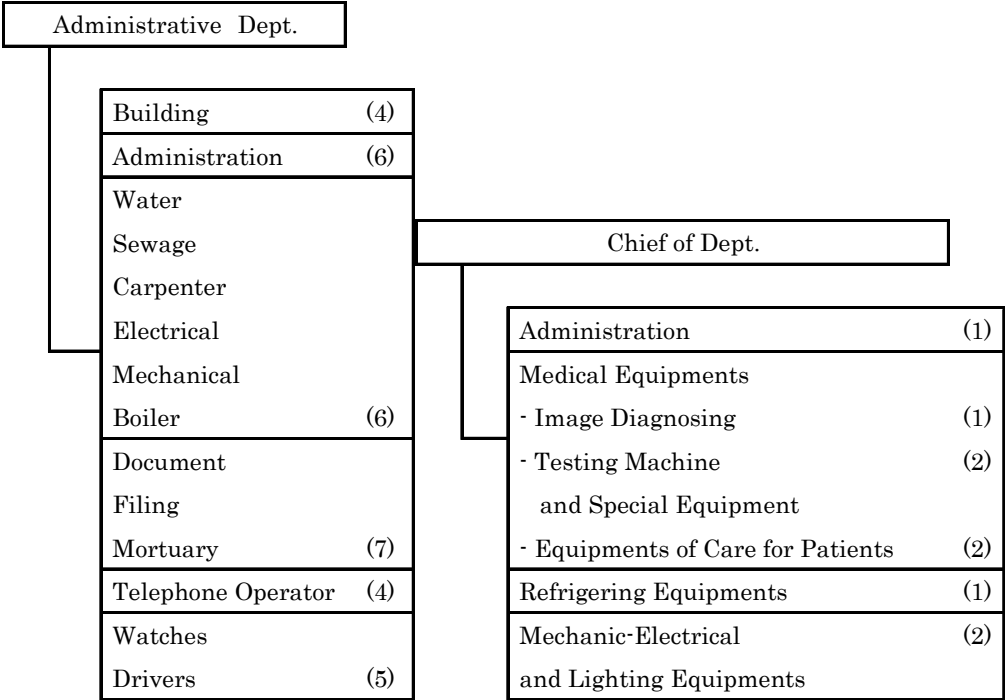
Obligations of the Government of Viet Nam in relation to the implementation of the Project are as follows:

- 1) to provide the necessary information and data for the Project,
- 2) to provide support for the suppliers, such as prompt customs clearance of the equipment at the ports of disembarkation in Viet Nam,
- 3) to exempt Japanese nationals staying in Viet Nam and providing services in connection to the implementation of the Project from customs duties, internal taxes, and fiscal levies which may be imposed in Viet Nam,
- 4) to accord necessary security and protection to Japanese nationals entering or staying in Viet Nam for the purpose of providing services, as well as to their equipment brought in for the implementation of the Project,
- 5) to conduct the Banking Arrangement (B/A) and pay commissions associated with the issuance of the Authorization to Pay (A/P),
- 6) to allocate the personnel/budgets required for the effective implementation of this Project (including operation and management costs of equipment procured using Grand Aid),
- 7) to ensure that the equipment procured under this Japanese Grand Aid Project is maintained and used properly and effectively,
- 8) to provide necessary permission, licenses, and other authorization for implementing the Project, if necessary,
- 9) to pay fees and charges associated with tax exemption procedures for the Project,
- 10) to collect and control data and information on the usage of the equipment to be procured under this Project, and
- 11) to bear all other expenses associated with the implementation of the Project.

**2-4 Project Operation Plan**

The director of the Da Nang Hospital, the direct subordinate organ to the Director of Health Department of Da Nang City and the People’s Committee of Da Nang City, will be responsible supervising and implementing the Project and assistance programs. Staff provided by a director of Da Nang Hospital will negotiate with international organizations and foreign countries. The operation and maintenance of the Project is to be carried out efficiently by the hospital. Daily operation and maintenance after the completion of the Project will be handled by the hospital itself, just as they are at present.

Establishment of an operation/maintenance system is urgently needed to coordinate efforts with external organizations and to systematically control various documents, especially operation manuals related to the equipment to be procured by the Project.



**Figure 2-3 Maintenance Organization Chart of Da Nang Hospital**

## 2-5 Cost Estimation of the Project

### 2-5-1 Cost Estimation of the Project

The cost estimation of the Project is calculated in the following two tables. The estimated cost of the Japanese assistance (Table 2-7) is provisional and would be further examined by the Government of Japan for the approval of the Grant.

**Table 2-7 Estimated Cost of the Japanese Assistance (in million Japanese yen)**

Item		Estimated Costs	
Medical Equipment	Out-patient examination	¥34.5	¥302.2
	X-ray and Ultrasound	¥76.6	
	Operation	¥84.5	
	ICU	¥87.3	
	Sterilization	¥19.3	
Consultant's Supervision			¥24.7

**Table 2-8 Estimated Cost to be covered by the Viet Nam side for the Project (in million Japanese yen)**

Item	Estimated Costs
Removal of existing old equipment	¥0.3

#### Condition of the Estimation

Date of estimation	: March 2004
Currency exchange rate	: 1 US dollar = 110.08 Japanese yen
Duration of design and supervision work	: Approx. 11 months
Purchase order	: Lump Sum
Other	: This Japanese Assistance will be implemented according to the Japanese Grand Aid system.

**2-5-2 Operation and Maintenance Costs**

Since this Project will be replacing old equipment, it is not likely to incur additional expenses. If additional expenses are incurred, however, they will be covered by the increased revenues generated by the new equipment. Therefore, the current financial systems will be sufficient to cover the operation and maintenance costs of the new costs of the new equipment to be procured under this Project, as long as consumables and other expendables of equipment are ordered from the local agencies in advance.

**\* Financial Feasibility on the Viet Nam Side**

Since some of the equipment items to be procured by this Project will be additional or supplemental to the existing equipment, the Viet Nam side needs to examine whether they will be able to cover their own expenses. Table 2-9 shows the estimated annual operational costs of additional or supplemental equipment items, and Table 2-10 shows the additional user fees. Table 2-11 shows the ratio of user fees from additional patients and revenues to be generated by introducing the additional or supplemental equipment in relation to the total running cost. The amount of revenues from medical charges depends on the number of patients. Based on the above facts, the ratio of the increase in operational costs to the increase in user fees is estimated at 43%. In view of the above, the Viet Nam side is deemed financially capable of operating the equipment.

**Table 2-9 Estimated Annual Running Cost of Equipment (in Yen)**

Equipment Name	Q'ty	Consumable etc.	Total
X-ray Mobile Machine	1	120,000	120,000
Ventilator	7	132,800	929,600
Patient Monitor	7	3,840	26,880
Stress Test System	1	3,840	3,840
Total			1,080,320

**Table 2-10 User Fee of Planning Equipment**

Department	Equipment Name	User Fee(VND)	Q'ty	Annual Examination	Total(VND)	Notes (*=Coefficient )
ICU	X-ray Mobile Machine	15,000	1	3,285	49,275,000	15beds×365days×0.6*=3,285
ICU	Patient Monitor	3,500	5	1,277	22,347,500	5beds×365days×0.7*=1,277
Emergency	Patient monitor	3,500	2	18,287	128,009,000	45,719patients×0.4*=18,287
ICU	Ventilator	3,500	5	1,277	22,347,500	5beds×365days×0.7*=1,277
Emergency	Ventilator	3,500	2	18,287	128,009,000	45,719patients×0.4*=18,287
Cardiovascular	Stress Test System	3,500	1	1,583	5,540,500	2,262patients×0.7*=1,583
Total(VND)					355,528,500	
Total(US\$)					22,790.29	1US\$=15,600VND
Total(Japanese yen)					2,508,755	1US\$=110.08 Japanese yen

**Table 2-11 Examination of Financial Feasibility ( in Japanese yen )**

Item	Increase User Fee(A)	Estimated Cost (B)	( B ) / ( A )
User fee	2,508,755	1,080,320	43.06%

## **Chapter 3 Project Evaluation and Recommendations**



## Chapter 3 Project Evaluation and Recommendations

### 3-1 Project Effect

The implementation of this Project will benefit the approximately 11 million people living in the central southern region, a medical service population constituting about 10% of the total population of Viet Nam. The upgrading of this major provider of basic medical services under this Project is expected to bring about the following benefits:

**Table 3-1 Project Effect**

( 1 ) Direct Effect		
Present Status and Problems	Solutions to be Provided by the Project	Effect / Improvement
Provision of basic medical services is difficult due to shortages, heavy wear, and poor performance of the existing equipment.	Procurement / renewal of basic medical equipment	<ul style="list-style-type: none"> <li>- The recovery of the proper functions of the target facility will enable it to serve as a top referral facility that provides enriched technical guidance to other medical facilities and appropriate medical care to the referred patients.</li> <li>- Improved diagnosis and medical treatment at the hospital through the supply of equipment.</li> </ul>
(2) Indirect Effect		
<ul style="list-style-type: none"> <li>- Newly provided equipment enables effective medical services; treatment accuracy reduces the mental and physical burdens of outpatients and inpatients.</li> <li>- Improvement of faulty and frequently out-of-service equipment secures the safety of diagnosis and medical treatment.</li> </ul>		

## **3-2 Recommendations**

The functionality of the facility needs to be improved by systematically upgrading the overall medical activities of the facility with maximum results. Core areas requiring improvement include the operations/ management of the facility, the contents of the medical services provided by each clinical department, the fosterage of medical staff, and coordination with other medical facilities. To facilitate the effective improvement of the service functions of the target facility, the Viet Nam side needs to sincerely work on the following issues and suggestions.

### **(1) Operation and Maintenance of the Equipment**

Daily inspection by the operators is essential for the effective use of the equipment to be procured. For precision instruments that need servicing by specialists or equipment that requires regular replenishment of consumables, the facility should enter into service agreements with the local agents of the equipment manufacturers to ensure their proper maintenance and uninterrupted supply of expendables. To ensure efficient coordination with outside service providers and the effective use of the equipment, the facility should designate personnel to control the documentation related to the equipment, such as maintenance manuals, operation manuals, circuit diagrams, a list of serial numbers, etc.

### **(2) Sufficient Appropriations**

Although the maintenance cost of the equipment to be procured has been confirmed to be within the affordable range, the facility should keep a contingency fund to ensure that it can rapidly cope with unexpected breakages, etc., without suspending the medical activities.

The facility will also need to reserve funds for the renewal of equipment in the future without assistance under this Project. Projections on the service life and aging of equipment should be made for this purpose.

### **Appendices**

1. Member List of the Study Team
2. Study Schedule
3. List of Parties Concerned
4. Minutes of Discussions
5. The Beneficial effects expected  
by project implementation
6. Other Relevant Data

## Member List of the Study Team

## Basic Design Study

1. Mr. Masaya FUJIMOTO      Team Leader  
Deputy Director, Second Project Management Division,  
Grand Aid Management Department, JICA
2. Mr. Fumihiko FUJITA      Chief Consultant/ Consultant  
Fujita Planning Co., Ltd.
3. Ms. Shiho SASADA      Medical Status Researcher/ Consultant  
Fujita Planning Co., Ltd.
4. Mr. Takashi YOZA      Equipment Planner/ Consultant  
Medical Engineering & Planning Co., Ltd.
5. Mr. Seiichi NAKAMURA      Facility Planner-1/ Consultant  
Medical Engineering & Planning Co., Ltd.
6. Mr. Masami Hishinuma      Facility Planner-2/ Consultant  
Medical Engineering & Planning Co., Ltd.
7. Mr. Ryoji YAMAGUCHI      Procurement & Cost Planner/ Consultant  
Fujita Planning Co., Ltd.
8. Mr. Kazunori KATO      Interpreter / Consultant  
Medical Engineering & Planning Co., Ltd.

## Observers

1. Dr. Shuzo KANAGAWA      Chief Adviser of JICA- Bach Mai Hospital Project
2. Dr. Takao MINAMIZAWA      Expert for JICA Project for Improvement of Health  
System in Central Region

## Explanation of Draft Basic Design

1. Mr. Hiroshi IZAKI      Team Leader  
Senior Deputy R.R., JICA Viet Nam Office
2. Mr. Fumihiko FUJITA      Chief Consultant/ Consultant  
Fujita Planning Co., Ltd.
3. Mr. Takashi YOZA      Equipment Planner/ Consultant  
Medical Engineering & Planning Co., Ltd.
4. Mr. Kazunori KATO      Interpreter / Consultant  
Medical Engineering & Planning Co., Ltd.

Study Schedule (Basic Design Study)

Appendix 2 - 1

No.	Date	Team Leader	Observer-1	Observer-2	Chief Consultant	Medical Status Researcher	Equipment Planner	Facility Planner-1	Facility Planner-2	Procurement and Cost Planner	Interpreter
1	15-Feb.	NRT(1:00) Hanoi(15:25):JL5135			NRT(1:00) Hanoi(15:25):JL5135						Same as Chief Consultant
2	16-Feb.	Courtesy Call (JICA, MOH, MPD) Hanoi(18:30) Da Nang(19:45):VN317			Courtesy Call (JICA, MOH, MPD) Hanoi(18:30) Da Nang(19:45):VN317						Same as Chief Consultant
3	17-Feb.	Courtesy call to PC DNC, HDDNC and DNH		Hue Da Nang	Courtesy call to PC DNC, HDDNC and DNH						Same as Chief Consultant
4	18-Feb.	Meeting with EMWF and Site Survey & Discussion	Hanoi(12:30) Da Nang(13:45):VN315	Site Survey & Discussion	Meeting with EMWF and Site Survey & Discussion						Same as Chief Consultant
5	19-Feb.				Site Survey & Discussion						Same as Chief Consultant
6	20-Feb.			Da Nang Hue	Site Survey & Discussion						Same as Chief Consultant
7	21-Feb.	Discussion of Draft Minutes	Da Nang(11:45) Hanoi(12:55):VN314		Discussion of Draft Minutes						Same as Chief Consultant
8	22-Feb.	Prepare Draft Minutes Da Nang(20:35) Hanoi(21:45):VN316			Prepare Draft Minutes, Da Nang(20:35) Hanoi(21:45):VN316				NRT(11:00) Hanoi(15:25):JL5135, Hanoi(18:30) Da Nang(19:45):VN317		Same as Chief Consultant
9	23-Feb.	Discussion on Draft Minutes with MOH			Discussion on Draft Minutes with MOH			Site Survey & Discussion			Same as Chief Consultant
10	24-Feb.	Signing on Minutes with MOH, Report to EOJ, Hanoi(17:10) HK(21:55):VN792			Signing on Minutes with MOH, Report to EOJ, Hanoi(17:10) HK(21:55):VN792			Da Nang(20:35) Hanoi(21:45):VN316	Site Survey & Discussion		Same as Chief Consultant
11	25-Feb.	HK(09:35) NRT(14:40):JL730			Hanoi(12:30) Danan(13:45):VN315 Site Survey			Hanoi(11:10) HK(13:55), HK(15:10) NRT(19:55)	Site Survey & Discussion		Same as Chief Consultant
12	26-Feb.				Survey of Maintenance Cost				Survey of Facilities and Utilities		Same as Chief Consultant
13	27-Feb.				Site Survey of Health Center				Survey of Facilities and Utilities		Same as Chief Consultant
14	28-Feb.				Internal Discussion and Preparation of the Report				Same as Chief Consultant		Same as Chief Consultant
15	29-Feb.				Internal Discussion and Preparation of the Report				Same as Chief Consultant		Same as Chief Consultant
16	1-Mar				Discussion of DNH, HDDNC, PC DNC				Survey of Procurement and Cost, Hanoi(18:30) Da Nang(19:45):VN317		Same as Chief Consultant
17	2-Mar				Signing of Technical Memorandum, Da Nang(13:40) Hanoi(14:55):VN314				Signing of Technical Memorandum, Survey		Same as Chief Consultant
18	3-Mar				Report to MOH, and Discussion				Survey of Facilities and Utilities		Same as Chief Consultant
19	4-Mar				Report to JICA and EOJ, Hanoi(19:10) HK(21:10):VN792				Survey of Facilities and Utilities		Same as Chief Consultant
20	5-Mar				HK(15:10) NRT(19:55):JL732				Survey of Facilities and Utilities		Same as Chief Consultant
21	6-Mar								Da Nang(20:10) HCM(21:10):VN327, HCM(24:55)		Same as Chief Consultant
22	7-Mar		EOJ: Embassy of Japan JICA: JICA Office		PC DNC: People's Committee of Da Nang City				HCM (13:20) Hanoi(15:20):VN224		Same as Chief Consultant
23	8-Mar		MOH: Ministry of Health		DNH: Da Nang Hospital				Survey of Procurement and Cost		Same as Chief Consultant
24	9-Mar		MPD: Ministry of Planning and Investment		HDDNC: Health Department of Da Nang City				Survey of Procurement and Cost		Same as Chief Consultant
25	10-Mar		NRT: Narita Airport HK: Hong Kong Airport		EMWF: East Meets West Foundation				Survey of Procurement and Cost, Hanoi(23:35)		Same as Chief Consultant
26	11-Mar		Hanoi: Hanoi Airport/City HCM: Ho Chi Minh						NRT(06:20):JL752		Same as Chief Consultant

Study Schedule (Explanation of Draft Basic Design)

No.	Date	Team Leader	Chief Consultant	Equipment Planner	Interpreter
1	13-April Tue		Hanoi(14:40):JL5135/VN955		
2	14-April Wed	08:30MPI, 09:30MOH, 11:00EOJ, 13:30JICA, Consultant: Hanoi(17:50) Da Nang(19:35):VN317			
3	15-April Thu		08:30Meeting with Da Nang Hospital, 15:00 Meeting with Health Department of Da Nang City		
4	16-April Fri		08:30Meeting with Da Nang Hospital, Discussion on Specification		
5	17-April Sat		Internal Discussion and Preparation of the Report		
6	18-April Sun		Internal Discussion and Preparation of the Report		
7	19-April Mon	Hanoi(11:45) Da Nang(13:00):VN315	08:30Discussion on Draft Minutes		
8	20-April Tue	09:00Discussion on Draft Minutes, 14:00 Meeting with People's Committee of Da Nang City, 15:00Signing on Minutes, Da Nang (19:05)			Hanoi(20:15):VN316
9	21-April Wed	08:30MPI, 10:00MOH, 11:00JICA, 15:00EOJ, Consultant: Hanoi(23:30)			
10	22-April Thu		NRT(06:40):JL5136		

MPI: Ministry of Planning and Investment  
 MOH: Ministry of Health  
 EOJ: Embassy of Japan  
 JICA: JICA Viet Nam Office

- (1) Ministry of Health  
 Dr. Tran Trong Hai Director of International Cooperation Dept.  
 Dr. Tran Thi Giang Huong Deputy Director of International Cooperation Dept.  
 Dr. Truong Viet Dzung Deputy Director, Planning Dept.  
 Dr. Nguyen Huy Thin Deputy Director, Therapy Dept.  
 Mr. Nguyen Minh Tuan Deputy Director, Medical Equipment and Construction Dept.  
 Mr. Ngo Manh Hung Expert, International Cooperation Dept.  
 Mr. Vuong Anh Duong Expert, Therapy Dept.
- (2) Ministry of Planning and Investment  
 Mr. Bui Liem Deputy Director, Foreign Economic Relation Dept.  
 Ms. Nguyen Thi Thanh Hai Expert, Economic Relation Dept.  
 Mr. Nguyen Xuan Tien Head of Division, Foreign Economic Relation Dept.
- (3) People's Committee of Da Nang City  
 Mr. Nguyen Hoang Long Vice Chairman  
 Mr. Vo Van Thang Chief of Social and Culture  
 Mr. Nguyen Hoai Nam Assistant  
 Mr. Tran Hien Da Nang Foreign Affairs Dept.
- (4) Health Department of Da Nang City  
 Dr. Trinh Loung Tran Director  
 Dr. Vo Thi Kim Anh Vice Director  
 Dr. Bui Huu Tri in charge of international cooperation
- (5) Da Nang Hospital  
 Dr. Pham Hung Chien Director  
 Dr. Le Ngoc Dung Vice Director  
 Dr. Nguyen Viet Lam Vice Director  
 Dr. Ho Hien Luong Chief of Planning Dept.  
 Dr. Nguyen Hoan Thuong Chief of Personnel Dept.  
 Dr. Ho Dac Hanh Member of DOHA Dept. - Assistant Foreign Affairs  
 Dr. Tran Thi Hoa Ban Chief of DOHA Dept.  
 Dr. Tran Quang Hieu Chief of ICU  
 Dr. Le Trong Binh Chief of Operating Room  
 Ms. Le Thi Be Chief of Financial Dept.  
 Mr. Nguyen Hong Son Chief of Medical Technical Dept.  
 Ms. Tri Thanh Huong Secretary of Communist Party
- (6) Hai Chau District Health Center  
 Dr. Nguyen Duy Hai Director
- (7) Thanh Khe District Health Center  
 Dr. Hoang Quang Vinh Director
- (8) East Meets West Foundation  
 Mr. Mark Conroy Overseas Director
- (9) Embassy of Japan  
 Mr. Yoshito Kikumori First Secretary
- (10) JICA Viet Nam Office  
 Mr. Hiroshi Izaki Senior Deputy R.R.  
 Ms. Yuki Hayashi Deputy R.R.  
 Mr. Kazuyuki Kobayashi Senior Project Formulation Adviser

- (1) Ministry of Health  
 Dr. Tran Trong Hai Director of International Cooperation Dept.  
 Dr. Tran Thi Giang Huong Deputy Director of International Cooperation Dept.  
 Dr. Nguyen Huy Thin Deputy Director, Therapy Dept.  
 Mr. Nguyen Minh Tuan Deputy Director, Medical Equipment and Construction Dept.  
 Mr. Ngo Manh Hung Expert, International Cooperation Dept.  
 Mr. Vuong Anh Duong Expert, Therapy Dept.  
 Mr. Nguyen Van Quang Expert, Planning and Finance Dept.
- (2) Ministry of Planning and Investment  
 Dr. Duong Duc Ung General Director, Foreign Economic Relation Dept.  
 Ms. Tran Kim Nguyen Labor and Social Culture Affairs Dept.  
 Mr. Nguyen Xuan Tien Head of Division, Foreign Economic Relation Dept.  
 Ms. Trinh Thi Drep Chi Expert in Da Nang City
- (3) People's Committee of Da Nang City  
 Mr. Nguyen Hoang Long Vice Chairman  
 Mr. Nguyen Nhi Thong Vice Director, Foreign Affairs Department  
 Mr. Nguyen Van Truyen Vice Director, Financial Department
- (4) Health Department of Da Nang City  
 Dr. Trinh Loung Tran Director
- (5) Da Nang Hospital  
 Dr. Pham Hung Chien Director  
 Dr. Le Ngoc Dung Vice Director  
 Dr. Nguyen Viet Lam Vice Director  
 Dr. Ho Hien Luong Chief of Planning Dept.  
 Dr. Nguyen Hoan Thong Chief of Personnel Dept.  
 Dr. Ho Dac Hanh Member of DOHA Dept. - Assistant Foreign Affairs  
 Dr. Tran Thi Hoa Ban Chief of DOHA Dept.  
 Dr. Tran Quang Hieu Chief of ICU  
 Dr. Le Trong Binh Chief of Operating Room  
 Ms. Le Thi Be Chief of Financial Dept.  
 Dr. Le Quang Thong Functional Exploration Dept.  
 Dr. Mai Quoc Thong Cardiology Dept.  
 Dr. Le Van Minh Cardiology Dept.  
 Dr. Du Van Hung Burn Plastic Dept.  
 Dr. Do Hoai Nam Dental Dept.  
 Dr. Hoang Duy Vuong Digestive Surgical Dept.  
 Dr. Ho Ai Yen Chest Surgical Dept.  
 Dr. Cao Van Tri Urology Surgical Dept.  
 Mr. Nguyen Hong Son Chief of Medical Technical Dept.  
 Ms. Tri Thanh Huong Secretary of Communist Party
- (6) Embassy of Japan  
 Mr. Takuya Takigawa Second Secretary
- (7) JICA Viet Nam Office  
 Ms. Yuki Hayashi Deputy R.R.  
 Mr. Kazuyuki Kobayashi Senior Project Formulation Adviser



MINUTES OF DISCUSSIONS  
ON THE BASIC DESIGN STUDY  
ON THE PROJECT FOR IMPROVEMENT OF MEDICAL EQUIPMENT  
OF DA NANG HOSPITAL  
IN THE SOCIALIST REPUBLIC OF VIET NAM

Based on the results of the Preparatory Study, the Government of Japan decided to conduct a Basic Design Study on The Project for Improvement of Medical Equipment of Da Nang Hospital (hereinafter referred to as "the Project" ) and entrusted the study to the Japan International Cooperation Agency (hereinafter referred to as "JICA").

JICA sent to the Socialist Republic of Viet Nam ( hereinafter referred to as "Viet Nam") the Basic Design Study Team (hereinafter referred to as "the Team" ), which is headed by Mr. Masaya Fujimoto, Deputy Director, Second Project Management Division, Grant Aid Management Department, JICA and is scheduled to stay in Viet Nam from 15<sup>th</sup> February, 2004 to 10<sup>th</sup> March, 2004.

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

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

Hanoi, February 24, 2004




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Mr. Masaya Fujimoto  
Leader  
Basic Design Study Team  
Japan International Cooperation Agency




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Dr. Tran Trong Hai, Ph. D  
Director  
International Cooperation Department  
Ministry of Health





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Mr. Nguyen Hoang Long  
Vice Chairman  
People's Committee of Da Nang City




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Mr. Bui Liem  
Deputy Director  
Foreign Economic Relations Department  
Ministry of Planning and Investment




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Dr. Pham Hung Chien  
Director  
Da Nang Hospital

## ATTACHMENT

### 1. Objective of the Project

The objective of the Project is to improve the quality of medical services in the central region of Viet Nam through improving the medical equipments of Da Nang Hospital.

### 2. Project site

The site of the Project is Da Nang City.

### 3. Responsible and Implementing Agency

3-1. The Responsible Agencies are Ministry of Health and the People's Committee of Da Nang City.

3-2. The Implementing Agency is Da Nang Hospital.

### 4. Items requested by the Government of Viet Nam

After discussions with the Team, the items described in Annex-1 were finally requested by the Vietnamese side. JICA will assess the appropriateness of the request and will recommend to the Government of Japan for approval. Final components for the implementation of the Project will be decided based on the further analysis in Japan.

### 5. Japan's Grant Aid Scheme

Both sides reconfirmed the Japan's Grant Aid Scheme of previous Minutes of Discussions of the Preparatory Study signed by the both sides on 21<sup>st</sup> January, 2003 described in Annex-2 and Annex-3.

### 6. Schedule of the Study

6-1. The consultants will proceed to further studies in Viet Nam until March 10, 2004.

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

6-3. In case that the contents of the report is accepted in principle by the Government of Viet Nam, JICA will complete the final report and send it to the Government of Viet Nam by end of August 2004.

### 7. Other relevant issues

7-1. The Vietnamese side announced that the functions of Da Nang Hospital shall remain unchanged and the equipment procured under the Project shall be used properly in the future.

7-2. The Vietnamese side agreed to secure and allocate the necessary budgets and personnel to operate and maintain the equipment to be procured by the Grant Aid properly and effectively.

7-3. Both sides agreed that the equipment would be further examined according to the selection criteria as listed in Annex-4.

7-4. The team stressed the necessity to secure publicity effect for the Project. The Vietnamese side promised to take necessary measures for it.

7-5. The Team also stressed the effectiveness of promoting a technical collaboration among top-referral hospitals covered by Japan's Grant Aid for enhancing the nationwide healthcare services. The Vietnamese side showed understanding for it and promised to study this in detail from now on.

7-6. The Vietnamese side expressed the necessity of a technical cooperation project for Da Nang Hospital following this project. The team promised to report it to the related parties in Japan.

Annex-1: Items requested by the Government of Viet Nam

Annex-2: Japan's Grant Aid Scheme

Annex-3: Major Undertakings to be taken by Each Government

Annex-4: Selection criteria of equipment

Items requested by the Government of Viet Nam

Annex-1

Department	Section	No.	Name of Equipment	Pri.	Q'ty		
X-ray	Examination	1	DSA System with Monoplane	C	1		
		2	X-ray TV Amplification Machine	A	1		
		3	X-ray General Machine	A	1		
Ultrasound	Examination	1	Heart Ultrasound Machine	B	1		
		2	Black & White Ultrasound Machine	B	1		
Endoscopy	Examination	1	ERCP Endoscopic System (with Light Source and TV)	B	1		
		2	Gastro Fiberscope	A	1		
		3	Colono Fiberscope	A	1		
X-ray Other	Examination	1	Ventilator Machine	C	1		
		2	Monitoring	C	1		
Operation	Operation Room	1	Vascular Stent Inserting Instrument Set(Vascular Catheteriation Set)	C	1		
		2	Thorax Surgical Instrument Set	A	2		
		3	Abdomen Surgical Instrument Set	A	2		
		4	Arthrosis Surgical Instrument Set	A	1		
		5	Microsurgery Instrument Set	A	1		
		6	Multipurpose Operation Table	A	9		
		7	Spinal Surgical Instrument Set	A	1		
		8	Odonto-maxillo Facial Surgical Instrument Set	A	1		
		9	Broncho endoscopic Operation System	B	1		
		10	Operationg Lamp, Ceiling type, Combination type	A	8		
		11	Refrigerator (-38°C)	C	1		
		12	Anesthesia Machine with Ventilator Machine	A	7		
		13	Ventilator Machine	C	1		
		14	Monitoring	A	7		
		15	Electro Surgical Unit	A	5		
		16	Electro Suction Pump	A	9		
		17	Syringe Pump	A	4		
	Sterilization	1	Steam Sterilizer	B	1		
	ICU	1	Ventilator Machine	B	5		
		2	Monitoring	B	5		
		3	Electro Suction Pump	A	3		
Biomicrology		1	ELISA System	C	1		
		2	Refrigerator (-38°C)	C	1		
Biochemistry		1	Refrigerator (-38°C)	C	1		
Hematology		1	Refrigerator (-38°C)	C	1		
		2	Hemo Electrophoresis	C	1		
		3	Stereo Microscope	A	2		
Lab. Sterilization		1	Steam Sterilizer, Vertical type	A	2		
Blood Bank		1	Refrigerator for Blood Bank	B	3		
Emergency	Treatment	1	Ventilator Machine	B	2		
		2	Monitoring	B	2		
		3	Defibrillator Machine	A	1		
		4	Externe Pace Maker Machine	C	1		
		5	Electro Suction Pump	A	2		
		6	Electrocardiograph	A	1		
			Operation Room	1	Operationg Lamp, Stand type	A	1
		ICU		1	Ventilator Machine	A	5
				2	X-ray Machine, Mobile	A	1
				3	Monitoring	A	5
		4	Defibrillator Machine	A	1		

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Items requested by the Government of Viet Nam

Annex-1

Department	Section	No.	Name of Equipment	Pri.	Q'ty
		5	Electro Suction Pump	A	3
		6	Syringe Pump	A	4
		7	Electrocardiograph	A	1
Pediatric	ICU	1	Monitoring	A	1
		2	Children Ventilator Machine	A	1
		3	Syringe Pump	A	2
		4	Electro Suction Pump	A	2
		5	Electrocardiograph	A	1
	Pathological Neonate	1	Infant Incubator	A	5
		2	Phototherapy Unit	A	4
		3	Bilirubin Analyzer, Skin type	A	1
		4	Infant Ventilator	C	1
Sterilization		1	Steam Sterilizer	B	1
		2	Plastic and Rubber Instrument Washing Machine	B	1
		3	Low Temperature Sterilization Machine with Formaldehyde	C	1
		4	Autoclave 180 liters	C	1
Washing		1	Tumble Dryer Machine	C	1
		2	Washing Machine	C	1
		3	Ironing Machine	C	1
		4	Blood Dialyzer Machine	C	1
Kitchen		1	Kitchen System	C	1
Gyne. & Ob.		1	Black & White Ultrasound Machine with Vaginal Probe	A	1
		2	Fetal Actocardiograph	B	1
Other		1	Ambulance	C	1
		2	Stress Test System	B	1
		3	Extracorporeal Shock Wave Machine	C	1

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## Japan's Grant Aid Scheme

The Grant Aid scheme 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. The Grant Aid is not supplied through the donation of materials as such.

## (1) Grant Aid Procedures

Japan's Grant Aid Scheme is executed through the following procedures.

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

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 the Grant Aid. If the request is deemed appropriate, the Government of Japan assigns JICA (Japan International Cooperation Agency) to conduct a 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 Scheme, 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 (E/N) signed by the Governments of Japan and the recipient country.

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

## (2) Basic Design Study

## 1) Contents of the Study

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

- Confirmation of the background, objectives, and benefits of the requested Project and also institutional capacity of agencies concerned of the recipient country necessary for the Project's implementation.
- Evaluation of the appropriateness of the Project to be implemented under the Grant Aid Scheme from a technical, social and economic point of view.
- Confirmation of items agreed upon by both parties concerning the basic concept of the Project.
- Preparation of a Basic Design of the Project
- Estimation of cost of the Project

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

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

## 2) Selection of Consultants

For smooth implementation of the Study, JICA uses (a) registered consulting firm(s). JICA selects (a) firm(s) based on proposals submitted by interested firms. The firm(s) selected carry(ies) out a Basic Design Study and write(s) a report, based upon terms of reference set by JICA.

The consulting firm(s) used for the Study is(are) recommended by JICA to the recipient country to also work on the Project's implementation after the Exchange of Notes, in order to maintain technical consistency.

## (3) Japan's Grant Aid Scheme

### 1) Exchange of Notes (E/N)

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

- 2) "The period of the Grant 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) consulting 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 natural disaster, the period of the Grant Aid can be further extended for a

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maximum of one fiscal year at most by mutual agreement between the two Governments.

- 3) 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.)

- 4) Necessity of "Verification"

The Government of 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. The "Verification" is deemed necessary to secure accountability to Japanese taxpayers.

- 5) Undertakings required to 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.

- 6) "Proper Use"

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

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than those covered by the Grant Aid.

- 7) "Re-export"  
The products purchased under the Grant Aid should not be re-exported from the recipient country.
- 8) Banking Arrangements (B/A)
  - a) The Government of the recipient country or its designated authority should open an account in the name of the Government of the recipient country in a bank in Japan (hereinafter referred to as "the Bank"). The Government of Japan will execute the Grant Aid by making payments in Japanese yen to cover the obligations incurred by the Government of the recipient country or its designated authority under the Verified Contracts.
  - b) The payments will be made when payment requests are presented by the Bank to the Government of Japan under an Authorization to Pay (A/P) issued by the Government of the recipient country or its designated authority.
- 9) Authorization to Pay (A/P)  
The Government of the recipient country should bear an advising commission of an Authorization to Pay and payment commissions to the Bank.



## Major Undertakings to be taken by Each Government

No.	Items	To be covered by Grant Aid	To be covered by Recipient Side
1	To bear the following commissions to the Japanese bank for the banking services based upon the B/A		
	1) Advising commission of A/P		●
	2) Payment commission		●
2	To ensure prompt unloading and customs clearance at port of disembarkation in recipient country		
	1) Marine (Air) transportation of the products from Japan to the recipient	●	
	2) Tax exemption and custom clearance of the products at the port of disembarkation		●
	3) Internal transportation from the port of disembarkation to the project site	(●)	(●)
3	To accord Japanese nationals, whose services may be required in connection with the supply of the products and the services under the verified contact, such facilities as may be necessary for their entry into the recipient country and stay therein for the performance of their work		●
4	To exempt Japanese nationals from customs duties, internal taxes and other fiscal levies which may be imposed in the recipient country with respect to the supply of the products and services under the verified contracts		●
5	To maintain and use properly and effectively the facilities constructed and equipment provided under the Grant		●
6	To bear all the expenses, other than those to be borne by the Grant, necessary for construction of the facilities as well as for the transportation and installation of the equipment		●

(B/A: Banking Arrangement, A/P: Authorization to pay)

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## Selection criteria of equipment

## 1) Basic Criteria

Positive points:

- P1: Equipment that is to be replaced for existing old / deteriorated equipment
- P2: Equipment that is to be a supplement for the equipment lacking distinctly in its quantity
- P3: Equipment that is required for basic treatment / diagnosis
- P4: Equipment that is easy to operate and maintain
- P5: Equipment that may give much benefit / effect to health care facility
- P6: Equipment that is highly cost-effective
- P7: Equipment that is for its medical usefulness (necessity)

Negative points:

- N1: Equipment that charges expensive operation/maintenance cost
- N2: Equipment that has limited benefits / effect to health care facilities
- N3: Equipment that is less cost-effective
- N4: Equipment that is not for treatment/diagnosis use, but for academic research purpose
- N5: Equipment that can be substituted with simple ones
- N6: Equipment that may cause environmental pollution by its medical waste, etc.
- N7: Equipment that is not for its medical usefulness (necessity)
- N8: Equipment that is for personal usage by hospital staff (not medical use)
- N9: Equipment that has more than minimum required quantity (inefficient, repetitive equipment)
- N10: Equipment that can be procured in Viet Nam easily by Viet Nam side

## 2) Additional Criteria

Positive points:

- P1': Equipment that can be operated by hospital's current technical capabilities
- P2': Equipment that can be operated/maintained by hospital staff
- P3': Equipment that matches with hospital's social position / function (referral system, local needs, etc.)
- P4': Equipment that can be expected to be useful with other donor's assistance

Negative points:

- N1': Equipment that is difficult to locally procure its spare parts and consumables
- N2': Equipment that cannot be operated by hospital's current technical capability
- N3': Equipment that seems to be difficult to operate / maintain by present hospital's staff
- N4': Equipment that does not match with hospital's social position / function (referral system, local needs, etc.)
- N5': Equipment that requires many infrastructures (water, electricity supply, drain, etc.) for its installation
- N6': Equipment that can be substituted by efficient usage of existing equipment

International standard:

Standard of WHO (ex. X-ray equipment, etc.) is applicable on case by case basis.

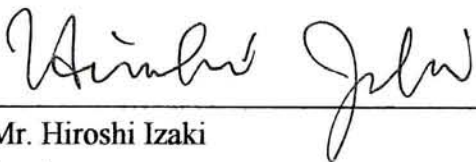
MINUTES OF DISCUSSIONS  
ON BASIC DESIGN STUDY ON THE PROJECT FOR IMPROVEMENT  
OF MEDICAL EQUIPMENT OF DA NANG HOSPITAL  
IN THE SOCIALIST REPUBLIC OF VIET NAM  
(EXPLANATION ON DRAFT REPORT)

In February 2004, the Japan International Cooperation Agency (hereinafter referred to as "JICA") dispatched a Basic Design Study Team on the Project for Improvement of Medical Equipment of Da Nang Hospital (hereinafter referred to as "the Project") in the Socialist Republic of Viet Nam (hereinafter referred to as "Viet Nam"), and through discussion, field survey, and technical examination of the results in Japan, JICA prepared a draft report of the study.

In order to explain and to consult the Viet Nam side on the components of the draft report, JICA sent to Viet Nam the Draft Report Explanation Team (hereinafter referred to as "the Team"), which is headed by Mr. Hiroshi Izaki, Senior Deputy Resident Representative, JICA Viet Nam Office, from 13<sup>th</sup> April, 2004 to 21<sup>st</sup> April, 2004.

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

Da Nang, April 20, 2004



Mr. Hiroshi Izaki  
Leader  
Draft Report Explanation Team  
Japan International Cooperation Agency  
(Japan)



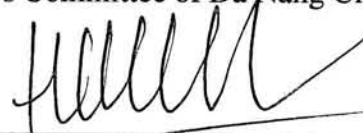
<sup>For</sup> Dr. Tran Trong Hai, Ph.D  
Director  
International Cooperation Department  
Ministry of Health



Mr. Nguyen Hoang Long  
Vice Chairman  
People's Committee of Da Nang City



Mr. Duong Duc Ung, Ph.D  
Director General  
Foreign Economic Relations Department  
Ministry of Planning and Investment



Dr. Pham Hung Chien  
Director  
Da Nang Hospital

## ATTACHMENT

### 1. Components of the Draft Report

The Government of Viet Nam agreed and accepted in principle the components of the draft report explained by the Team. The agreed list of equipment is attached as Annex-1.

### 2. Japan's Grant Aid scheme

Viet Nam side understands the Japan's Grant Aid Scheme and the necessary measures to be taken by the Government of Viet Nam as explained by the Team and described in Annex-2 and Annex-3 of the Minutes of Discussions signed by both parties on February 24, 2004.

### 3. Schedule of the Study

JICA will complete the final report in accordance with the confirmed items and send it to the Government of Viet Nam by August 2004.

### 4. Other relevant issues

#### 4-1. Areas of services provided by Da Nang Hospital

Viet Nam side announced that Da Nang Hospital shall continue providing medical services to the central southern area of Viet Nam.

#### 4-2 Implementation budgets

The People's Committee of Da Nang City agreed to secure and allocate necessary implementation budgets to be covered by the Viet Nam side for the Project.

#### 4-3. Tax exemption

Viet Nam side agreed to take necessary measures to ensure that all fiscal levies and taxes relating to the Project would be exempted from the Japanese nationals.

#### 4-4. Confidentiality of the Report

Both sides confirmed that the contents of the draft final report should be confidential until the time of tender.

The bottom right corner of the page contains several handwritten marks. On the left, there is a signature that appears to be 'HLL' written in cursive. To its right is a circled symbol that looks like a cross or a plus sign. Below these, there are some smaller, less distinct handwritten marks and initials.



Code No.	Equipment Name	Department Name	Room Name	Q'ty
1	X-ray Fluoroscopic Machine	Imaging Diagnosis	Fluoroscopy	1
2	X-ray General Machine	Imaging Diagnosis	X-ray General	1
3	X-ray Mobile Machine	ICU	ICU-1	1
4	Ultrasound, Color Doppler	Imaging Diagnosis	Ultrasound examination	1
5	Ultrasound A	Imaging Diagnosis	Ultrasound examination	1
6	Ultrasound B	OB/GY Examination	OB/GY Examination	1
7	Anesthesia Machine with Ventilator	Operation	Operation	7
8	Operation Table, Multipurpose	Operation	Operation	9
9	Electro Surgical Unit	Operation	Operation	5
10	Defibrillator	Emergency	Treatment	1
	Defibrillator	ICU	ICU-1	1
11	Operation Lamp, Ceiling and Combination type	Operation	Operation	8
12	Operation Lamp, Stand type	Emergency	Operation	1
13	Patient Monitor	Pediatric	ICU	1
	Patient Monitor	SICU	SICU	5
	Patient Monitor	Emergency	Treatment	2
	Patient Monitor	ICU	ICU-1	5
	Patient Monitor	Operation	Operation	7
14	Fetal Actocardiograph	Delivery	Delivery	1
15	Ventilator	SICU	SICU	5
	Ventilator	Emergency	Treatment	2
	Ventilator	ICU	ICU-1	5
	Ventilator	Pediatric	ICU	1
16	Electrocardiograph	Pediatric	ICU	1
	Electrocardiograph	Emergency	Treatment	1
	Electrocardiograph	ICU	ICU-1	1
17	Electro Suction Pump	SICU	SICU	3
	Electro Suction Pump	Pediatric	ICU	2
	Electro Suction Pump	Emergency	Treatment	2
	Electro Suction Pump	ICU	ICU-1	3
	Electro Suction Pump	Operation	Operation	9
18	Thorax Surgical Instrument Set	Operation	Operation	2
19	Abdomen Surgical Instrument Set	Operation	Operation	2
20	Arthrosis Surgical Instrument Set	Operation	Operation	1
21	Neurosurgery Instrument Set	Operation	Operation	1
22	Spinal Surgical Instrument Set	Operation	Operation	1
23	Odonto-maxillo Facial Surgical Instrument Set	Operation	Operation	1
24	Infant Incubator	Pediatric	Pathological neonate	5
25	Phototherapy Unit	Pediatric	Pathological neonate	4
26	Gastrointestinal Fiberscope	Endoscopic Diagnosis	Endoscopic room	1
27	Broncho Fiberscope	Operation	Operation	1
28	Colono Fiberscope	Endoscopic Diagnosis	Endoscopic room	1
29	ERCP Endoscopy	Endoscopic Diagnosis	ERCP room	1
30	Bilirubin Analyzer, Skin type	Pediatric	Pathological neonate	1
31	Stress Test System	Cardiovascular	Cardiovascular examination	1
32	Syringe Pump	Pediatric	ICU	2
	Syringe Pump	ICU	ICU-1	4
	Syringe Pump	Operation	Operation	4
33	Microscope	Hematology	Hematology examination	2
34	Refrigerator for Blood Bank	Blood Bank	Blood bank	3
35	Steam Sterilizer A	Sterilization	Sterilization	1
36	Steam Sterilizer B	Operation	Sterilization	1
37	Steam Sterilizer, Vertical type	Microbiology	Lab. Sterilization	2
38	Instrument Washing Machine	Sterilization	Sterilization	1

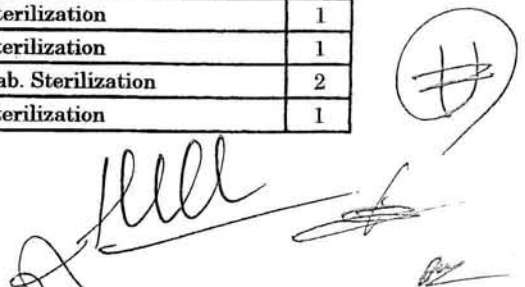


Table-1 The population growth rate of Da Nang City

Year	1997	2001	2002	2003	2004	2005	2010
Year	1997	2001	2002	2003	2004	2005	2010
Year-on-year rising rate	107%	107%	107%	107%	107%	107%	107%
Population	667,200	715,000	724,000	772,508	824,266	880,000	940,000

A population growth rate (1995 to 2000) is 1.6%. The Health Department of Da Nang City has defined the estimate of population in 2005 and 2010.

Table-2 The number rate of increase of outpatients of the Da Nang hospital

Year	1999	2000	2001	2002	2003	2004	2005
Year	1999	2000	2001	2002	2003	2004	2005
Year-on-year rising rate	112%	108%	110%	108%	108%	108%	108%
Population	124,458	139,770	151,044	165,470	179,357	194,409	210,725

Year	2006	2007
Year	2006	2007
Year-on-year rising rate	108%	108%
Population	228,410	247,579

Since it will function as a top referral hospital from now on, it is assumed that the patients from each provinces also increase in number. Diagnosis and medical treatment are attained to the patient who was not able to perform a medical service by superannuation of equipments. Equipments will be arranged from 2006 and suitable diagnosis and medical treatment will be attained. If prediction will be compared with a track record in 2007 in 2003, the number of outpatients will become an increase about 35%.

Table-3 The User fee rate of increase

Year	Equipments beginning-of-using year							The increase in 15% of valuation bases
	2001	2002	2003	2004	2005	2006	2007	
Year	2001	2002	2003	2004	2005	2006	2007	The increase in 15% of valuation bases
User fee	15,530,936	17,313,619	22,062,937	22,724,825	23,406,570	24,576,898	25,559,974	25,372,377
Year-on-year rising rate	111%	112%	127%	103%	103%	103%	105%	104%

(Unit: 1000VND)

Table-4 The patient rate of increase by equipments use

Year	Equipments beginning-of-using year							The increase in 15% of valuation bases	Per year
	2001	2002	2003	2004	2005	2006	2007		
Year	2001	2002	2003	2004	2005	2006	2007	The increase in 15% of valuation bases	Per day
The Number of total patient by X-rays Machine	71,549	71,549	71,549	71,549	71,549	72,980	82,524	82,281	226
Fluoroscopy X-rays Machine	0	0	0	0	0	2,000	2,800	8	8
General X-rays Machine	63,049	63,049	63,049	63,049	63,049	66,832	70,174	192	192
Mobile X-rays Machine	8,500	8,500	8,500	8,500	8,500	9,010	9,551	26	26
Note: CT and MRI are excepted from X-rays Machine. General X-rays machine are in radiation & nuclear medicine.									
The Number of total patient by Ultrasound	21,702	21,702	21,702	21,702	21,702	23,453	24,970	24,957	68
Ultrasound, Color	2,262	2,262	2,262	2,262	2,262	2,941	3,529	10	10
Ultrasound, A	14,400	14,400	14,400	14,400	14,400	15,120	15,725	43	43
Ultrasound, B	5,040	5,040	5,040	5,040	5,040	5,393	5,716	16	16
The Number of total patient by Endoscopy	4,800	4,800	4,800	4,800	4,800	5,426	5,589	5,520	21
Gastro	3,600	3,600	3,600	3,600	3,600	3,708	3,819	15	15
Colono	720	720	720	720	720	742	764	3	3
Broncho	480	480	480	480	480	494	509	2	2
ERC.P	0	0	0	0	0	482	496	2	2

## Other Relevant Data

No.	Title of Books	Publish by	Publish date	Original or Copy
1	The plan of medical network in Da Nang City, 2001-2010 (No.90/2003/QD-UB)	People's Committee of Da Nang City	2003	Copy
2	Regulation of People's Committee of Da Nang City (No. 150/2002/QD-UB)	People's Committee of Da Nang City	2002	Copy
3	Health Statistical Profile 1997-2001	Ministry of Health	1997	Copy
4	A doctor's in charge diploma	Da Nang Hospital		Copy
5	The last construction schedule, New Emergency, examination and outpatient building	East Meets West	2004	Copy
6	Map of Da Nang	Da Nang	2000	Original
7	Meteorological data	Da Nang	2000	Copy