

CHAPTER 2
CONTENTS OF THE PROJECT

Chapter 2 Contents of the Project

2-1 Basic Concept of the Project

(1) Overall Goal and Project Goal

The Vietnamese government has established the Strategy for the People's Health Care and Protection 2001-2010 in its Socioeconomic Development 5-Year Plan for the period 2001-2005, with improvement of the state of health of children in Viet Nam as the overall goal and target figures of lowering infant mortality to below 25 per 1,000 births and the mortality rate of children under age five to below 32 per 1,000 births as well as also calling for efforts to lower other such indices such as the rate of underweight births and the rate of malnutrition among children under age five. In order to attain those goals the country's Ministry of Health is working hard to secure investment funds for the field of health and medical care, strengthen operation and management systems, and capability of medical facilities, and train the necessary human resources, but at many medical care installations that actually receive patients the facilities and equipment are in a sorry state of deterioration from long years of use, making them unable to provide their patients with adequate medical care services.

The objective of this Project is to improve the medical service of the NIP through provision of medical equipment that is old and/or lacks in its quantity.

(2) Outline of the Project

In the Project the necessary inputs as follows, and activities as the internal education of medical staffs and the training of medical equipment control, for attainment of the upper-hierarchy goal, are planned.

<Vietnamese Side>

- Transferring of existing equipment (X-ray apparatus, operation lamps, high-pressure steam

sterilizers, etc.)

- Electrical wiring, water supply and drainage piping work etc.
- Securing of operation and maintenance funds.

<Japanese Side>

- Procurement of the Equipment

That can be expected to bring the medical equipment of the NIP up to par and also lead to improvement of the technical abilities and quality of its medical staff, and provision of replacement and additional equipment to overcome the obstacle to adequate medical services posed by its deteriorated and quantitatively insufficient equipment constitutes a part of such project assistance.

2-2 Basic Design of the Requested Japanese Assistance

2-2-1 Design Policy

(1) Overall Policy

It is important to aim for recovery and improvement of medical services, the level of which has declined, by replacing only equipment that is urgently needed for treatment. Furthermore, limiting the choice to equipment characterized by ease of operation and maintenance will make it possible to make as effective use as possible of the equipment. By having the Vietnamese side take care of the improvement of facilities, it will be possible to contribute to improvement of the state of health of children through cooperation between the two countries. The equipment plans have been formulated on the basis of the following criteria.

The Criteria of Selection of Equipment by the Study Team

- (i) Equipment to be urgently replaced with old/decrepit equipment.
- (ii) Equipment that lacks in its quantity
- (iii) Equipment that is imperative for the disease treatment.
- (iv) Equipment that is used very frequently.

Order of Priority in Minutes of Discussion

A = 1st priority/Essential

B = 2nd priority/Necessary to study

C = 3rd priority/If possible

(2) Policy Regarding Different Departments or Equipment

1) Basic Design Policy

In formulation of the equipment plan it is intended to avoid putting too much of a burden on the other side's implementation system (personnel allocation, budget measures, technical level, etc.) while abiding by the principle of replacing deteriorated equipment and filling equipment shortages. As regards equipment specifications, the basic policy is that the new equipment be of the same grade as the existing equipment. The present situation regarding the main equipment and

a description of the equipment to be included in the plan are presented below.

2) Policy of Major Equipment

① Operating room equipment

Present situation:

There are five operating rooms, all five of which have a high rate of use because of considerable increase in the number of patients. The operations carried out in them are mainly emergency trauma, emergency surgery and orthopedic surgery.

The equipment to be provided in the project is that needed to replace equipment that has become deteriorated or obsolete, but the quantity to be provided will be greater than the quantity replaced in view of present insufficient quantity. The instrument sets will be forceps and similar instruments for heart blood vessels, neurosurgery, general pediatrics, orthopedic surgery and otorhinolaryngological surgery, the purpose being renewal of existing instruments.

Planned Equipment:

Operating Table, Operating Lamp, Anesthesia Apparatus (with Ventilator), Electro Surgical Unit, Electro Surgical Suction Unit, Low Pressure Continue Electro Suction Pump, Defibrillator, Laparoscope Surgical Set, Gastrointestinal Fiberscope Set with Video, Colonofiberscope Set, Instrument Sets, Ultrasonic Surgical Scapel Aparatus, Surgical Microscope for Microsurgery, Patient Monitor for Anesthesia Apparatus, Pulse Oximeter, Infusion Pump, Syringe Pump

② Radiophotography equipment

Present situation:

There are presently four radiological rooms, with installation of a CT scanner, General X-ray Machine, Mobile X-ray Machine and X-ray Diagnostic TV System, all of which have become deteriorated or obsolete, and therefore replacement of them, except for the CT scanner, will be

included in the project. There are four ultrasonic diagnosis apparatuses, but in view of inadequacy in terms of portable such apparatus for use in wards one such Ultrasound Portable will be included. Since the existing Automatic X-ray Film Processor breaks down frequently, a new one will be included, as will be a C-arm X-ray TV System for Surgery as basic equipment for use in orthopedic and other operations.

Planned Equipment:

General X-ray Machine, Mobile X-ray Machine, X-ray Diagnostic TV System, C-arm X-ray TV System for Surgery, Ultrasound Portable, Automatic X-ray Film Processor

③ ICU equipment

Present situation:

The ICU, which has 10 beds, always has in excess of twenty patients with respiratory and circulatory organ ailments. Since there are always six nurses on duty, three infant ventilators will be provided in the project to bring the total number thereof up to six. Also, in view of the importance of control of breathing of newborns, it is planned to include capnography in the monitors since they make it possible to measure oxygen and carbon dioxide in exhaled air.

Planned Equipment:

Low Pressure Continue Electro Suction Pump, Suction Pump, Ultrasonic Nebulizer, Infant Incubator, Infant Ventilator, Bed Side Monitor with Capnography, Pulse Oximeter with Capnography, Syringe Pump, Infusion Pump

④ Premature babies room equipment

Present situation:

The premature babies room has thirty beds but regularly more than eighty patients. Since there

are five nurses on duty at night, there will be a total of five Infant Ventilators, including the present two. In view of the fact that 70% of premature babies need body temperature control, six new Infant Incubators will be provided.

Planned Equipment:

Infant Incubator, Electric Suction Pump, Low Pressure Continue Electro Suction Pump, Color Ultrasound, Doppler, Infant Ventilator, Pulse Oximeter, Oxygen Monitor, Bilirubin Analyzer, Infusion Pump, Syringe Pump

(3) Policy Regarding Natural Conditions

In the summer the temperature is about 28 deg., and in the winter it is about 15 deg., the period from April to October being the rainy season. There is therefore no need to change the equipment specifications on account of the natural conditions, and since there is no problem of fluctuation of voltage, the equipment will not be provided with automatic voltage stabilizers.

(4) Policy Regarding Utilization of Local Suppliers and Contractors and Local Equipment and Materials

Almost no real medical equipment is made in Viet Nam, what is made there being limited to basic, simple equipment. The local agencies that supply medical equipment are agencies of Japanese or U.S. and European manufacturers, and almost all of them are located in Hanoi. However, there are some in Ho Chi Minh City, for some kinds of equipment. In this project the equipment will be imported from abroad, and the choice will go to manufacturers who have an agency in Viet Nam and who will be producing and supplying spare parts and consumables, etc. for at least 5 years. In selecting the equipment from among what is available from Japanese and third-party manufacturers, consideration will be given to ease and sureness of upkeep and maintenance and compatibility with the equipment that the hospital in question already has.

(5) Policy Regarding Dealing With the Maintenance Capability of the Implementing Organization

Regarding operating funds and the technical level of those who will be using it, none of the equipment to be furnished should pose any difficulties in handling it after implementation of the project since it will be limited to replacement of existing equipment and some quantitative supplementation thereof. However, since some of the medical equipment to be supplied is sophisticated, it will be necessary for the NIP's side to conclude equipment maintenance contracts with the manufacturers to ensure that they can continue to be used for a long time.

(6) Policy Regarding the Period of the Work Relating to Installation of the Equipment

It will be necessary to bring in the planned equipment after checking that the facility repairs work for installation thereof has been completed. The equipment arrangement and the installation work will be planned so as to be able to complete the work in an efficient manner and a short time without interfering with the hospital's daily operation.

(7) Policy Regarding Setting of Equipment Scope and Grade

Since the project involves basically only replacement of existing equipment and supplementation of quantitative deficiencies, the grade will be the same as that of the existing equipment. However, in NIP, since diagnosis by blood vessel imaging was performed and the equipment, which had a blood vessel imaging function about X-ray Diagnostic TV System, was judged to be suitable, C-arm type will be considered.

Since one of the conditions is that there be agencies for re-supply, no spare parts will be included along with the equipment provided in the project, except for the sets of forceps and similar instruments, but there will be provision of about 2-weeks' worth of consumables considered to be needed for run-in operation.

(8) Equipment Considerations at the Time of Study of Basic Design

Since the Vietnamese side requested a large number of items that came to a very large total value, the basic design team explained the criteria for equipment selection with emphasis on treatment equipment and got the other side to agree.

The equipment to be included in the project will be selected on the basis of the above considerations and judgment concerning the hospital's patient demand, personnel plans, the content of that equipment and the NIP's technical level as well as the equipment design policies and results of the study and discussions.

2-2-2 Basic Plan (Equipment Plan)

(1) Overall Plan

1) Environment

The NIP is located about 3 km west of the center of Hanoi City and about 500 m south of JICA office in Viet Nam. Its main gate can be accessed by an a road from Ratan Street, which is comparatively narrow with a width of about 8 m and runs east-west through the city, that starts about 120 m away. It was inaugurated in 1981, and except for some signs of repair is being used just about as it was when it was completed.

Since the site's ground foundation is poor and piles were used only for an 8-floor building, there has been uneven subsidence, resulting in undulation of floors. That being the case, starting several years back there has been addition of friction piles under the existing columns and reinforcement work on the building structures, and such facility repairs are scheduled to be completed a year hence. A new 3-storey building is also under construction on the northern side of the site. Since it has not yet been completed, equipment for it has not been considered in this project.

2) Situation Regarding Infrastructure

There is a high-voltage automatic voltage-stabilizing apparatus serving the whole facility that is capable of appropriate voltage adjustment of the site's entire load. An in-house generator facility automatically supplies power to the operating rooms, ICU, test laboratory, etc. during mains power outages. However, in view of the fact that the power facilities, cables, etc. are already more than twenty years old, they will have to be renewed within ten years.

Since there are no problems regarding either power supply or voltage, no apparatuses for coping with power outages or voltage fluctuation will be included with the equipment to be provided in the project.

3) Air Conditioning and Medical Treatment Gases

In view of the fact that air conditioners have already been installed where they are absolutely necessary, such as in the test laboratory, the radiology rooms, etc., no provision will be made for them in this project. There is a medical treatment gas supply room that supplies oxygen to all of the buildings on the site from an oxygen generator by way of a central piping system, but because of insufficient equipment capacity oxygen pumps are being purchased from an outside company. As for compressed air apparatus, there is no problem because it is being replaced. Laughing gas is being used on the basis of bringing in of the chemicals, and since a basic premise of the project is maximum use of what is already available as it is, air conditioning and medical treatment gases are not aspects included in the project.

(2) Course of Consideration of the Requested Equipment

How the requested equipment was considered on the basis of the above-mentioned principles is indicated in Table 2-1.

(3) Equipment Plans

The equipment that it has been considered appropriate to include in the project is that indicated in Table 2-2 below.

2-2-3 Basic Design Drawings (overall site plan, ground plan, equipment layout plan)

(1) Overall Site Drawing

The overall site drawing is given is Figure 2-1.

(2) Equipment Layout Plan

The equipment layout plan is given in Figure 2-2.

The layout plans of the different equipment are indicated in Table 2-3.

Table2-1 Result of Equipment Analysis

Cont. No.	Add	Department	Description	Priority	Requested Qty	Existing Qty	Working Situation of Existing Equipment			Planned Qty	Remarks
							Working	Repairing	No-working		
1		X-ray	General Radio X-ray Machine	A	1	1			1	1	
2		X-ray	Automatic X-ray Film Processor	A	1	1		1		1	
3		X-ray	Mobile X-ray Machine	A	1	4	1	1	2	1	
4 *		X-ray	X-ray Diagnostic TV System	B	1	2	1		1	1	
51	ICU	X-ray	B & W Ultrasound	A	1	3	3			1	This is for the Ward.
**		X-ray	C-arm X-ray TV System for Surgery	A	1	0				1	
5		Cardiology	Electrocardiograph	A	1	1		1		1	
6		Cardiology	Bed Side Monitor	A	1	1		1		1	
8		Cardiology	Suction Pump	A	1	1		1		1	
9 *		Cardiology	Pulse Oximeter	A	1	0				1	
13		Respiratory	Pulse Oximeter	A	2	3	1	2		2	
14		Respiratory	Low Pressure Continuous Suction Pump	A	2	2	2			2	
15		Respiratory	Ultrasonic Nebulizer	A	4	8	2	2	4	4	
18		Operating	Operating Table	A	5	5		5		5	
20		Operating	Operating Lamp, Ceiling type, Combination type	A	3	3		3		3	
21		Operating	Operating Lamp, Ceiling type	A	1	2		2		1	One of this equipment will be procured by Vietnamese side.
22		Operating	Anesthesia Apparatus	A	4	5	1	4		4	
23		Operating	Ventilator	A	4	1	1			4	
24		Operating	Electrosurgical Unit	A	3	5	2	3		3	
25		Operating	Surgical Suction Unit	A	5	7	2	3	2	5	
26		Operating	Defibrillator	A	1	1			1	1	
27		Operating	Laparoscope Surgical Set, Pediatric with Video	A	1	1		1		1	
28		Operating	Gastrointestinal Fiberscope Set, with Video	A	1	2		2		1	
29		Operating	Cardiovascular Instrument Set	A	2	1		1		2	It is inharmonious at the forceps of various combination.
30		Operating	Neurosurgery Instrument Set	A	1	1		1		1	It is inharmonious at the forceps of various combination.
31		Operating	General Pediatric Instrument Set	A	10	1		1		10	It is inharmonious at the forceps of various combination.
32		Operating	Orthopedic Instrument Set	A	2	1		1		2	It is inharmonious at the forceps of various combination.
34		Operating	Ultrasonic Surgical Scapel Apparatus (Cusa)	A	1	0				1	
35		Operating	Surgical Microscope for Microsurgery	A	1	0				1	
36		Operating	Patient Monitor	A	4	5	1	2	2	4	
37 *		Operating	Microsurgery Instrument Set for ENT	A	1	1				1	It is inharmonious at the forceps of various combination.
40 *		Operating	Pulse Oximeter	A	5	5	5			5	
42		Operating	Infusion Pump	A	5	1		1		5	
**		Operating	Low Pressure Continuous Suction Pump	A	2	2	2			2	
43		Operating	Colonofiberscope Set	A	1	1		1		1	
44		Operating	Syringe Pump	A	8	2	2			8	
17 *Res		Operating	Bronchofiberscope Set	A	1	2		2		1	
95 Sur		Operating	Portable Infant Warmer	A	1	0				0	The local agencies that supply medical equipment are no existing in Vietnam
45		ICU	Low Pressure Continuous Suction Pump	A	2	2	2			2	
46		ICU	Ultrasonic Nebulizer	A	1	3	2	1		1	
47		ICU	Infant Incubator	A	2	3	1		2	2	
52		ICU	Respirator	A	3	5	3	2		3	
53		ICU	Bed Side Monitor, with Capnograph	A	4	3	2		1	4	
54		ICU	Pulse Oximeter, with Capnograph	A	4	1	1			4	
55		ICU	Suction Pump	A	6	3		3		6	
56		ICU	Syringe Pump	A	5	1	1			5	
57		ICU	Infusion Pump	A	3	1		1		3	
58		Premature	Infant Incubator	A	6	10	4		6	6	
61		Premature	Suction Pump	A	5	1		1		5	
62 *		Premature	B & W Ultrasound, Doppler	A	1	0				1	
63		Premature	Respirator	A	3	6	4		2	3	
65		Premature	Pulse Oximeter	A	5	1			1	5	
66		Premature	Oxygen Monitor	A	2	0				2	
67		Premature	Bilirubin Analyzer	A	1	0				1	
69		Premature	Infusion Pump	A	2	0				2	
70 *		Premature	Apnea Monitor	B	5	0				0	The local agencies that supply medical equipment are no existing in Vietnam
**		Premature	Low Pressure Continuous Suction Pump	A	2	0				2	
**		Premature	Syringe Pump	A	1	1	1			1	
71 *		Oncology	Pulse Oximeter	A	1	0				1	

Table2-1 Result of Equipment Analysis

Cont. No.	Add	Department	Description	Priority	Requested Qty	Existing Qty	Working Situation of Existing Equipment			Planned Qty	Remarks
							Working	Repairing	No-working		
72		Infectious Disease	Pulse Oximeter	A	1	0				1	
73		Infectious Disease	Ultrasonic Nebulizer	A	1	2	1	1		1	
74		Infectious Disease	Suction Pump	A	1	3		3		1	
75 *		Digestive Disease	Pulse Oximeter	A	1	0				1	
76		Nephrology	Suction Pump	A	1	1		1		1	
77		Nephrology	Ultrasonic Nebulizer	A	1	1		1		1	
78		Nephrology	Pulse Oximeter	A	1	0				1	
81		Neurology	Suction Pump	A	1	1		1		1	
82		Neurology	Ultrasonic Nebulizer	A	1	1		1		1	
83 *		Neurology	Pulse Oximeter	A	1	0				1	
84		Endocrinology	Suction Pump	A	1	1		1		1	
85 *		Endocrinology	Pulse Oximeter	A	1	0				1	
86 *		Haematology	Pulse Oximeter	A	1	0				1	
90		Rehabilitation	Ultrasonic Therapy Apparatus	A	1	1		1		1	
91		Rehabilitation	Low Frequency Therapy Apparatus	A	1	1		1		1	
92		Surgery	Suction Pump	A	2	2		2		2	
93		Surgery	Ultrasonic Nebulizer	A	1	0				1	
94		Surgery	Pulse Oximeter	A	1	0				1	
**		Surgery	Low Pressure Continuous Suction Pump	A	2	0				2	
97		Emergency	Defibrillator	A	1	0				1	
98		Emergency	Ultrasonic Nebulizer	A	1	1	1			1	
99		Emergency	Portable Infant Warmer	A	1	0				0	The local agencies that supply medical equipment are no existing in Vietnam
100		Emergency	Suction Pump	A	2	1		1		2	
101		Emergency	Bed Side Monitor	A	1	0				1	
102		Emergency	Pulse Oximeter	A	4	0				4	
104		Emergency	Infusion Pump	A	2	0				2	
106		O.P.D.	Suction Pump	A	2	2		2		2	
108		O.P.D.-ENT	E.N.T. Unit	A	1	0				1	
109		O.P.D.-ENT	Audiometer	A	1	0				0	The local agencies that supply medical equipment are no existing in Vietnam
111		O.P.D.-Dental	Dental Unit & Chair	A	2	2			2	2	
112 **		O.P.D.-Dental	Dental X-ray Unit, with Film Processor	A	1	2			2	1	
113		O.P.D.-Dental	Autoclave, Table top	A	1	2			2	1	
116		Pharmacy	Automatic Water Distillation Apparatus, with Softner	A	1	2	1		1	1	
117		C.S.S.D	High Pressure Steam Sterilizer, 600L	A	2	3		2	1	2	
120		Biochemical Lab.	Automatic Chemistry Analyzer	A	1	1	1			1	
121		Haematology Lab.	Microscope	A	3	4	1	3		3	
128 **		Haematology Lab.	Refrigerated Centrifuge	A	1	0				1	
133		Microbiological Lab.	Incubator	A	1	1		1		1	
134		Microbiological Lab.	Ultra Low Temp. Freezer	A	1	0				1	
135		Microbiological Lab.	Microscope	A	1	1	1			1	
136		Microbiological Lab.	Stereo Microscope	A	1	0				1	
138		Microbiological Lab.	Autoclave, Vertical type	A	1	1	1			1	
145 **		Blood Bank	Refrigerated Centrifuge	A	1	0				1	
147 **		Patient Transportation	Ambulance(4WD) with Pulse Oximeter	B	1	1	1			0	Because of a viewpoint of an emergency care system, the replacement is not performed.

Table 2-2 List of Main items of Equipment under the Project

No.	Description	Specifications or Composition	Q'ty	Purpose and Appropriateness of the Grade of Equipment
1	X-ray Diagnostic TV System	C-arm unit , Digital Radiography ; 7.5fps , Digital Fluorography ; 30fps , Auto Injector , Laser Imager provided	1	Fluoroscopic machine for various diagnosing interventional radiology. The present one operates by hand.
2	General X-ray Machine	Output ; 32kW , 500mA. Frequency ; more than 20kHz , Bucky table , stand provided	1	Used for observing orthopedic as well as head , breast and abdomen. Equivalent grade to the present one.
3	C-arm X-ray TV System for Surgery	Monitor ; 2 , C-arm type , Video memory and Laser imager provided.	1	Both freeze-frames and moving images operate for urology and neurosurgery other than orthopedic.
4	Mobile X-ray Machine	Invertor type , Tube voltage ; ~125kV , Cordless type , Motor driven , battery powered.	1	Used for inpatients , Equivalent grade to the present one.
5	Automatic X-ray Film Processor	Processing time; More than 200 sheets/h, tanks for developer and fixer provided.	1	Used for developing and fixing films , Equivalent grade to the present one.
6	Ultrasound , Doppler	Used for diagnosing infant head and heart, Mode ; B , M , B/M , Doppler monitor ; Colour , more than 12 inch , Sector probe provided	1	Used for imaging diagnosis of disease morphology and tissue conditions by sending ultrasound to the patient's body and analyzing the transmitted or reflected waves.
7	Ultrasound , Portable	Used for diagnosing infant head and heart, Portable type, Mode; B, M, B/M, Monitor ; B & W, more than 9 inch, Sector probe provided	1	Used for imaging diagnosis of disease morphology and tissue conditions by sending ultrasound to the patient's body and analyzing the transmitted or reflected waves.
9	Patient Monitor for Anesthesia Apparatus	Display ; more than 10 inch , Measurement ; electrocardiogram , blood pressure , respiration , body temp. , pulse , SpO2 , invasive and non-invasive	4	Used with anesthesia apparatus and for monitoring vital signs of patients , Equivalent grade to the present one.
10	Bed Side Monitor	Display ; more than 10 inch , Measurement ; electrocardiogram , blood pressure , respiration , body temp. , pulse , SpO2 , and non-invasive	2	Used for monitoring vital signs of patients , Equivalent grade to the present one.
11	Bed Side Monitor , with Capnograph	Display ; more than 10 inch , Measurement ; electrocardiogram , blood pressure , respiration , body temp. , pulse , SpO2 , non-invasive and CO2	4	Used for monitoring vital signs of patients , Equivalent grade to the present one.

Table 2-2 List of Main intems of Equipment under the Project

No.	Description	Specifications or Composition	Q'ty	Purpose and Appropriateness of the Grade of Equipment
14	Defibrillator	Setting range of energy ; 2 to 360J in 12 steps or more , Display ; Approx.5 inches , Measuring range for heart rate ; 15 to 300bpm (defibrillation/monitor mode)	2	Used for reanimating cardiac arrest by giving electric signals.Equivalent grade to the present one.
18	Operating Table	Electrohydraulic type , Vertical moving range ; 60~100cm , Longitudinal rotation ; 25°up/down , Lateral rotation ; 20°left/rigth , With X-ray cassette holder	5	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. X-ray photography is possible during operation.
19	Operating Lamp , Ceiling type , Combination type	Main/Auxiliary lamp type suspended from the ceiling , with one arm for a camera, Main light ; 8 or more bulbs, 135,000Lux or higher Auxiliary light ; 4 or more bulbs , 90,00Lux or higher	3	For properly lighting the region of the patient to be operated so that surgery can be performed efficiently. Ceiling type that does not get in the way of surgeons and assistants is chosen.
21	Anesthesia Apparatus , with Ventilator	2 gases (O2 , Air) type for infants and childs, 2 Vaporizers of halothane and isoflurane, Low-oxygen safety mechanism, Mode for respiration ; SIMV , CMV , PEEP , CPAP and more. Tidal volume ; approx.20~1400mL/min, With Humidifier	4	For carrying out operations safely without pains to patients. A ventilator carry out ventilation for patients who can not do spontaneous breathing.
23	Laparo Endoscopic Surgical Set, for Pediatric, with Video	Rigid endoscope , Camera control unit , Light ; Xenon , TV monitor and electric scalpel provided	1	Rigid endoscope is used for operations without celiotomy. Equivalent grade to the present one.
24	Gastrointestinal Fiberscope Set , with Video	Flexible endoscope , Side hole type , With Video	1	Used for diagnosing conditions of inside of the stomach through the endoscope.
25	Colonofiberscope Set	Flexible endoscope , Light source and suction pump provided	1	Used for diagnosing conditions of colon through the endoscope , inserted into the colon.
26	Bronchofiberscope Set, with Video	Flexible endoscope , Light source and suction pump provided, with Video	1	Used for diagnosing conditions of bronchial tube through the endoscope , inserted into bronchial
27	Cardiovascular Instrument Set	85 forceps	2	Operational instrument set for cardiovascular. Equivalent grade to the present ones.
28	Neurosurgery Instrument Set	66 forceps	1	Operational instrument set for meurosurgery. Equivalent grade to the present ones.

Table 2-2 List of Main intems of Equipment under the Project

No.	Description	Specifications or Composition	Q'ty	Purpose and Appropriateness of the Grade of Equipment
30	Orthopedic Instrument Set	26 forceps	2	Operational instrument set for orthopedic. Equivalent grade to the present ones.
31	Microsurgery Instrument Set for ENT	76 forceps	1	operational instrument set for E.N.T. Equivalent grade to the present ones.
32	Ultrasonic Surgical Scalpel Apparatus	Oscillation ; electrostriction , Output ; continuous , Max.output ; more than 100W	1	Used for operation of internal organs , destroying and suctioning anatomy without hurting blood vessels and nerves.
33	Surgical Microscope for Microsurgery	Microscope for neurosurgery , Mobile floor stand type	1	Microscope for microscopic operations
35	Infant Ventilator	Mode for respiration ; SIMV , CMV , PEEP , CPAP and more. Tidal volume ; approx.20~1400mL/min , Humidifier	6	For carrying out operations safely without pains to patients. A ventilator carry out ventilation for patients who can not do spontaneous breathing.
43	E.N.T. Unit with chair and instrument set	Lighting unit , Instrument tray with bottle rack , Compressor ; 200W or bigger	1	Basic instrument set for E.N.T.
44	Dental Unit & Chair, with instrument set	Turbine , Compressor provided	2	Used in the dental department
46	High Pressure Steam Sterilizer	Effective volume ; 580L or more , Pass-through type , With panel	2	Used for sterilizing instruments. Equivalent grade to the present one.
50	Automatic Chemistry Analyzer	Reagents ; open type , Measurement items ; 40 or more , Speed ; 180 tests/h , Printer	1	Used for examining patients' blood automatically
54	Refrigerated Centrifuge for Blood Bank	Blood bags ; 300mL×4pcs. or more , Speed ; 3,000rpm or more , Temp. control ; -10~+30°C	1	Used in blood component transfusion

Figure 2-2 Equipment Layout Plan

BUILDING	ROOM	X-AXIS	Y-AXIS	AREA(m ²)	CEILING HEIGHT	FLOOR HEIGHT
F	OPERATION ROOM(L)				3,000	4,000

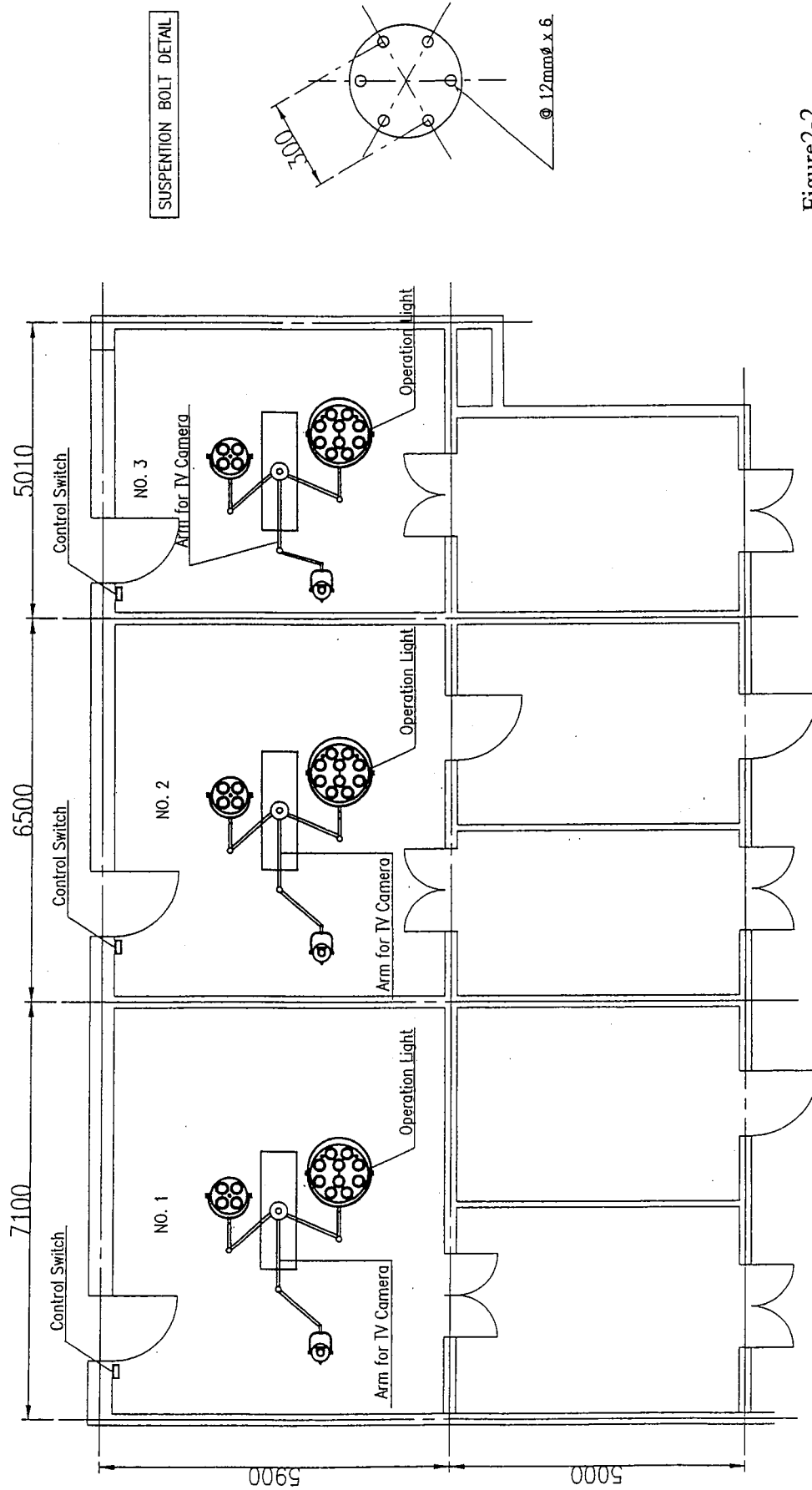

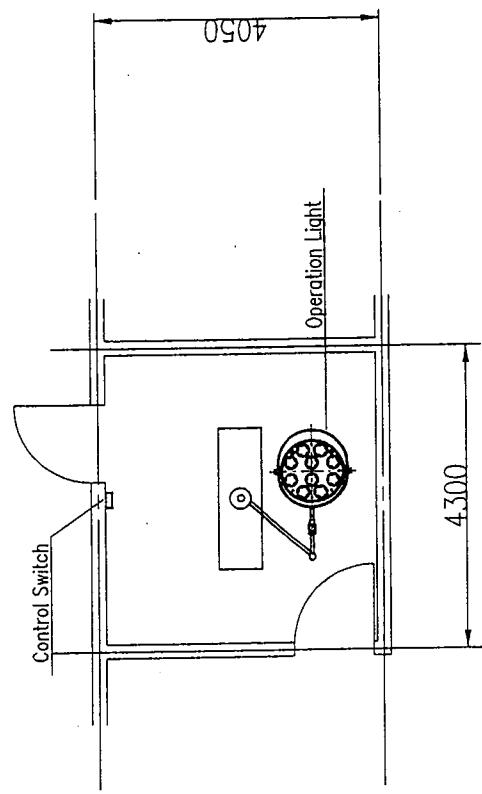


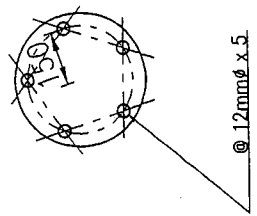
Figure 2-2


	Medical Engineering & Planning Co., Ltd.		SCALE 1/100	THE PROJECT FOR IMPROVEMENT OF NATIONAL INSTITUTE OF PEDIATRICS IN THE SOCIALIST REPUBLIC OF VIETNAM		DATE 17 JAN. 2003
					No. ME-1	

BUILDING	ROOM	X-Axis	Y-Axis	AREA(m ²)	CEILING HEIGHT	FLOOR HEIGHT
F	OPERATION ROOM(S)				3,000	4,000

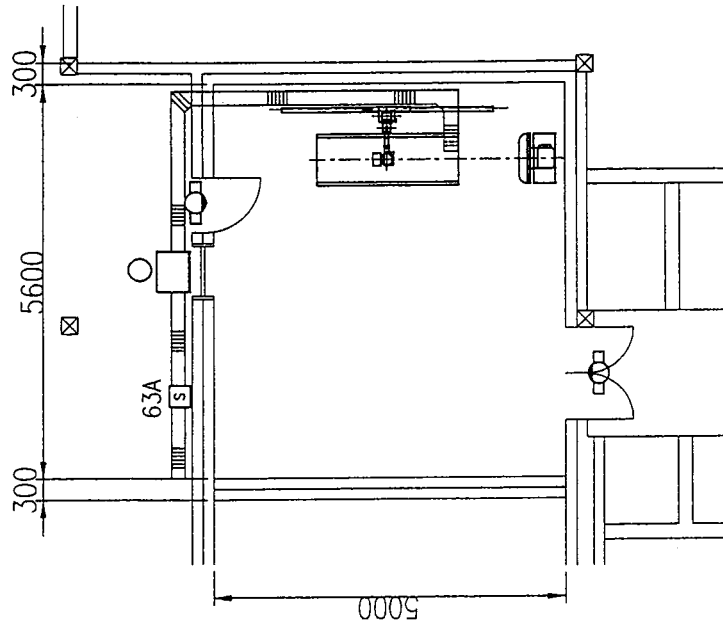



SUSPENSION BOLT DETAIL



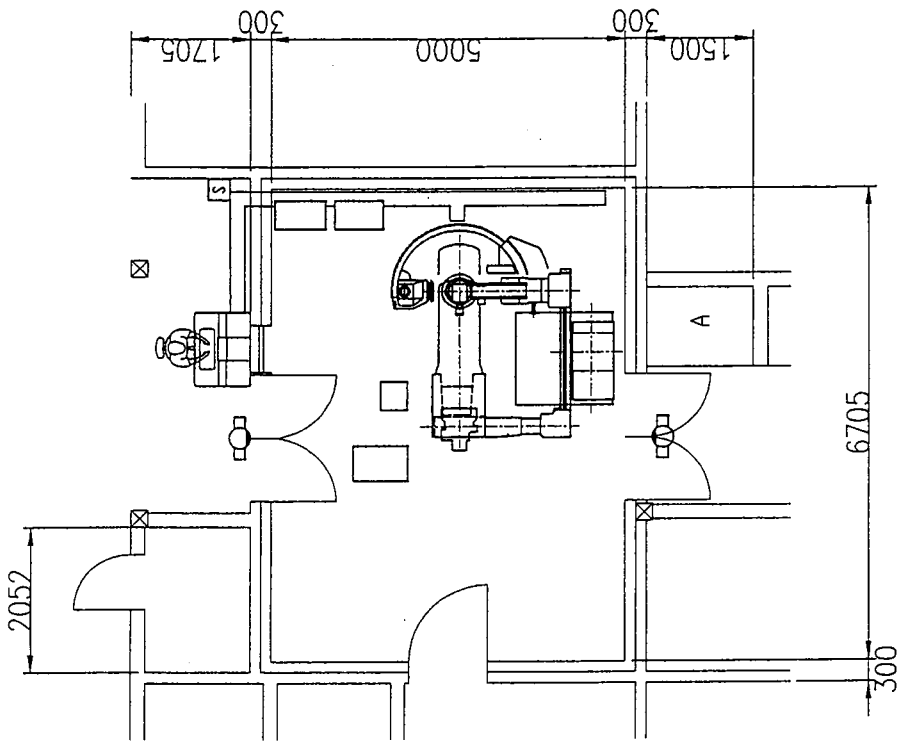
 Medical Engineering & Planning Co., Ltd.	SCALE 1/100	THE PROJECT FOR IMPROVEMENT OF NATIONAL INSTITUTE OF PEDIATRICS IN THE SOCIALIST REPUBLIC OF VIETNAM
		DATE 17 JAN. 2003 No. ME-2


BUILDING	ROOM	X-AXIS	-AXIS	AREA(m ²)	CEILING HEIGHT	FLOOR HEIGHT
B	GENERAL X-RAY				3,600	4,000



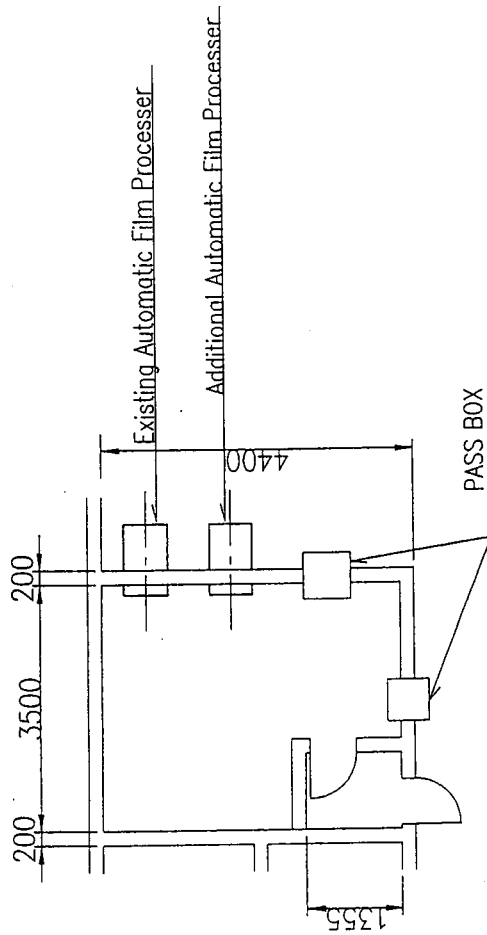
 Medical Engineering & Planning Co., Ltd.	SCALE	1/100	THE PROJECT FOR IMPROVEMENT OF NATIONAL INSTITUTE OF PEDIATRICS IN THE SOCIALIST REPUBLIC OF VIETNAM	DATE	17 JAN. 2003
				No.	ME-3

BUILDING	ROOM	X-AXIS	AXIS	AREA(m ²)	CEILING HEIGHT	FLOOR HEIGHT
B	TV X-RAY				3,600	4,000



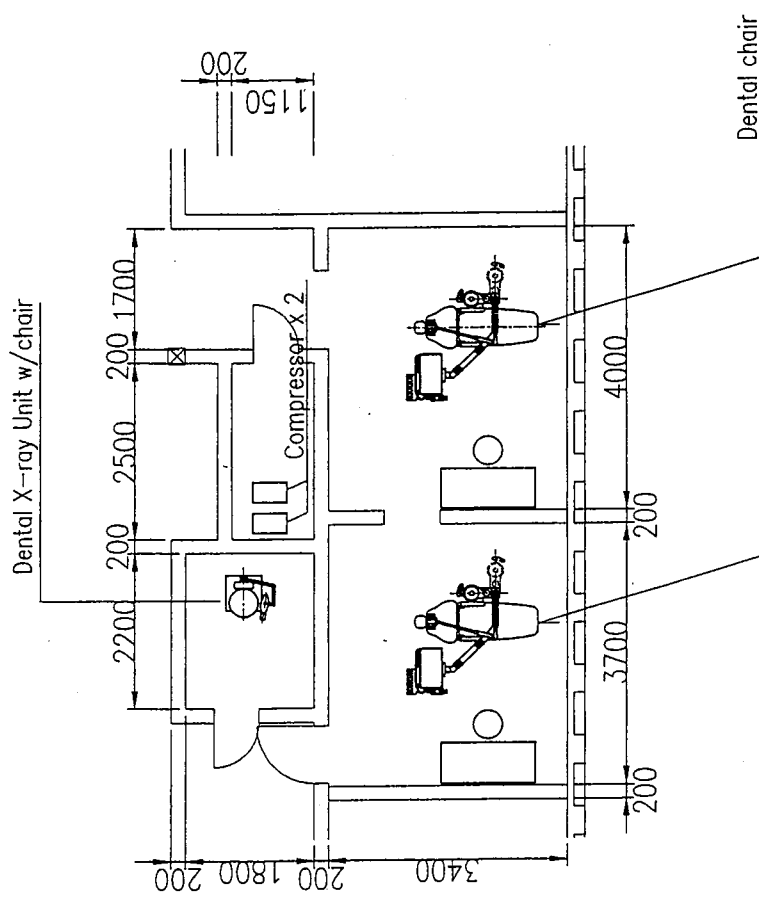
	Medical Engineering & Planning Co., Ltd.	SCALE 1/100	THE PROJECT FOR IMPROVEMENT OF NATIONAL INSTITUTE OF PEDIATRICS IN THE SOCIALIST REPUBLIC OF VIETNAM
		DATE	17 JAN. 2003
		No.	ME-4


BUILDING	ROOM	X-AXIS	AXIS	AREA(m ²)	CEILING HEIGHT	FLOOR HEIGHT
B	DARK ROOM				3,000	4,000



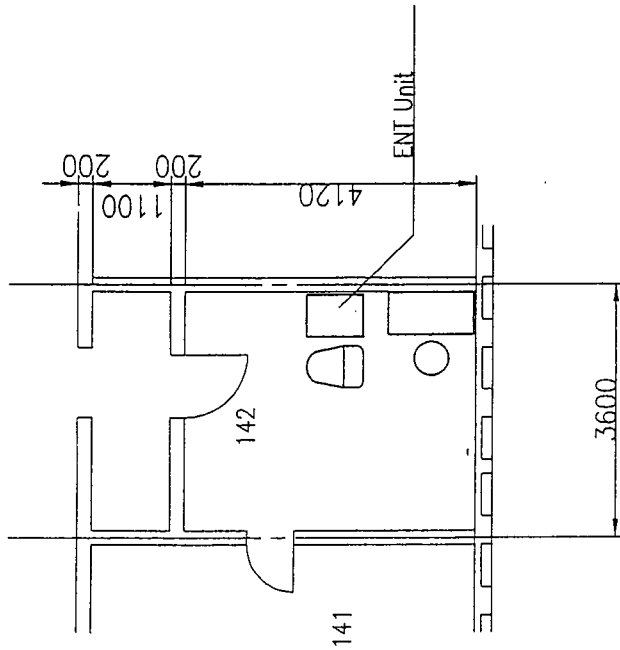
M E P Medical Engineering & Planning Co., Ltd.	SCALE	1/100	THE PROJECT FOR IMPROVEMENT OF NATIONAL INSTITUTE OF PEDIATRICS IN THE SOCIALIST REPUBLIC OF VIETNAM	DATE	17 JAN. 2003
				No.	ME-5


D	DENTAL CLINIC	3,600	4,000
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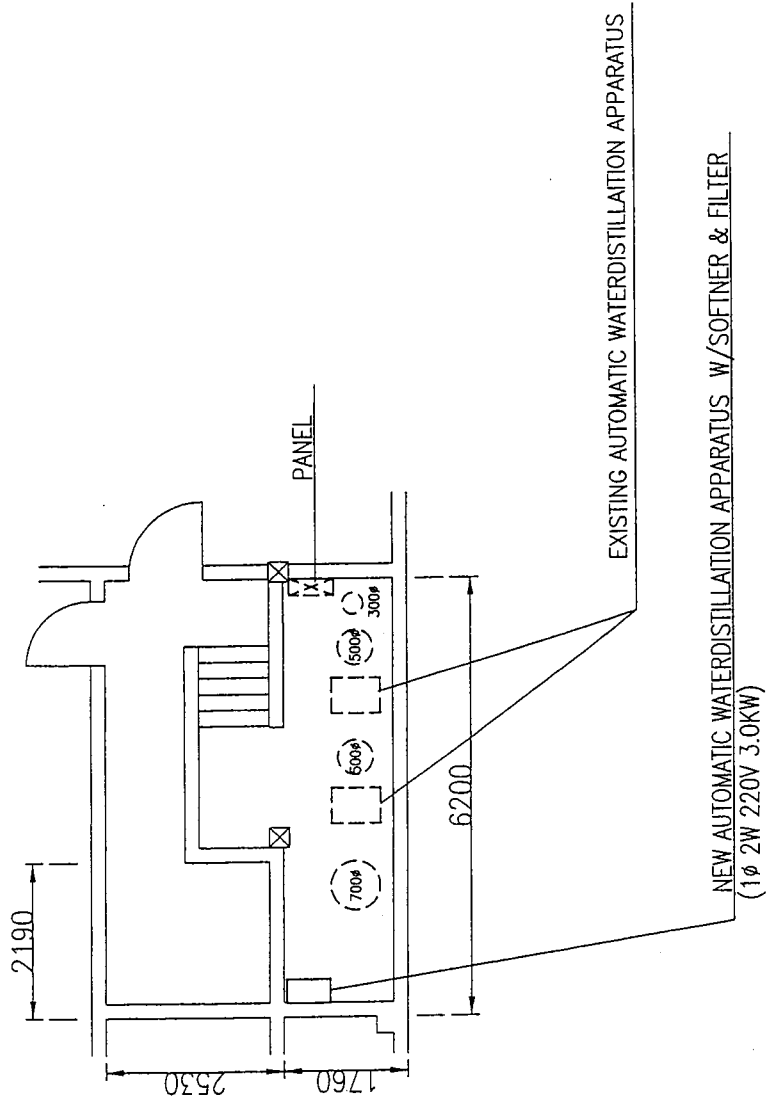
	Medical Engineering & Planning Co.,Ltd.	SCALE 1/100	THE PROJECT FOR IMPROVEMENT OF NATIONAL INSTITUTE OF PEDIATRICS IN THE SOCIALIST REPUBLIC OF VIETNAM	DATE 17 JAN. 2003
				No. ME-6


BUILDING	ROOM	X-AXIS	Y-AXIS	AREA(m ²)	CEILING HEIGHT	FLOOR HEIGHT
C	ENT CLINIC				3,600	4,000



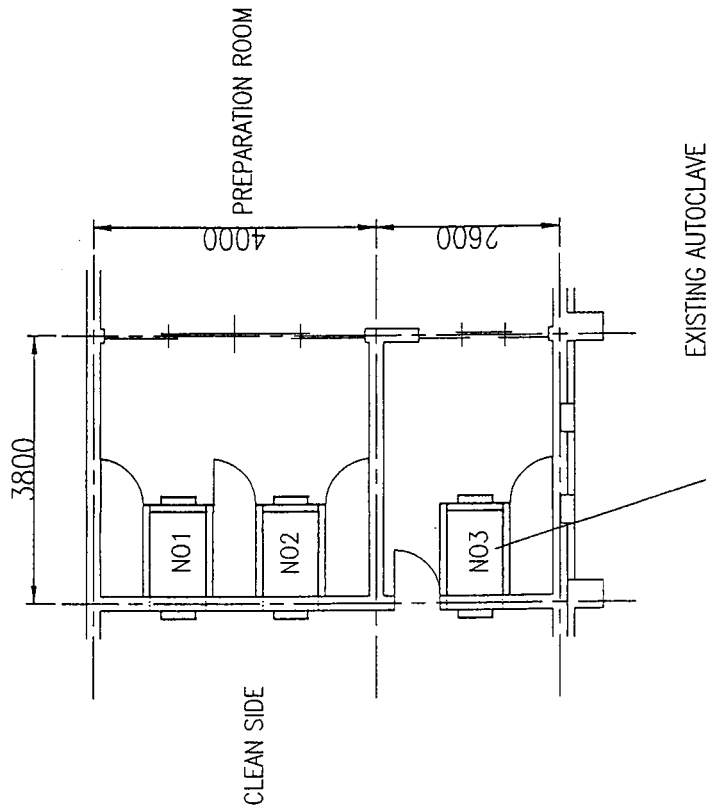
 Medical Engineering & Planning Co., Ltd.	SCALE	THE PROJECT FOR IMPROVEMENT OF NATIONAL INSTITUTE OF PEDIATRICS IN THE SOCIALIST REPUBLIC OF VIETNAM		DATE	17 JAN. 2003
	1/100	No.	ME-7		

BUILDING	ROOM	X-AXIS	AXIS	AREA(m ²)	CEILING HEIGHT	FLOOR HEIGHT
B	PHARMACY				3,600	4,000



 Medical Engineering & Planning Co.,Ltd.	SCALE	1/100	THE PROJECT FOR IMPROVEMENT OF NATIONAL INSTITUTE OF PEDIATRICS IN THE SOCIALIST REPUBLIC OF VIETNAM	DATE	17 JAN. 2003
				No.	ME-8

BUILDING	ROOM	X-AXIS	WIS	AREA(m ²)	CEILING HEIGHT	FLOOR HEIGHT
F	CSSD				3,600	4,000




 Medical Engineering & Planning Co., Ltd.	SCALE 1/100	THE PROJECT FOR IMPROVEMENT OF NATIONAL INSTITUTE OF PEDIATRICS IN THE SOCIALIST REPUBLIC OF VIETNAM	DATE 17 JAN. 2003
			No. ME-9

Table 2-3 The Layout Plans of the Equipment

No.	Description	Q'ty	X-ray	Cardiology	Respiratory	Operating	ICU	Premature	Oncology	Infection Disease	Digestive Disease	Kidney Disease	Neurology	Endocrinology	Haematology	Rehabilitation	Surgery	Emergency	O.P.D.	O.P.D.-ENT	O.P.D.-Dental	Pharmacy	CSSD	Biochemical Lab.	Haematology Lab.	Microbiological Lab.	Blood Bank	Q'ty
1	X-ray Diagnostic TV System	1	1																									1
2	General X-ray Machine	1	1																									1
3	C-arm X-ray TV System for Surgery	1	1																									1
4	Mobile X-ray Machine	1	1																									1
5	Automatic X-ray Film Processor	1	1					1																				1
6	Ultrasound, Color Doppler	1	1																									1
7	Ultrasound, Portable	1	1																									1
8	Electrocardiograph	1	1	1																								1
9	Patient Monitor for Anesthesia Apparatus	4		4																								4
10	Bed Side Monitor	2	1															1										2
11	Bed Side Monitor, with Capnograph	4		4																								4
12	Pulse Oximeter	25	1	2	5	4		5	1	1	1	1	1	1	1		1	4									25	
13	Pulse Oximeter, with Capnograph	4					4																					4
14	Defibrillator	2			1													1										2
15	Electric Suction Pump	22	1				6	5	1	1	1	1	1	1	1		2	2	2								22	
16	Electro Surgical Suction Unit	5		5																								5
17	Low Pressure Continue Electro Suction Pump	10		2	2	2		2									2											10
18	Operating Table	5			5																							5
19	Operating Lamp, Ceiling type, Combination type	3			3																							3
20	Operating Lamp, Ceiling type	1			1																							1
21	Anesthesia Apparatus, with Ventilator	4			4																							4
22	Electro Surgical Unit	3			3																							3
23	Laparo Endoscopic Surgical Set, for Pediatric, with Video	1			1																							1
24	Gastrointestinal Fiberscope Set, with Video	1			1																							1
25	Colonofiberscope Set	1			1																							1
26	Bronchofiberscope Set, with Video	1			1																							1
27	Cardiovascular Instrument Set	2			2																							2
28	Neurosurgery Instrument Set	1			1																							1
29	General Pediatric Instrument Set	10			10																							10
30	Orthopedic Instrument Set	2			2																							2
31	Microsurgery Instrument Set for ENT	1			1																							1

Table 2-3 The Layout Plans of the Equipment

No.	Description	Q'ty	X-ray	Cardiology	Respiratory	Operating	ICU	Premature	Oncology	Infection Disease	Digestive Disease	Kidney Disease	Neurology	Endocrinology	Haematology	Rehabilitation	Surgery	Emergency	O.P.D.	O.P.D.-ENT	O.P.D.-Dental	Pharmacy	CSSD	Biochemical Lab.	Haematology Lab.	Microbiological Lab.	Blood Bank	Q'ty	
32	Ultrasonic Surgical Scalpel Apparatus	1				1																							1
33	Surgical Microscope for Microsurgery	1			1																								1
34	Infant Incubator	8				2	6																						8
35	Infant Ventilator	6				3	3																						6
36	Syringe Pump	14			8	5	1																						14
37	Infusion Pump	12			5	3	2											2											12
38	Oxygen Monitor	2					2																						2
39	Bilirubin Analyzer	1					1																						1
40	Ultrasonic Nebulizer	10			4	1						1	1				1	1											10
41	Ultrasonic Therapy Apparatus	1															1												1
42	Low Frequency Therapy Apparatus	1															1												1
43	ENT Unit with chair and instrument set	1																		1									1
44	Dental Unit and Chair, with instrument set	2																			2								2
45	Dental X-ray Unit, with Film Processor	1																			1								1
46	High Pressure Steam Sterilizer	2																					2						2
47	Autoclave, Table top	1																			1								1
48	Autoclave, Vertical type	1																							1				1
49	Automatic Water Distillation Apparatus, with Softener	1																				1							1
50	Automatic Chemistry Analyzer	1																						1					1
51	Microscope	4																								3	1		4
52	Stereo Microscope	1																								1			1
53	Refrigerated Centrifuge for Lab.	1																								1			1
54	Refrigerated Centrifuge for Blood Bank	1																											1
55	Incubator	1																											1
56	Ultra Low Temp. Freezer	1																											1

2-2-4 Implementation Plan

2-2-4-1 Implementation Plan Policy

(1) Implementation Organization

1) Project Implementing Organization

The Ministry of Health of Viet Nam will be will be the organization bearing responsibility for management and implementation of the project. The target facility, the NIP will be the actual managing organization. General control of the affairs concerning this project will be taken by the Ministry of Health, who was the representative from the Viet Nam side at the time of basic design survey. The director of the target facility will handle practical matters. The maintenance of equipment will be in charge of the Maintenance and Management Section of the target facility. The procurement and management of expendable supplies will be in charge of the facility's secretariat department.

2) Consultant

Immediately after the Exchange of Notes (E/N) between the governments of Japan and Viet Nam, the Japanese consultant will enter into a consultant contract with the NIP as the representative of Viet Nam according to the procedures of Japanese grant aids. This contract will take effect after accreditation by the Japanese government. Based on this contract, the consultant will perform the following services:

- ① Tender Stage : Cooperation concerning the selection of equipment procurement contractor and conclusion of procurement contract.
- ② Procurement Stage : Management of equipment procurement and pre-shipping inspection.
- ③ Installation Stage : Supervision of equipment installation and of instruction on operation and maintenance.

The consultant will assign a team of 3 engineers, i.e., a supervisor, a 1st equipment planner, and an 2nd equipment planner who will supervise tender stage, procurement stage and installation stage.

Project Manager

Project Manager is responsible for all services from detailed design to completion, and in this responsibility manages the consultation with the governments of Japan and Viet Nam.

1st Equipment Planner

The 1st equipment planner conducts the final confirmation of the specifications for equipment at the time of detailed design through discussion with the Ministry of Health, the target facility, and manufacturers of the equipment items. Afterwards, the equipment planner prepares necessary documents submitted to the governments of Japan and Viet Nam. The 1st equipment planner also takes charge of the inspection at the time of delivery.

2nd Equipment Planner

In case of things like change in the content of the equipment or the specifications or change items coming up during the period of work in Japan after the detailed design work, there will be confirmation and close scrutinization thereof as well as preparation of the necessary documents and reporting to those concerned. Furthermore, the cost estimates will be reworked according to the content of change in the equipment, and a comparison table of the Basic Design Study stage and Implementation stage will be created taking into consideration the situation regarding exchange fluctuation, and all of that will be reported to those concerned.

3) The Contractor for Equipment Supply

The Contractor for Equipment Supply is selected by a tender and enters into the contract with the NIP. This contract also takes effect after accreditation by the Japanese government. According to the contract, the equipment procurement contractor procures and delivers required equipment. It also provides technical instruction concerning the installation, operation, and maintenance of respective equipment items. In addition, the contractor establishes a system for maintenance after delivery of equipment items, including the procurement of spare parts and expendable supplies as well as technical instruction. The equipment procurement contractor will provide the manuals and other technical materials that are necessary for maintenance after procurement and the list of the agencies of the manufacturer of each equipment item located in adjacent countries. With respect to the timing of delivery and installation, the equipment procurement contractor will secure sufficient coordination with the implementing organization to ensure smooth execution of the project.

4) Japan International Cooperation Agency

For the smooth execution of this project, JICA takes charge of confirmation and accreditation of various documents directed to the Japanese government.

(2) Implementation Policies

- 1) After Exchange of Notes (E/N), the consultant should make sufficient arrangement with government organizations of Viet Nam, government-related organizations of Japan, the equipment procurement contractor, and other relevant organizations, and also conduct necessary procedures, so that the process will proceed smoothly through the steps of tender, selection the equipment procurement contractor, conclusion of the contract with the equipment procurement contractor, confirmation of production schedules, pre-shipping inspection, and the payment of project expenses

- 2) Because the target facility is the NIP, it is difficult to stop routine operation of the facility for the sake of delivery and installation of equipment. Hence, detailed arrangement concerning work schedule and other factors must be made between the consultant and the persons related to the target hospital at the stage of detailed design to avoid impediment to the progress of this project. Strict attention should be paid to noise control and hygiene measured during installation work. In particular, special attention should be paid to safety management when medical equipment items are carried into the target facility.
- 3) Equipment items that will be procured in Japan should be subjected to sufficient quality control, production inspection, pre-shipping inspection, etc. in Japan.
- 4) For the equipment items requiring installation work, the equipment procurement contractor should arrange dispatch of engineers from the manufacturer to conduct the installation of the equipment items. If there is difficulty in the dispatch of engineers from the manufacturer, the consultant should instruct the equipment procurement contractor so that work will be conducted by the engineers from an agency of the manufacturer located in an adjacent country.
- 5) At the time of the delivery of equipment, the consultant should provide training on the site, correctly ascertain the result of the deployment of equipment items in each department, and confirm the completion of the delivery of equipment in this project.
- 6) To ensure that the relevant hospital personnel have the complete knowledge concerning the methods of operation, maintenance, etc., the equipment procurement contractor should provide training and orientation for the relevant personnel grouped by department. In the case of equipment items for which sufficient knowledge can be obtained through operation and maintenance manuals, these manuals are used and no training will be given. In addition,

occasions should be given to make sure about the methods of regular inspection and other work by personnel of the maintenance department for the purpose of reinforcing this training.

2-2-4-2 Important Points in Supervision of Procurement

(1) Japanese Side

Products of manufacturers in Japan or third countries are planned to be landed at Hai phong Port and transported to the project site. The condition of the road from Hai phong to Hanoi is very good, similarly to other trunk highways in Viet Nam.

(2) Vietnamese Side

It is necessary to conduct prior coordination with relevant organization to facilitate the delivery and installation of equipment.

2-2-4-3 Allocation of Procurement Plan

The allocation of procurement burden is shown in 2-3.

2-2-4-4 Procurement Supervision Plan

According to the method of Japanese grant aids, the Japanese consultant firm will enter into a consultant contract with the NIP, which is the implementing organization on the Viet Nam side, to perform the detailed design and procurement supervision for this project. The purpose of procurement supervision is to confirm whether or not the execution of work processes and the nature of work are in accordance with the design documents and drawings, to ensure the appropriate execution of the equipment procurement contracts, to provide impartial guidance, advice, and coordination during the period of work, and thus to improve quality. Procurement supervision consists of the following services:

(1) Services Related to Tender and Contract

For the bidding to select the Japanese contractor for the procurement of equipment and installation work, the consultant prepares tender documents, issues public notice of tender, receives applications for tender, examines eligibility, distributes tender documents, receives documents from bidders, evaluates the result of bidding, and conducts other services related to the tender. At the same time, the consultant provides advice concerning the procurement of equipment and the conclusion of the contract between the NIP of Vietnamese side and the contracting company.

(2) Guidance, Advice, and Coordination to Equipment Procurement Contractor

The consultant examines the work processes, work schedules, machinery and materials procurement plans, medical equipment procurement and installation plans, etc., and provides guidance, advice, and coordination to the equipment procurement contractor.

(3) Inspection and Accreditation of Fabrication Drawings, Installation Drawings, etc.

The consultant conducts inspection and guidance concerning the installation drawings, fabrication drawings, documents, etc., and provides accreditation.

(4) Confirmation and Accreditation of Procured Equipment

The consultant confirms that the medical equipment procured by the equipment procurement contractor are consistent with the contract document and drawings, and then provides accreditation concerning the adoption of the equipment.

(5) Factory Inspection

Whenever necessary, the consultant attends inspections at the factories producing medical equipment to ensure quality and performance.

(6) Reporting of the Progress of Work

The consultant monitors the progress of work and the condition of the work sites, and reports the progress of work to the relevant organizations of the both countries.

(7) Completion Inspection and Test Runs

The consultant performs the completion inspection and test runs of medical equipment and facilities to confirm the consistency with the contract documents and drawings, and submits the report of inspection to Viet Nam.

(8) Guidance Concerning Operation and Maintenance Trainings

Because some of the equipment items covered by this project require technical knowledge for operation and maintenance, it is necessary to provide training on site during the period of adjustment and test runs so that the personnel in charge of each equipment item will be acquainted with the method of operation, the method of inspection, the techniques for repair, etc. The consultant provides guidance and advice concerning these trainings.

In performing the above services, the consultant will not dispatch personnel over the entire period of work, because of the judgment from the scale of this project. Instead, engineers will be sent to the project site when necessary according to the progress of work, and perform inspection, guidance, and coordination. At the same time, engineers in charge will be posted in Japan to establish liaison and support systems. They submit reports to the government-related organizations in Japan on relevant matters concerning the progress, payment procedures, delivery, etc. There are no notable obstacles with respect to relevant legislation and labor conditions.

2-2-4-5 Machinery and Materials Procurement Plan

(1) Local Procurement

Since the medical equipment widely used in Viet Nam consists of products made in Japan and in the U.S. and Europe and since no locally manufactured products are included among the equipment to be provided in the present project, the content of the equipment plan does not take local products into consideration.

(2) Possibility for the Use of Third-Country Products

Procurement of a third-country product can be considered if there is an agency of the manufacturer in the target area, there is no problem related to maintenance and the procurement of spare parts and expendable supplies, and the price is advantageous. Specifically, such items include anesthesia machines, artificial respirators, automatic chemistry analyzer etc.

(3) Time schedule of shipment

Time schedule of shipment could be almost 1.5 months including the formalities period at the time of shipment.

2-2-4-6 Process of Implementation

When the E/N concerning the implementation of this project is concluded between Japan and Viet Nam, subsequent process of implementation is divided into the 3 stages of detailed design, tender, and equipment procurement, as described below. Implementation design is divided between the stages of detailed design and tender.

(1) Detailed Design Stage

After the consultant contract is concluded between the NIP representing the Vietnamese government and the Japanese consultant firm and the contract is accredited by the Japanese

government, the consultant commences the final confirmation of the content of project based on the detailed design drawings prepared during the stage of basic design survey, specification documents, and the package of tender design documents including tender requirements. Meanwhile, the consultant conducts consultation with the Viet Nam side concerning the details of facilities and equipment. In the end, approval of the package of tender design documents should be obtained from the Viet Nam side. The time required for the final confirmation of the content of project is expected to be about 1.5 months.

(2) Tender Stage

The companies contracted for equipment procurement will be selected based on tender documents. The process of tender proceeds from the public notice of tender to the receipt of applications for tender, eligibility examination, distribution of tender documents, bidding, reporting of the result of tender, designation of the equipment procurement contractor, and conclusion of contract for equipment procurement. The whole process will take about 2.0 months.

(3) Equipment Procurement Stage

After the conclusion of the procurement contract, the contractor commences the contracted services following the accreditation of the contract by the Japanese government. The period of work required in this project will be about 6.5 months, according to the estimation considering the situation of the target facility, the scale of the project, the content of the contract, weather conditions, etc.

The process of implementation from E/N to completion is as shown in the Table 2-4 Table of implementation schedule.

Table2-4 Implementation Schedule

Month	1	2	3	4	5	6	7	8	9	10	11
Detailed Design	<p>Final Confirmation of the Plan</p> <p>Work in Vietnam (Month 1)</p> <p>Work in Japan (Month 2)</p> <p>Approval of Tender Document (Month 2)</p> <p>Announcement of Tender (Month 3)</p> <p>Provision of Tender Document (Month 3)</p> <p>Tender, Evaluation and Contract (Month 4)</p>										
Procurement	<p>Manufacturing and procurement of equipment (Months 4-8)</p> <p>Shipment (Month 9)</p> <p>Installation (Months 10-11)</p> <p>Training (Months 10-11)</p>										

- Work in Vietnam
- Work in Japan

2-3 Obligations of Recipient Country

The scope of work related to this project covered by the Japanese side and that covered by the Viet Nam side are as outlined in the followings:

(1) Scope of Work Covered by the Japanese Side

- 1) To procure the equipment items in the project.
- 2) To bear marine transport costs and to conduct land transport to the target medical facility.
- 3) To conduct placement and installation of equipment.
- 4) To provide technical instruction on test runs, operation, maintenance, inspection, and management concerning all procured equipment.

(2) Scope of Work Covered by the Viet Nam Side

- 1) To provide information and data required for placement and installation of equipment.
- 2) To provide a space in the target hospital to be used temporarily as the office during the implementation period.
- 3) To provide the facilities, equipment, and spaces required for the installation of procured equipment.
- 4) To conduct and make available the appurtenant work on the primary side of peripheral facilities (electricity, water supply, sewage, other facilities) required for the installation of equipment before the placement of equipment, to remove the existing equipment in the places used for installation of new equipment, and to conduct work related to the installment of equipment.
- 5) To provide the space for storage of equipment after arrival until the beginning of the work for placement of equipment.
- 6) To take necessary measures to facilitate smooth unloading, customs clearance, and intra-country transport of imported equipment.

- 7) To exempt the Japanese persons staying in Viet Nam for the implementation of this project from the payment of customs duties and other taxes.
- 8) To afford facility for the Japanese citizens entering and staying in Viet Nam for the purpose of supplying necessary equipment and labor for the implementation of this project, and to take sufficient measures to ensure the safety of these persons.
- 9) To bear the costs required for the procedures of Banking Arrangement (B/A) and Authority to Pay (A/P).
- 10) To allocate the budget (including the operation and maintenance costs concerning the equipment procured by the grant aid) and personnel that are required for effective implementation of this project.
- 11) To prepare the plan for the usage of equipment procured by the grant aid covering 5 years, and to report regularly on the actual usage of equipment to the Japanese embassy in Viet Nam.
- 12) To conduct and to bear the costs of appropriate and effective maintenance of equipment procured by the grant aid.
- 13) To grant necessary permissions, license, and other authorization for the implementation of the grant aid project.
- 14) To bear the costs accompanying the procedures of tax exemption.
- 15) To bear the costs required for the implementation of this project that are not included in the above-mentioned scope of work covered by the Japanese side and that covered by the Viet Nam side.

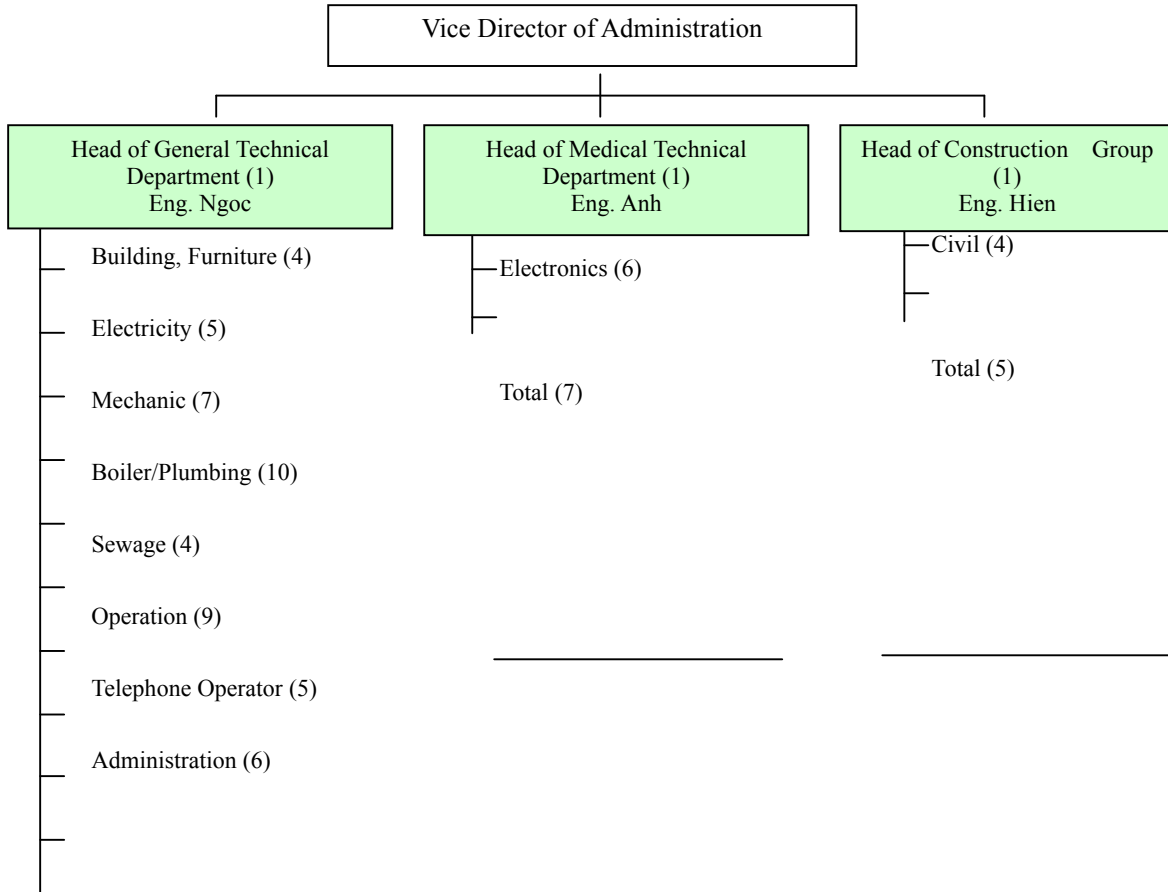
2-4 Project Operation Plan

(1) Facility and Equipment Maintenance

1) Maintenance System

Facility and equipment maintenance includes both the part that can be accomplished by the NIP's own personnel and the part that can be accomplished only by commissioning outside specialized technical personnel. A premise of this project is selection of equipment suitable for the NIP's present capacities, but although the technical level of its staff is higher than at other hospitals in Hanoi, there will still be some need for specialized outside maintenance assistance. In implementation of this project it is necessary to provide training of the present personnel of the NIP's equipment maintenance sections in new technology in order to be able to set in place mechanisms for centralized, concentrated equipment management and to establish a system for smooth accomplishment of routine inspections and keeping of records thereof and stopgap measures for emergencies as well as simple repairs. The present number of such personnel is indicated in the table below.

The three sections making up the maintenance organization shown in that table are the general facilities technical section, the medical equipment technical section and a construction group that is building the new hospital and taking measures to cope with the existing hospital's subsidence problem. The chiefs of those sections are all very capable engineers. As regards the technical personnel below them, their number seems to be sufficient, but we do think that some retraining is needed for the staff level of the general facilities technical section. The same can be said of the staff of the medical equipment technical section in view of the fact that they have not had all that much past experience in maintenance of medical equipment made in Japan. As for maintenance tools, although there does not appear to be any problem regarding that in the medical equipment technical section, the situation is not entirely satisfactory in the general facilities technical section.



[Note] () indicates the number of actual staffs in NIP.

Figure 2-3 Maintenance Organization Chart of NIP

2) Equipment Maintenance Training

It is the normal practice to furnish equipment instruction manuals just before official handing over of the supply and installation of medical equipment. However, although, as already mentioned, the technical level of the NIP's present maintenance technical personnel is high in comparison with other hospitals in Hanoi and their number is sufficient, considerable time will be needed in this project to train them regarding equipment made in Japan considering that they have not had enough past experience with it. Although among the facilities involved in this project the technology concerning, in particular, handling, operation and maintenance of the equipment is equivalent to that up to now, since it very probably will be necessary for the personnel to acquire

particular proprietary technology of the makers of the equipment, there is to be, as far as possible, carrying out of sufficient training prior to handing over of the new medical equipment with a view to having the personnel acquire technical capabilities concerning operation, detection of trouble, repairs, etc. starting from the construction phase and extending all the way through installation, adjustment and trial operation. In particular, efforts are to be made to bring about greater awareness of the very great importance of keeping records of routine inspections and maintenance on a daily basis as well as establishing and maintaining equipment ledgers, and consideration should be given to implementation, within the scope of what is possible, of the kind of counterpart training that the NIP, too, has expressed desire to have.

(2) Technical Level

The project involves basically only replacement of existing equipment and supplementation of quantitative deficiencies. The equipment requiring new technology deleted from the plan except the equipment (C-arm X-ray TV System for Surgery, Surgical Microscope for Microsurgery, Ultrasonic Surgical Scalpel Apparatus, Refrigerated Centrifuge for Blood Bank, etc.) judged to be essential. That being the case, considering the fact that the medical staff and maintenance technicians on the job are making effective use of the existing equipment, it is considered that there will be no problems regarding handling and operation of the equipment provided in the project or the technical level of maintenance thereof.

(3) Provision of Spare Parts and Expendables Supplies

With respect to the spare parts and expendable supplies required for the maintenance of equipment, it should be stated in the procurement contract that the equipment procurement contractor should ensure the availability of these items for purchase for at least 5 years after the expiration of the warranty, i.e., until the time for renewal of equipment. For the spare parts that may require frequent replacement and expendable supplies, estimates of costs should be submitted in advance to the

accounting section of the target hospital. The accounting section then should estimate the costs for the purchase of spare parts and expendable supplies, and make budgetary arrangements.

(4) Training Given by the Contractor for Equipment Supply

The Contractor for Equipment supply should, at the time of equipment installation, dispatches engineers who transfer technical skills concerning the proper operation methods, routine inspection, trouble-shooting, etc. to the relevant personnel of the target facility.

(5) Rough Estimate of Project Cost

The breakdown of the expenses to be borne by the Vietnamese side is estimated as follows:

Table 2-5 Expenses to be borne by the Vietnamese Side

Category	Total (1,000 Yen.)
1) Removal of existing equipment	500
2) Work on peripheral facilities (electricity, water supply, sewage, other facilities)	1,000
Total	1,500

Basis of Estimation

- 1) Date of estimation: February 2003
- 2) Exchange rate: 1 US dollar = 122.25 yen
- 3) Duration of working design and supervision: approx. 11 months
- 4) Purchase order: lump sum
- 5) Other: This project will be implemented according to the Japanese grand aid system. It is assumed that the import duties on the materials and equipment, corporate tax on Japanese corporations, value-added tax, and other internal taxes in Vietnam will be exempted or paid by the Viet Nam government. In addition, the Vietnamese

government should take into account the following charges and taxes:

- a. Fees for going through formal procedures for delivering the equipment.
- b. Customs duties on the materials and equipment.
- c. Service charges on the issuance of B/A and A/P.
- d. Exemption fees of internal tax and other financial charges and necessary expenses for added-value payment.

To ensure the smooth implementation of the project and effective utilization of the equipment immediately after the installation thereof, the government of Viet Nam is advised to allocate a budget for the above items in a timely manner.

(6) Operation and Maintenance Costs

1) Income Items

Government Budget Allocations

As can be seen from Table 2-6, "The NIP's Actual Annual Income and Expenditures (1999-2002)", the NIP's largest item of income is government budget allocations. In 2002 the annual budget allocation it received was VND 21,842,698,000 (approx. US\$1,460,000), accounting for 59% of its total income. The amount of the annual budget allocation to it has been increasing, but the year-on-year rate of increase has been declining: 34% in 2000, 19% in 2001 and 11% in 2002.

Since those budget allocations in recent years include the expense of alteration and repair of the NIP's facilities, now that that work is almost completed, the annual budget allocation is expected to turn to a decrease in 2004, followed by little further decrease or increase thereafter, as shown in Table 2-7, "The NIP's Expected Income and Expenditure Figures in Coming Years."

Fees Charged Patients

In principle, no fees are charged children under six years old, but that is not the case for those who are brought directly to the NIP without having been referred by medical entities below it in the medical service hierarchy. Fees collected from patients accounted for about 35% of the NIP's total income in 2002, and that income item has shown rapid year-on-year growth in recent years: 10% in 2000, 27% in 2001 and 23% in 2002. Since a factor in that is considered to be year-by-year reinforcement of the system for collection of fees from patients, it is thought that the upward trend will continue for another two or three years but that the rate of increase will gradually fall off to more stable growth.

Contributions, Medical Insurance and Other Income Items

Contributions have represented only about 1% of the NIP's total income, with little fluctuation from year to year, and it has been assumed that that situation will not be changing much in coming years. As for income from medical insurance, it now accounts for about 2% of total income. In the past it has fluctuated up and down by less than 20%, and in 2003 and thereafter it is assumed that it will continue such stability, with gradual decline in its growth rate.

Total Amount of Income

Although there has been steady, rapid increase in the total annual income of the NIP—22% in 2000, 23% in 2001 and 16% in 2002—in view of the fact that the facility alteration and repair work which has been a big financial burden will soon be completed the rate of increase is expected to fall off rapidly in 2003 and the following years, and in its income and expenditures projection it has been assumed that there will not be much increase thereafter.

2) Expenditure Items

Employee Wages and Salaries, Allowances, Bonuses and Benefits

There are five expenditure items that directly concern all of the NIP's staff: wages and salaries of employees in full-time service, wages and salaries of employees in part-time service, allowances, bonuses and benefits. Together, they accounted for 33% of the NIP's total expenditures in 2002. That is considerably lower than the general case of about 50% for general hospitals in Japan, which provides grounds for the opinion that it has quite a good operating situation.

While staff (both proper and temporary) wages and salaries are completely covered by the government budget allocation to the NIP, in 2002 that covered only VND 80,000,000 (approximately US\$5,300) of the combined figure of VND 6,117,125,000 (approximately US\$407,800) for employee allowance and bonus expenditures, the remaining approximately US\$402,500 having to be covered by fees collected from patients. Those expenditures are rising year by year, but since fees from patients are also increasing considerably, overall balance between the two can be expected to be maintained.

Drugs and Medical Supplies Expenditures

In 2002 the NIP's drugs and medical supplies expenditures came to VND 14,795,853,000 (about US\$986,400), or 41% of total expenditures, making them its largest expenditure item of all. That is due to increase in the hospital's consumption of not only drugs but also syringes and other medical supply consumables along with increase in the number of patients. Also included in such consumption are the reagents, recording paper and other consumables required by medical equipment. This item of expenditures has also been showing rapid year-on-year growth: 28% in 2000, 15% in 2001 and 20% in 2002.

Since the new equipment provided in this project will be in use by around June 2004, starting from that year there will be extra operating and maintenance costs due to procurement of consumables for it (about US\$91,700 a year), and since the period of guarantee of the new equipment will end around June of 2005, more funds will become necessary for procurement of needed replacement parts (about US\$25,000 a year). That being the case, in the table of projected annual income and expenditures a half year's worth of the extra cost of consumables has been added to the figure for the expenditure item "drugs and medical supplies" for 2004, and a whole year's worth for each year thereafter. Likewise, a half year's worth of the expense of procurement of replacement parts for the new equipment has been added to the figure for the expenditure item "facility and equipment maintenance" for 2005, and a whole year's worth for each year thereafter.

3) Operating and Maintenance Cost After Project Implementation

The extra operating and maintenance cost at the NIP that is expected to result from procurement of the equipment to be provided in this project is shown in Table 2-8. The projected figures for annual medical equipment operating and maintenance cost given in that table include an extra amount of about US\$91,700 for consumables and about US\$25,000 for replacement parts. Those extra amounts are equivalent to about 3.7% and 1%, respectively, of the NIP's total budget in 2002 of approximately US\$2,450,000, and since it is generally considered that an increase of under 5% in expenses does not pose a particular problem, it is considered that those expenses will not be a big burden on the NIP's operating and maintenance budget after implementation of the project.

4) Balance of Income and Expenditures

Since the actual figures for the period 2000-2002 show a positive balance between the NIP's income and expenditures and since the trend is in the direction of increase of that surplus,

the NIP can be considered to have a sound operating situation. Furthermore, in view of the fact that the income items "government budget allocation" and "fees from patients" are showing high growth rates, even if the rate of increase of government budget allocations falls to the vicinity of 0%, it is considered that it will be possible to keep operation of the NIP out of the red even with implementation of the present project. The projection is for a temporary decrease in the surplus in 2005 but increase again in 2006 and following years. That being the case, it is considered that the increase in medical equipment operating and maintenance costs after implementation of the project will be well within what the Vietnamese side is capable of handling.

Table 2-6 NIP Annual Budget and Expenditure
(1999-2002)

BUDGET	1999	Year 2000		Year 2001		Year 2002		Rate (%)
		Amount (1000VND)	Growth Rate (%)	Amount (1000VND)	Growth Rate (%)	Amount (1000VND)	Growth Rate (%)	
Government budget	12,415,500	16,621,031	34	19,696,538	19	21,842,689	11	59
Donation	959,628	254,929	-73	204,118	-20	247,052	21	1
Fee from patient	7,402,641	8,165,828	10	10,338,214	27	12,737,668	23	35
Health insurance	402,930	404,358	0	425,439	5	579,828	36	2
Other resources	-	402,947	-	1,074,755	167	1,351,840	26	4
Total (A)	21,180,699	25,849,093	22	31,739,064	23	36,759,077	16	100

EXPENDITURE	1999	Year 2000		Year 2001		Year 2002		Rate (%)
		Amount (1000VND)	Growth Rate (%)	Amount (1000VND)	Growth Rate (%)	Amount (1000VND)	Growth Rate (%)	
Wages (proper staff)	3,050,000	3,877,000	27	4,557,000	18	4,700,000	3	13
Wages (temporary staff)	400,000	332,359	-17	372,990	12	533,067	43	1
Allowance	1,850,000	1,963,000	6	2,320,000	18	2,400,000	3	7
Bonus	2,396,309	2,390,052	0	3,268,035	37	3,717,125	14	10
Welfare, health insurance	506,000	817,806	62	806,488	-1	787,000	-2	2
Public Services	2,200,000	1,988,380	-10	2,190,731	10	2,470,521	13	7
Office supply	72,000	103,152	43	100,000	-3	91,581	-8	0
Telecommunication	220,138	240,561	9	207,000	-14	220,922	7	1
Conference, Seminar	30,862	172,252	458	223,098	30	186,166	-17	1
Work spending	53,360	50,000	-6	89,279	79	150,539	69	0
Repair and Maintenance	305,373	518,291	70	625,609	21	774,456	24	2
Major repairs of facility	691,251	1,028,385	49	1,215,244	18	862,703	-29	2
Medical material and drugs	8,394,961	10,748,977	28	12,363,820	15	14,795,853	20	41
Procurement of fixed assets	1,220,923	836,671	-31	3,087,940	269	3,984,783	29	11
Other expenditure	163,401	352,534	116	191,899	-46	280,060	46	1
Total (B)	21,554,578	25,419,420	18	31,619,133	24	35,954,776	14	100

Contents	1999	2000		2001		2002	
		Amount (1000VND)	Growth Rate (%)	Amount (1000VND)	Growth Rate (%)	Amount (1000VND)	Growth Rate (%)
Balance VND : (A) - (B)	-373,879	429,673		119,931		804,301	
Balance USD	-\$24,925	\$28,645		\$7,995		\$53,620	
Balance JPY	¥-2,991,032	¥3,437,384		¥959,448		¥6,434,408	

Table 2-7 NIP Annual Budget and Expenditure
(1999-2002)

	Year 2003		Year 2004		Year 2005		Year 2006		Year 2007		Year 2008	
	Amount (1000VND)	Growth Rate (%)	Amount (1000VND)	Growth Rate (%)	Amount (1000VND)	Growth Rate (%)	Amount (1000VND)	Growth Rate (%)	Amount (1000VND)	Growth Rate (%)	Amount (1000VND)	Growth Rate (%)
	23,127,030	6	22,351,070	-3	22,492,147	1	24,283,381	-1	24,230,746	0	24,126,858	0
	247,733	0	250,372	1	251,212	0	252,092	0	252,524	0	252,853	0
	14,006,669	10	14,703,616	5	15,252,738	4	15,584,882	2	15,815,235	1	15,959,773	1
	639,989	10	699,719	9	734,196	5	760,370	4	776,513	2	787,556	1
	1,612,076	19	1,720,968	7	1,832,853	7	1,893,594	3	1,940,060	2	1,968,035	1
	39,633,497	10	39,725,746	6	40,563,146	4	42,774,320	3	43,015,078	2	43,095,074	1

	Year 2003		Year 2004		Year 2005		Year 2006		Year 2007		Year 2008	
	Amount (1000VND)	Growth Rate (%)	Amount (1000VND)	Growth Rate (%)	Amount (1000VND)	Growth Rate (%)	Amount (1000VND)	Growth Rate (%)	Amount (1000VND)	Growth Rate (%)	Amount (1000VND)	Growth Rate (%)
	4,845,775	3	4,921,365	2	4,955,777	1	4,983,766	1	4,999,515	0	5,010,524	0
	577,159	8	621,475	8	636,343	2	652,364	3	660,372	1	666,555	1
	2,477,885	3	2,519,349	2	2,537,937	1	2,553,235	1	2,561,792	0	2,567,799	0
	3,998,568	8	4,211,626	5	4,293,120	2	4,371,076	2	4,412,063	1	4,442,435	1
	782,514	-1	776,671	-1	775,137	0	773,308	0	772,470	0	771,805	0
	2,555,562	3	2,638,433	3	2,664,889	1	2,693,174	1	2,707,072	1	2,717,747	0
	90,005	-2	87,723	-3	87,163	-1	86,471	-1	86,162	0	85,914	0
	218,528	-1	221,610	1	221,718	0	222,527	0	222,758	0	223,018	0
	189,786	2	182,855	-4	182,386	0	180,604	-1	180,047	0	179,469	0
	183,772	22	217,106	18	230,202	6	244,112	6	251,481	3	257,178	2
	826,149	7	876,490	6	1,059,490	21	1,242,490	7	1,259,650	1	1,285,234	2
	848,676	-2	783,676	-8	772,761	-1	755,274	-2	748,372	-1	742,428	-1
	15,565,839	5	16,255,421	4	16,945,003	2	17,214,298	2	17,365,615	1	17,472,772	1
	5,172,718	30	3,650,511	-29	3,657,524	0	3,390,200	-7	3,329,882	-2	3,254,226	-2
	280,218	0	312,441	11	321,467	3	333,031	4	338,431	2	342,846	1
	38,613,154	6	38,276,751	-1	39,340,918	3	39,695,932	1	39,895,681	1	40,019,950	0

	2003		2004		2005		2006		2007		2008	
	Amount	Growth Rate	Amount	Growth Rate	Amount	Growth Rate	Amount	Growth Rate	Amount	Growth Rate	Amount	Growth Rate
	1,020,343		1,448,994		1,222,228		3,078,388		3,119,396		3,075,124	
	\$68,023		\$96,600		\$81,482		\$205,226		\$207,960		\$205,008	
	¥8,162,746		¥11,591,956		¥9,777,821		¥24,627,106		¥24,955,171		¥24,600,994	