(3) Structural Plan

1) Ground at the Planned Construction Site

Boring surveys were done at three locations on the planned construction site.
The results revealed soft clay mixed with sand and rubble extending from the surface to a depth of about 1.0 meter, solidly packed loamy clay from there down to a depth of about five meters, and below this, a hard clay or solidly packed loamy clay stratum extending to a depth of about 13 meters. A layer of moist sandy soil with a thickness between seven and nine meters is deposited at the bottom.
The water table is extremely shallow, almost G.L. -2m. But because the upper ground is viscous soil, there is no danger of liquefaction.
The building will consist of a three-story wing and a two-story wing, both without a basement. It will, therefore, be built on a caisson pile foundation supported by the well packed loamy clay stratum 5.0 meters or more below ground level.

2) Structural Plan

The building will be a reinforced concrete building, a type common in Phnom Penh. Its frame will consist of reinforced concrete columns (capitals will be installed on some of the columns) and flat slabs without beams to lower the story height. The outside will be a semi-rigid frame structure consisting of girders and columns. The roof will be supported by a truss frame made of steel members. The stress computations and section proportioning of the frame will be done with reference to AIC codes and the standards of the Architectural Institute of Japan.

3) Loading

The external forces and assumed loads that will act on the building will be determined in accordance with the local climate, geology, and ground conditions, and the way the building is to be used.

i) Dead load

It will be computed for each category of construction material used to find the fixed load.

ii) Live load

The live load will conform to actual conditions with consideration given to the By-Laws of the Bangkok Metropolis, the Building Standard Law of Japan and the standards prescribed by the American Standard Association.

Table 4-22

Use	Live load on the floors
Consulting rooms and offices	300kg/m^2
Training rooms	300kg/m^2
Operation theaters	300kg/m^2
Wards	180kg/m^2
Stores and machine rooms	500kg/m^2
Roof	100kg/m^2

iii) Wind pressure
It will be 100kg/m^2 because the eaves height will be no higher than 15m.

iv) Seismic resistance
Although earthquakes rarely occur in Cambodia, the possibility can not be ignored.
The seismic load for this building will be 1/5 that found based on the Building Standard Law of Japan.

4) Construction Materials

Concrete	Specified design strength	Fc = 210kg/cm^2
Deformed steel frame	Yield strength	3,500kg/cm^2
		3,000kg/cm^2
Steel frame material	Yield strength	2,400kg/m^2

(4) Mechanical and Electrical Plan

1) Electrical Plan

i) Power Supply Equipment

An electric room for Electricite Du Combodge (EDC) will be provided on the site. A 3-phase 3-wire 15kV2 circuit will be run in to the room. Beyond this room, a 3-phase 3-wire 15kV line will be connected to the electric room in the planned building. The machinery installed in the facility will be able to operate at a voltage of 15kV or at 22kV in preparation for an increase in the voltage to the higher value; a change expected in the near future. As the facility will require electric power equal to 600kVA, a transformer, distribution board, and other equipment able to meet this demand will be installed to provide power at each load level.

Power will be supplied via 3-phase 4-wire 380/220V lines, the standard voltage supplied in Cambodia.

Diesel generators will be installed to provide emergency power needed to maintain the minimum necessary level of hospital functions during anticipated lengthy power failures. To hold down the running cost of the generators, a number of low capacity generators will be installed and plans established so that the number of generators actually running simultaneously can be varied to provide the power needed to satisfy the demand load. The generators and generator room will be provided with suitable sound-proofing, noise-suppression, and vibration-suppression measures.

ii) Lighting and electrical outlets

The design luminance will be set in accordance with conditions in Cambodia. Most of the lighting fixtures installed will be high efficiency fluorescent lighting. The switches will be carefully planned to hold down costs.

The following table shows the average design luminance of the principal rooms.

Table 4-23 Average design luminance of principal rooms

Room	Design luminance (Lux)
Operation theaters	500
Consulting and treatment rooms	200
Offices and classrooms	200
Examination rooms	200
Wards	70

The electrical outlets will be the round two-pin type in common use. Their locations and specifications will be determined based on a detailed study of the power source categories, capacities, and how electrical equipment will be connected to the outlets.

iii) Lightning arrestors and grounding
To protect the building from lightning, lightning rods and rooftop conductors will be installed. Special grounding equipment will be provided as required by the medical equipment.

iv) Telephone equipment
Telephone exchange equipment with the needed capacity will be installed in the building and telephone terminals provided in rooms where they are required to facilitate communications between rooms in the facility and with outside locations.

v) Loudspeaker system
The auditorium will be equipped with suitable speaken system.

Figure 4-24 Schematic diagram of the power reception equipment

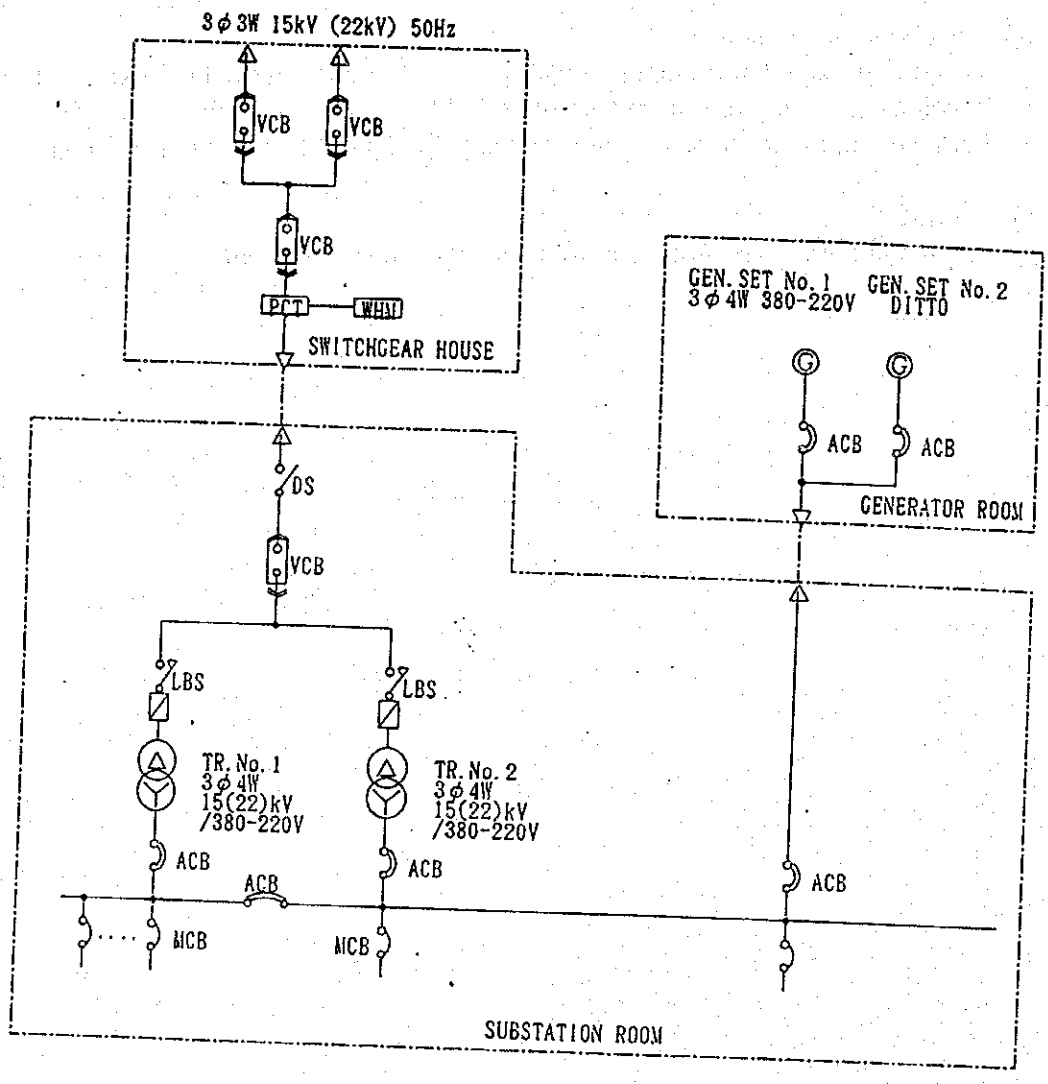
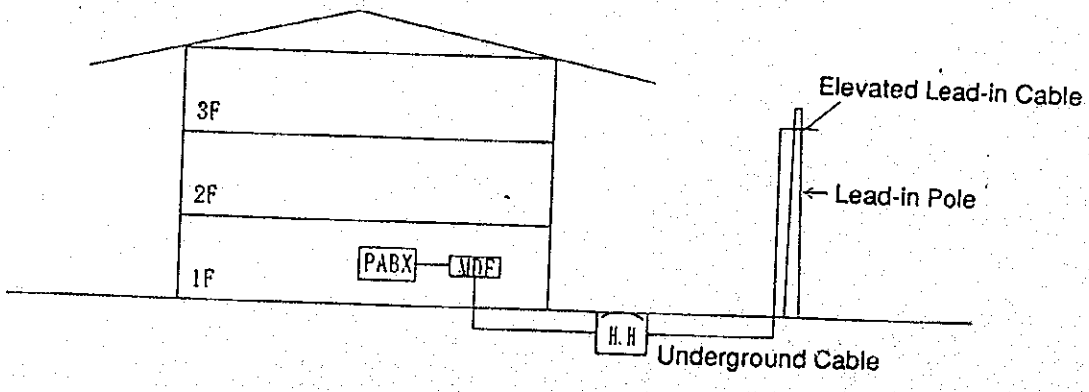


Figure 4-25 Telephone system



2) Plumbing Plan

i) Water supply system

Basically, the municipal water will be used. The well water will be used to deal with anticipated problems with the water volume and pressure. The water supplied by the municipal system is maladorous and colored, so it will be treated by filters.

After the water from the municipal supply system has passed through an above-ground water intake tank and processed, it will be pumped up to an elevated tank and supplied to the facility by the force of gravity. To prepare for possible suspensions of the water supply, the water tanks will all be high capacity double-tanks.

Equipment to make special types of water (sterilized water, distilled water, etc.) for medical devices will be installed separately at the locations where each will be needed.

ii) Hot water supply

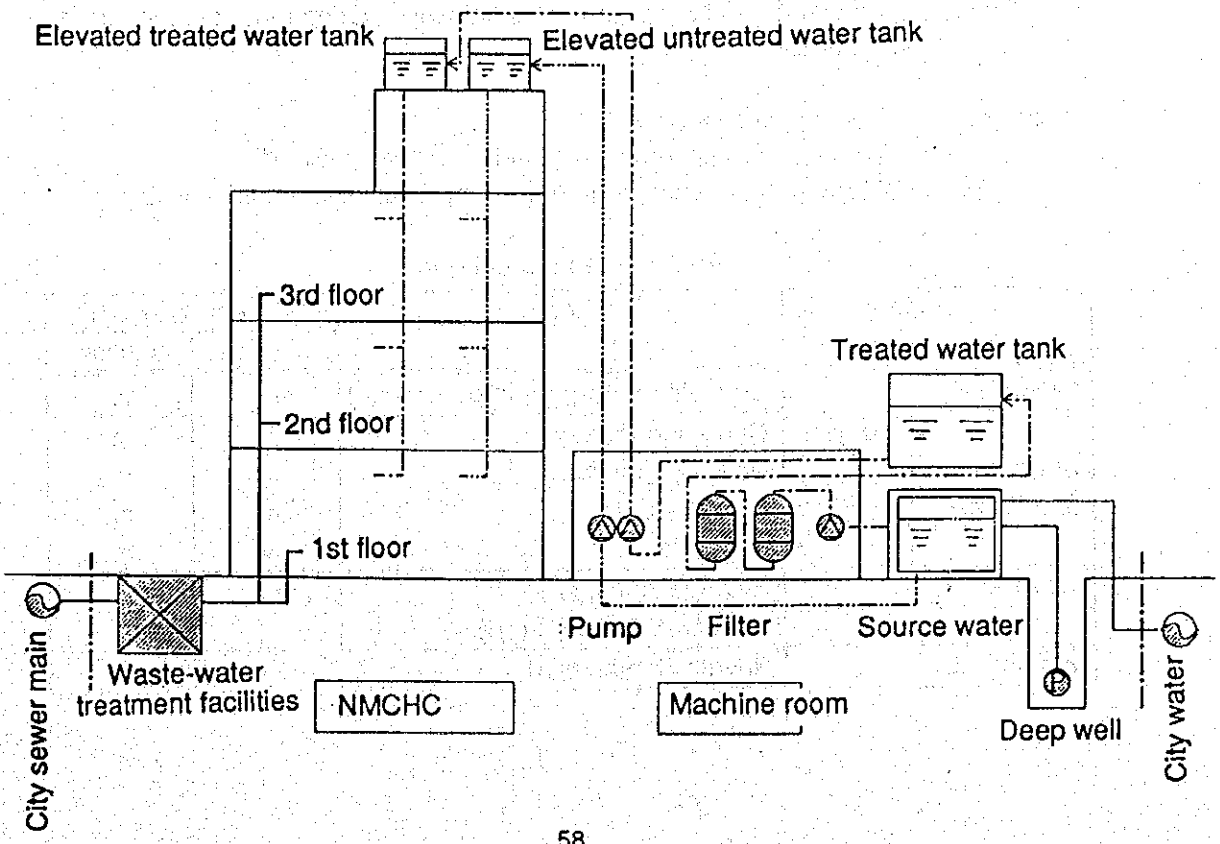
The central surgical supply, neonatal rooms, and other locations where hot water will be required will be provided with individual water heater system.

ii) Waste-water system

Sewage and other waste water will be discharged into the city sewer system after it has been processed in the waste-water treatment facility (septic tank). Rain water will also be discharged into the city sewer system.

Figure -.-.- is a schematic diagram of the water supply and discharge systems.

Figure 4-26 Plumbing system



iv) Sanitary fixtures
The sanitary fixtures selected will be suited to local conditions. Because sanitary equipment is particularly prone to breakage, a type available in Cambodia will be selected. Asian-style along with some Western-style fixtures will be installed.

v) Waste-water treatment facilities
It is important that the waste-water treatment facilities be easy to maintain and inexpensive to operate. The Ministry of the Environment has not established discharge standards governing waste water, but the equipment selected will release water with a BOD value of 100ppm or less. A simple treatment method combining soil purification and biological processing will be considered.

vi) Gas supply facilities
Propane gas will be the kitchen heat source. A centralized system method will be adopted to guarantee safety and make sure the containers can be replaced without difficulty. However, consideration will be given to having small tanks placed in the room when absolutely necessary. A tank room will be provided in the annex.

vii) Kitchen facilities
The kitchen facilities will be suited to local conditions. It must be easy to use and maintain and inexpensive to operate. Simple equipment available in Cambodia should be installed.

viii) Laundry facilities
The laundry facilities will include laundering, desiccation, and finishing equipment that is easy to use and inexpensive to run at the same time as it maintains a balance between mechanical and manual work. Consequently, the laundry will be dried naturally.

ix) Medical gas supply system
A centralized Oxygen and suction systems will be provided.
Table 4-26 presents the principal rooms where this system is available.

Table 4-26 Medical gas

Department		Room	Medical gas piping	
			oxygen	suction
Outpatient		Consulting room (emergency use)	m	m
Surgery and Delivery	Surgery	Operation theaters	m	m
	Delivery	Delivery rooms	m	m
		Labor Rooms	m	m
		Neonatal room	m	m
Ward A		Private Rooms (1B)	m	m
		Observation Room (4B)		
Wards B, C		Private Rooms (1B)	m	m

x) Fire-extinguishing facilities
In principle, interior hydrants and fire-fighting equipment will be installed in accordance with the laws and standards of the Kingdom of Cambodia.

xi) Waste disposal facilities
Waste disposal and collection facilities (garbage disposal area) will be installed. Ordinary waste (paper, etc.) will be collected separately from contaminated hypodermic needles, operating-room clothing, and other pathological waste. Basically, medical waste will be incinerated, and ordinary waste will be collected by the city.

3) Air-conditioning and Ventilation Plan
The climate of the city of Phnom Penh is tropical and the hospital will have limited funds to spend on maintenance and upkeep of its equipment. Therefore the following basic guidelines have been established for the design of the air-conditioning and ventilation systems.

1) It should be designed in accordance with natural conditions such as sunlight, temperature, and wind direction.
2) It should maintain the degree of cleanliness required as a medical facility.
3) It should keep running costs low.
4) The system should be able to handle a machine malfunction.
5) The machinery should be easy to operate and maintain.

i) Air-conditioning equipment
In principle, natural ventilation will be employed. Cooling equipment will be limited to rooms where it is necessary for the room to fulfill its functions. Independent air-cooled split type air-conditioning equipment will be installed so that each cooling device can be operated independently, mechanical failures can be handled appropriately, and the system will be easy to maintain. Interior equipment will be installed on the ceilings or walls of the rooms, while exterior equipment will be placed on verandahs or the roof. The air supplied to operation theaters and related rooms will be cleaned with high-performance filters.
The following are the principal rooms that will be airconditioned.

First floor:	Drug storage, medical instrument storerooms anditorium, etc.
Second floor:	Operation theaters, recovery rooms, delivery rooms, central supply room, etc.
Third floor:	Offices, etc.

ii) Ventilation facilities
Rooms not served by air conditioning will be either naturally ventilated or provided with mechanical ventilation equipment. The building will be designed to take the fullest possible advantage of the prevailing winds in Phnom Penh, south-west winds in the rainy season and north winds in the dry season. The center of the building will be open to increase ventilation efficiency. This approach is sure to increase ventilation effectiveness on windy days when air will be drawn in from the open space. Ceiling fans will be installed to cool the air in the first floor outpatient

section, the central consulting section, the service departments, the second floor wards, and the third-floor lodging facility.

(5) Building Materials Plan

Most of the building materials and building construction methods selected will be available in Cambodia so it will be easy for the NMCHC to maintain the building.

1) Exterior Finishing Material

1-1) Exterior Wall

The exterior finish will be washable terrazzo covered by exterior emulsion paints that provide water and moisture resistance.

1-2) Roof

Highly reliable asphalt waterproofing will be applied to the roof surface. Tile roofing will be used to enhance the insulation properties at the top floor.

A skylight made of glass blocks will be installed in the roof over the first floor waiting room to provide both illumination and thermal insulation.

1-3) Fittings

Aluminum windows will be used as exterior fittings to protect the building from the heat and humidity of Cambodia. Most of the interior fittings will be made of wood. Doors in the operating area and other places where stretchers will be used will be either steel or stainless steel to withstand the impact of the stretchers.

2) Interior Finishing Materials

1) Floors

The floors in the consulting rooms, treatment rooms, wards, corridors, and other rooms where there is a danger of contamination will be finished in ceramic tiles, which are easy to keep clean.

Ceramic tile floors will also be laid in rooms cleaned with water; e.g., toilets, showers, examination rooms, operation theaters, and scrub-down rooms.

2) Walls

The walls will be tiled from the floor to a height of about 2 meters in consulting rooms, treatment rooms, wards, corridors, and other rooms where the walls could become contaminated. To guarantee that these walls can be wiped off easily, PVC plastic enamel paint will be applied above the tiles.

3) Ceilings

In rooms where overhead piping has been installed, ceilings will hide the piping, while the concrete ceilings in other rooms will simply be painted to prevent the propagation of bacteria.

Table 4-28 presents an overview of the above construction methods.

The only materials available in Cambodia are cement, sand, gravel, concrete blocks, bricks and forms, wood work, and plastering. The rest will be imported from neighboring countries.

Table 4-28. Building material plan table

	Local method	Adopted method	Reasons
Roof	Tile	Flat roof	Insulation and waterproofing
Exterior walls	Washed terrazzo, paint	Washed terrazzo, Emulsion paint Fluorine resinpaint	High performance paint will be used to simplify maintenance.
Fittings	Aluminum, Wood	Aluminum Wood Steel Stainless steel	The exterior will, in principle, be aluminum. The interior will be mostly wood. Steel or stainless steel will be used wherever necessary
Interior walls	Tile Paint	Tile Enamel paint	High performance paint will be used to simplify maintenance.
Flooring	Tile	Tile	
Ceilings	Paint	Paint, Wood and gypsum board	Board ceilings will be installed to hide pipes and protect the rooms from dust.

(6) Equipment Plan

1) Basic Guidelines for Medical Instrument and Equipment Planning

The medical equipment planning will be conducted in line with the following basic policies.

1-1) It will be basic equipment needed to provide clinical services and to conduct training.

1-2) The equipment will be appropriate for the facility to be constructed and suited to the technical capabilities of medical personnel. But equipment not appropriate to the technical abilities of the medical personnel will be provided through the Project if it is deemed essential to the achievement of the goals of the technical cooperation.

1-3) It will be equipment needed to implement the technical cooperation.

1-4) The equipment will not require special chemical reagents or consumables difficult to obtain in Cambodia.

1-5) The equipment will not be expensive to maintain, so that it will be feasible to operate and maintain them in Cambodia.

1-6) Because the makers of the equipment do not have agencies in Cambodia, it will be equipment which can be maintained either by the maintenance department to be established in the NMCHC, or by the makers agents in neighboring countries.

2) Range of Medical Equipment

Some of the medical equipment will use consumables. To give Cambodia time to find sources for the consumable materials, a one-year supply will be provided.

A study of the need for spare parts for each equipment item will be conducted, and in cases where it is determined that spare parts are necessary, enough to last for the lifetime of the equipment will be provided (up to a limit of five years).

3) Training in the Operation of the Equipment
The need for training in the operation of each piece of equipment will be considered, and in cases where such training is deemed necessary, the actual users will be given training in the operation of the equipment when the equipment has been installed.

Table 4-29 (1) Specifications of the principal equipment

Equipment	Principal specifications	Appropriateness of specifications
Standard X-ray machine	1) X-ray table Bucky and table-top slide type 2) Stand Bucky-type 3) High voltage generator 150kV 500mA 4) X-ray tube 150kHU	Installed in the X-ray room, this machine will be used to take simple X-ray photos of the patients entire bodies. The doctors will use the photographs to diagnose a wide range of ailments: broken bones, lung disease, heart disease. To allow the equipment to produce clear images, it will be installed on a Bucky-type stand, a type now used in many hospitals. The equipment will include a high voltage generator capable of providing the 130kV and 400mA required to X-ray the abdominal region; a type of X-ray requiring the highest voltage and highest capacity. The X-ray tube capacity will be 150kHU, one which can continuously radiate the subject with X-rays under the above conditions.
Portable X-ray machine	1) Type: Inverter 2) Tube voltage: 125kV 3) mAs: 50 mAs 4) X-ray tube: 300kHU 5) Mobility: Self-propelled 6) Power source: Cordless	The hospital staff will use this unit to take X-rays of seriously ill patients who can not be moved from their beds to the X-ray room. It can X-ray a patients entire body or parts of the body. Its capacity will be 125kV, 100mAs, which satisfies the X-ray photography conditions. Because a flatter voltage waveform can be obtained for application to the X-ray tube than with a conventional condenser type, clearer images can be obtained; and again since it does not use condensers, which have a limited lifetime this type rarely malfunctions because its main components are semiconductors. Models which must be pushed to various locations in the hospital by an X-ray technician are difficult to move if there are any level differences, even small ones, in the corridors. So a self-propelled type will be needed. Because the electric outlets in the wards may not always be in appropriate locations, a cordless model was chosen.

Table 4-29 (2)

Equipment	Principal specifications	Appropriateness of specifications
Diagnostic Ultrasono-graphy	1) Diagnostic modes: B, M, B/M 2) Probes: Sector 3) Recording unit	This machine will be used to check on the condition of the organs inside the body. Because it permits non-invasive examinations which place little burden on the patients and is easy to use, it is an extremely useful and effective device. The type supplied will be capable of operation in the B and M modes, the diagnostic modes best suited to this hospital. Only sector probe will be supplied. Recording unit will be supplied for recording and analyze at diagrostic.
Anesthetizing equipment	1) Type: Oxygen and nitrous oxide manual flow volume control 2) Vaporizers: Flothane Halothane	This equipment is used to perform general anesthesia of a surgery patient with vaporized anesthetic. It will be the simplest available machine. The operator will manually control the oxygen and nitrous oxide flow volume. Three kinds of vaporizers will be included because in Cambodia, physicians use either Flothane or Halothane, depending on the condition of the patient. Because operations of this facility are not so long, 2-3hrs, a mannual type respitractor will be sufficient.
Pressurized steam sterilizer	1) Internal capacity: 200-250 liters 2) Door: Manual single swinging door 3) Operation: Automatic	The pressurized steam sterilizers will be used to sterilize treatment and surgical equipment that must be utilized in sterile condition and equipment used to treat patients suffering from communicable diseases. They will have sufficient capacity to fully sterilize operating room equipment, the type of equipment most often sterilized. The door will be a manually operated single swinging door, the type best suited to conditions in Cambodia. The equipment will be automatically programmed.
Operating table	1) Vertical adjustment method: Manual hydraulic pump 2) Incline adjustment: Manual 3) Accessories: Foot rests; screens; arm, body, shoulder, and knee supports	Patients will be placed on this equipment during surgical procedures. Each table will be equipped with special accessories suited to its use by gynecological surgery patients. It will be the simplest available. The staff will raise and lower them with manual hydraulic pumps, and adjust their incline manually. It will be equipped with various accessories needed in a gynecological operating room including the most important item, an anchor for the lithotomy position.

Table 4-30 (1) Equipment list

No.	Name	Qty.
First floor outpatient (reception, pharmacy, birth spacing, examination, treatment)		
1	Gynecological examination table	4
2	Gynecological examination unit	4
3	Examination lamp	4
4	Footstool	4
5	Examination table	9
6	Doppler fetal detector	1
7	Dental unit	1
8	Emergency cart	1
9	Manual resuscitator (Ambu-bag)	1
10	Oxygen inhaler set (wall hanging type, for adult)	1
11	Suction set (wall hanging type)	1
12	X-ray film viewer	1
13	Wheelchair for adult	1
14	Stretcher	1
15	Sphygmomanometer (Mercury, stand type)	2
16	Stethoscope	2
17	Thermometer (mercury type)	5
18	Weighing scale for adult	2
19	Weighing scale for neonate	1
20	Height scale (for adult)	1
21	Height scale (for neonate)	1
22	Boiling sterilizer	1
23	Medical refrigerator	2
24	Irrigator stand	2
25	Instrument cabinet	2
26	Instrument sterilizing tray	8
27	Minor operation set	1
28	Vaginal speculum (Grave)	10
29	Vaginal speculum (Sims)	2
30	Vaginal speculum (Jackson)	2
31	Vaginal speculum (Mathieu)	2
32	Vaginal speculum (Cusco, large)	5
33	Vaginal speculum (Cusco, medium)	10
34	Vaginal speculum (Cusco, small)	5
35	Hemostatic forceps (no teeth, curved, 18.5cm)	2

Table 4-30 (2)

No.	Name	Qty.
36	Placenta forceps (small)	2
37	Uterine probe	5
38	Tsukahara's vaginal forceps	5
39	Tweezers (no teeth, 23cm)	40
40	Forceps stand	4
41	Backhouse towel forceps (curved, 27cm)	4
42	Towel forceps stand	4
43	Dressing jar	4
44	Small dressing jar	1
45	Pus basin	5
46	Trush drum	5
47	Video player	1
48	TV set	1
49	Training simulator	1
50	Medicine rack	13
First floor (X-ray, physiological lab)		
1	General X-ray machine	1
2	Manual developing tank and accessories	1
3	Diagnostic ultrasonography	1
4	ECG (6ch)	1
5	Gynecological examination table	1
6	Examination table	2
7	Foot stool	1
8	Trush drum	1
First floor (laboratory)		
1	Flame photometer	1
2	Centrifuge	1
3	Binocular Microscope	1
4	Water still	1
5	HIV/HB test set	1
6	Leucocytecounter	2
7	Test tube rack	2
8	Microslide glass (1000pcs/box)	5
9	Micro coverglass (1000pcs/box)	5
10	Hematocrit tubes (1,200pcs)	3
11	Trush drum	3

Table 4-30 (3) Equipment list

No.	Name	Qty.
First floor (Medical office)		
1	Photocopy machine	1
2	Typewriter (Khmer)	1
3	Typewriter (English)	1
4	Personal computer set	2
5	Plain bed	9
6	Bedside cabinet	9
Second floor (Patient ward)		
1	Patient bed	140
2	Gadge bed	10
3	Gynecological examination table	3
4	Gynecological examination unit	3
5	Examination lamp	3
6	Foot stool	3
7	Patient monitor	2
8	Emergency cart	1
9	Manual resuscitator (ambu-bag)	1
10	Oxygen inhaler set (wall hanging type, for adult)	10
11	Suction set (wall hanging type)	10
12	X-ray film viewer	1
13	Stretcher	3
14	Wheelchair for adult	3
15	Sphygmomanometer (mercury, stand type)	3
16	Stethoscope	3
17	Thermometer (mercury)	10
18	Thermometer stand	3
19	Weighing scale for adult	3
20	Weighing scale for neonate	3
21	Boiling sterilizer	3
22	Medical refrigerator	3
23	Ice cube machine	1
24	Instrument cabinet	3
25	Irrigator stand	10
26	Chart wagon	3
27	Instrument carriage	1
28	Instrument sterilizing tray	3
29	Vaginal speculum (Grave)	6
30	Vaginal speculum (Cusco, large)	6

Table 4-30 (4) Equipment list

No.	Name	Qty.
Second floor (Patient ward)		
31	Vaginal speculum (Cusco, medium)	3
32	Tweezers (no teeth, 23cm)	30
33	Tweezers (to teeth, 14cm)	3
34	Removing suture scissors (14cm)	3
35	Uterine probe	2
36	Tsukahara's vaginal forceps	2
37	Placenta forceps (medium)	6
38	Forceps stand	4
39	Catheter tray	1
40	Backhouse towel forceps (curved 27cm)	4
41	Towel forceps stand	4
42	Dressing jar	4
43	Pub basin	4
44	Bedpan hanger	3
45	Baby bath	3
46	Trush drum	3
47	Plain bed	2
48	Bedside cabinet	152
Second floor (Operation and C.S.S.D.)		
1	Anesthesia apparatus	3
2	Gynecological operation table	3
3	Defibrillator	1
4	Instrument tray	3
5	Operation stool	3
6	Electro surgical unit	2
7	Patient monitor	3
8	Suction set (kick type)	3
9	Suction set (wall hanging type)	6
10	Oxygen inhaler set (wall hanging type, for infant)	3
11	Oxygen inhaler, suction set stand	3
12	Y type adaptor (for oxygen and suction)	3
13	Laryngoscope for adults	1
14	Endotracheal set (Adult)	3
15	Sphygmomanometer (Mercury, stand type)	3
16	Stethoscope	3

Table 4-30 (5) Equipment list

No.	Name	Qty.
Second floor (Operation, C.S.S.D.)		
17	Irrigator stand	3
18	Stretcher	2
19	High pressure steam sterilizer	2
20	Scrub station for two persons	2
21	Blood refrigerator	1
22	Medical refrigerator	1
23	Curretage operation set	2
24	Cesarean operation set	2
25	Abdominal operation set	2
26	Vaginal operation set	1
27	Vaginal speculum (Cusco, medium)	3
28	Tweezers (no teeth, 23cm)	6
29	Towel forceps stand	3
30	Back house towel forceps (curved, 27cm)	3
31	Dressing jar	3
32	Instrument sterilizing tray	6
33	Instrument carriage	3
34	Trush drum	3
Second floor (labor and delivery)		
1	Delivery table	5
2	Cardiotocograph	4
3	Doppler fetal detector	1
4	Infusion pump set	1
5	Oxygen inhaler set (wall hanging type, infant)	3
6	Oxygen inhaler set (wall hanging type for adult)	9
7	Oxygen inhaler, suction set stand	3
8	Suction set (wall hanging type)	3
9	Patient bed	6
10	Emergency cart	1
11	Manual resuscitation set (Ambu-bag)	1
12	X-ray film viewer	1
13	Sphygmomanometer (Mercury, stand type)	4
14	Stethoscope	4
15	Weighing scale for infant	3
16	Scrub unit (wall hanging type)	1
17	Naegele's obstetric forceps	2

Table 4-30 (6) Equipment list

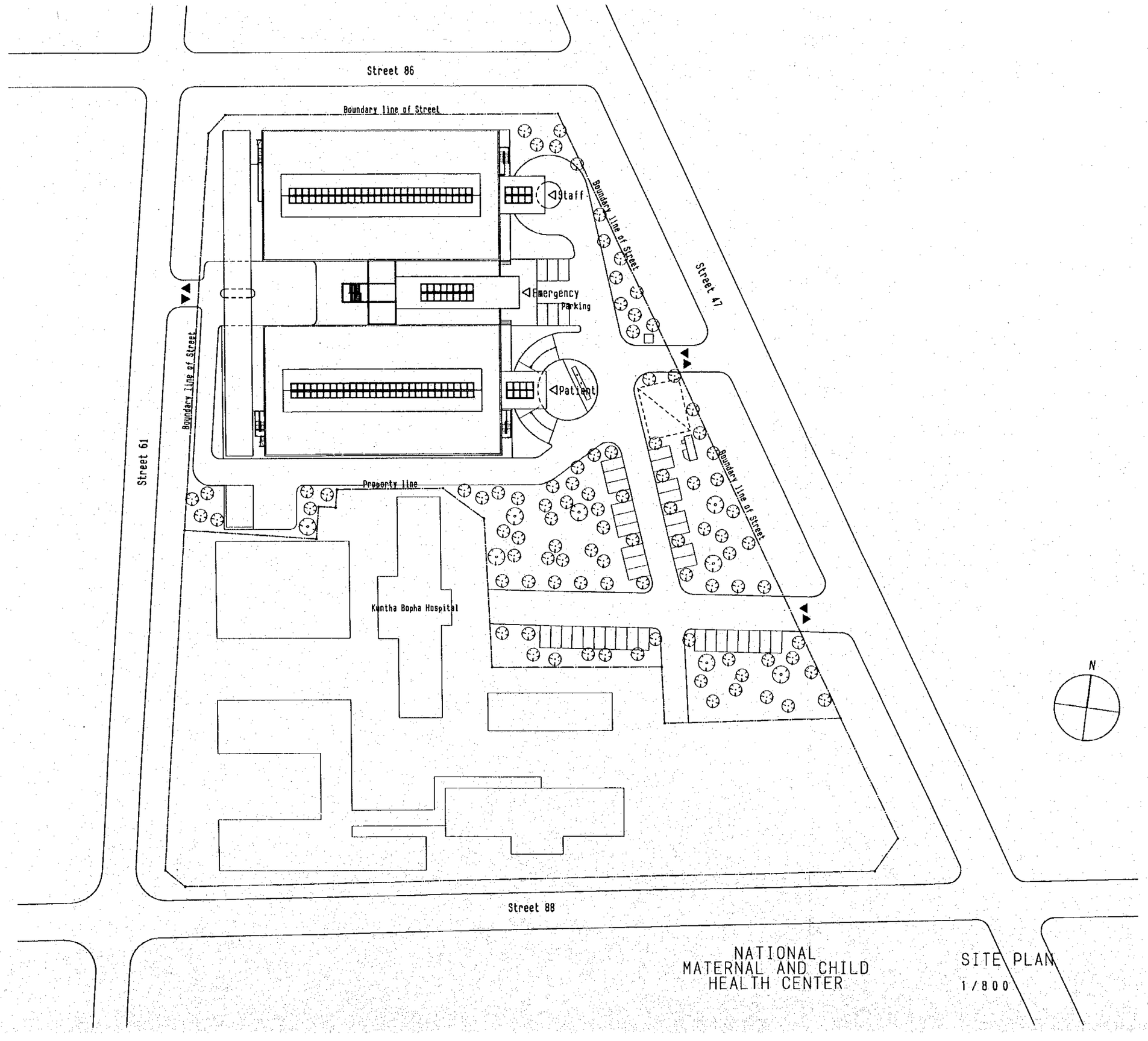
No.	Name	Qty.
Second floor (labor and delivery)		
18	Obstetric suture set	3
19	Vaginal speculum (Mathieu)	2
20	Vaginal speculum (Cusco, large)	2
21	Hemostatic forceps (no teeth, straight, 18.5cm)	4
22	Tweezers (no teeth, 23cm)	5
23	Forceps stand	5
24	Backhouse towel forceps (curved 27cm)	5
25	Towel forceps stand	5
26	Dressing jar	5
27	Irrigator stand	6
28	Instrument cabinet	3
29	Urine drainage set	10
30	Trush drum	5
31	Plain bed	4
32	Bedside cabinet	4
Second floor (Nursery)		
1	Infant incubator	2
2	Infant warmer	1
3	Baby cot	10
4	Mobile X-ray unit	1
5	Syringe pump set	1
6	Phototherapy unit	1
7	Emergency cart	1
8	Endotracheal set (Infant)	1
9	Manual resuscitator (Jackson reas type)	2
10	Suction set (wall hanging type)	6
11	Oxygen inhaler set (wall hanging type, for infant)	6
12	X-ray film viewer	1
13	Medical refrigerator	1
14	Irrigator stand	3
15	Tweezers (no teeth, 18cm)	2
16	Forceps stand	1
17	Backhouse towel forceps (curved, 27cm)	2
18	Towel forceps stand	1
19	Dressing jar	1
20	Trush drum	2

Table 4-30 (7) Equipment list

No.	Name	Qty.
Third floor (training)		
1	Photocopy machine	1
2	Personal computer set	1
3	Printing machine	1
4	Overhead projector	2
5	Slide projector	1
6	Screen	1
7	Training manekin for simulator	1
8	Plain bed	30
9	Bedside cabinet	30

(7) Basic Design Drawings

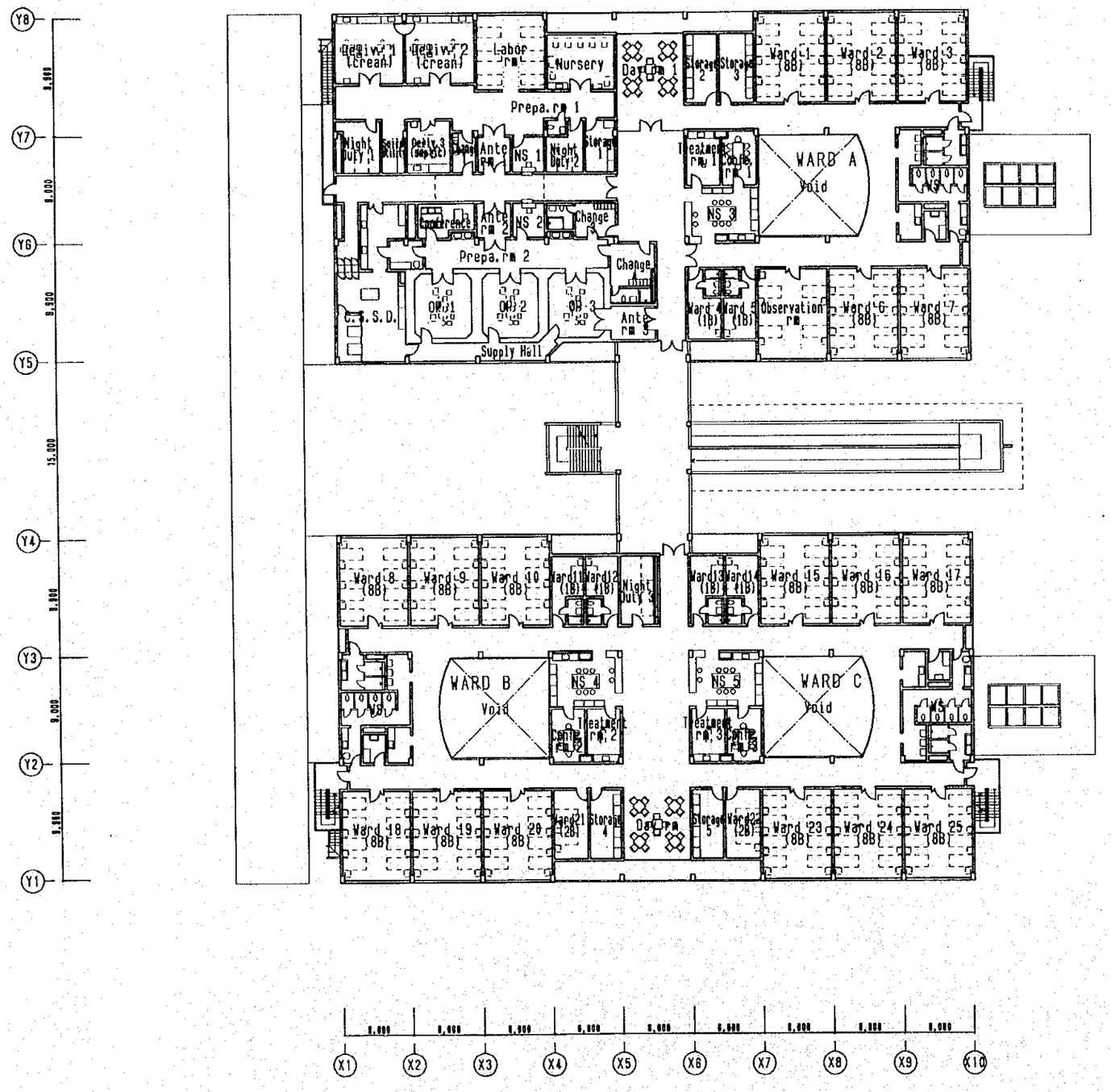
BASIC DESIGN
ARCHITECTURE



NATIONAL
MATERNAL AND CHILD
HEALTH CENTER

SITE PLAN
1/800

Switchgear House
Laundry
Work Shop (M/E)
Storage 1
Storage 2
Doctor's Room
Generator
Work Shop
Storage 3
Lobby
Staff (GL+800)
Sub Station
Garden (GL+700~400)
Service yard
(GL+0~500)
Emergency
Parking (GL+200)
Guard's room
(GL±0)
Mortuary
Medical Gas rm
Medical Record Storage
Medical Office
Water Treatment & Pump Room
Dental
Waiting Hall
Reception
Patient (GL+800)
Water Reservoir
Pharmacy
Security
Sewage Treatment Plat
Waste Shade
X-ray
Lab.
Incinerator
Prayer Room
(GL+0)
1FL=GL+1,000
NATIONAL MATERNAL AND CHILD HEALTH CENTER
1F PLAN
1/400
N

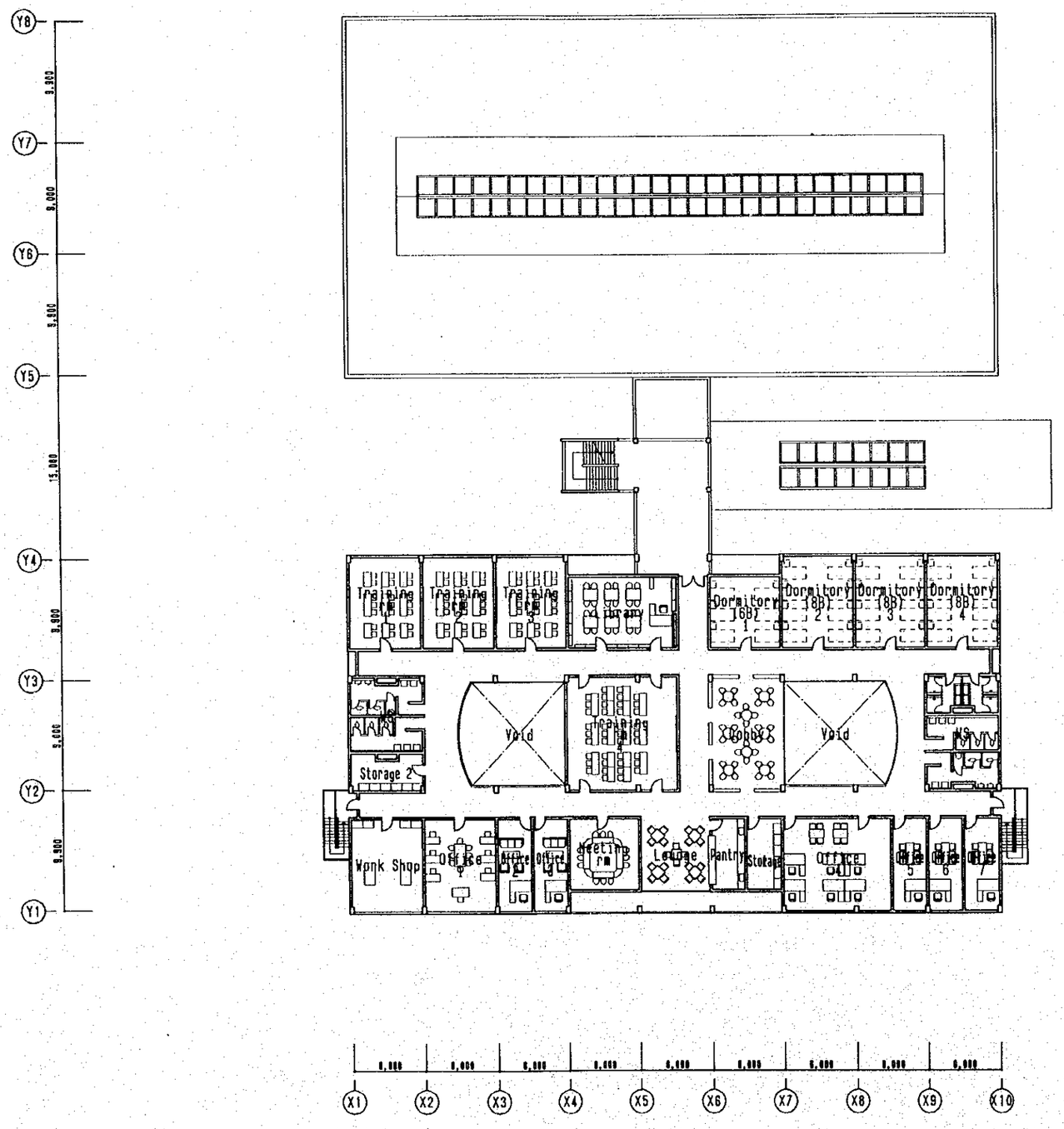


2FL=1FL+3,750

NATIONAL
MATERNAL AND CHILD
HEALTH CENTER

2F PLAN

1/400



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NATIONAL
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HEALTH CENTER

3F PLAN

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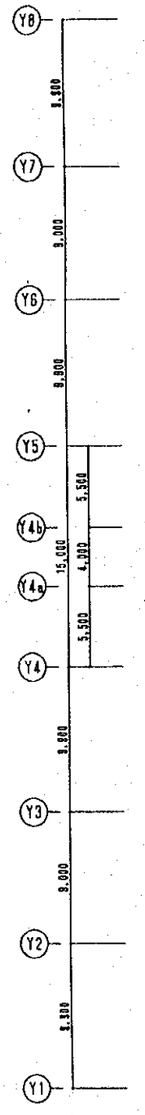
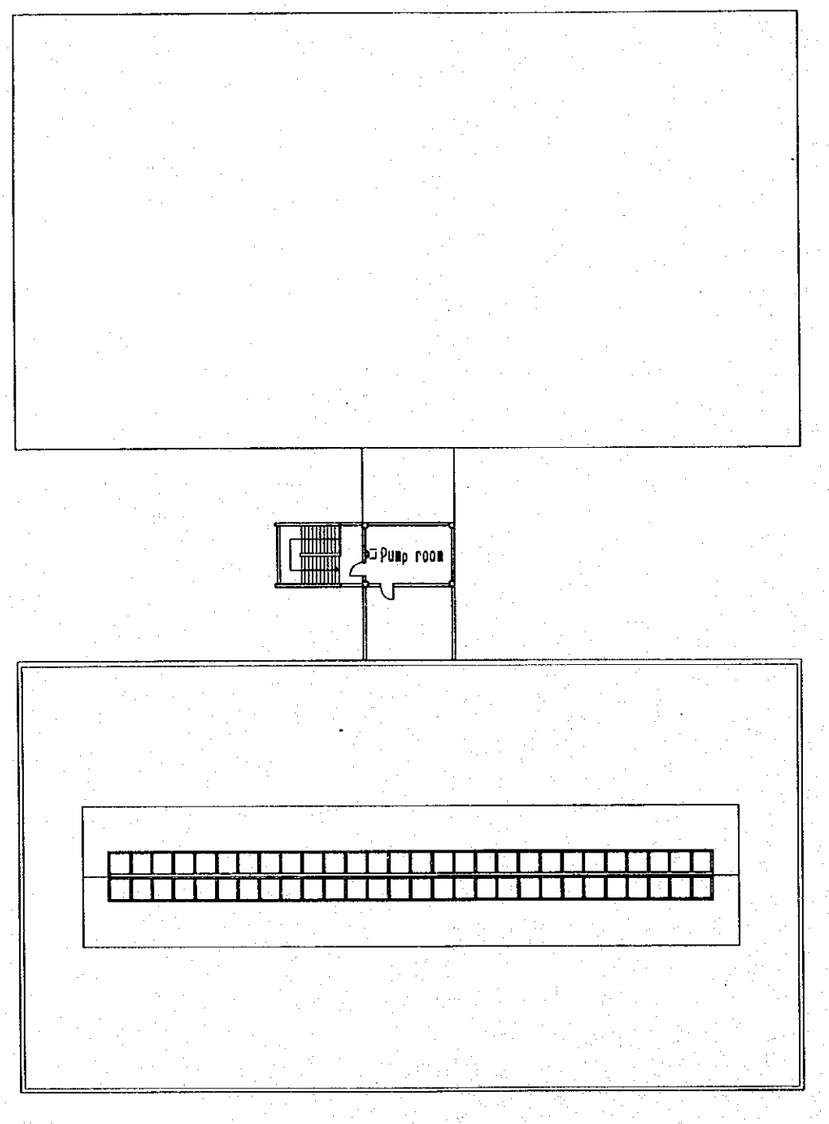
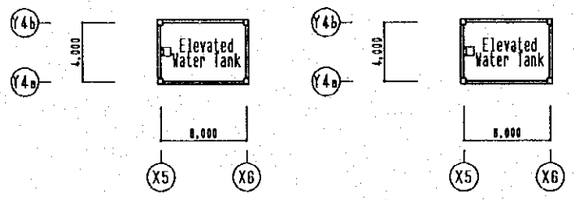




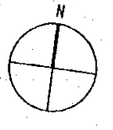


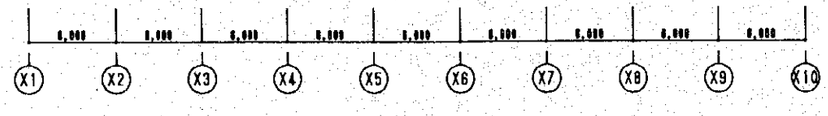
PH2FL=3FL+8,000

PH2F PLAN

PH3FL=3FL+10,700

PH3F PLAN





PH1FL=3FL+3,750

PHIF PLAN

NATIONAL
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HEALTH CENTER

PH PLAN

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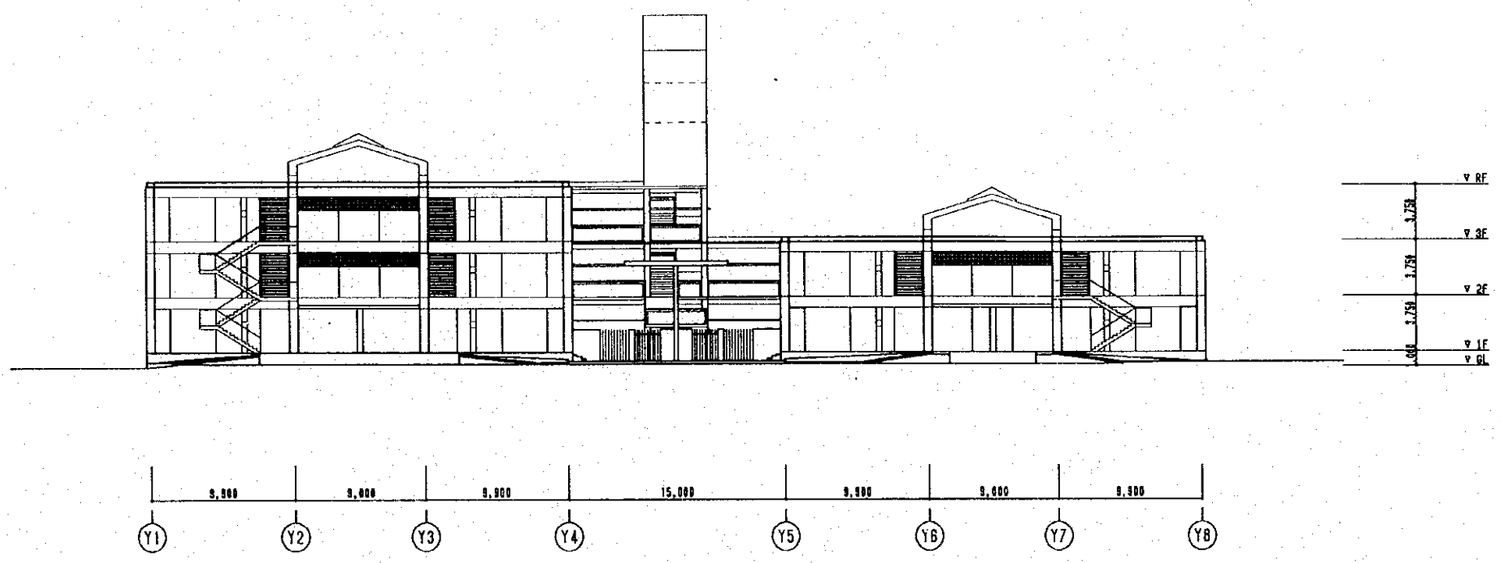
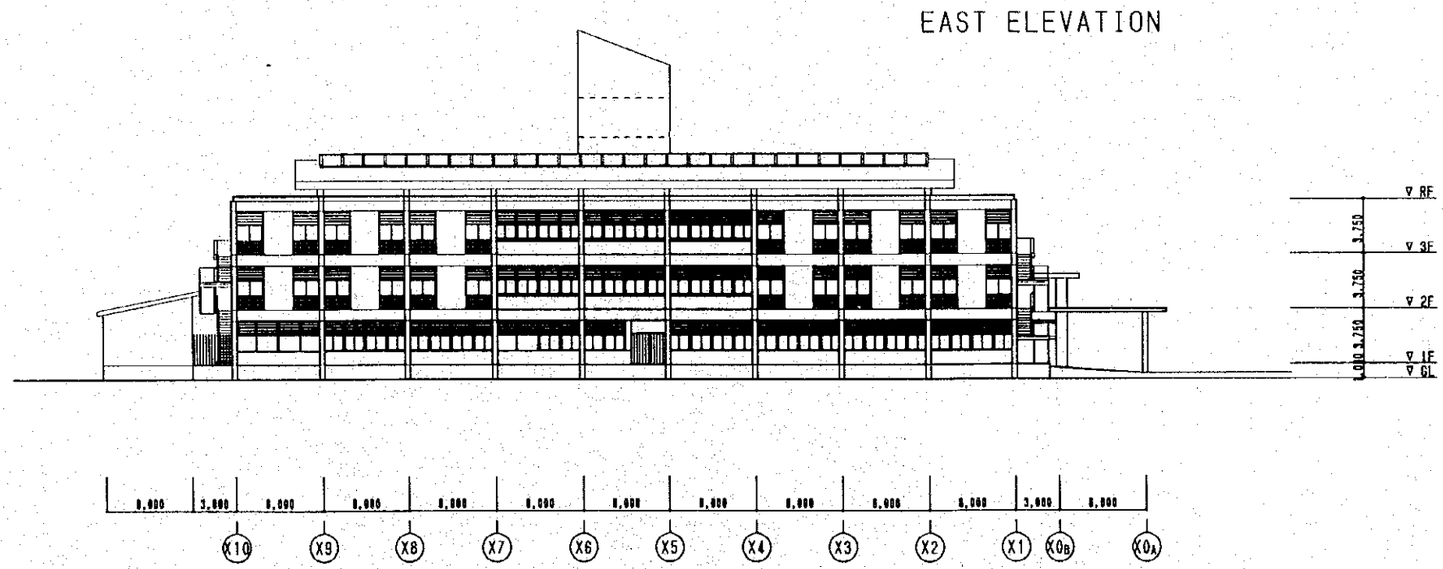


EAST ELEVATION



SOUTH ELEVATION

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ELEVATION

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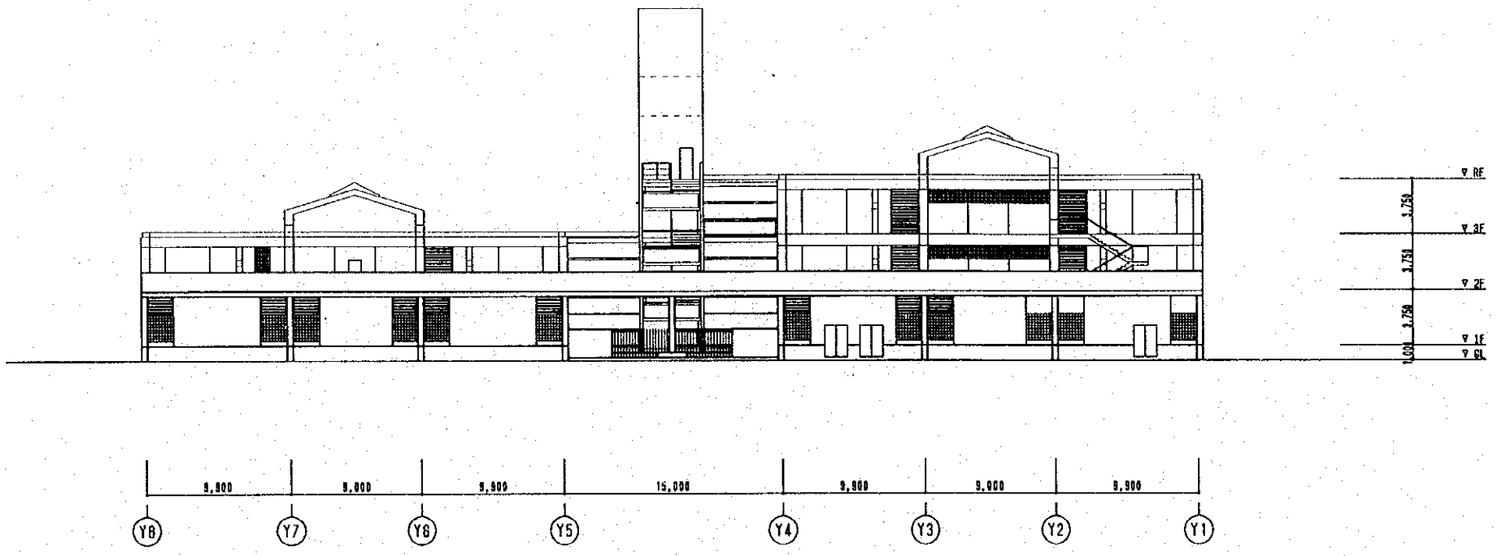
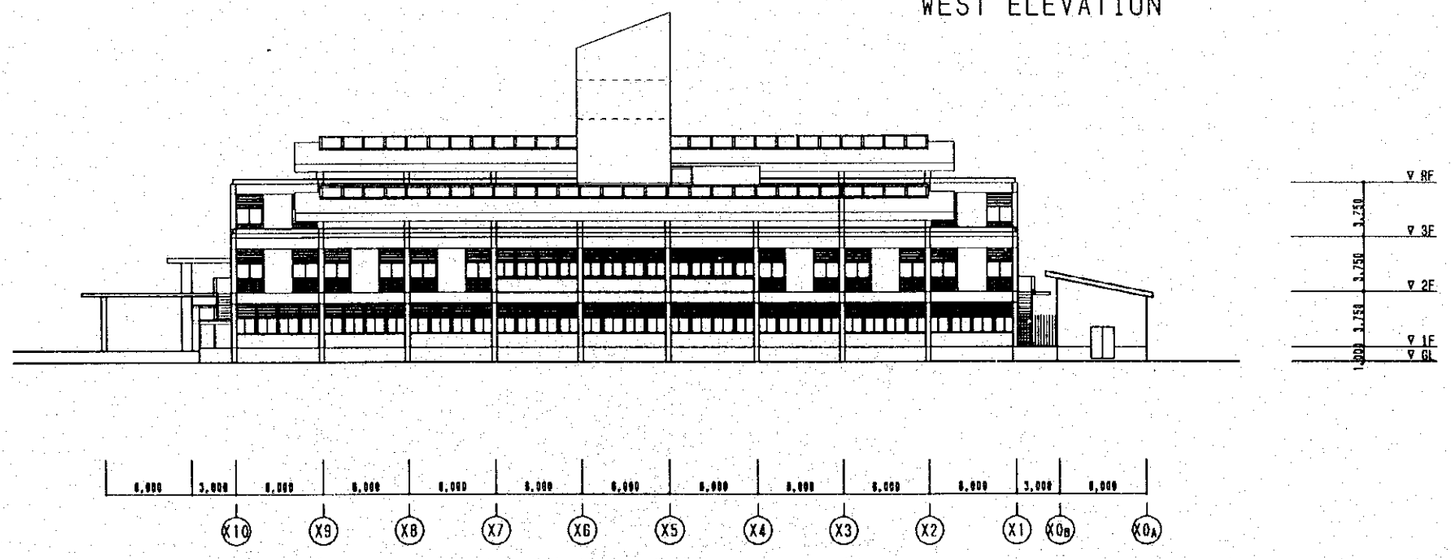


WEST ELEVATION



NORTH ELEVATION

NATIONAL
MATERNAL AND CHILD
HEALTH CENTER

ELEVATION

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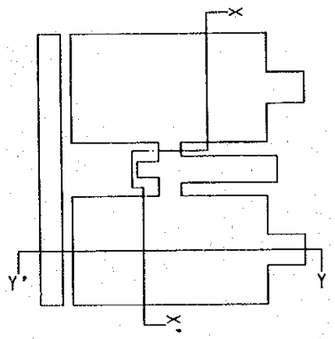
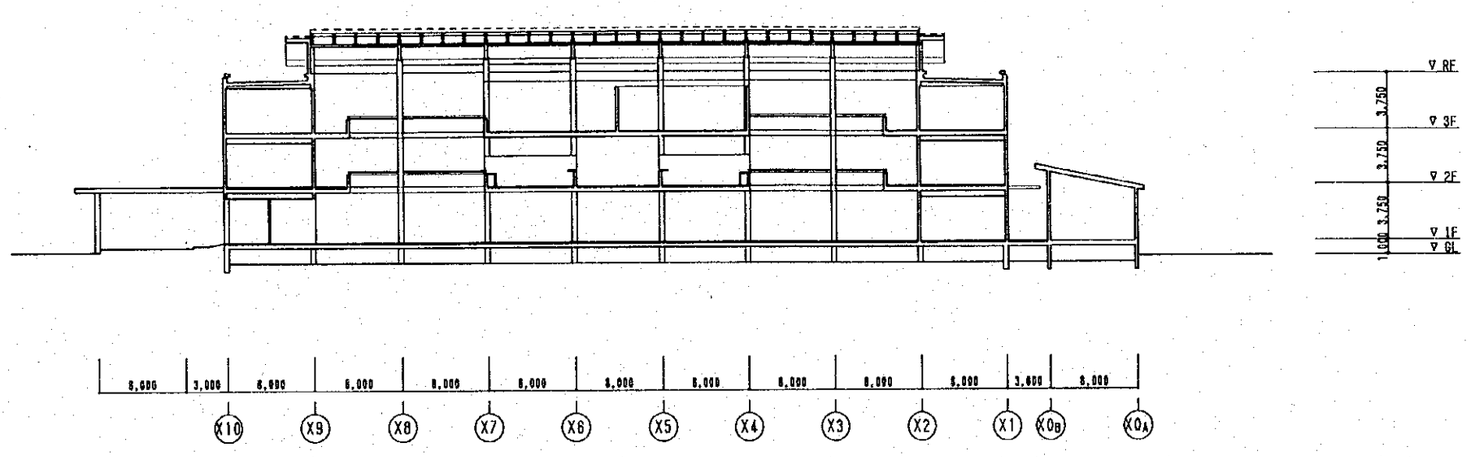
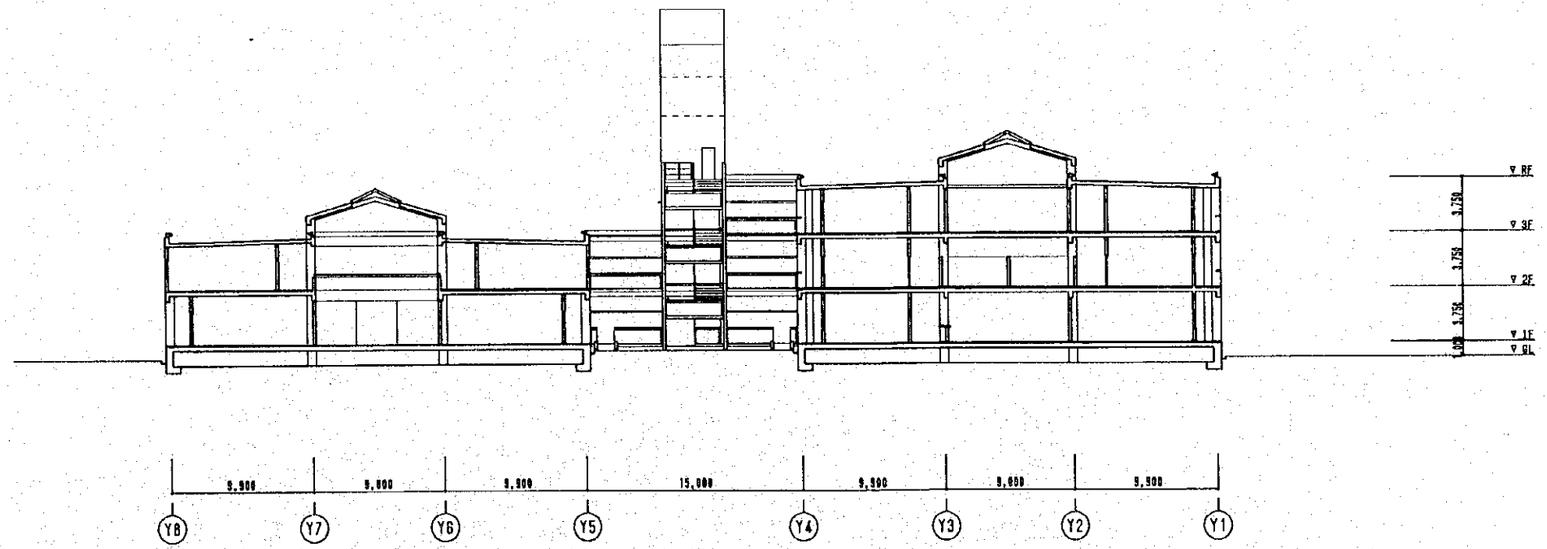




Y-Y' SECTION



X-X' SECTION

NATIONAL
MATERNAL AND CHILD
HEALTH CENTER

SECTION

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4-5 Construction Plan

4-5-1 Construction Guidelines

(1) Project Implementation Organization

Following Cabinet Approval of the NMCHC Construction Project by the Japanese Government and an exchange of notes (E/N) for the project between the Government of Cambodia and the Government of Japan, the project will be implemented in accordance with the grant aid system of the Government of Japan. The Government of Japan will begin to implement the Project in 1995. The contracting party on the Cambodian side, which is the NMCHC, will sign a consultant contract and construction execution contracts concerning the Project, and will perform the Project construction work that is the responsibility of the Cambodian side.

The Project Implementation Organization is shown in Figure 4-32.

(2) Consultant

After the exchange of notes referred to above, the NMCHC will sign a consultant contract concerning the detailed design of the Project and the supervision of construction with a Japanese consultant company that has been involved in the basic design study for the Project, and the Government of Japan will approve this contract. It is important to sign the consultant contract as soon as possible after the exchange of notes so that the project will be implemented smoothly. After the contract has been signed, the consultant will, in consultation with the NMCHC of the Ministry of Health, prepare detailed design documents in accordance with the report on the basic design study for the project, and obtain approval of them from the Ministry of Health. The consultant will then implement the bidding in accordance with the detailed design documents and supervise the construction work.

(3) Contractors Executing the Work

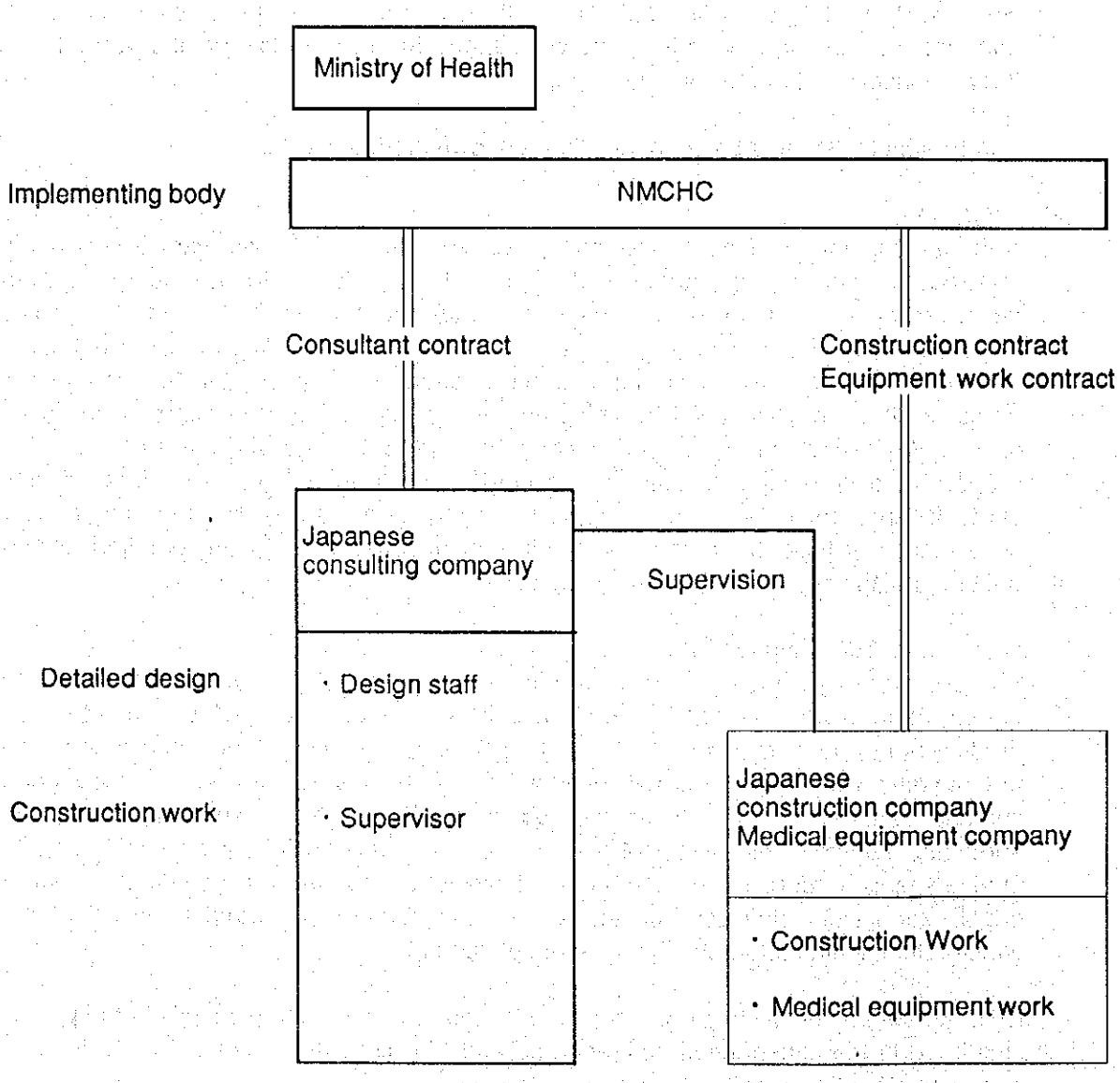
The construction work executed to implement the NMCHC Project includes building construction work to build the facility, and equipment work which includes the procurement and installation of medical equipment. The contractor that will construct the building will be a Japanese building construction company selected by open competitive bidding with restrictions on qualified bidders from among bidders with the specified qualifications. The NMCHC of the Cambodian Ministry of Health will, in principle, select the bidder who submits the lowest bid as the successful bidder, sign a construction work contract with the successful bidder, and obtain approval of the construction contract from the Government of Japan.

Next the contractor will begin the construction work, execute the work within the period stipulated in the construction contract, and after the final inspection of the facility has been completed, deliver it to the Cambodian side.

The Japanese consultant will prepare the working drawings and supervise the construction of the NMCHC in Cambodia. Therefore, these tasks will be done without difficulty. But because the Japanese building construction company will assign the building construction and equipment installation work done in Cambodia to a local

contractor, Japanese technologists must be there to guide the work so that it will be completed in the short time period allowed for a project funded by grant aid from Japan. And inasmuch as this facility is a hospital, Japanese technologists must be sent to Cambodia to make sure that the operating room work and electrical work is performed at the necessary level of precision.

Figure 4-32 Project Implementation System



4-5-2 Special Problems with the Building and Execution

(1) Building Construction

In Cambodia, many construction projects are handled as split orders. Work ordered in this way separately is neither well coordinated nor properly supervised. Investors from Thailand and other countries have financed and are in the process of executing large construction projects in Phnom Penh. But Cambodian contractors are not as technologically advanced as Japanese construction companies: they do not prepare temporary structure plans, they use little machinery, and, because they are not in the habit of drawing up working drawings, the quality of their work is inconsistent. They also tend to treat equipment as single units instead of as systems.

The construction company contracted to execute the building of this hospital will be a Japanese firm that will employ Cambodian workers; however, because the local labor force can not provide the experienced workers required to operate the special equipment and employ the advanced technology to be used in the Project, specialists from Japan will have to provide technical guidance and oversee the construction work.

The principal construction materials locally available are sand, gravel, concrete blocks, forms, bricks, wood, and other foundation materials; the rest will be imported from neighboring countries. Therefore these materials must be ordered at an early date so that work will not be delayed. The same applies to all construction equipment.

(2) Special Problems with the Execution

The site of the planned facility stands beside the Kuntha Bopha Hospital, so many patients will be coming and going beside the site. The temporary work must therefore be performed correctly and other necessary measures implemented to make sure that the flow of construction vehicles and workers does not interfere with the flow of persons entering and leaving the neighboring hospital. Steps must also be taken to minimize noise, vibration, and dust because of the proximity of the childrens hospital.

4-5-3 Construction Supervision Plan

The Ministry of Health of Cambodia and the Japanese consultant will sign a consultant contract, and the consultant will prepare the detailed design and supervise the construction work.

The construction supervisor will adopt an impartial stance so as to ensure that work is executed in strict accordance with the drawings and specifications and that the details of the construction contract are performed correctly. The supervisor, further, will provide guidance and advice to the contractors, and will coordinate their work in order to improve the quality of the finished building. As such, the consultant will carry out the tasks enumerated below.

(1) Assistance with the Tender and the Contract

In order to select the contractors who will conduct the building construction work and the equipment installation work, the consultant will prepare the necessary tender documents, advertise the tender, accept requests to submit a tender, examine the qualifications of the applicants, hold meetings to explain the tender, distribute the tender documents, accept bid documents, evaluate the tenders, and carry out other tender-related tasks. The consultant will also provide advice concerning the construction work

contract between the Government of Cambodia and the contractor who submits the successful bid.

(2) Guiding and Advising the Contractors and Coordinating their Work
The consultant will study the execution schedule, execution design, building construction material- and facility-procurement plans, the medical equipment procurement and installation design, etc.; provide guidance and advice to the contractors; and coordinate their work.

(3) Inspection and Approval of the Working Drawings and Shop Drawings
The consultant will inspect the working drawings and shop drawings submitted by the contractors, offer necessary instructions, and approve them.

(4) Confirmation and Approval of Construction Materials and Equipment, and Medical Equipment
The consultant will confirm that the work contract documents conform to the list of construction materials and machinery and the medical equipment that the contractors wish to procure, and approve their procurement.

(5) Inspecting the Work
When necessary, the consultant will confirm that the required quality and performance standards are being achieved by conducting inspections at the factories where the building parts and medical equipment are manufactured and witnessing tests conducted at the construction site.

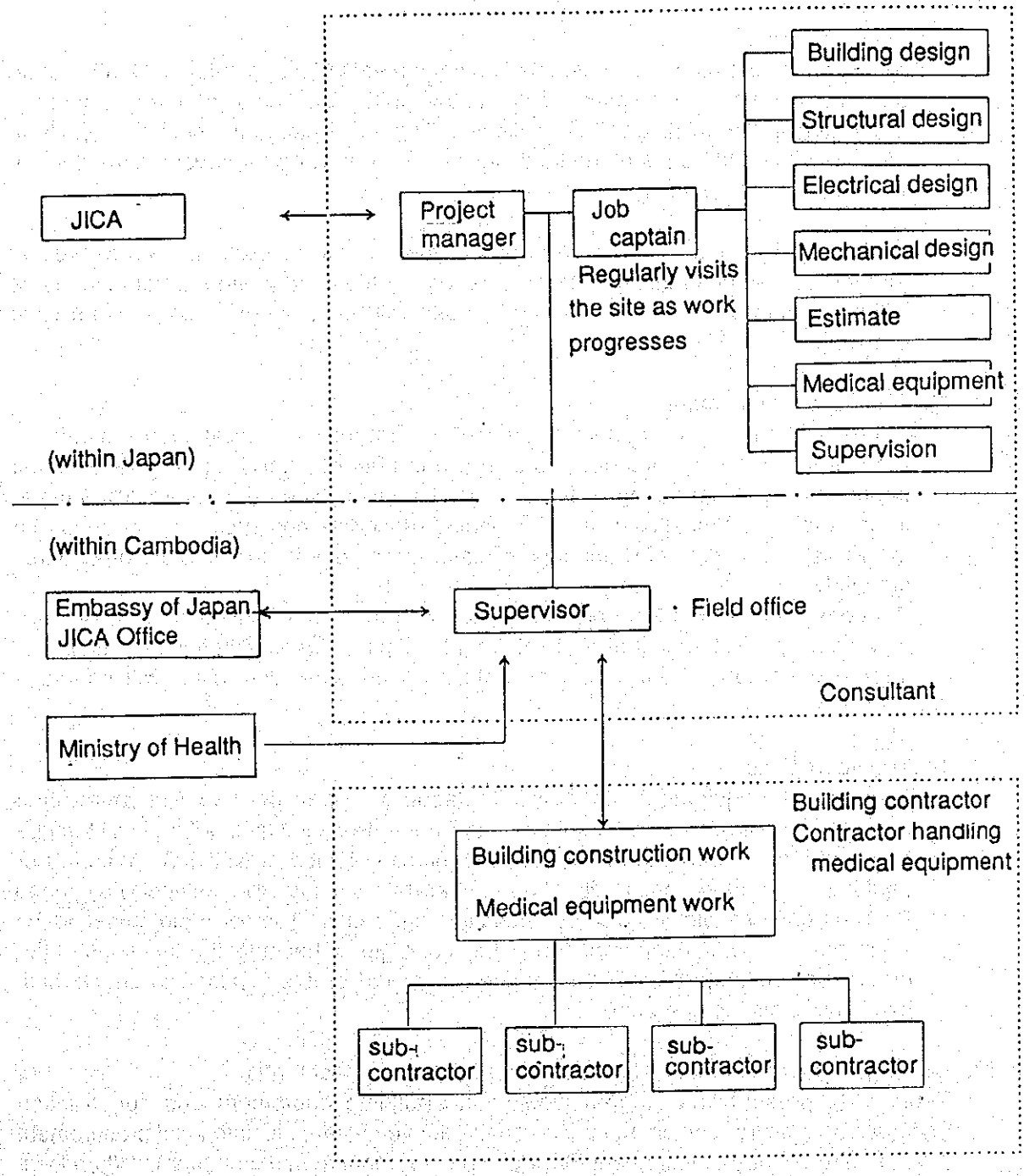
(6) Reporting on the Progress of the Work
The consultant will keep track of the progress of the execution and conditions at the site, and issue reports to pertinent officials of both countries on the progress of the work.

(7) Inspection of Completed Work and Trial Runs
The consultant will perform final inspections of the buildings, building facilities, and medical equipment, and conduct trial runs of the building facilities and medical equipment to confirm that they provide the performance specified in the contract documents, then submit final inspection documents to the Government of Cambodia.

(8) Execution Supervision System
In order to fulfill the duties described above, the consultant will, based on his assessment of the scale of the work and in accordance with the progress of the work, dispatch engineers and specialists to the site to take part in necessary consultations, to conduct inspections, and to provide guidance and coordination services. The consultant will set up an organization under which one specialist in building structures and one architect will be dispatched during the foundation and structural work; one architect, one mechanical engineer one electrical engineer, and one medical equipment specialist will be sent to the site during the finishing work; and other experts dispatched whenever required. Back in Japan, the consultant will also assign experts in each relevant field to an organization that will keep in touch with and back up the experts sent to Cambodia. The consultant will also submit reports to concerned bureaus of the Governments of

both countries concerning all necessary items related to the progress of the Project, payment procedures, and the completion and delivery of the completed work.
The organization within Japan and in Cambodia that will supervise the execution of the construction will be organized as shown in Figure 4-33.

Figure 4-33. Organization of the supervisory system



4-5-4 Materials and Equipment Procurement Plan

(1) Materials and Equipment Procurement Guidelines

The building to be constructed during the implementation of the Project is an MCH hospital. The materials procured must be easy to clean and maintain in a sanitary condition, and must also be sturdy enough to meet the needs of a building used for this purpose. To obtain materials that meet these requirements, the following guidelines will be applied.

1) Local procurement

As much as possible of the materials and equipment will be procured in Cambodia so that after the project has been completed, the NMCHC will be able to repair, operate, and maintain the building without difficulty. The contractor is to check the quality of all material and the amount the local suppliers can provide to prevent disruptions of the construction schedule.

An imported product that can be obtained easily in the domestic market (a product that can always be obtained in Cambodia without the need to order it from overseas) will be treated as a local product and its use will be subject to guidelines for local products.

2) Overseas procurement

If a particular material can not be sourced in Cambodia, or if local suppliers can not provide sufficient supplies of a material at the needed quality, the contractor must import it either from Japan or from a third country. When the contractor plans to import material, it must discuss the importing procedure and customs clearance with the Ministry of Health of Cambodia to make arrangements to complete procedures smoothly.

If a comparison of the local purchase price with the cost of purchase in Japan or a third country plus the cost of packaging and shipping reveals that it is far cheaper to import the product from Japan or a third country, the contractor will source it overseas.

3) Transport plans

Materials and equipment imported from Japan will be shipped to Singapore, then transferred to another ship for shipment to Phnom Penh in Cambodia. It will then be trucked from the harbor in Phnom Penh to the site of the new NMCHC. Materials or equipment imported from Thailand or another third country will be shipped by sea to Phnom Penh to avoid civil disorder along the land routes. The packaging used will be such that it can withstand transport to tropical regions, because the functions of the material or equipment could be harmed if any part of it is exposed to shock, high humidity, or high temperatures.

(2) Building Construction Materials and Equipment Procurement Plans

Table 4-34 presents a categorization of the building equipment and construction materials by procurement source based on the above criteria, i.e., into local procurement (Local), third-country procurement (3rd), and procurement from Japan (Jpn). When local

procurement has not been chosen, the table gives the rationale for sourcing the material or product from Japan or a third country.

Table 4-34. Plan for sourcing principal construction materials and equipment

Work category	Material	Local	3rd	Jpn	Remarks
Reinforced concrete construction	Portland Cement	m			
	Fine aggregate (sand)	m			
	Coarse aggregate (gravel, and rubble)	m			
	Deformed bars	m			No local product
	Forms	m			
Steel frame work	Section steel		m		No local product
	Steel plate		m		No local product
Masonry work	Concrete blocks	m			
	Bricks				
Waterproofing	Asphalt waterproofing		m		No local product
	Waterproof paint		m		No local product
	Sealant		m		No local product
Plastering	Terrazzo		m		No local product
Tiling	Ceramic tile		m		No local product
	Porcelain tile		m		No local product
Woodwork	Wood	m			
	Glued laminated wood		m		No local product
	Plywood		m		No local product
Roofing	Roof tiles	m			
Metalwork	Light steel frame substrate		m		No local product
	Aluminum bars		m		No local product
	Ornamental metal		m		No local product
	Roof drains		m		No local product
Plastering	Cement mortar	m			
	Plaster	m			
Wood fittings	Hinged doors	m	m		Produced locally, but flush doors to be imported
	Double sliding door	m			
	Wood fitting frames	m			
Metal fittings	Aluminum windows		m		No local product
	Louvered glass windows		m		No local product
	Steel Doors		m	m	Special doors from Japan

Work category	Material	Local	3rd	Jpn	Remarks
	Stainless steel fittings			m	For use in operating theaters and other rooms requiring high performance fittings
Fitting hardware	Door check			m	No local product
Glasswork	Normal flat glass		m		No local product
	Heat reflective glass		m		No local product
	Glass blocks		m	m	Japan product for top light
Paint	Interior paint		m		Japanese paint used where durability required
	Exterior paint		m	m	Japanese paint used where durability required
Interior work	Glazing board			m	Used where sterility, ease of maintenance, and resistance to chemicals important
	Gypsum board		m		No local product
	Rock wool sound-absorbent panels		m		No local product
	Glass wool		m		No local product
	Foam polystyrene		m		No local product
Furniture	Chairs and tables		m		No local product
	Beds and lockers		m		(steel)
Miscellaneous	Medical Sinks			m	Tub sinks
External work	Paving material	m			
Electrical work	Electrical, wiring equipment	m	m		Support material produced locally
	Lighting fixtures		m	m	Special fixtures for operation theaters, etc., to be Japanese
	Boards		m		No local product
	Generators		m		Made by Japanese maker in third country
	Dry-type transformers		m		No local product
	Electric wire and cable		m		No local product
	PBX		m		No high-performance product
	Interphone		m		No high-performance product

Work category	Material	Local	3rd	Jpn	Remarks
	PA system			m	No high-performance product
Mechanical services	Package air conditioners			m	No local product
	Blowers and exhaust fans			m	No local product
	Outlets and inlets		m	m	Special equipment for operation theaters, etc., will be Japanese
	Sanitary ceramics		m	m	Depending on specs
	Water treatment equipment			m	No local product
	Duct material	m	m		Duct supports produced locally
	Piping	m	m		Pipe supports produced locally
	Piping			m	Medical-gas pipes from Japan
	Insulation material		m		No local product
	Automatic controllers			m	Japanese product to achieve high performance
	High performance filters Mediumm efficiency air filter			m	Japanese product to achieve high performance
	Differential dampers (ultrasensitive)			m	Japanese product to achieve high performance
	Kitchen equipment		m	m	Depending on specs
	Laundry equipment			m	No local product
	Incinerator			m	No local product
	Septic tank			m	No local product

(3) Medical Equipment Procurement Plans

Most of the medical equipment is not manufactured in Cambodia. It will, therefore, be procured either in Japan or in third countries. The following guidelines will be applied when selecting a source country.

1) Because medical equipment always requires a steady supply of spare parts and consumables, the selection of the medical equipment will be done so that the hospital will have no trouble obtaining parts and supplies. Because the makers of this equipment do not have agents who can provide service in Cambodia, the equipment will be procured from makers with agencies in neighboring countries, Thailand in particular.

2) Typewriters (Khmer), personal computers, television monitors for training use, copy machines, and so on are imported products which can be easily obtained in

Cambodia. To simplify the provision of service, these will be procured from local outlets.

3) The medical equipment plans call for experts to be sent from Japan to install and adjust equipment in cases where their expertise is necessary, but all other tasks will be handled by locals.

4-5-5 Implementation Schedule

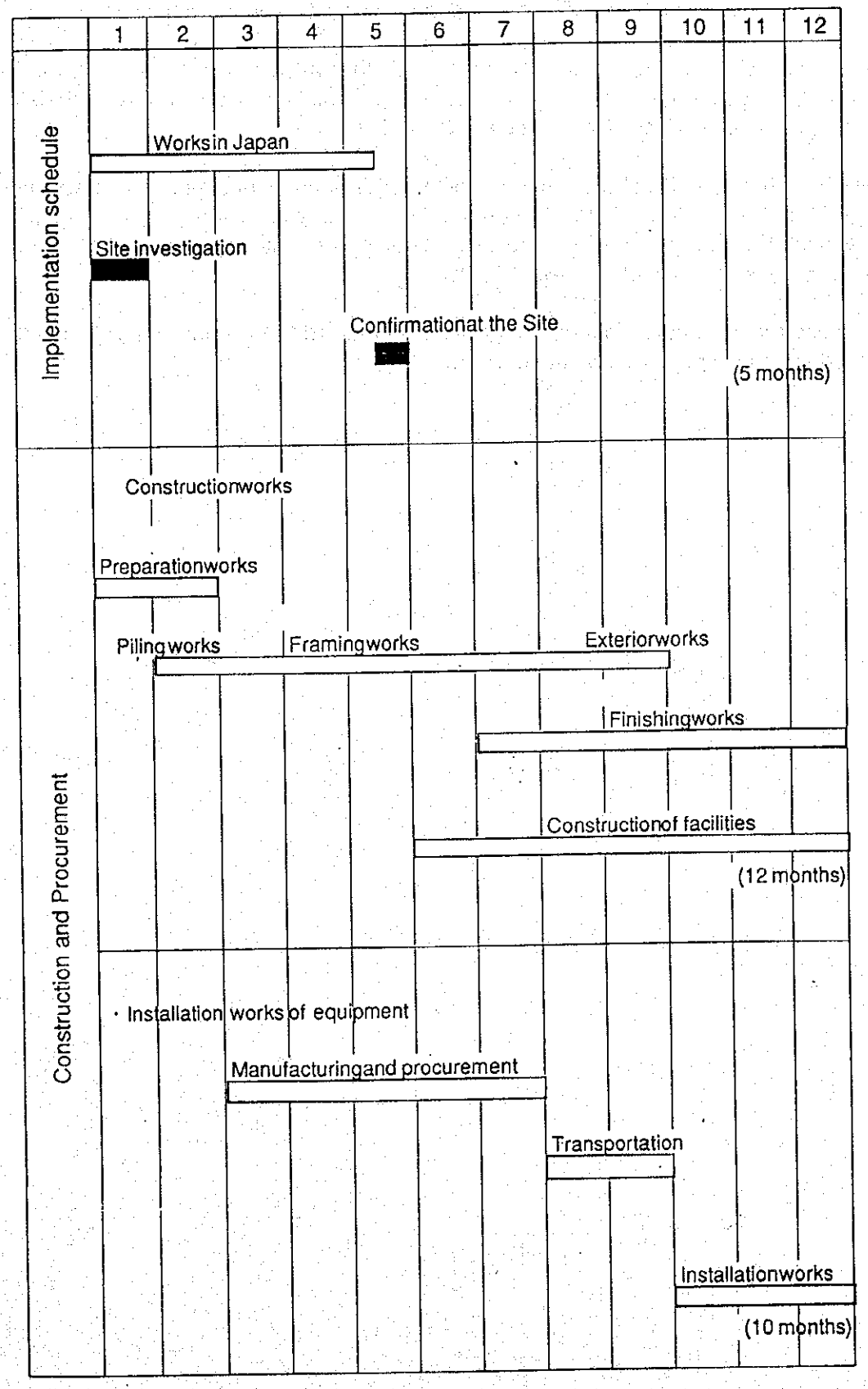
(1) Implementation Schedule

1) Table 4-35 presents the implementation schedule that will be followed after the exchange of notes concerning the Project between the Government of Japan and the Government of Cambodia. The schedule is divided into detailed design preparation and conduct of the tender procedures by the consultant, building construction work by the contractors, and supervision of the construction by the consultant. The construction work needs to begin about five months from now.

2) The construction work will begin after the contracts have been signed and approved by the Government of Japan. The schedule has to be prepared taking account of the scale of the work, the labor situation in Phnom Penh, and the factors enumerated below:
The site of the new NMCHC is located beside a hospital and the work has to be done in a confined area and Considerable effort must be made to limit noise and restrict working hours.
The Phnom Penh rainy season extends from June to November. The contractor must consider this carefully when scheduling the excavation work and the drying stage of wet construction methods such as plastering.
The packaging and transport of materials and equipment have to be planned carefully.
In view of the foregoing, the construction work must be completed within a fiscal year.

3) The Project, being implemented in accordance with the regulations governing the Government of Japans grant aid system, must be completed within a limited time frame. For this reason, the Government of Cambodia should complete all preparation work that has to be performed before the construction work can begin, and complete all procedures needed to make sure that nothing delays the begin of the work. Cambodia is responsible only for obtaining the site, demolishing the existing buildings and applying for and obtaining building certification and other needed authorizations. The Japanese participants in the project will provide other infrastructure items.

Table 4-35 Schedule



4-6 Technical Cooperation and Links with Other Donors

The functions of the NMCHC will move into the new building upon completion of the Project.

Japanese technical cooperation personnel and other advisor groups now work out of the NMCHC, so when the NMCHC moves to its new building, these groups will also being conducting their activities in the new NMCHC facility.

UNICEF, AIDAB, WHO, UNDP, UNFPA, JICA, NGOs, and other donner agencies have been supporting MCH network in Cambodia. Those operating independent training and educational programs also will take advantage of the Training Department and lodging facilities that will be part of the new NMCHC.

For these reasons, other donors are also looking forward to the early completion of the new facility, and they are positively supporting the Project.

Chapter 5. Product Evaluation and Suggestions

5-1 Beneficial Results of the Project

First, a summary of the state of MCH in Cambodia.

1) Poverty effects the health of the people in various ways.
2) The standard of medical care provided by traditional midwives, modern midwives, obstetricians (assistants) and others is poor. These personnel urgently need to be retrained, but there is a shortage of people qualified to teach and instruct them.
3) Improvement of the state of health in the regions, at the village level, is particularly critical.
4) There is a low awareness among the populace about how to care for pregnant women, and many die of birth complications without getting any medical care.
5) Illegal abortions are frequent.
6) Accurate nation-wide medical statistics are not compiled.

Next, a review of the state of the present NMCHC.

1) Hospital functions
   Even with the NMCHCs pediatric services handled by the Kunta Bopha Pediatric Hospital, the maternity department at the January 7 Hospital is, as described in Chapter 3, in very poor condition. Because of this condition only about 60% of its 170 beds are occupied.
   Furthermore, medical equipment already supplied to NMCHC, unfortunately, has not been fully utilized owing to the poor of the electricity supply.
2 Teaching hospital functions
   Along with its ordinary diagnostic and treatment functions, to help improve medical treatment in Cambodia, the NMCHC also functions as a training facility providing instruction to healthcare workers. As such, the hospital ought to be a model facility; the truth, however, is that in addition to being in the sad state described above, it also has no satisfactory classrooms, lecture halls, or rooms for preparing teaching materials.
3) Preventative and public-information functions
   These functions are not functioning fully at the NMCHC.

If this Project can be completely implemented, the new NMCHC will be equipped to offer diagnostic and treatment functions and to serve as a referral hospital. These improvements will enable it to do much more than contribute to the betterment of the lives of the inhabitants of Phnom Penh and its surroundings: they will also allow the NMCHC to fulfill a role in extending and improving healthcare services nationwide thanks to its complete teaching hospital facilities and ability to serve as a model hospital which can be emulated in the outlying parts of Cambodia. The Training Department at the NMCHC will, in concert with its activities to disseminate information on preventive medicine, allow it to make a continuous contribution to the improvement of MCH quality throughout the country.

Furthermore, since this Project is to be executed within the framework of project-type technical cooperation, we believe that endeavoring to draft, move forward with, and administer a truly effective plan will in the end serve to further enhance the desired effectiveness of the new NMCHC.

5-2 Examination of appropriateness

This Project, having been requested as part of the implementation of the National Health Care Development Plan established by the Government of Cambodia, will play a big role in achieving the goals of the National Health Care Plan. Specifically, the Project will contribute by:

1) Providing training and education
   MCH workers will come from throughout Cambodia to undergo training and education at the NMCHC.

2) Providing practical experience at a model hospital
   Trainees will personally experience the top-notch gynecological and obstetric care in this simple, easily administered model hospital of 50-bed nursing units. This will enable them to apply what they have learned to the regional hospitals.

3) Improving regional medical care
   Medical care workers who have trained and education at the new NMCHC will be able to improve the healthcare environment in regional hospitals upon their return to their home regions.

4) Disseminating healthcare information
   These healthcare workers can take advantage of the knowledge and documentary information generated at the new NMCHC to provide every citizen of Cambodia with instruction in good sanitation and MCH, teach them how to protect themselves from communicable disease, and spread the practice of getting preventive inoculations.

5) Facilitating the gathering of healthcare information from outlying regions
   The new NMCHC will make it easier to gather information about medical treatment, healthcare, and sanitation from the outlying regions, thereby improving the nations ability to deal with epidemics and other medical emergencies and bringing even greater improvements to the overall health of the nation.

   In these ways, the construction of the new NMCHC will establish a nationwide MCH and medical-treatment network that will extend to every corner of Cambodia.

6) Providing space for aid groups and nations engaged in MCH in Cambodia
   In its present situation, Cambodia lacks the personnel, funds, and facilities it needs to achieve these goals, so it is dependent on technical cooperation provided by foreign countries. As explained earlier in this report, aid projects have been planned by many countries; but it is the responsibility of the NMCHC to coordinate and take advantage of all this help. Thus it is appropriate to provide rooms in the new building for groups involved in such activities.

5-3 Suggestions

By all means we must avoid committing the folly of imposing the ideal hospital upon the Cambodians through a huge expenditure of Japanese taxpayers money, only to have it stand an empty shell because the Cambodians have been saddled with facilities they cannot afford to maintain. So the question arises: How do we avert such a situation? The following are some suggestions.

1. Install maintenance-free machinery and equipment.
   Maintenance-free is also an issue for the design.
   Durable, low-maintenance construction materials should be selected. Also, whenever possible locally made materials should be used so, at execution, the most can be made of basic know-how and workers familiarity with the materials.
   Equipment and instruments, too, should not be superfluously high-priced, high-tech items; rather, easily maintained products of high practicality should be selected. They should be easy to maintain on-premises and not require expensive maintenance contracts with manufacturers.

2. Train equipment maintenance and management personnel.
   Train maintenance and operating personnel. Technicians capable of maintenance should be dispatched to train personnel who will maintain and manage equipment (machinery, instruments). A maintenance workshop will be added to the facility where the thus-trained staff will work.

3. Prevent breakdowns through the best method: periodic inspection and maintenance.
   1) Periodic inspection and repair ledgers should be kept to ensure effective maintenance and management of equipment.
   2) Maintenance and operating manuals, circuit diagrams, and other such information should be kept.
   3) Specialized cleaning personnel should be hired. In addition to learning common cleaning methods, they should be taught the cleaning and washing techniques required for rooms that require a high degree of sanitary condition so that a hygienic environment can be maintained for the facilities.
   4) Steps should be taken to discover rain seepage, water leaks, and clogged drain pipes quickly and to repair them quickly, before damage spreads.
   5) Filters for removing iron particles and sand from the water supply should be cleaned periodically, and the disinfectant must be replenished.
   6) The septic tank filters should be cleaned periodically and the disinfectant must be replenished.

4. Introduce fee-for-service for treatment.
   Fee-for-service should be introduced for medical treatment as a means of strengthening the hospitals financial position and to effect a change in patient awareness [about medical costs].

5. Have other institutions utilize the NMCHC effectively.
   The new NMCHC be a model teaching hospital and as such will be equipped with full training and overnight accommodation facilities. Programs will be conducted

according to a planned usage schedule. Currently envisioned uses include year-long, single-course, and day-time programs. Steps should be taken so that the facilities can be exploited to the fullest by allowing other institutions to utilize them when they are not in direct use by the NMCHC.

6. Require the NMCHC to submit annual reports to JICA on the administration and operation of the hospital.
   We wish to suggest that the NMCHC, as the institution responsible for the hospital, submit a report on its administration and operation to JICA once annually after its completion. We believe that this would help the NMCHC objectively develop an awareness of problems and be highly conducive to the discovery of solutions, as well as help the NMCHC, as the executing institution, acquire a better overview of the state of the hospitals operations.

   A further advantage is that the reports will enable JICA to offer necessary assistance and suggestions, to the extent that it is capable, by giving it an awareness of how (and how effectively) the facilities and equipment it has donated are being used.

No profit, no loss is the underlying principle of medical treatment today. In Cambodia today, medical treatment is supposed to be free, but in truth the costs are being borne by patients. Meanwhile, medical personnel are unable to participate in training intended to raise the countrys healthcare standards unless assistance organizations fork out their travel expenses and per-diems.

To ensure this hospitals solid fiscal standing, medical treatment here, at least, should be available in principle on a fee-for-service basis, in line with the concept that those who benefit from a service should bear its costs. Other means can be instituted to cover fees for patients who are unable to pay for their own medical care, including fee reductions, fee waivers, and fee compensation by the government.

In any case, Cambodia needs to rethink its system of free healthcare, since its healthcare in truth is free in word but certainly not substance.

II. Annexed Documents

CONTENTS

1. Basic Design Study Team (Nov. 27 - Dec. 24, '94)

(1) Member List

Akira KASAI	Leader Technical Special Assistant to the President, JICA
Atsuko AOYAMA M.D., PH.D.	Technical Advisor Consultant Gynecologist Chief, Section of Reproductive Health Expert Service Division Bureau of International Cooperation International Medical Center of Japan
Junko INAMI	Project Coordinator 1st Basic Design Study Div., Grant Aid Study and Design Department, JICA
Ichiro KANAGAWA	Architectural Planner Architect, International Div. Nihon Sekkei, Inc.
Tomonao HAMADA	Architectural Designer Architect Architectural Design Dept. Nihon Sekkei, Inc.
Shuzo ISHIKAWA	M/E Engineering Electrical Engineer Environmental & M/E Engineering Design Dept. Nihon Sekkei, Inc.
Akio KANEKO	Equipment Planner Nihon Sekkei, Inc.

(2). Survey Schedule (November 27, - Dec. 24, 1994)

	Date		Activity
1.	27 Nov.	(Sun)	LV. Narita AV. Bangkok
2.	28 Nov.	(Mon)	LV. Bangkok AV. Phnom Penh Courtesy Call to JICA Cambodia Office Courtesy Call to MOH
3.	29 Nov.	(Tue)	Courtesy Call to Ministry of Foreign Affairs Courtesy Call to Embassy of Japan Discussions on power supply with Ministry of Industry, Mines and Energy Conference (1) on Roads, Water supply and drainage with Phnom Penh Minicipality Office Courtesy Call to CDC
4.	30 Nov.	(Wed)	Discussion (1) with NMCHC
5.	1 Dec.	(Thu)	Discussion (2) with NMCHC Visit to National Pediatric Hospital Conference (2) on Roads, water supply an drainage with Phnom Penh Municipality Office
6.	2 Dec,	(Fri)	Conference with International Organizations (VNFPA), UNICEF, AIDAB) Discussion (3) with NMCHC Discussions with EDC on Power Supply
7.	3 Dec.	(Sat)	Discussion (4) with NMCHC Discussion with Kuntha Bopha Hospital
8.	4 Dec.	(Sun)	Review of collected materials and informations
9.	5 Dec.	(Mon)	Discussion on the Minutes of Discussions at MOH The signing of the Minutes of Descussions Report to JICA Office Report to Japanese Embassy
10.	6 Dec.	(Tue)	Mr. Kasai, Dr. Aoyama, Ms. Inami Lv. Phnom Penh Negotiations on the geographical and geological Survey Hearings on the building business in Cambodia from Japanese General Contractors Research on the available equipments in Cambosia

11.	7 Dec.	(Wed)	Visit and discussions with Kunta Bopha Hospital staff Research on the available material and construction method in Phnom Penh
12.	8 Dec.	(Thu)	Discussion (5) with NMCHC
13.	9 Dec.	(Fri)	Discussion (5) with NMCHC
14.	10 Dec. (National Holiday)	(Sat)	Review of Materials and Informations Preparation of the Report
15.	11 Dec.	(Sun)	- Ditto - - Ditto -
16.	12 Dec.	(Mon)	Discussion (7) with NMCHC Start geographical Survey Discussion with Fire Department
17.	13 Dec.	(Tue)	Discussion (8) with NMCHC Visit City water plant Discussion (1) with Ministry of Environment
18.	14 Dec.	(Wed)	Discussion (9) with NMCHC Site Survey
19.	15 Dec.	(Thu)	Visit Calmette Hospital and Sihanouk Hospital Discussion with Ministry of Post and Tele-communications
20.	16 Dec.	(Fri)	Visit Red Cross Hospital Discussion (2) with Ministry of Environment Visit construction site (Construction Equipment Center and Hotel) Start geological survey
21.	17 Dec.	(Sat)	Discussion (10) with NMCHC
22.	18 Dec.	(Sun)	Discussion with Dr. Murakami Preparation of the Report
23.	19 Dec.	(Mon)	Discussion (11) with NMCHC Report to JICA Cambodia Office Report to MOH
24.	20 Dec.	(Tue)	Lv. Phnom Penh Av. Bangkok Hearing from General Contractors and Sub contractors
25.	21 Dec.	(Wed)	Hearing and survey on available construction materials, technology and man power.
26.	22 Dec.	(Thu)	- Ditto -

27	23 Dec.	(Fri)	- Ditto - Lv. Bangkok
28	24 Dec.	(Sat)	Ar. Narita

(3) Disscussant

1) Cambodia Officials

- Ministry of Foreign Affairs
  - Ms. Pok Marina, Under Secretary of State
  - Ms. You Ay, Director of International Cooperation Development
  - Mr. Hem Heng, Deputy Director

- Council for Development of Cambodia
  - Mr. Chhieng Yanara, Secretary General
  - Mr. Teturo Hamada, JICA

- Ministry of Health
  - Dr. Chhea Thang, Minister of Health
  - Dr. Mam Bunheng, Under Secretary of State
  - Dr. Dy Narong Rith, Under Secretary of State
  - Dr. Te Kuy Seang, Director of Cabinet
  - Dr. Hun Chun Ly, Director General of Health
  - Dr. Char Meng Chor, Director of Planning and Staistics
  - Dr. Huy Seth, Director of National and International Relation
  - Dr. Nhonh Bun Yay, Deputy Director of Health
  - Mr. Seng Lim Neou, Director of Drugs and Supply
  - Dr. Hitoshi Murakami JICA Expart

- National Maternal and Child Health Center (NMCHC)
  - Dr. Eng Huot, Director
  - Dr. Koum Kanal, Vice Director (Maternal Health)
  - Dr. Yit Sunnara, Vice Director (Child Health), Chief of Kuntha Bopha Hospital
  - Dr. Tann Vuoch Chheng, Chief of OPD
  - Dr. San Chan Soeun, Chief of B-Block
  - Dr. Seang Tharith, Chief of C-Block
  - Dr. Chunn Long, Staff (Ob-Gyn)
  - Dr. Tan Borin, Chief of pediatric section
  - Dr. Som Rithy, Chief of Nurse, Pediatric section
  - Dr. Sour Kim Ann, Nutrition Program manager
  - Dr. You Sophat, Chief of Operation Theater (Anesthesiology)
  - Dr. Bun Chan Than, CCD program manager
  - Dr. Tung Rathavy, BFH Coordinator
  - Dr. Med Dek In, Administrator
  - Mr. Chea Kim Long, Chief of Accountant
  - Mr. Crouch Rithida, Chief of Nurse, Operation Theater
  - Mr. Lay Kim Thong, Chief of Radiology Section
  - Mr. Nv Sovann, Chief of Laboratory Section
  - Mr. Sim Lim Horn, Chief of Security
  - Ms. Kuch Sarann, Chief of midwife (A block)
  - Ms. Chin Chan Tach, Cheif of midwife (B block)
  - Ms. Sok Sem, Chief if midwife (C block)
  - Ms. Pin Sohay, Chief of midwife (OPD)
  - Ms. Chun Nay Im, Chief of Pharmacy Section

- Kuntha Bopha Hospital
  - Dr. Beat Richner, Foundation for Khmer-Swiss Partnership in Pediatrics
  - Dr. Studer, Foundation for Khmer-Swiss Partnership in Pediatrics
  - Ms. Irma Hug, Puclic Health Nurse

- National Pediatric Hospital
  - Dr. Chhor Y Meng, Director
  - Dr. Sdoeung Chea, Chief of DTTU

- Calmette Hospital
  Dr. Khuon Pichith, Directeur Ajoint
  Dr. Jean-Pierre Alluard, Delegue General
- Sihanouk Hospital
  Dr. Sam Sophean, Director

- Ministry of Industry, Mines and Energy
  Mr. Ith Praing, Secretary of State

- Electricite Du Cambodge (EDC)
  Mr. Ty Norin, Deputy Director

- Ministry of Post & Telecommunications
  Mr. Phan Phin, Under Secretary of State

- Ministry of Environment
  Dr. Seng Oeurm, Secretary of State
  Mr. Sem Sarceun, Cabinet Chief of State of Secretariat
  Mr. Chea San, Department C
  Mr. Pak Sokharauuth, Department C

- Phnom Penh Municipality Office
  Mr. Chap Nhalyvoud, Vice Governor
  Mr. Seng Tong, Advisor of Vice Governor
  Mr. Ek Sonn Chan, Director of Water Supply
  Mr. Keo Savin, Director of Public Work
  Mr. Ua Ngoun, Director of Drainage
  Mr. Uk Cheat, Director of Road & Bridge
  Mr. Suon Sophak, Director of Police and Fire Station

2) International Organizations
- UNICEF
  Dr. Douglas R. Mendoza, PHC/MCH Project Officer

- UNNFPA
  Dr. Liz Goodburn, MCH-BS Advisor

3) Aid Organization by other countries
- Aus AID
  Dr. John Bladly

4) NGO
- Japan Red Cross
  Mr. Tsuyoshi Enomoto, Coordinator

5) Japanese Officials
- Embassy of Japan in Cambodia
  Mr. Yukio ImaGawa, Ambassader Extraordinary and Plenipotemitary
  Mr. Shigenobu Kato, Minister
  Mr. Takashi Hoshiyama, First Secretary
  Mr. Masato Iso, First Secretary
  Mr. Toshio Shimizu, First Secretary
  Mr. Shigemitsu Tsukamoto, Second Secretary
  Mr. Kenji Shigemura, Third Secretary

- JICA Cambodia Office
  - Mr. Seigo Watabe, Resident Representative
  - Mr. Kouji Sakane
  - Mr. Youichi Yamagiwa
  - Mr. Kenjiro Shimizu

(4) Minutes of Discussions of Basic Design Study

MINUTES OF DISCUSSIONS

ON

THE BASIC DESIGN STUDY ON THE PROJECT FOR

THE CONSTRUCTION OF NATIONAL MATERNAL AND CHILD HEALTH CENTER

IN

THE KINGDOM OF CAMBODIA

In response to the request from the Royal Government of the Kingdom of Cambodia, the Government of Japan decided to conduct a basic design study on the Project for the Construction of Maternal and Child Health Center (hereinafter referred to as "the Project") and entrusted the study to the Japan International Cooperation Agency (JICA).

JICA sent to Cambodia the Basic Design Study Team(hereinafter referred to as "the Team"), headed by Mr. Akira KASAI, Special Technical Assistant to the President, JICA, and is scheduled to study in the country from November 28 to December 20, 1994.

The Team held a series of discussions with the officials concerned of the Royal Government of Cambodia and conducted field surveys at the study area.

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

Phnom Penh, December 5, 1994

Mr. Akira KASAI
Leader,
Basic Design Study Team,
JICA

Dr. Mam Bunheng
Under Secretary
of State for Health,

ATTACHMENT

1. Objective

The objective of the Project is to contribute to improve the function of National Maternal and Child Health Center(NMCHC) described in the below 2. by reconstructing its physical facilities and providing the equipment.

2. The Function of NMCHC to be Improved in the Project

(1) Policy making and planning for nation wide MCH services
(2) Training of the nation wide MCH personnel
(3) Clinical services for the comprehensive MCH care

3. Project Site

The Project site is shown in Annex I, with the total area of approximately 13,000m², adjacent to Kunta Bopha Hospital which is a part of NMCHC.

4. Executing and Responsible Agencies

(1) Director of the NMCHC is responsible for the execution of the Project.
(2) Director General of Health in charge is responsible for the implementation of the Project.

5. Items Requested by the Cambodian Side

After discussions with the Team, the items described in Annex II were finally requested by the Cambodian side. However, the final components of the Project may be modified, if necessary after further surveys in Cambodia and analyses in Japan.

6. Issues Related to the Component of the Equipment Mentioned in the Above 5.

(1) The Japanese side will review the necessary components of the equipment according to the priority order proposed by the Cambodian side.
(2) The existing equipment which can be continuously used should

be transferred to the new site.

The Japanese side will examine the present condition of the existing equipment, and assess the possibility of its further utilization in the new site.

7. Japanese Grant Aid System

(1) The Cambodian side has understood the Japanese grant aid system explained by the Team, as described in Annex Ⅳ .

(2) The Cambodian side will take necessary measures, as described in AnnexⅢ for the smooth implementation of the Project on condition that Japanese grant aid is extended to the Project.

However, the Cambodian side stated that it would be appreciated if the Japanese side takes measures described in AnnexⅢ 3.4.and 5. in case that the Royal Government of Cambodia finds difficulties for the execution of the same items mentioned above by its own expenses. The Japanese side acknowledged it.

8. Other Relevant Issues

Both sides have confirmed the following measures are to be taken;

(1) In order to realize the objective of the Project,

(a) The Royal Government of Cambodia will make necessary arrangements to secure the adequate budget for the execution of the Project.

(b) The Royal Government of Cambodia will allocate and secure enough budget to operate and maintain properly and effectively the physical facilities and the equipment of the Project.

(c) The Cambodian side will operate and maintain the newly constructed physical facilities and equipment for the whole function of NMCHC.

(2) In order to proceed field surveys and implement the construction smoothly,

(a) The Cambodian side will confirm the security and safety of Japanese nationals related to the Project in and around the site.

(b) NMCHC will establish a task force concerned of the Project that can provide necessary data, information, and advices for the Team.

(c) To coordinate and solve any issues related to the Project which may arise with third parties and inhabitants living within the site prior to the commencement of the construction.

9. Schedule of the Study

(1) The Team will proceed to further studies in Cambodia until December 20, 1994.

(2) JICA will prepare the draft report and dispatch a mission in order to discuss its contents around April, 1995.

(3) In case that the contents of the draft report is accepted in principle by the Cambodian side, JICA will complete the final report and send it to Cambodia around May, 1995.

Annex III

Necessary measures to be taken by the Royal Government of Cambodia on condition that Japaness Grant Aid is extended to the Project;

1. To provide data and information necessary for the Project.

2. To secure the land for the site of the Project.

3. To demolish the present facilities including substructure, clear, and fill the site to the agreed level prior to the commencement of the construction.

4. To construct gates and fences in and around the site.

5. To provide facilities for the distribution of electricity, water supply, drainage and other incidental facilities to the Project site.
   (1) the distribution of electricity line to the site
   (2) the city water distribution main to the site
   (3) the city drainage main to the site
   (4) the telephone trunk line to the main distribution frame/panel of the building

6. To bear the following commissions to the Japanese foreign exchange for the banking services based upon the B/A.
   (1) Advising commission of A/P
   (2) Payment commission

7. To ensure prompt unloading, tax exemption, and custom clearance at the port of disembarkation in Cambodia and internal transportation therein of the products under the Grant.

8. 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 Cambodia and stay therin for the execution of the Project.

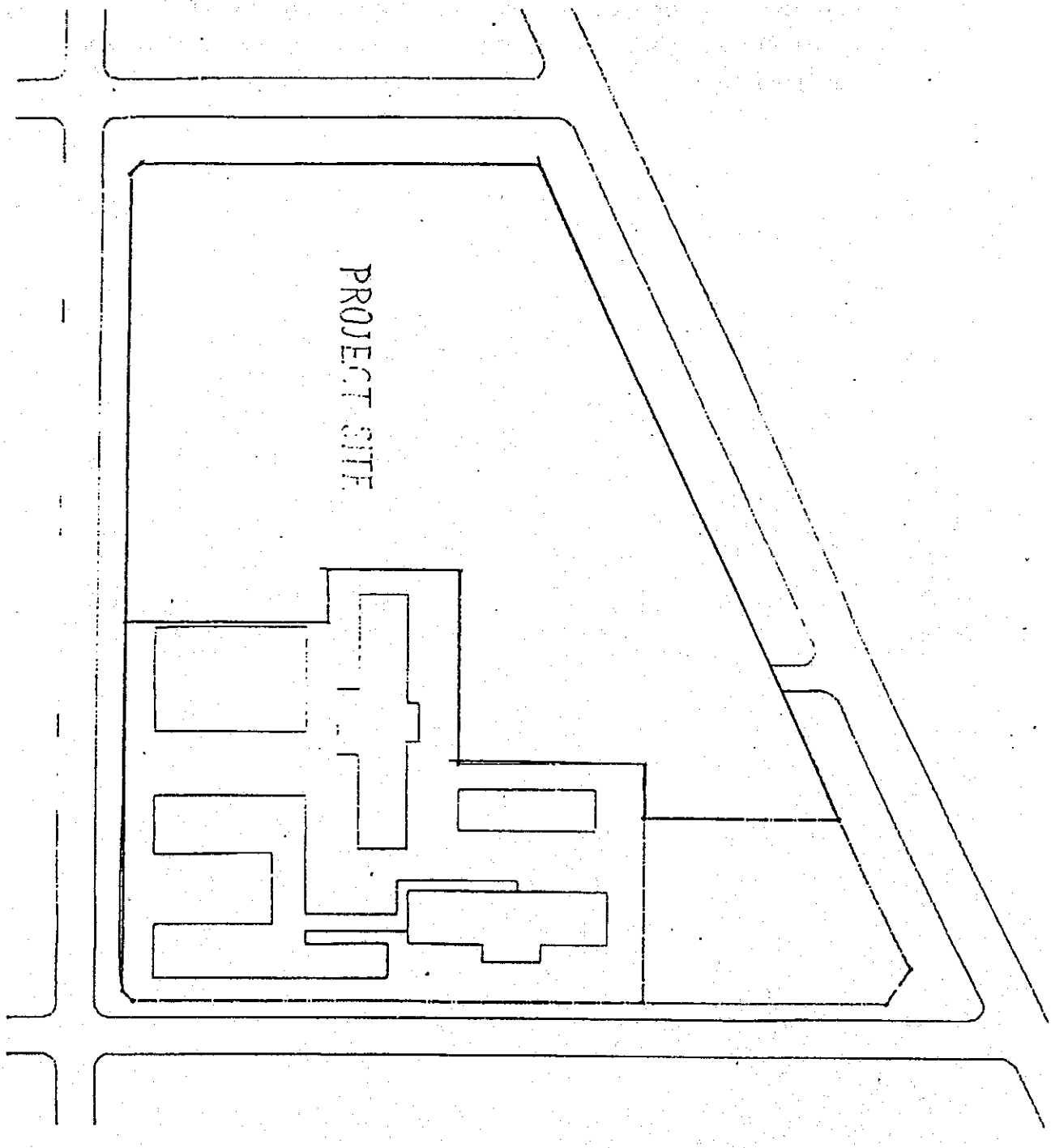
9. To exempt Japanese nationals involved in the Project from customs duties, internal taxes and other fiscal levies which may be imposed in Cambodia with respect to the supply of the

products and the services under the verified contracts.

10. To bear all the expenses other than those to be borne by the Grant, necessary for the construction of the facilities as well as for the transportation and installation of the equipment.

Annex I

The Project Site



Annex II

Items Requested by the Cambodian Side

1. Construction of the physical facilities

(1) Facilities for maternity and neonatal clinical activities which include;

150 beds for Ob/Gyn
3 operating theaters
3 delivery rooms
1 labor room
1 neonatal room
1 central surgical supply room
1 X-ray unit
3 examination rooms for inpatient
2 examination rooms for ECG and ultrasonography
laundry and kitchen
OPD
10 consulting rooms
6 for antenatal care
2 for gynecology
1 for birth spacing
1 for counseling
reception/waiting room
2 rooms for treatment, examination, etc.
1 health education room
pharmacy office and store
administration office
medical records storege space
equipment storage space

(2) Facilities for training activities which include;

200 person auditorium
4 teaching rooms with 20 person capacity
2 teaching rooms with 40 person capacity
2 teaching material preparation rooms
2 storage
library
administration
staff room
accommodation for trainees from provinces with the capacity for about 80 persons, cafeteria and kitchen

2. Procurement of equipment

Department	Category	Equipment	Priority
Outpatient			
	Medical instruments		
		Trash drum	A
		Dressing jar	A
		Backhaus towel forceps	A
		Towel forceps stand	A
		Tweezers	A
		Forceps stand	A
		Instrument cabinet	A
		Instrument tray	A
		Emergency cart	A
		Instrument sterilizing tray	A
		Collin vaginal speculum	A
		Cuscos vaginal speculum	A
		Sims vaginal speculum	A
		Stethoscope	A
		Obstetric stethoscope	A
		Tray set	A
		Pus basin	A
		Foot stool	A
		Sterilizing container	A
		Instruments set (Minor surgery, D&C and examination)	A
		Thermometer	A
	Medical equipment		A
		Spygmomanometer	A
		Gynecology treatment table	A
		Gynecology examination unit	A
		Examination table	A
		Examination lamp	A
		Film viewer	A
		Floor standing auxiliary operation light	B
		Wheel chair	A
		Weighing scale	A
		Height scale	A
		ECG	B
		Bed for ECG	B
		Boiling sterilizer	A
		Medical refrigerator	A
		Manual resuscitator (Ambu bug)	B
		Oxygen inhalator	A
		Training simulator	A
		Colposcope	C
		Electrosurgical unit	C
Radiography			
	Medical instruments		
		Trash drum	A
	Medical equipment		
		General X ray	A
		Portable X ray	A

Department	Category	Equipment	Priority
		Manual film developer	A
		Accessary kit for X ray	A
		Ultrasound scanner	B
		Gynecology treatment table	B
		Bed for Ultrasound test	B
Laboratory			
	Medical instruments		
		Trash drum	A
		Glass ware set	A
		Test tube rack	A
	Medical equipment		
		Flame photometer	A
		Centrifuge	B
		Hematcrit centrifuge	B
		Microscope	A
		Water still	A
		Bililbin analyzer	A
		Spectorphotometer	A
		Blood cell test set	B
		Automatic pipette cleaner	A
		Blood refrigerator	A
		Hemoglobin meter	A
		2 doors refrigerator	C
		ELISA set	C
		Blood cell counter	C
Ward			
	Medical instruments		
		Trash drum	A
		Dressing jar	A
		Backhaus towel forceps	A
		Towel forceps stand	A
		Catheter tray	A
		Chart wagon	A
		Forceps stand	A
		Instrument cabinet	A
		Instrument carriage	A
		Instrument tray	A
		Emergency cart	A
		Instrument sterilizing tray	A
		Examination table	A
		Thermometer	A
		Thermometer tray	A
		Collin vaginal speculum	A
		Cuscos vaginal speculum	A
		Sims vaginal speculum	A
		Stethoscope	A
		Stand	A
		Obstetric stethoscope	A
		Tray set	A
		Urinal hanger	A

Department	Category	Equipment	Priority
		Pus basin	A
		Tweezers	A
		Foot stool	A
		Sterilizing container	A
		Baby bath	A
		Instruments set (D&C and examination)	A
	Medical equipment		
		Gadge bed	A
		Bed	A
		Baby cot	A
		Spygmomanometer	A
		Gynecology treatment table	A
		Gynecology examination unit	A
		Examination lamp	A
		Oxygen inhalator	A
		Film viewer	A
		Stretcher	A
		Wheel chair	A
		Weighing scale	A
		Weighing scale for neonate	A
		Boiling sterilizer	A
		Medical refrigerator	A
		Oxygen flowmeter	A
		Suction bottle	A
		Icecube machine	B
		2 doors refrigerator	C
		Patient monitor	C
Operation, delivbery and neonatal care			
	Medical instruments		
		Trash drum	A
		Dressing jar	A
		Backhaus towel forceps	A
		Towel forceps stand	A
		Catheter tray	A
		Forceps stand	A
		Instrument cabinet	A
		Instrument carriage	B
		Instrument tray	A
		Laryngoscope for newborn	A
		Laryngoscope for adult	A
		Instrument sterilizing tray	A
		Collin vaginal speculum	A
		Cuscos vaginal speculum	A
		Sims vaginal speculum	A
		Stethoscope	A
		Stand	A
		Obstetric stethoscope	A
		Tray set	A
		Pus basin	A
		Tweezers	A
		Sterilizing container	A
		Obstetric forceps	A

Department	Category	Equipment	Priority
		Hemostatic forceps (kochel, Pean and Mosquito)	A
		Instruments set (Suturing, C-section, D&C, Delivery , Hysterectomy, etc.)	A
		Glass ware set	A
		Emergency cart	C
	Medical equipment		
		Blood refrigerator	A
		Patient monitor	A
		Suction unit	B
		Spygmomanometer	A
		High-pressure steam sterilizer	A
		Phototherapy unit	A
		Film viewer	A
		No shadow light (Ceiling type)	A
		Floor standing auxiliary operation light	B
		Operation table	A
		Operation chair	A
		Anesthesia apparatus	A
		Endotrachel set	A
		Observation bed	A
		Neonatal bed	A
		Treatment table for neonatal	A
		Doppler monitor	C
		Scrub station	A
		Electrosurgical unit	A
		Transport incubator	A
		Fetal monitor	A
		Vacuum extractor	B
		Delivery table	A
		Stretcher	A
		Weighing scale for neonate	A
		Medical refrigerator	A
		Jackson Lees resuscitator	A
		Manual resuscitator (Ambu bug)	A
		Infant warmer	A
		Oxygen flowmeter	A
		Suction bottle	A
		Ultraviolet sterilizer	C
		Infant incubator	B
		Neonatal monitor	C
		Infusion pump	C
		Stand	C
Training			
	Stationery and audiovisual equipment		
		AV equipment table	A
		Overhead projector	A
		Slide projector	A
		Screen	A
		Copy machine	A
		Typewriter (Khmer)	A
		Typewriter (English)	A

Department	Category	Equipment	Priority
		Personal computer set	A
		Videoplayer	B
		TV monitor	B
		Video camera	A
		Video processor	A
		Duplicator	A
	Medical equipment		
		Trainig manekin or simulator	A
		Text books	B
Administration			
	Stationery and audiovisual equipment		
		Copy machine	A
		Typewriter (Khmer)	A
		Typewriter (English)	A
		Personal computer set	A
Maintenance and others			
		Power generator	A
		General tool set	C
		Electrical tool set	A
		Cleaning instruments	A
		Dryer	A
		Laundry machine	B
		Hydroextractor	A
		Incinerator	C
		Gardening instruments	A
		Push cart	A
		Cooking equipments	A
		Spreading wagon	A
		Laundry bag	A
		Linen cart	A
		Furniture for clinical service, training and others	A

Annex IV

Japan's Grant Aid Scheme

1. *Grant Aid Procedures*

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

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

2) Firstly, the application or request for a Grant Aid project submitted by a recipient country is examined by the Government of Japan (the Ministry of Foreign Affairs) to determine whether or not it is eligible for Grant Aid. If the request is deemed appropriate, the Government of Japan assigns JICA (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 Program, based on the Basic Design Study report prepared by JICA, and the results are then submitted to the Cabinet for approval.

Fourthly, the project, once approved by the Cabinet, becomes official with the Exchange of Notes signed by the Governments of Japan and the recipient country.

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

2. *Basic Design Study*

1) Contents of the Study

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

a) 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.
b) Evaluation of the appropriateness of the Project to be implemented under the Grant Aid Scheme from a technical, social and economic point of view.
c) Confirmation of items agreed on by both parties concerning the basic concept of the Project.
d) Preparation of a basic design of the Project
e) Estimation of costs 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 consultant firm(s). JICA selects (a) firms(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 and also to avoid any undue delay in implementation should the selection process be repeated.

3. Japan's Grant Aid Scheme

1) What is Grant Aid ?

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

2) Exchange of Notes (E/N)

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

3) "The period of the Grant Aid" means the one fiscal year which the Cabinet approves the Project for. Within the fiscal year, all procedures such as exchanging of the Notes, concluding contracts with (a) consultant firm(s) and (a) contractor(s) and final payment to them must be completed.

However in case of delays in delivery, installation or construction due to unforeseen factors such as weather, the period of the Grant Aid can be further extended for a maximum of one fiscal year at most by mutual agreement between the two Governments.

4) Under the Grant Aid, in principle, Japanese products and services including transport or those of the recipient country are to be purchased.

When the two Governments deem it necessary, the Grant Aid may be used for the purchase of the products or services of a third country.

However the prime contractors, namely, consulting, contracting and procurement firms, are limited to "Japanese nationals". (The term "Japanese nationals" means persons of Japanese nationality or Japanese corporations controlled by persons of Japanese nationality.)

5) Necessity of "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. This "Verification" is deemed necessary to secure accountability to Japanese taxpayers.

6) Undertakings required of the Government of the Recipient Country

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

(1) To secure land necessary for the sites of the Project and to clear, level and reclaim the land prior to commencement of the construction.
(2) To provide facilities for the distribution of electricity, water supply and drainage and other incidental facilities in and around the sites.
(3) To secure buildings prior to the procurement in case the installation of the equipment.
(4) To ensure all the expenses and prompt execution for unloading, customs clearance at the port of disembarkation and internal transportation of the products purchased under the Grant Aid.
(5) To exempt Japanese nationals from customs duties, internal taxes and other fiscal levies which will be imposed in the recipient country with respect to the supply of the products and services under the Verified Contracts.
(6) To accord Japanese nationals whose services may be required in connection with the supply of the products and services under the Verified Contracts, such facilities as may be necessary for their entry into the recipient country and stay therein for the performance of their work.

7) "Proper Use"

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

8) "Re-export"

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

9) Banking Arrangements (B/A)

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

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

2. Draft Report Mission

(1) Member List

Akira KASAI	Leader Technical Special Assistant to the President, JICA
Atsuko AOYAMA M.D., PH.D.	Technical Advisor Consultant Gynecologist Chief, Section of Reproductive Health Expert Service Division Bureau of International Cooperation International Medical Center of Japan
Kenji Maekawa	Project Coordnator 1st Project Management Div., Grant Aid Project Management Department, JICA
Ichiro KANAGAWA	Architectural Planning Architect, International Div. Nihon Sekkei, Inc.
Akio KANEKO	Equipment Planner Nihon Sekkei, Inc.

(2) Survey Schedule

18 April	(Tue)	Lv. Tokyo Av. Bangkok	Bangkok
19 April	(Wed)	Lv. Bangkok Av. (TG696) Briefing by JICA Visit to Embassy of Japan Courtesy Call to H.E. Dr. Mam Bun Heng Under Secretary of State, Ministry of Health	Phnom Penh
20 April	(Thu)	Visit to Ms. You Ay, Director of International Cooperation Department, Ministry of Foreign Affairs and International Cooperation Discussion at MOH Discussion at NMCHC	P.P
21 April	(Fir)	Ditto at NMCHC Discussion with MCH Advisory Group (UNICEF UNFP AIDAB)	P.P
22 April	(Sat)	EDC	P.P
23 April	(Sun)	Preparation for the Minutes of Meeting	P.P
24 April	(Mon)	Report to Embassy of Japan Signing of the Minutes of Meeting	P.P
25 April	(Tue)	Departure (TG697) AV Bangkok	Bangkok
26 April	(Wed)	LV. Bangkok AV. Tokyo	

(3) Discussant

Included in the Discussant List of 1-(3)

(4) Minutes of Discussions of Draft Report

MINUTES OF DISCUSSIONS
ON
THE BASIC DESIGN STUDY ON THE PROJECT FOR
THE CONSTRUCTION OF NATIONAL MATERNAL AND CHILD HEALTH CENTER
IN
THE KINGDOM OF CAMBODIA
(CONSULTATION ON THE DRAFT REPORT)

In November 1994, the Japan International Cooperation Agency (JICA) dispatched the Basic Design Study Team on the Project for the Construction of National Maternal and Child Health Center (hereinafter referred to as "the Project"), and through discussions, field survey, and the results of technical examination in Japan, JICA has prepared the draft report of the study.

In order to explain and consult with the concerned officials of the Royal Government of Cambodia on the components of the draft report, JICA sent to Cambodia a study team (hereinafter referred to as "the Team"), which is headed by Mr. Akira KASAI, Special Technical Assistant to the President, JICA, and is scheduled to study in the country from 19th to 25th April, 1995.

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

Phnom Penh, 24th April, 1995

Mr. Akira KASAI
Leader
Basic Design Study
Draft Report Consultation Team
Japan International Cooperation
Agency (JICA)

Dr. Mam Bunheng
Under Secretary
of State for Health

ATTACHMENT

1. Components of Draft Report

The Cambodian side has agreed and accepted in principle the components of the draft report proposed by the Team. But at the same time, the Cambodian side requested to enlarge and increase the space for parking area as described in ANNEX- II.

The requested items shall be re-examined and referred to on finalizing the Basic Design Study Report.

2. Japan's Grant Aid Program

2-1. The Cambodian side has understood Japan's grant aid system explained by the Team.

2-2. The Cambodian side will take necessary measures described in ANNEX-I for the smooth implementation of the Project on condition that Japan's grant aid is extended to the Project.

3. Schedule of the Study

JICA will complete the final report in accordance with the confirmed items, and send it to the Royal Government of Cambodia around June, 1995.

4. Operation of the National Maternal and Child Health Center

In the event that Japan's grant aid is extended to the Project, the Cambodian side shall take neccesary measures to ensure that the physical facilities constructed and equipment procured under the Project be operated, maintained and used properly and effectively, and especialy shall undertake following measures.

4-1 To allocate adequate amount of budget neccesary for proper operation including proper maintenance of the National Maternal and Child Health Center, which is estimated in the draft report and confirmed by the Combodian side.

4-2 To assign adequate personnel with due ability for the National Maternal and Child Health Center.

5. Monitoring

The Team explained the importance of the monitoring with appropriate indicators for the proper operation of the medical equipment and suggested that the Cambodian side will organize a committee for monitoring. And the Combodian side agreed to organize a committee.

ANNEX-I NECESSARY MEASURES TO BE TAKEN BY THE ROYAL GOVERNMENT OF CAMBODIA ON CONDITION THAT JAPAN'S GRANT AID IS EXTENDED;

1. To provide data and information necessary for the implementation of the Project.

2. To secure the land for the site of the Project, and demolish the structure above grade of the existing buildings in the site prior to the commencement of the construction works.

3. To bear the following commissions to the Japanese foreign exchange bank for the banking service based upon the Banking Arrangement:
   1) Advising commission of the Authorization to Pay (A/P)
   2) Payment commission

4. To ensure prompt unloading and customs clearance at the port of disembarkation in Cambodia and internal transportation therein of the products purchased under the Grant.

5. 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 Cambodia and stay therein for the execution of the Project.

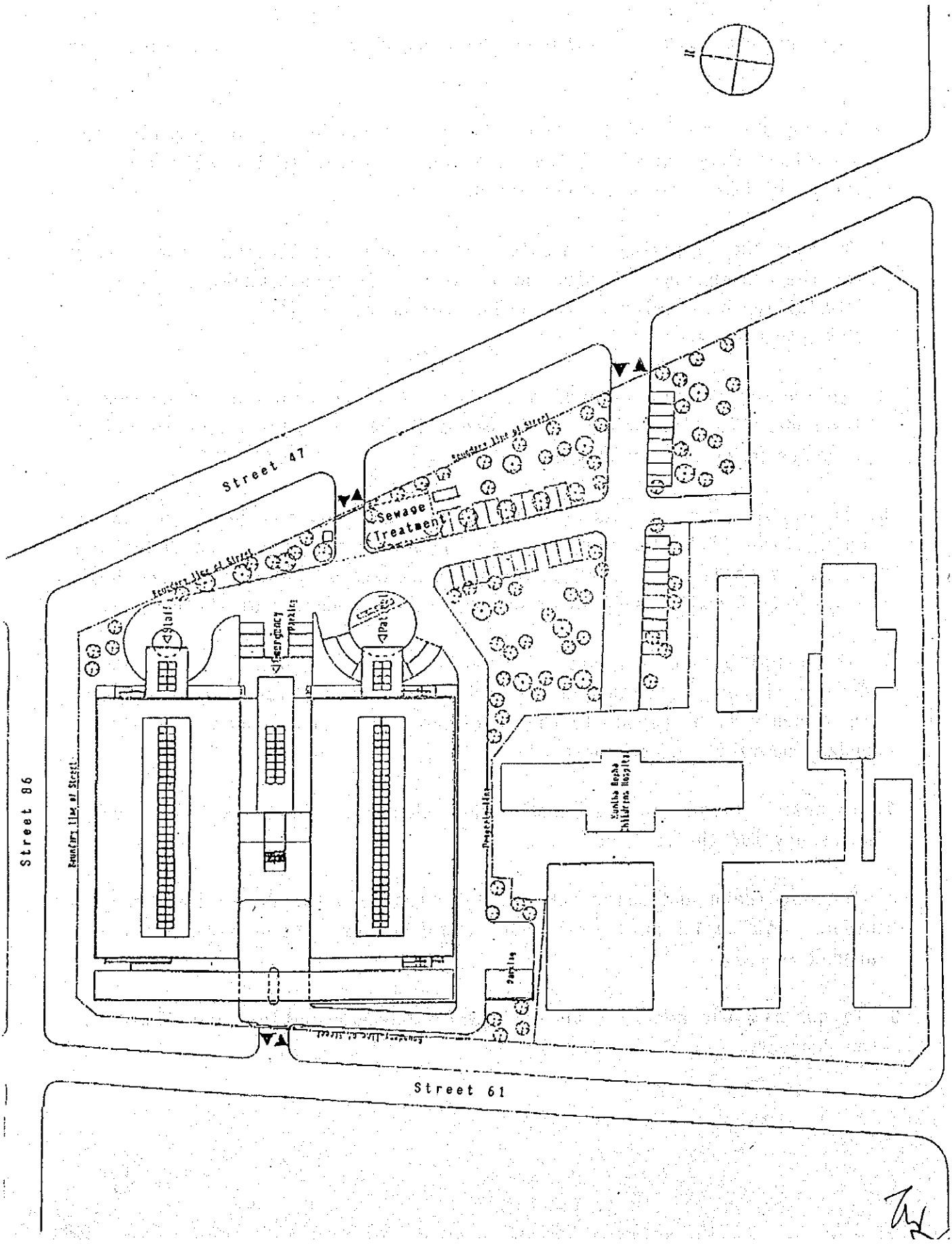
6. To exempt Japanese nationals involved in the Project from customs duties, internal taxes and other fiscal levies which may be imposed in Cambodia with respect to the supply of the products and the services under the verified contracts.

7. To bear all the expenses, other than those to be borne by the Grant, necessary for the Project.

8. To coordinate and solve any issues related to the Project which may arise with third parties and/or inhabitants living within and/or around the site.

9. To confirm the security and safety of Japanese nationals related to the Project.

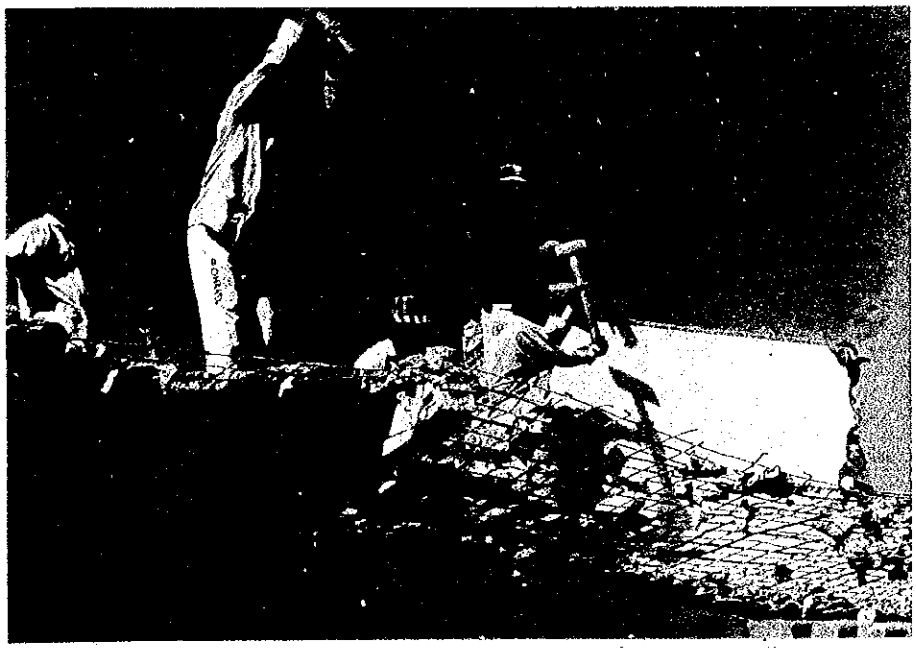
ANNEX – II



3. 建設予定地現況　PHOTOS OF PROJECT SITE

A Building Under Demolition On The Site　解体中

View From The Northwest Corner　敷地全体



Demolition Work　解体中