4-2-4 Necessity of technical cooperation

Cho Ray Hospital has the facilities and staff in Viet Nam and acts as central hospital in southern Viet Nam. With brain surgery as its center, the technological level is high, but the interruption of the technical cooperation over a long period of time has caused differences between departments. Although it is a general hospital, there is no infectious disease department and there is weakness in the administration department, both of which are unsatisfactory for a large hospital, and the unbalance is conspicuous.

Although the improvement project makes the rehabilitation of facilities and equipment the prime object, the technical cooperation from the viewpoint of medical treatment and maintenance of facilities will also play an important role.

To improve the operational system, the medical services and the maintenance system in the hospital, dispatch of the following experts are requested. Regarding the improvement in medical activity basis, the priority is determined as follows:

(1) Hospital management experts - In order to strengthen management at the top referral hospital in the southern part of Viet Nam, highest priority should be given to dispatch of these experts.

(2) Experts in repairing medical equipment - In order to support medical activities and reduce maintenance and management costs, these experts should have priority.

(3) Neurosurgeons - The neurosurgery department, open only in the Cho Ray Hospital in the southern part of Viet Nam, should be strengthened with priority on other departments.

(4) General surgeon - Surgical department should be strengthened because, with the growing number of vehicles and motorcycles on the road, injuries due to traffic accidents are expected

increase in the future.

(5) Nurses - To improve general medical services, nursing department should be reinforced.

Although inspection by people at a higher post for one month in Japan is necessary 1 to 2 years training to master technologies is described, not 3 to 6 months. The above priority applies to the training items and the priority.

4-2-5 Basic policy of technology cooperation

It was judged that implementation of this plan under the Cooperation Aid from Japan is appropriate considering the fact that the effects, possibility to actualize the plan, and ability of the country to fulfill the plan, and the effects meet the Cooperation Aid system. Assuming the Cooperation Aid from Japan is granted, the plan will be reviewed and the basic design will be carried out as described below. As previously noted in the review of requested equipment and plan, partly changing the request is appropriate.

4-3 Summary of the Project

4-3-1 Implementation agency and operational structure

Cho Ray Hospital belongs directly to the Ministry of Health and is a tertiary medical institution that is positioned above the medical institutions belonging to each province, city, town and village, such as District Hospitals, Provincial Hospitals. It plays the part of the leader covering 17 provinces in the south of Viet Nam and in education and research institute.

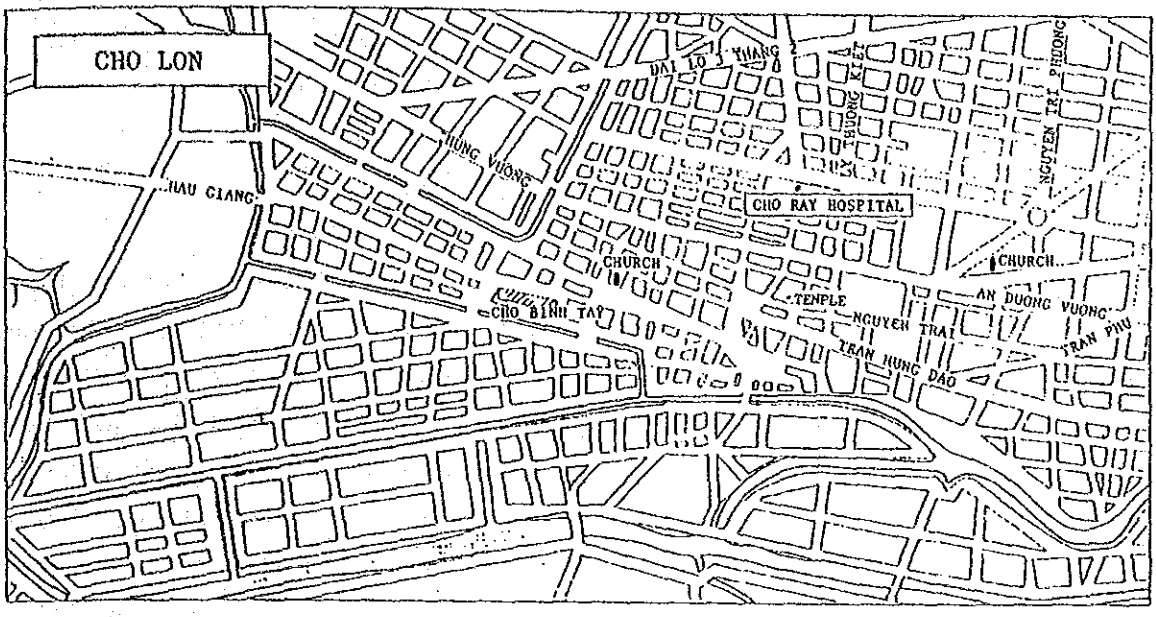
The hospital has an operational structure with five deputy directors under Dr. Trinh Kim Anh, director, and the main person responsible for the project is Dr. Ha Van Duc, Deputy Director in charge of financial managements.

Although the implementation of the Project will be undertaken by the International Cooperation Department of the Ministry of Health, legal and administrative matters will require coordination between Dr. Doan Thuy Ba, vice minister in charge of the Ministry of Health in Southern Viet Nam and Dr. Trinh Kim Anh as the place of the project is located in Ho Chi Minh City.

4-3-2 The location and situation of the Project

(1) Summary of the site

. Location 201B, NGUYEN CHI THANH
5TH QUARTER HOCHIMINH CITY



. Area	Site area	about 53,000 m^2
	Total floor area	about 37,000 m^2
. Difference in level of the site	Almost no difference in level or gradient	
. Sunshine	Favorable as there are no high-rise buildings in the surrounding area	
. Ventilation	As above	
. Air pollution	There is no source of air pollution that effects the surrounding area. Exhaust gas from motor bikes and cars.	
. Geology	Laterite, acid soil	
. Groundwater level	GL-1.5 m	
. Drainage	Not good	

. Necessity for site development: No particular need.

(2) Situation regarding infrastructure

(i) At present this hospital receives a power supply of about 1,500 KVA from the Viet Nam Power Corporation. The power transmission is from Thu Duc Power Plant, but since last year power has also been transmitted from Cho Lonh route in addition to the north route thereby forming two receiving systems. In the south, including Ho Chi Minh City, there is a network operation consisting of five power plants, The Duc Power Plant, the Quan Power Plant, the Danhim Power Plant, the Tra Noc Power Plant and the Trian Power Plant. Therefore, when power failure occurs at Thu Duc Power Plant others can supply power. These two points are considered very effective from the viewpoint of a stable power supply.

According to a survey conducted of the Thu Duc Power Plant, the power supply condition is relatively stable, but at this hospital power cut occur 1-2 times/week usually for several minutes but sometimes for 30 minutes. The voltage fluctuation was confirmed to be relatively small between 101 V and 105 V at the terminal receptacle of this hospital.

(ii) Water source

Ho Chi Minh City and this hospital receives water from Water Treatment Plant in the Tu buc district of Da Nang Province. The capacity of the treatment plant is 5 water supply pumps of 150,000 m^3/hr, 4 of which are operated normally and 1 is used as a spare for operation at peak times. Water supply pressure is 5 kg/cm^2 with reservoirs of 900,000 m^3 x 2 and 400,000 m^3 x 2, at 4 locations in

total (260,000 m^3). The quantity of water supplied is 650,000 m^3/day on average with a maximum of 700,000 m^3/day.

At this location, as the ground is about 18 m higher than Ho Chi Minh City, the pumps are stopped at night and water is conveyed by natural flow. The water is taken from Da Nang river and disinfected using chlorine. The quality of water supplied is checked by the Ministry of Health in Ho Chi Minh City as well as by treatment plants, and there appears to be no problems.

The water supply capacity is considered adequate as Ho Chi Minh City consumes 610,000 m^3/day and industrial complexes 40,000 m^3/day, 650,000 m^3/day in total. Expansion of the facilities is being planned to give an extra capacity of 700,000 m^3/day with the assistance of the Italian Government and an extra 100,000 m^3/day with the assistance of another country.

Fig. 1 attached shows the layout of water mains for this hospital and the location of service piping. The pressure of water distribution is 3 kg/cm^2.

(iii) Sewage discharge

The sewerage system of Ho Chi Minh City was developed by the French about 80 years ago, and was planned initially to serve a population of 800,000. However, the population has grown to about 5 times that at present and various problems are arising.

The sewerage system is one system combining the sewer, miscellaneous drainage and rainwater. Although they are supposed to be treated and discharged into the sewerage system, in principle, they are not practically treated nor

are there any effluent standards. There is a plan to establish effluent standards at present, but in reality this appear extremely difficult due to lack of budget. A plan to construct sewage treatment plant in 5 locations faces a similar obstacle. Although the exact quantity of sewerage is not known due to lack of data, approximately 70% of the water consumption of 550,000 m^3/day can be assumed.

The degree of development of the sewerage system is at present 30%, though it is scheduled to be expanded to 70% in 1995-1996. (The total length of sewage piping is 450 km for the size larger than 400ϕ and 200 km for the size smaller than 400ϕ).

The raw sewerage is discharged into Saigon river and its tributaries at 95 points. Therefore, particularly where the rivers are narrow, the pollution is considerable and when houses are built upstream, does not flow well, causing public health hazards and diseases.

Since a part of Ho Chi Minh City is below sea level, the situation is aggravated.

As the septic tank installed at this hospital is not functioning because of inadequate maintenance, almost direct effluents are discharged.

(iv) Gas supply

As butane gas is very expensive, it is only used for igniting the boiler at this hospital.

4-3-3 Summary of facilities and equipment

(1) Improvement of facilities

On the basis of the results of the study conducted and the discussions with the Vietnamese side and the contents of the request having been thoroughly examined, The points of improvement of the Project, are as follows:

(i) Water supply and wastewater treatment system (P)

- P-1 Replacement of lifting pumps
- P-2 Replacement of elevated water tank and water-receiving tank
- P-3 Replacement of sanitary fixtures (ICU, CCU and Emergency Operation Departments)
- P-4 Replacement of sanitary fixtures (Out-patient Department
- P-5 Replacement of sanitary fixtures (Administrative Department)
- P-6 Repair of toilets in wards
- P-7 Repair of septic tank
- P-8 Replacement of drainage pumps
- P-9 Replacement of unit showers
- P-10 Replacement of boilers
- P-11 Replacement of hot water tanks
- P-12 Replacement of oxygen supply system and aspirator pumps
- P-13 Replacement of hardware of oxygen supply system and aspirator
- P-14 Renovation of laundry room and kitchen
- P-15 Replacement of fire hydrant hoses and nozzles
- P-16 Replacement of incinerator

(ii) Electrical system (E)

E-1 Replacement of DC source receiving equipment

E-2 Replacement of automatic voltage regulator equipment

E-3 Repair of automatic operation unit No. 1 (2 sets)

E-4 Repair of automatic operation unit No. 2 (5 sets)

E-5 Repair of monitoring panel in receiving and substation equipment

E-6 Repair of monitoring panel in motor control center

E-7 Replacement of earth leakage alarm panel

E-8 Repair of emergency power generating system

E-9 Replacement of emergency power generator

E-10 Replacement of cables for trunk line

E-11 Replacement of lighting fixtures (GF-2F, main rooms and commonly used areas)

E-12 Replacement of lighting fixtures (3F-10F, main rooms and commonly used areas)

E-13 Replacement of wiring fixtures

E-14 Replacement of transmission system (automatic fire alarm system, loudspeaker system, telephone system, nurse-call system, electric clock)

E-15 Replacement of airplane warning light

(iii) Air-conditioning system (AC)

AC-1 Replacement of air-conditioner (ICU, CCU, Operation Room, Central Sterilized Supply Department and Emergency Operation Room)

AC-2 Replacement of air-conditioner (Test Department and X-ray Room)

AC-3 Replacement of window-type cooler. Replacement of package-type air conditioning equipment for the Auditorium

(iv) Elevator (EL)

EL-1 Replacement of elevator No. 1 (2 cars for patients)
EL-2 Replacement of elevator No. 2 (6 cars for patients)

(v) Architectural works (A)

A-1 Waterproofing work on rooftop
A-2 Paint louvers of buildings
A-3 Block work
A-4 Repair eaves
A-5 Repair the slope on east side of Bldg. C
A-6 Procure finishing materials, ceiling materials, paint, etc.
A-7 Repair steel stairs
A-8 Renovation of workshop

(2) Medical equipment and supplies

The final list of requested equipment and supplies submitted by the Vietnamese side at the time of the study was consolidated from the necessary equipment and supplies list of each medical department as a whole in the hospital. It includes practically all equipment and supplies that are required by the entire hospital. The selection of equipment and supplies was made based on the thorough recognition of the purpose of this Project and places its priority on the replacement of equipment and supplies that are highly necessary but not functioning sufficiently at present. In other words, the list contains equipment and supplies that will recover the original functions of the hospital as a center, which we consider is generally reasonable. However, as the priorities given by the hospital on the list contain many points that do not totally convince us, it was changed suitably in the light of local situation after being thoroughly examined. Also, the request for basic fixtures which can be purchased locally at low prices and are suitable for use by individuals, was deleted from the list. The contents of the plan with revisions thus made are as follows:

List of equipment and supplies

1 Defibrillator
2 Manual Resuscitator
3 Endotracheal Set
4 Suction Unit
5 Critical Care Ventilator
6 Bedside Monitor
7 Spare Lamp for Operating Light
8 Electro Cardiograph (1-channel)
9 X-ray Portable Unit
10 Image Intensifier Television in Operating Theatre
11 Distilling Apparatus
12 Spectrophotometer

13 Duadono Fiberscope
14 Colono Fiberscope
15 Abdominal Echo Apparatus
16 Analyzer (Glucose)
17 Surgical Scrub System
18 Anesthesia Apparatus
19 Critical Care Ventilator
20 Gastrointestinal Radiograph
21 Small Autoclave
22 Electro Surgical Unit
23 Large Ultrasonic Cleaner
24 Microtome Knife Sharpener
25 Incubator
26 X-ray Processor
27 Refrigerant Centrifuge
28 Dermatome
29 Wintrobe Hematocrit Set
30 Refrigerator Blood Bank
31 Intergrated Radiographic
32 Loupe
33 Moturary Refrigerator for 2 bodies
34 Small Ultrasonic Cleaner
35 Instroment Sterilizer
36 Surgical Glove Conditioner
37 Cast Cutting Instrument
38 Electro Cardiograph (3-channel)
39 Rotary Snaker
40 Magnetic Stirrer withnot Plate
41 Analytical Balance
42 Paraffin Oven
43 Proctoscopic Fiberscope
44 Operating Microscope
45 Skull Operation Set
46 Microscope
47 Water Bath
48 Labsystems Finnpipette

49 Glass Seropipette
50 Instruments to Repair Set
51 CT Scanner
52 Operating Instrument Set
53 Tracheotomy
54 Oxygen Cylinder Truck
55 Broncho Scope
56 Formalin Gas Sterilizer
57 Box of ENT Consultation and Aerozol for inpatient
58 Fiber Naso-Pharyngo Laryngoscope
59 Small Operating Instrument Set
60 Infusion Set and Needle Cleaner
61 Operating Table
62 Continuing Traction Device
63 Surgical Motor for Sawing with Saw Blades
64 Multipipette
65 Electrophoresis
66 Ultraviolet Lamp for Sterilization
67 Wheels of Patient Bed
68 Steam Pressor Sterilizer
69 Cryo Surgery Set for Cataract Operation
70 X-ray Diagnosis System for Circulatory Organ
71 Basal Metabolic
72 Cryomicrotome
73 Central System of Air Conditioner and Sterilizer
74 Ice Cube Machine
75 Refrigerator
76 Pack Warmer
77 Peitoneal Dialysis
78 Electromyograph
79 Cysto Fiberscope
80 Endoscopic Retrograde Choledocho Fiberscope
81 Autopsy Instrument Set
82 Large Autoclave Fiberscope
83 Diaghostic Equipment
84 Dressing Drum

85 Dressing Drum Stand
86 Luer Tracbeal Tubes
87 External Fixation Device
88 ICU Bed
89
90 Distilling Apparatus
91 Instrument Sterilizer
92 Laminar Flow Chamber
93 Ophthalmoscope
94 Temporary Pace Maker
95 Retrograde Uretero Endoscope
96 Bicycle for Master Test
97 Electroretinegraph
98 Ultrasonic Doppler
99 Microscope (Quadriocular)
100 Aerosol Apparatus
101 Electrical Drill (Orthopedic)
102 Electro Surgical Drilling Motor
103 Stretcher
104 Centrifuge
105 Wheel Chair
106 ELISA Equipment
107 Test Kit for ELISA (HBs)
108 Test Kit for ELISA (AIDs)
109 Hohodialysis System
110 Treating Water System
111 Urological X-ray Apparatus
112 Ophthalmological Operating Microscope
113 Automatic Analyzer
114 Heart Lung Machine
115 Chart Carriage
116 Kick Bucket
117 Laundry Bag
118 Laundry Cart (Washed)
119 Cranial X-ray Apparatus
120 Encephalo Echo Apparatus

4-3-4 Maintenance and management plan

(i) Maintenance and management costs

The change in maintenance and management costs of Cho Ray Hospital is as follows.

1) Fuel and lighting costs

. Electricity rates

Because of deterioration of the electrical equipment and fixtures, only 20% of lighting fixtures and about 40% of air conditioners are in operation. If all this equipment is made operable under this project, an increase in electricity charges would arise for operation of these equipment and fixtures. According to estimates, electricity use will increase to 1.36 the 1990 level and the charges will rise by 2.30 times (Refer to Table 8). The rise in electricity rates in November 1990 from 122 DONG/kwh to 220 DONG/kwh has a great effect on this increase in charges.

. Water rates

It is assumed that the water supply system suffers considerable leakage due to deterioration of equipment and piping. Leaks were seen at many locations during the survey. If the leakage is stopped by renovation work at this time, it is judged that water charges will fall. In the case of a hospital in Japan, water consumption is about 1,000-1,300 liters/bed, so calculating at a rate of 1,300 liters/bed.

1,300 liters/bed x 1,000 beds x 365 days x 0.97
≒ 460,000 m^3/year (where 0.97: operating rate of beds)

This estimated consumption of 460,000 m^3/year is 0.52 times that of 1990, when consumption was 871,008 m^3/year. Therefore, the water usage should be reduced to half.

2) Repair costs

The cost of repairing elevators, plumbing fixtures, boilers, generators, and light electrical equipment, such as telephone switchboards, PA amplifiers, etc., increased enormously in 1990, reaching 3,700 times that of 1985. Compared to 1989, when inflation slackened, and 1990, the increase was more than 6 times. This is due to accelerated deterioration, and it is expected that the improvement work should apply a brake to this. It is thought that repair costs should be reduced to half, at least.

3) Study on maintenance and management costs

After the implementation of this Project, electricity charge will increase while water charges and repair costs will fall. Table 8 shows a comparison of the maintenance and management costs over the past three years and estimated costs after the improvements.

Table 8 Fluctuations in maintenance and management costs at Cho Ray Hospital

(Unit: 1,000 Dong)

	Electricity	Water charges	Repair costs	Total charges
1988	45,517	24,187	37,253	106,957
1989	192,037 (422%)	113,575 (470%)	87,389 (235%)	393,001 (367%)
1990	326,935 (170%)	150,542 (133%)	535,773 (613%)	1,013,250 (257%)
Estimated amount after improvements	754,000 (231%)	82,800 (55%)	260,000 (49%)	1,096,800 (108%)

Figures in ( ) indicate a comparison with the preceding year.

Thus, the maintenance and management costs of the hospital will increase by about 8% over 1990, which is judged to be within the range. This can be dealt with by further decreases in repair costs and an increase in budget.

(ii) Maintenance and management structure

A maintenance and management structure chart of Cho Ray Hospital is shown below. The hospital's operational structure has a supreme management department consisting of five deputy directors under the director. Dr. Duc, one of the duputy directors, is responsible for the administration department, which consists of six departments: Mechanical Workshop Department, Laundry Department, Housekeeping Department, Motor Pool Department, General Supples-Purchasing Department and Insurance Ticket-Payroll Department. The existing organization does not affect the implementation of this project.

(iii) Maintenance and management staff

This was calculated by department, as follows:

1) Mechanical Workshop Department: 41 persons at present

	No. of staff at present	Predicted No. of staff after completion of the project
Boiler, elevator operator	12 persons	6 persons (boiler only)
Repair personnel, mechanical	14 persons	6 persons (maintenance)
Repair personnel, electrical	15 persons	5 persons (maintenance and repair)

After completion of this project, it will be possible to reduce the number of staff, since many of the staff in charge of repairing facilities will become unnecessary.

2) Laundry Department: 25 persons at present

No particular change in number after completion.

3) Housekeeping Department: 21 persons at present

The 11-story hospital has a total floor area of 37,000 m^2.

Thus there are 1 to 3 persons in charge of cleaning per floor. The number of staff required for daily cleaning is about one person per 1,000 m^2 of floor area, so 37,000 m^2 ÷ 1,000 m^2/person = 37 persons. Accordingly, an increase in staff by about 16 is necessary to maintain the hospital. This increase in staff is especially important since the service life of the buildings and facilities largely depends on the work of the department.

4) Motor Pool Department: 12 persons at present

No particular change in the number after completion.

5) General Supplies-Purchasing Department: 6 persons at present

No particular change in the number after completion.

6) Insurance Ticket-Payroll Department: 6 persons at present

No particular change in the number after completion.

CHAPTAR 5

BASIC DESIGN

CHAPTER 5 BASIC DESIGN

5-1 Design Policy

(1) Policy regarding natural conditions

With a thorough understanding of the natural conditions in the south of Ho Chi Minh City, materials will be selected that can withstand temperature and humidity as well as deterioration due to sunlight, particularly materials to be used outdoors where the sunshine is strong throughout the year.

Thorough considerations will be given to rainfall both as regards outdoor and indoor materials for rust prevention and moistureproofing.

(2) Policy regarding social conditions

In this study, dirt was particularly conspicuous in the building. Particularly noted were the areas where water is used, including lavatories which have become unusable in areas of public access. This is thought to be caused by the easy access. And the lack of cleaning adds to the problem. The present lack of cleaning results from the shortage of staff by reason of fiscal problems. Since it is assumed that hospital's circumstances will not change quickly after this improvement work, consideration should be given to durability, dirt-repelling ability, ease of cleaning in the selection of materials. It is also necessary to select equipment that is easy to maintain.

It was also noted that in several places hardware such as fittings, mirrors, etc., had been stolen in public access areas including the elevator hall. To cope with these problems, the method of installing fittings may require thorough examination.

(3) Policy regarding construction conditions

Although there exists a law equivalent to Japan's Building Standards Law, the safety standards are below those of Japan, so plans will be drawn up in accordance with Japanese law.

(4) Policy regarding use of local contractors, local equipment, and local materials

All construction companies in Viet Nam are incorporated into the national organization or that of the municipality. Accordingly they have characteristic features depending upon the type of the organization to which they belong.

Their technological level is considered adequate for use as subcontractors, and there is no special considerations that have to be taken in the design of the improvement plan.

Since temporary equipment, such as cranes, etc., cannot practically be obtained, the design should proceed under the assumption that any equipment that can be broken down should be so treated.

Although it is possible to procure any items which are not specialized, the acquisition of materials for finishing and utilize equipment is difficult quantitatively, and it is need to depend on imports from Japan or third country.

(5) Policy regarding scope and level of equipment and supplies

(i) Facility plan

The study of the requested improvement in facilities showed that the construction work which has to be examined is as described in 3-(4) of Chapter 3. Although ideally this Project will include all the work, it is not considered

realistic because of the enormous scale. Doing so would affect the construction schedule as a result of interference between part of the construction work. Accordingly, an order of priority placing emphasis on urgency is given to the work, and the most effective work to maintain the functions of the hospital is selected in the plan.

In the selection of equipment, the latest technology will be considered as far as possible, taking into account future maintainability. However, regarding the equipment that can not be maintained normally by the hospital site such as control panels consisting of ICs, priority will be given to equipment that can be maintained.

(ii) Medical equipment and supplies

The equipment and supplies included in the final request are considered sufficiently convincing, judging by the characteristics and scale of this hospital. However, equipment for all areas of this hospital's operation is covered, and including all of it in this Project is not considered realistic as the scale is enormous. Therefore, the selections have to be made, but urgent and widely used equipment will have priority. Screening was initially carried out in three stages for the requested equipment based on the categories below.

. Priority A for first aid equipment
. Priority B for diagnosis equipment this can be used widely by all departments.
. Priority C for widely used treatment equipment

The most effective equipment in medical terms was selected.

(6) Policy regarding schedule

Given the situation that the hospital is currently in operation, an implementation plan should be established for this Project which allows, the functioning of the hospital to continue. This Project comprises many construction tasks with complex links and with which the operation of the hospital is related. If an implementation sequence is drawn up in consideration of the functioning of the hospital, it is impossible to complete the Project within 12 months. Thus, the Project will take place in at least two phases.

The construction of each phase are given as follows:

Phase I construction:

P-1 Replacement of lifting pumps
P-2 Replacement of elevated water tank and water-receiving tank
P-12 Replacement of oxygen supply system and aspirator pumps
P-13 Replacement of hardware of oxygen supply system and aspirator
P-15 Replacement of fire hydrant hoses and nozzles
E-1 Replacement of DC source receiving equipment
E-3 Repair of automatic operation unit No. 1 (2 sets)
AC-1 Replacement of air-conditioner (ICU, CCU, Operation Room, Central Sterilized Supply Department and Emergency Operation Room)

Phase II construction:

P-3 Replacement of sanitary fixtures (ICU, CCU and Emergency Operation Departments)
P-6 Repair of toilets in wards

Phase III construction:

P-10	Replacement of boilers
P-11	Replacement of hot water tanks
P-14	Renovation of laundry room and kitchen
E-2	Replacement of automatic voltage regulator equipment
A-8	Renovation of workshop
EV-1	Elevator work No. 1

5-2 Examination of Design Conditions

(1) Renovation of facilities and equipment

With restoring the functions of the hospital to those at its opening as the primary aim, the design should aim at maintaining these functions for 15-20 years in the future.

Because of advances in technology since it opened, of renovation should be pursued to realize greater rationalization and better durability.

As mentioned above, a maintenance-free equipment is essential because of the severe economic conditions. The basic design conditions are the following:

(i) The primary functions previously available at the hospital will be restored.

(ii) The functions that were necessary at that time of establishment, but that are not at present, will not be included in the Project.

(iii) For light repair, only the materials will be supplied.

(iv) Equipment based on highly sophisticated electronic technology will be avoided wherever possible.

(v) Maintenance-free equipment will be selected.

(vi) Improvements will last for 15-20 years.

(vii) The design specifications will match the lifestyle of this country and the design should not need more cleaning than is necessary.

(viii) Parts and consumables should be those which can be procured with Viet Nam.

(2) Scope of renovation in facilities and equipment

Of the renovation work studied by the Study Team, the priority for commencement can be classified into the items of examination. These items will be allotted points according to a weighted evaluation. The items and point allocations are as follows:

(i) Those which require renovation to maintain the function of buildings. (⊕ 8 points)

(ii) Those which require renovation to maintain the function of the hospital. (⊕ 6 points)

(iii) Those which require renovation to maintain hygienic conditions and environment. (⊕ 3 points)

(iv) Those which require effective renovation from the viewpoint finance. (⊕ 2 points)

(v) Those which require renovation from the viewpoint of esthetics. (⊕ 1 point)

(vi) Problems from the viewpoint of maintenance and management. (⊖ 8 points)

Each of these items is evaluated in four stages, I, II, III, and IV depending on its importance, and by multiplying the point allocations by the evaluation weighing for each task, the priority was examined.

The evaluation is as shown below.

I: 5 points

Items require renovation urgently. Improvement is required within 1-2 years.

II: 3 points

Renovation may be delayed for 3-4 years.

III: 1 Point

Renovation may wait more than 5 years.

IV: 0 Point Items not related to this project.

Table 9 Improvement priorities

(1/3)

	Priority	Rank	No.	Description of work
o	1	A	P-1	Replacement of lifting pumps
o	2	A	P-2	Replacement of elevated water tank and water-receiving tank
o	3	A	E-1	Replacement of DC source receiving equipment
o	4	A	EV-1	Replacement of elevator No. 1 (2 units)
o	5	A	P-3	Replacement of sanitary fixtures (ICU, CCU and Emergency Operation Theater)
o	6	A	P-12	Replacement of oxygen supply system and aspirators
o	7	A	P-10	Replacement of boilers
o	8	A	P-11	Replacement of hot water tanks
o	9	B	P-6	Repair of toilets in wards
o	10	B	E-2	Replacement of automatic voltage regulator equipment
o	11	B	P-13	Replacement of hardware of oxygen supply system and aspirators
o	12	B	E-3	Repair of automatic operation unit No. 1
o	13	C	A-8	Maintenance of workshop
	14	C	P-9	Replacement of unit showers
	15	C	P-7	Repair of septic tank
o	16	C	P-14	Maintenance of Laundry Room and Kitchen
o	17	C	AC-1	Replacement of air-conditioner (ICU, CCU, Operation Theater, Central Sterilized Supply Department and Emergency Operation Room)
	18	C	E-11	Replacement of lighting fixtures (GF-2F, main rooms and commonly used areas)
	19	C	AC-2	Replacement of air-conditioner (Test Department and X-Ray Room)
o	20	C	P-15	Procurement of fire hydrant hoses and nozzles
	21	C	E-8	Repair of emergency power generating system
	22	D	E-9	Replacement of emergency power generator

	Priority	Rank	No.	Description of work
	23	D	A-1	Waterproofing work on rooftop
	24	D	A-7	Repair of steel stairs
	25	D	E-4	Repair of automatic operation unit No. 2
	26	D	E-5	Repair of monitoring panel in receiving and substation equipment
	27	D	E-6	Repair of monitoring panel in motor control center
	28	D	E-7	Replacement of earth leakage alarm panel
	29	D	E-12	Replacement of lighting fixtures (3F-10F, main rooms and commonly used areas)
	30	D	A-6	Procurement of finishing materials, ceiling materials, paint, etc.
	31	D	A-2	Painting on louvers of building
	32	D	E-10	Replacement of cables for trunk line
	33	D	E-13	Replacement of wiring fixtures
	34	D	A-3	Block work
	35	D	A-4	Repair of eaves
	36	D	E-14	Replacement of transmission system (automatic fire alarm system, loudspeaker system, telephone system, nurse-call system, electric clock)
	37	D	P-8	Replacement of drainage pumps
	38	D	EV-2	Replacement of elevator No. 2 (6 units)
	39	D	P-4	Replacement of sanitary fixtures (Outpatient Department)
	40	D	P-5	Replacement of sanitary fixtures (Administrative Department)
	41	D	A-5	Repair of slope on the east side of Building C
	42	D	P-16	Replacement of incinerator
	43	D	E-15	Replacement of airplane warning light
	44	D	AC-3	Replacement of window-type cooler, Replacement of package-type air conditioning equipment of auditorium system

Table 10-1 Evaluation of improvement priority -1

Work No. / Elements of evaluation	1 P-1	2 P-2	3 E-1	4 EV-1	5 P-3	6 P-12	7 P-10	8 P-11	9 P-6	10 E-2
Function of the building	I	I	I	I	I	I	I	I	I	I
x8	40	40	40	40	40	40	40	40	40	40
Function of the hospital	I	I	I	I	I	I	I	I	I	I
x6	30	30	30	30	30	30	30	30	30	30
Sanitary and environmental conditions	I	I	I	I	I	I	I	I	I	II
x3	15	15	15	15	15	15	15	15	15	9
Finance	I	I	I	II	II	II	I	I	I	II
x2	10	10	10	6	6	6	10	10	10	6
Appearance	IV	I	IV	I	I	I	I	I	I	IV
x1	0	5	0	5	5	5	5	5	5	0
Subtotal	95	100	95	96	96	96	100	100	100	85
Maintenance and management	-II	-III	-III	IV	IV	IV	III	III	III	IV
X-8	+24	+8	+8	0	0	0	-8	-8	-8	0
Total	119	108	103	96	96	96	92	92	92	85

I: 5 points II: 3 points III: 1 point IV: 0 point

Table 10-2 Evaluation of improvement priority -2

Work No. / Elements of evaluation	11 P-13	12 E-3	13 A-8	14 P-9	15 P-7	16 P-14	17 AC-1	18 E-11	19 AC-2	20 P-15
Function of the building x8	II 24	II 24	II 24	II 24	II 24	II 24	II 24	I 40	II 24	II 24
Function of the hospital x6	I 30	I 30	II 18	II 18	II 18	II 18	I 30	I 30	I 30	II 18
Sanitary and environmental conditions x3	II 9	I 15	I 15	I 15	I 15	II 9	I 15	I 15	I 15	II 9
Finance x2	I 10	IV 0	I 10	I 10	I 10	I 10	II 6	III 2	II 6	IV 0
Appearance x1	IV 0	IV 0	IV 0	I 5	II 3	IV 0	IV 0	IV 0	IV 0	IV 0
Subtotal	73	69	67	72	70	61	75	87	75	51
Maintenance and management X-8	-III 8	-III 8	-III 8	IV 0	IV 0	-III 8	III -8	II -24	II -24	IV 0
Total	81	77	75	72	70	69	67	63	51	51

I: 5 points II: 3 points III: 1 point IV: 0 point

Table 10-3 Evaluation of improvement priority -3

Work No. / Elements of evaluation	21 E-8	22 E-9	23 A-1	24 A-7	25 E-4	26 E-5	27 E-6	28 E-7	29 E-12	30 A-6
Function of the building x8	II 24	II 24	II 24	II 24	II 24	II 24	II 24	II 24	II 24	II 24
Function of the hospital x6	I 30	I 30	II 18	II 18	II 18	II 18	II 18	II 18	I 30	III 6
Sanitary and environmental conditions x3	I 15	I 15	II 9	II 9	II 9	II 9	II 9	II 9	I 15	I 15
Finance x2	II 6	II 6	IV 0	IV 0	IV 0	IV 0	IV 0	IV 0	IV 0	IV 0
Appearance x1	IV 0	IV 0	IV 0	IV 0	IV 0	IV 0	IV 0	IV 0	I 5	IV 0
Subtotal	75	75	51	51	51	51	51	51	74	45
Maintenance and management X-8	II -24	II -24	IV 0	IV 0	IV 0	IV 0	IV 0	IV 0	II -24	IV 0
Total	51	51	51	51	51	51	51	51	50	45

I: 5 points II: 3 points III: 1 point IV: 0 point

Table 10-4 Evaluation of improvement priority -4

Work No. / Elements of evaluation	31 A-2	32 E-10	33 E-13	34 A-3	35 A-4	36 E-14	37 P-8	38 EV-2	39 P-4	40 P-5
Function of the building	I	II	II	II	II	II	II	II	II	II
x8	40	24	24	24	24	24	24	24	24	24
Function of the hospital	IV	III	II	IV	III	II	III	II	III	III
x6	0	6	18	0	6	18	6	18	6	6
Sanitary and environmental conditions	IV	I	III	I	II	IV	I	IV	II	II
x3	0	15	3	15	9	0	15	0	9	9
Finance	IV	IV	IV	IV	IV	IV	IV	IV	IV	IV
x2	0	0	0	0	0	0	0	0	0	0
Appearance	I	IV	IV	I	IV	I	IV	IV	II	II
x1	5	0	0	5	0	5	0	0	3	3
Subtotal	45	45	45	44	44	47	45	42	42	42
Maintenance and management	IV	IV	IV	IV	IV	III	III	III	III	III
X-8	0	0	0	0	0	-8	-8	-8	-8	-8
Total	45	45	45	44	44	39	37	34	34	34

I: 5 points II: 3 points III: 1 point IV: 0 point

Table 10-5 Evaluation of improvement priority -5

Work No. / Elements of evaluation	41 A-5	42 P-16	43 E-15	44 AC-3						
Function of the building x8	III 8	IV 0	II 24	III 8						
Function of the hospital x6	III 6	II 18	IV 0	III 6						
Sanitary and environmental conditions x3	II 9	I 15	IV 0	III 3						
Finance x2	IV 0	IV 0	IV 0	I 10						
Appearance x1	I 5	IV 0	IV 0	IV 0						
Subtotal	28	33	24	27						
Maintenance and management X-8	IV 0	III -8	III -8	II -24						
Total	28	25	16	3						

I: 5 points II: 3 points III: 1 point IV: 0 point

Based on the results of the review, an order of priority was drawn up for the 44 improvement tasks and the problems in their implementation were reviewed. They were then classified into four ranks, A, B, C, and D.

The works of 16 items marked with a circle out of ranks A, B, and C in Table 9 (see pp. 140-141) have been selected for planning after reviewing the results and discussing with the parties concerned in Viet Nam

Rank A: Urgent work on the water supply and waste water treatment systems, work on the oxygen supply which may otherwise present danger, work on the important vacuum system.

Rank B: Repair work around toilets, which is important to maintain the functions of a hospital, and automatic voltage regulating unit and operation units to secure electric power for medical activities.

Rank C: Tasks which should be carried out in a few years considering the operation of the hospital.

Rank D: Tasks which should be performed soon after those of Rank III.

5-3 Basic Plan

5-3-1 Facility improvement plan

(1) Water supply and waste water treatment system

P-1 Replacement of lifting pumps

The number of the pumps is selected to provide a back-up system in case of failure, and they are installed in a pumphouse with the water-receiving tank. All the existing lifting pumps will be removed after completion so that improvement work in the boiler room can proceed smoothly.

Lifting pumps

125ϕ x 1600 l/min x 30 m x 15 kW	2 units
150ϕ x 2000 l/min x 33 m 19 kW	1 unit
125ϕ x 1600 l/min x 75 m x 37 kW	2 units

P-2 Replacement of elevated water tank and water-receiving tank

(i) Since the existing underground water-receiving tank is in danger of being contaminated with water from outside, a water-receiving tank consisting of two vessels including a pumproom will be installed in the pump room so periodic cleaning and general inspections can be carried out. The tank is of stainless steel and is of the detachable panel type which is waterproof, rustproof, and sunshineproof to prevent the growth of algae. The tank is also vandal-proof. The existing water-receiving tank will be used exclusively as a fire-extinguishing reservoir.

Water-receiving tank (pumproom-connected type)
SUS, water volume: 300 m^3

6000 x 21000 x 3500 H x 1

Structure 6000 x 9000 x 3500 H Water volume: 150 m^3

Pump room 6000 x 3000 x 3500 H

Structure 6000 x 9000 x 3500 H Water volume: 150 m^3

(ii) The six elevated water tanks will be replaced. Replacement will be made for one of a pair at a time so that work does not interfere with the operation of the hospital. The design is the same as that of the water-receiving tank.

Elevated tank

3500 x 2500 x 2500 H x 2 units
SUS, water volume 20 m^3

4000 x 3000 x 2500 H x 2 units
SUS, water volume 25 m^3

3500 x 3000 x 2000 H x 2 units
SUS, water volume 16 m^3

P-3 Replacement of sanitary fixtures (ICU, CCU, and Emergency Operation Departments)

Water sterilizers will be installed for every washstand in the ICU, CCU and Emergency Rooms so that they can be used individually in case of failure, and along with improvements, medical equipment and supplies will be furnished.

P-12 Replacement of oxygen supply system and vacuum equipment

(i) The complete oxygen supply system with flexible splicing fittings will be replaced to allow smooth replacement of oxygen cylinders. Since the work will be done while the system is in operation, half of the existing system will be dismantled, and a new switching arrangement and

remaining pipework installed. Then the remaining work will be done after the switch over. After removing the existing dinitrogen monoxide system, the space will be available for future purposes.

(ii) Spare oxygen cylinders will be procured to ensure an adequate supply of oxygen and for use as a backup during the work.

(iii) Replacement of oxygen supply system and vacuum equipment

The existing unserviceable hot water supply tank will be removed and a new vacuum pump installed in its place. After completing the switch over, the existing vacuum pump will be removed.

P-10 Replacement of boilers

The two existing flue and smoke-tube boilers and auxiliary equipment in the boiler room will be replaced. The new boiler will be of the same type considering its ease of use (handling, capacity, and pressure, etc.). The auxiliary equipment will be improved to make it capable of performing water treatment in consideration of the service life of the boilers. The boilers will be replaced one by one in the places vacated by the existing pumps after lifting pumps are installed. This will prevent the work interfering with the operation of the hospital.

Stack and fire tube type boiler

Rated evaporation quantity	2400 kg/hr
Ordinary evaporation quantity	2000 kg/hr
Maximum pressure	7 kg/cm^2
Use pressure	4 kg/cm^2
Heat transmission area	24.9 m^2

P-11 Replacement of hot water tanks

The hot water supply system is established to cope with failures and periodic inspection. The hot water tank and hot water circulation system will be replaced by a central hot water supply system for the International Ward and Research Department.

Hot water storage tank

2500 ϕ x 6000 L
(effective water quantity 2.5 m^3) x 3 units

P-6 Repair of toilets in wards

Sanitary fixtures will be replaced together with repair of the toilets. Regarding embedded water closet, since the condition of toilets is made worse by damaged closets, blockage and leakage, materials which are not easily damaged and which are easily unblocked are to be selected. The design is one usually used locally. FRP is used instead of ceramic, a removable trap is included to make removing blockages easy. Other materials will be used in consideration of water proofing. The urinals will be improved designs, with removable trap.

P-13 Replacement of hardware for the oxygen supply and vacuum systems

The outlets in every department and room will be replaced.

P-14 Maintenance of laundry room and kitchen

All laundry equipment will be replaced because of the expiration of it service life. The selected machine is not a full automatic one but the same type as the present

one which is capable of washing, dewatering, and drying individually.

Washing machine
Treatment quantity 100 kg/time, 30 min/time, 2 units

Dewaterer
Treatment quantity 92 kg/time, 15 min/time, 2 units

Dryer
Treatment quantity 100 kg/time, 40 min/time, 3 units

p-15 Hoses and Nozzles of Hydrants

20 hoses and nozzles each for fire hydrants will be supplied.

(2) Electricity system

E-1 Replacement of DC source receiving equipment

The DC receiving equipment in the electrical room, which supplies power to the receiving and substation equipment, will be replaced to restore the function of the automatic voltage regulator equipment. Alkaline types, which are maintenance free, are selected.

Rectifier AC380 V ±10%/DC110V
Storage battery 60 AH, 82 cells

E-2 Replacement of automatic voltage regulator equipment

The automatic voltage regulator equipment installed in the electrical room, which supplies electric power to the medical equipment, will be replaced. The same design, which can be maintained in Viet Nam, will be employed.

Automatic voltage regulator
50 KVA 380 V ±10%

30 KVA 380 V ±10%

E-3 Repair of automatic operation unit No. 1 (2 sets)

The two circuit-breakers installed in the electrical room, which switch over in case of a power failure, will be replaced. The same design as the existing one will be employed, since it must connect with existing equipment.

ACB 3P 600 V 3,000 A x 2 units

(3) Air conditioning and ventilation equipment

AC-1 Replacement of air conditioner (ICU, CCU, Operation Theater, Central Sterilized Supply Department and Emergency Operation Room)

(i) Air conditioning unit

Three systems of Operation Theater, ICU, CCU and Emergency Operation Room, and Central Sterilized Supply Department where cleanliness is required will be improved. Operation Theater system will be improved to the type capable of back-up system.

Package type air conditioner

Cooling capacity	121,000 kcal/hr x 1 unit
Blower	21400 CMH x 11 kW
Compressor	37 kW
Cooling capacity	450 l/min
Static pressure outside air conditioner	50 mm/Aq

Package type air conditioner

Cooling capacity	100,000 kcal/hr x 3 units
Blower	24020 CMH x 15 kW

Compressor	30 kW
Cooling capacity	440 l/min
Static pressure outside air conditioner	75 mm/Aq

(ii) Filter

The type will be changed to the one which can be cleaned locally. The size compatible with other system is selected.

(iii) Cooling tower

The cooling tower and cooling water pump of the above-mentioned three systems will be replaced.

(iv) Outlet, inlet fixtures

The fixtures of the above-mentioned three systems will be cleaned. Broken or lost fittings will be newly installed.

(v) Ducts

Although duct work in the air conditioning room will be carried out, the existing ducts inside the ceiling of the room will be used. Dust inside the ducts will be cleaned by removing outlets, temporarily installing filters, and setting the cleaned outlets.

(vi) Piping

Piping required for the above three systems will be laid. The existing piping will be used for other parts than the above.

(vii) Instrumentation work

Instrumentation work required for the above three systems will be carried out.

(viii) Supply of window cooler

10 window cooler will be supplied for labs.

(4) Elevator

EV-1 Two elevators for use by patients and capable of transporting a bed will be replaced. The control panel will be improved, to make it easy to maintain locally, and the cage will be a solid one.

For beds	1000 kg x 2 units
Speed	60 m/min
Number of stops	11

(5) Architectural work

P-2 Replacement of elevated water tank and water-receiving tank

Foundations and other requirements for the outdoor water-receiving tank will be provided.

P-10 Replacement of boilers

The ceiling panels will be replaced because they are peeling due to deterioration. The arrangement of supporting hardware will be changed to suit the replacement of the boiler. Large openings, needed to move in the boiler and doors, will be installed.

P-6 Repair of toilets in wards

The ceiling, walls, floor, and waterproofing will be repaired. Removable louver ceilings will be fitted, making it easy to run pipes and discover leakage. They are not easily damaged by water leakage. A corrosion-proof wall material used and waterproofing work which does not necessitate heat will be done, considering the effects of smells on patients.

A-8 Maintenance of workshop

The building will be expanded, equipment for repair purpose will be maintained and parts will be procured in order to maintain the workshop where the building is deteriorated and the space for work and material stock is insufficient.

5-3-2 Improvement plan for medical eqeuipment

(1) Policy

In the improvement plan, in principle, any equipment which has already reached the end of its service life will not be repaired. The equipment to be improved was selected from the final request list with the following considerations as well as the local priority. Equipment which can be restored by furnishing spare parts, will have parts supplied under this plan. Furthermore, for equipment furnished after 1985, repairs will be considered by separate means and similar equipment is not supplied under this plan. The following are principle in selection of medical equipment.

(i) Equipment necessary for restoring the existing medical functions will be selected in general, and new equipment is not included except when necessary.

(ii) Equipment common to every department will take precedence.

(iii) Equipment in frequent use will take precedence.

(iv) Equipment will be selected in the order of emergency, diagnosis, and treatment purpose.

(v) Equipment with high maintenance costs will not be selected whenever possible.

(vi) Equipment which can be procured locally will not be selected.

(vii) Maintenance equipment used in the hospital will be reviewed.

(2) Details of equipment required

The equipment which will be furnished as part of this project is as follows:

The abbreviations for location of installation are as follows: C: Common to every department, O: Operating Theater, P: Physiological Test Room, L: Laboratory-tests Room, Pha: Pharmacy Department, R: Radiology Department, E: Emergency Operation Room, H: Hematology Department, G: Gastroenterology Department, N: Neurology Department, Ophtha: Ophthalmology Department, GS: General Supplies-Purchasing Department, Ortho: Orthopedics Department, B: Brain Surgery Department, ICU: ICU Operation Room, CCU: CCU Operation Room, D: Dissecting Room.

Priority No.	Procured equipment name	Qty.	Place to be installed
1	Defibrillator	5	O/ICU/CCU/E
2	Manual Resuscitator	20	C
3	Endotracheal Set	5	C
4	Suction Unit	25	C
5	Critical Care Ventilator	7	ICU/CCU/B/N
6	Bedside Monitor	6	O/ICU/CCU/E/G
7	Spare Lamp for Operating Light	300	O
8	Electro Cardiograph (1-channel)	10	C
9	X-ray Portable Unit	2	R (E/ICU)
10	Image Intensifier Television in Operating Theatre	1	R (O)
11	Boiling Instruement	1	L
12	Spectrophotometer	5	L
13	Duodeno Fiberscope	2	P
14	Colono Fiberscope	2	P
15	Abdominal Echo Apparatus	1	P
16	Analyzer (Glucose)	1	
17	Sterilizer sclab system	1	O
18	Anesthesia Apparatus	2	O

19	Critical Care Ventilator	2	O
20	Gastrointestinal Radiograph	1	R
21	Small Autoclave	3	O/E/L
22	Electro Surgical Unit	3	O
23	Large Ultrasonic Cleaner	1	GS
24	Microtome Knife Sharpener	1	L
25	Incubator	1	L
26	X-ray Processor	1	R
27	Refrigerant Centrifuge	1	L
28	Dermatome	1	O
29	Wintrobe Hematocrit Set	2	H
30	Refrigerator Blood Bank	1	L
31	Integrated Radiographic	1	R
32	Loupe	3	Ophta
33	Mortuary Refrigerator for 2 Bodies	2	D
34	Small Ultrasonic Cleaner	1	L
35	Instrument Sterilizer	15	C
36	Surgical Glove Conditioner	1	GS
37	Cast Cutting Instrument	2	Ortho
38	Electro Cardiograph (3-channel)	2	P/G
39	Rotary Shaker	1	L
40	Magnetic Stirrer with Hot Plate	1	L
41	Analytical Balance	1	L
42	Paraffin Oven	1	L
43	Proctoscopic Fiberscope	2	P
44	Operating Microscope	1	O (C)
45	Skull Operation Set	2	O (B)
46	Binocular Microscope	2	L
47	Water Bath	2	L
48	Labsystems Finnpipette	20	L
49	Glass Seropipette	50	L
50	Instruments to Repair Set	1	Repair shop
51	CT Scanner	1	R
52	Operating Instrument Set	1	O

In principle, the quantity is to be one (item, unit, or set) per department, to be installed regardless of the actual request.

The basis for planning plural number of equipment are as follows:

1	Defibrillator	5	O/ICU/CCU/E

2 sets to Operation Theater and one set to other rooms are planned.

2	Manual Resuscitator	20	C

One set to every ward, Emergency Operation Room and Radiology Department, etc, is planned.

3	Endotracheal Set	5	C

One set to every ward, Emergency Operation Room and Radiology Department, etc. is planned.

4	Suction Unit	25	C

One set to every ward, Emergency, Operating Theater and ICU, etc. is planned.

5	Critical Care Ventilator	7	ICU/CCU/B/N

Five sets to ICU/CCU, and one set to Brain Surgery Department and Neurology Department are planned.

6	Bedside Monitor	6	O/ICU/CCU/E/G

Four sets to Operation Theater and one set to ICU/CCU, Emergency Operation Room and Gastroenterology Department are planned.

8	Electro Cardiograph (1-channel)	10	C

One set to every ward is planned.

12	Spectrophotometer	5	L

It is extremely basic equipment and frequently used in Laboratory-tests Room. The existing 15 pieces of the equipment do not function well and are not accurate. Therefore, one third shall be replaced this time.

13	Duodeno Fiberscope	2	P

Since it is used very frequently but cannot be used continuously, two sets are required.

14	Colono Fiberscope	2	P

Since it is used very frequently but cannot be used continuously, two sets are required.

18	Anesthesia Apparatus	2	O

Since there are twelve operation theaters, the same numbers of the equipment are required. But by utilizing the existing incomplete equipment supplementally, the number of six sets, a half of it, is selected.

19	Critical Care Ventilator	2	O

It is a pair of the above anesthesia apparatus. The number is the same as above.

22	Electro Surgical Unit	3	O

Three sets to 12 Operating Theaters.

32 Loupe 3 Ophtha

It is extremely basic equipment in an ophthalmology department. Although the same number of equipment as the doctors are generally required, three sets are planned by common use.

33 Mortuary Refrigerator for 2 bodies 2 D

Although there are two existing sets, they are out of order. The same number of the set have to be replaced.

35 Instrument Sterilizer 15 C

One set to every ward, Emergency Operation Room and Radiology Department, etc. is planned.

37 Cast Cutting Instrument 2 Ortho

It is used frequently to cut gipus for broken bone because there are many patients by traffic accidents in the hospital. Two sets as minimum should be required.

43 Proctoscopic Fiberscope 2 P

Since it is used very frequently, it is used sometimes in parallel. Accordingly, two sets are required as requested.

45 Skull Operation Set 2 O (B)

There are many operations in brain surgery in the hospital which is the only one Brain Surgery Department in Ho Chi Minh City. It is indispensable to brain surgery operation. Since it cannot be reused due to necessity of sterilization, two sets at minimum are required.

46 Binocular Microscope 2 L

The number of two sets is decided for the replacement of the existing unusable equipment.

47 Water Bath 2 L

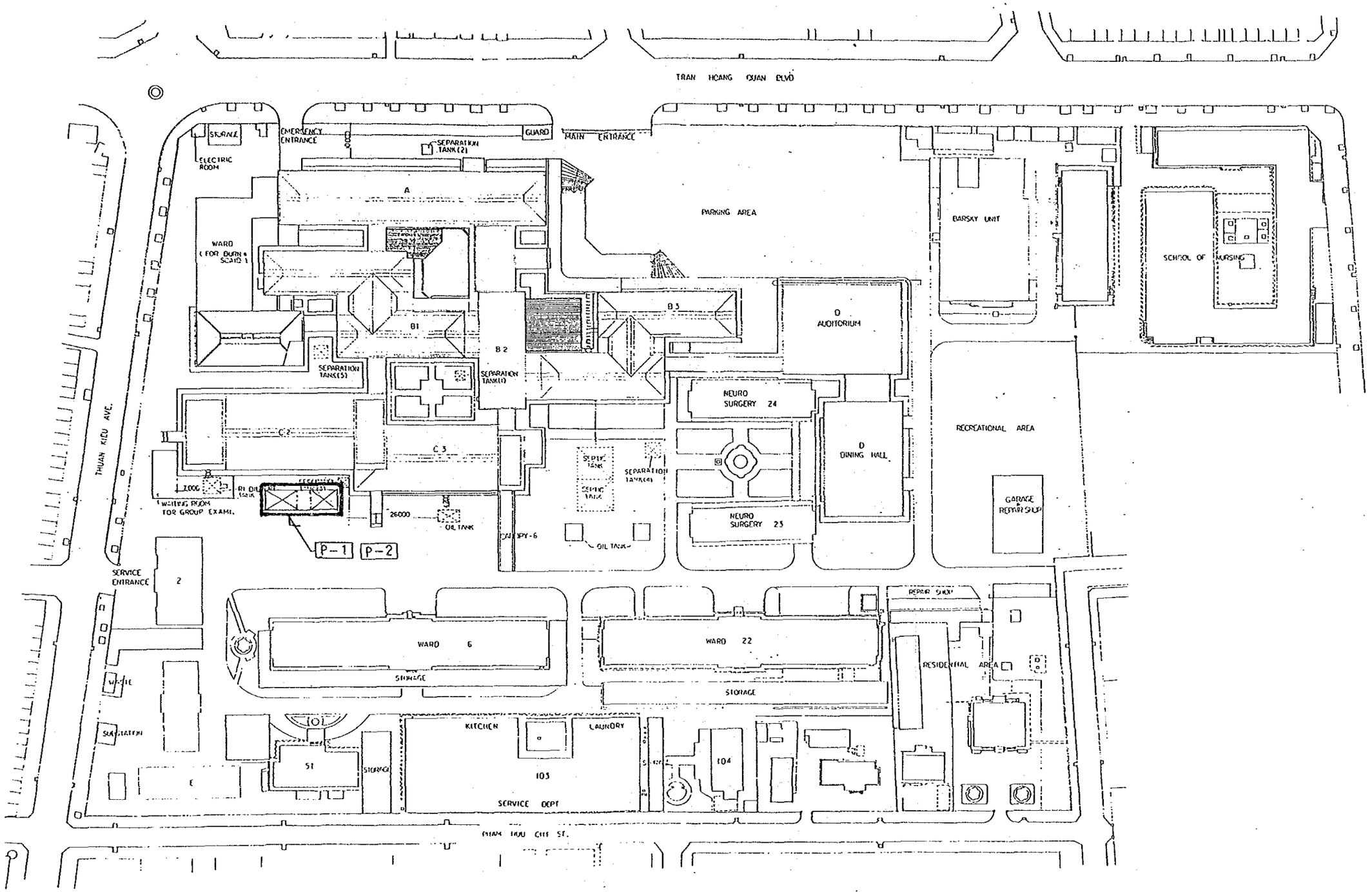
The number of two sets is decided for the replacement of the existing unusable equipment.

48 Labsystems Finnpipette 20 L

It is indispensable in Laboratory-tests Room. Although the same number of equipment as the doctors are generally required, twenty sets are planned by commonly use.

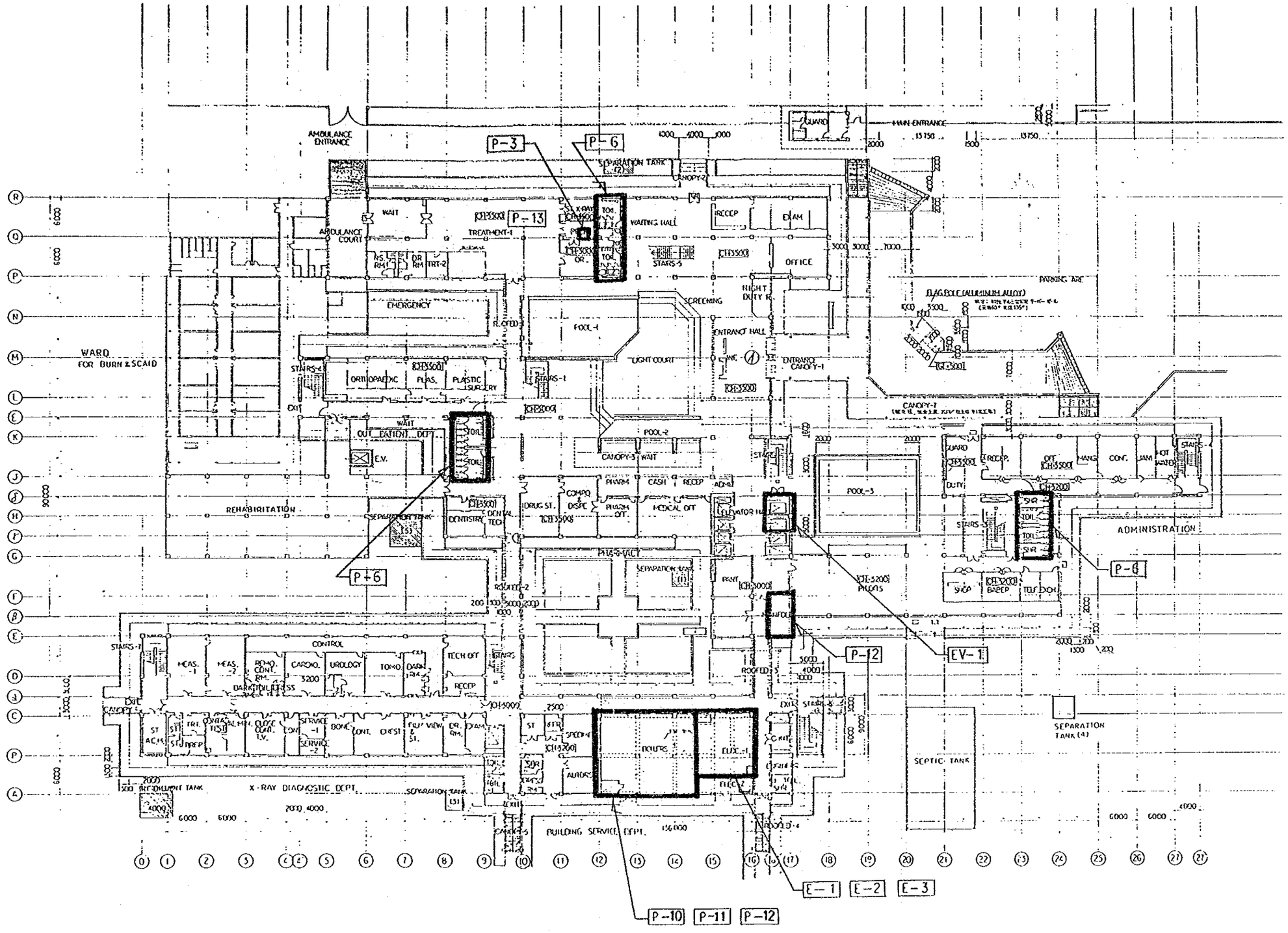
49 Glass Seropipette 50 L

It is glass pipette for sampling serum. Since it is easy to be broken due to glass, the same number of 50 sets as requested including spare is planned.



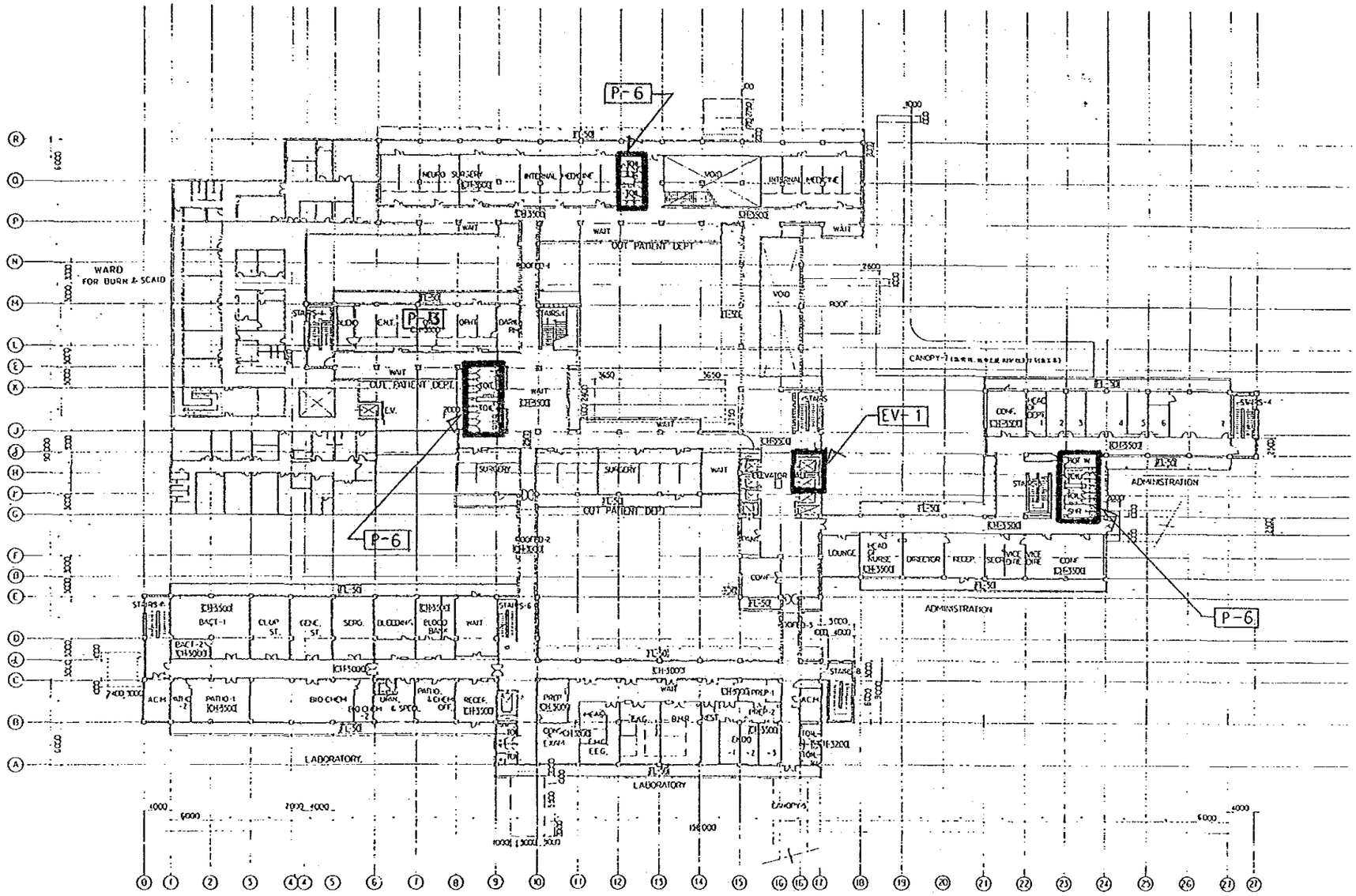
REHABILITATION OF CHO-RAY HOSPITAL

BLOCK PLAN SCALE 1 : 1000



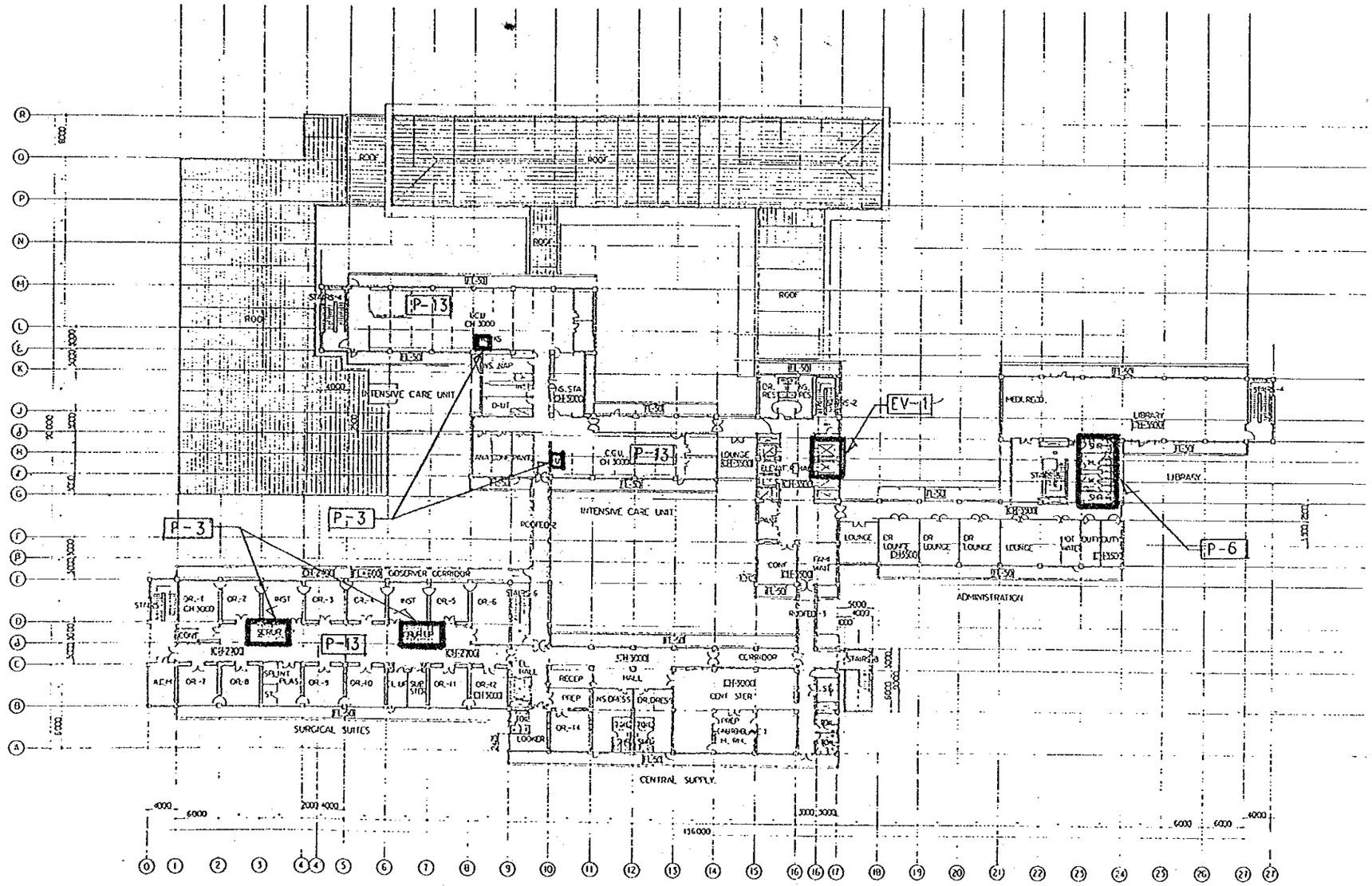
REHABILITATION OF CHO-RAY HOSPITAL

GROUND FLOOR PLAN SCALE 1 : 600



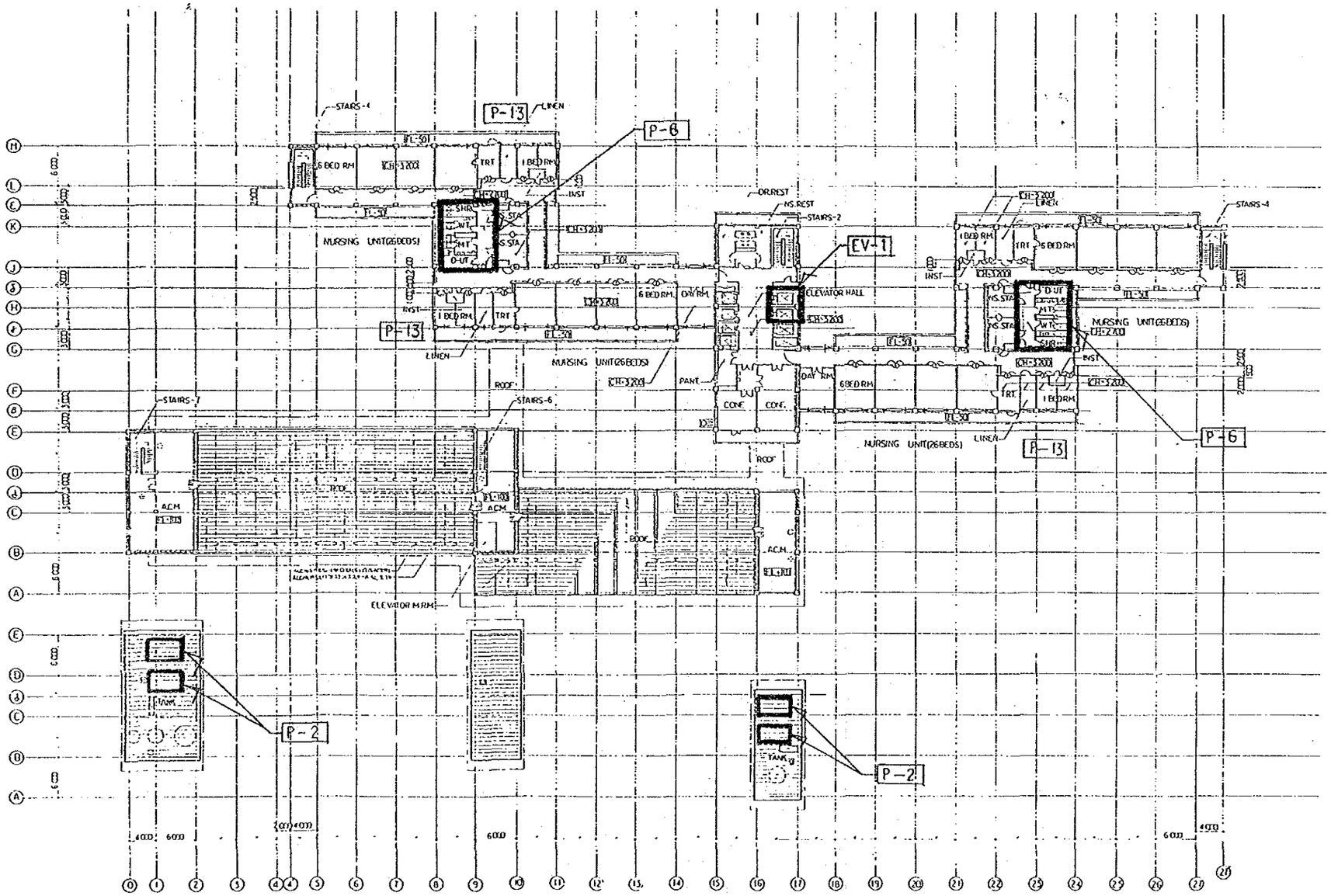
REHABILITATION OF CHO-RAY HOSPITAL

1ST FLOOR PLAN SCALE 1 : 600



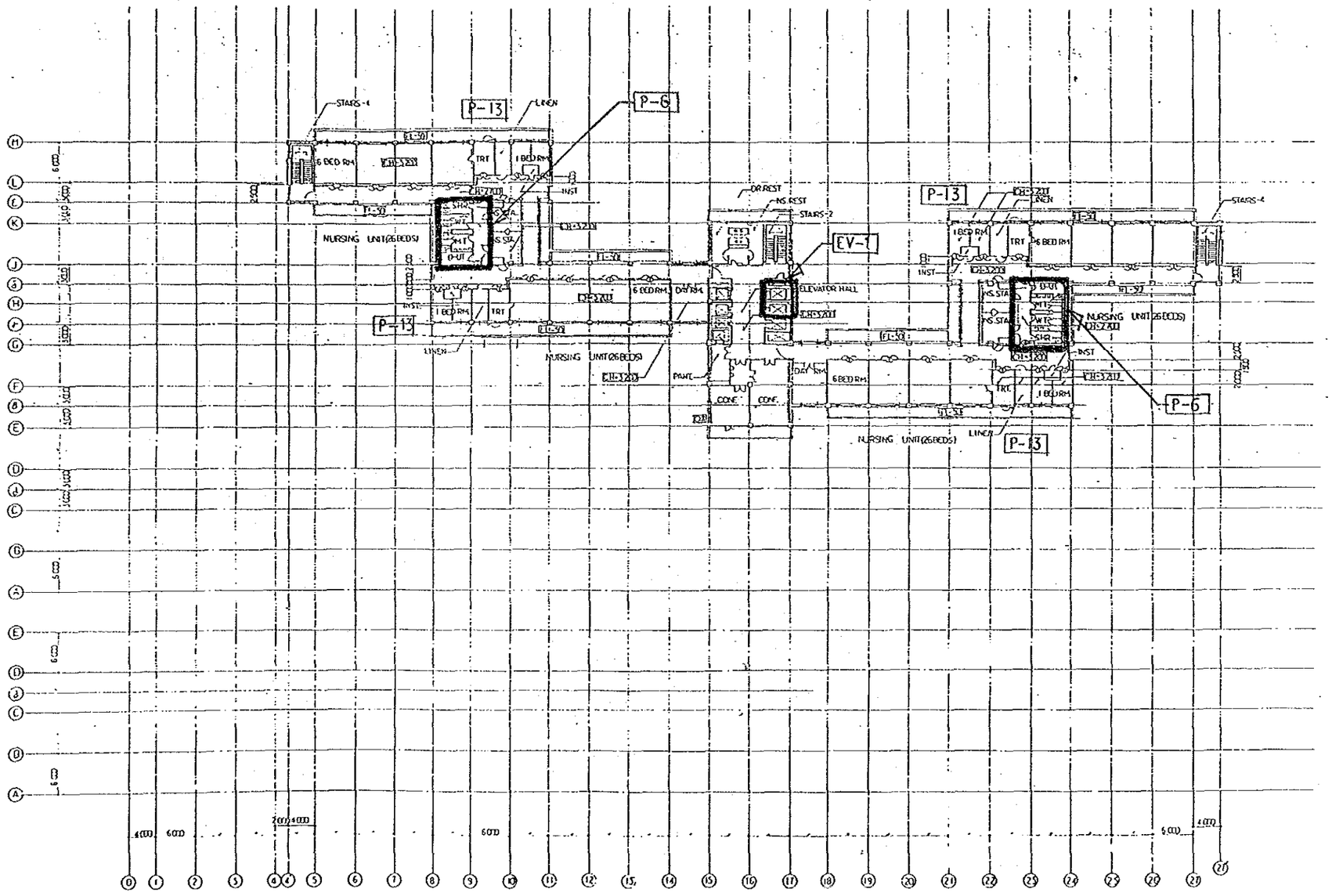
REHABILITATION OF CHO-RAY HOSPITAL

2ND FLOOR PLAN SCALE 1 : 600



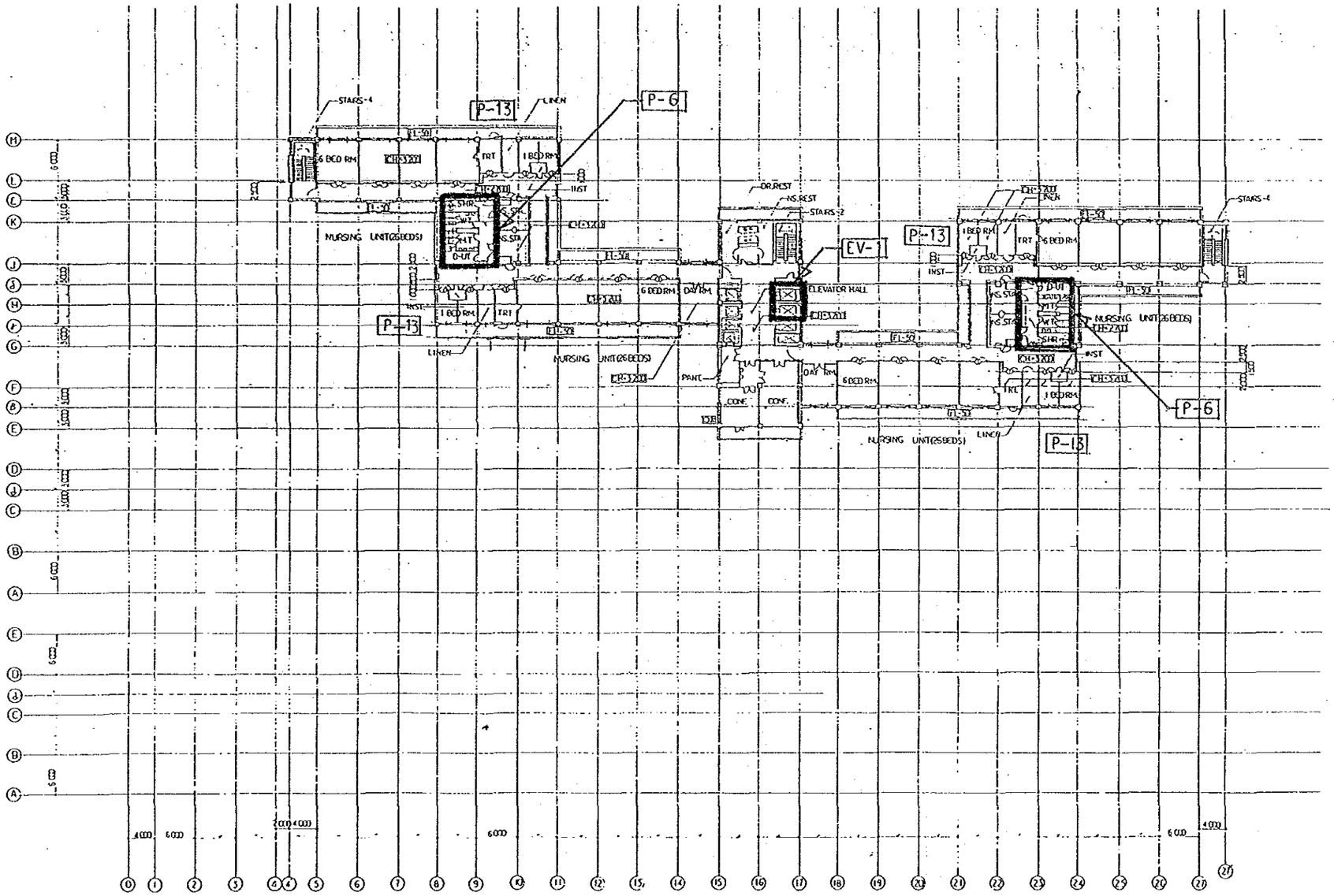
REHABILITATION OF CHO-RAY HOSPITAL

3RD FLOOR PLAN SCALE 1 : 600



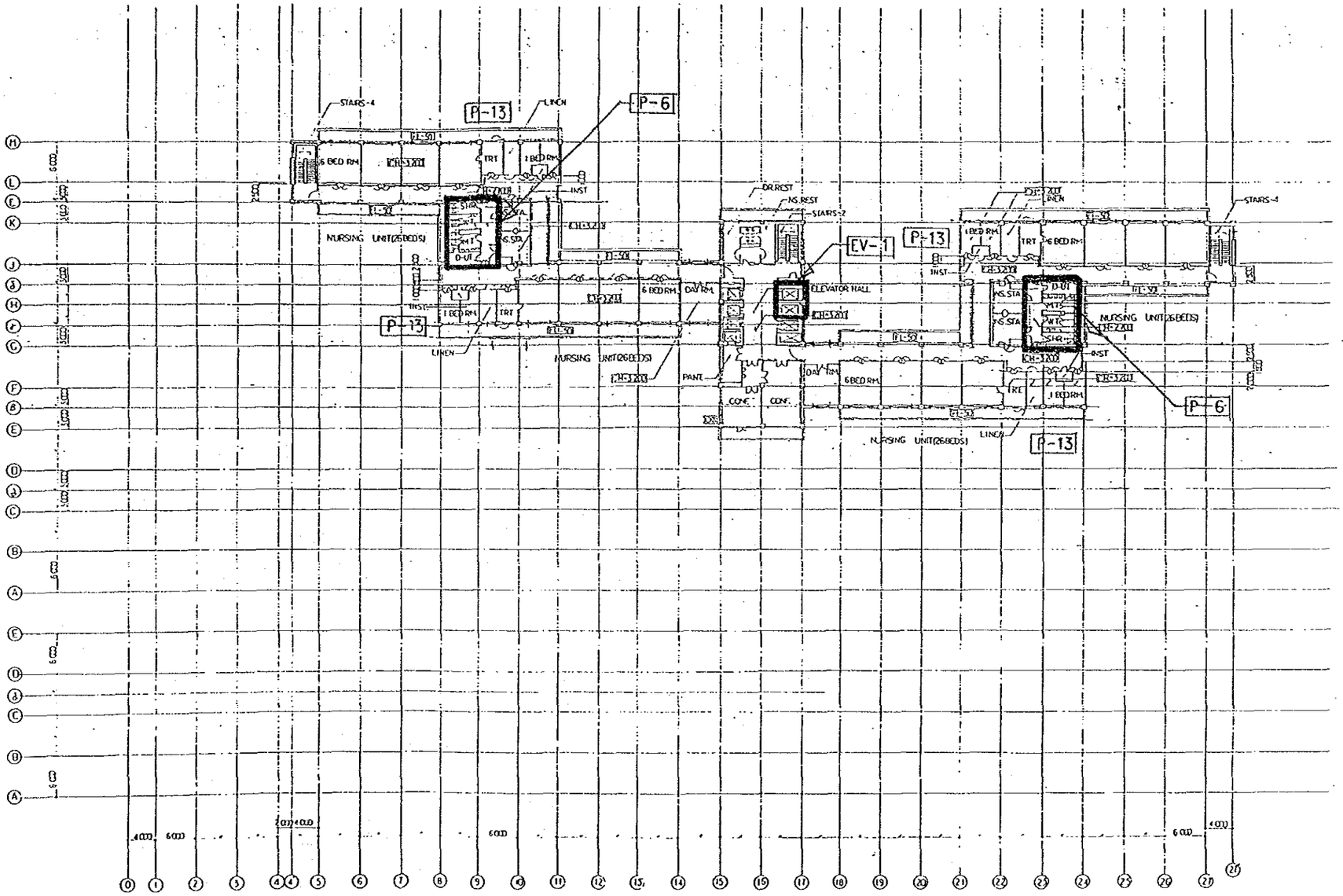
REHABILITATION OF CHO-RAY HOSPITAL

4TH FLOOR PLAN SCALE 1 : 600



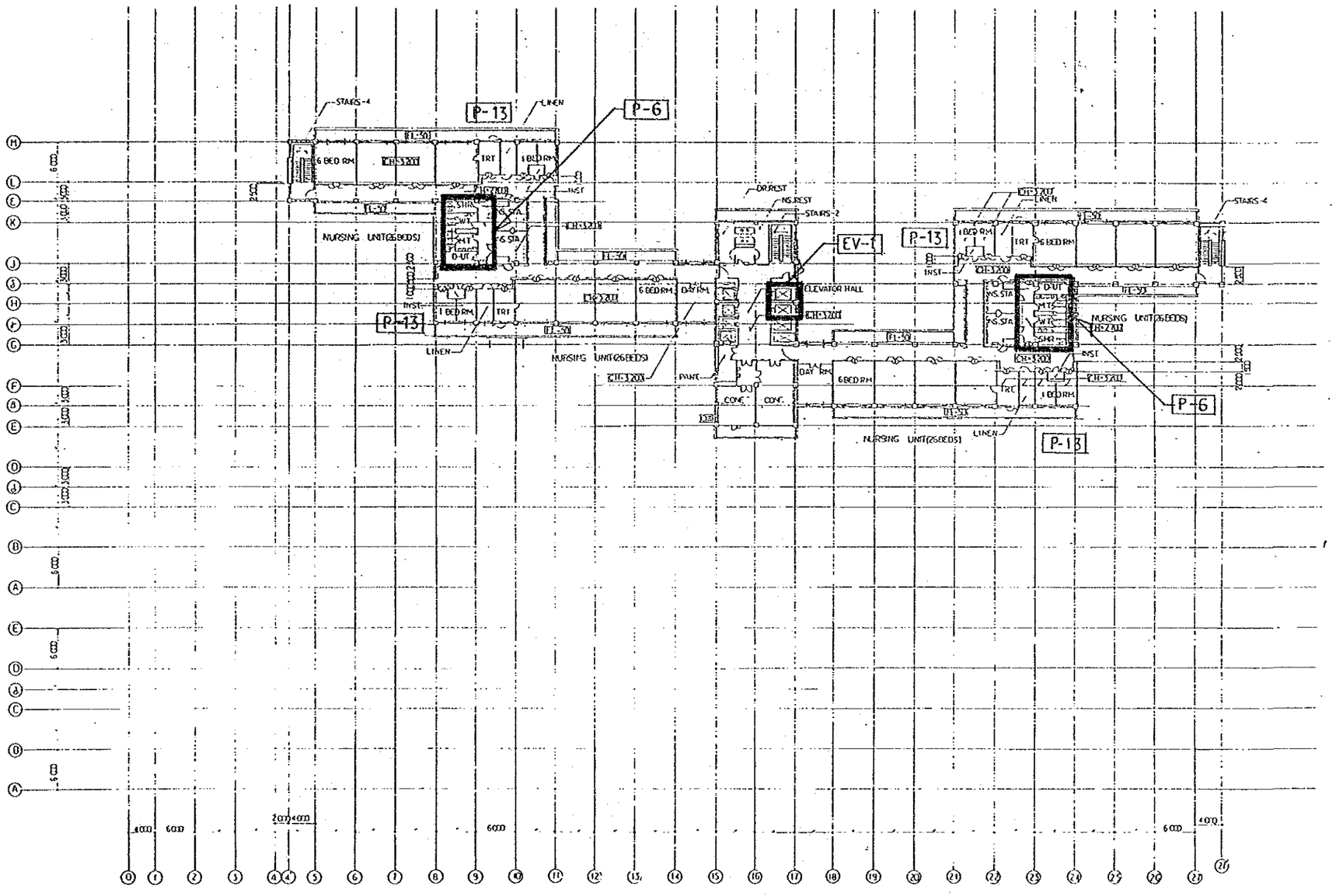
REHABILITATION OF CHO-RAY HOSPITAL

5TH FLOOR PLAN SCALE 1:600



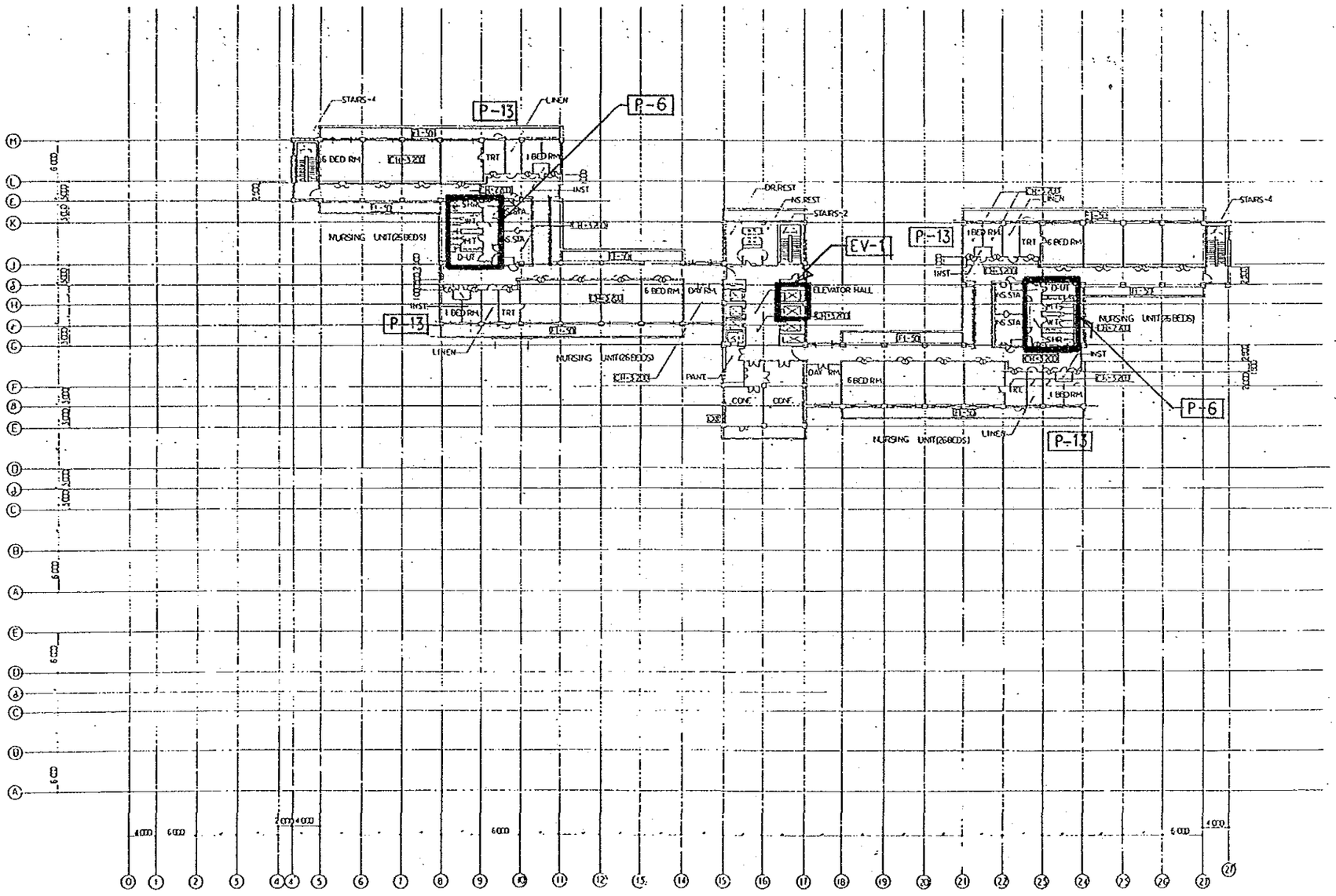
REHABILITATION OF CHO-RAY HOSPITAL

6TH FLOOR PLAN SCALE 1 : 600



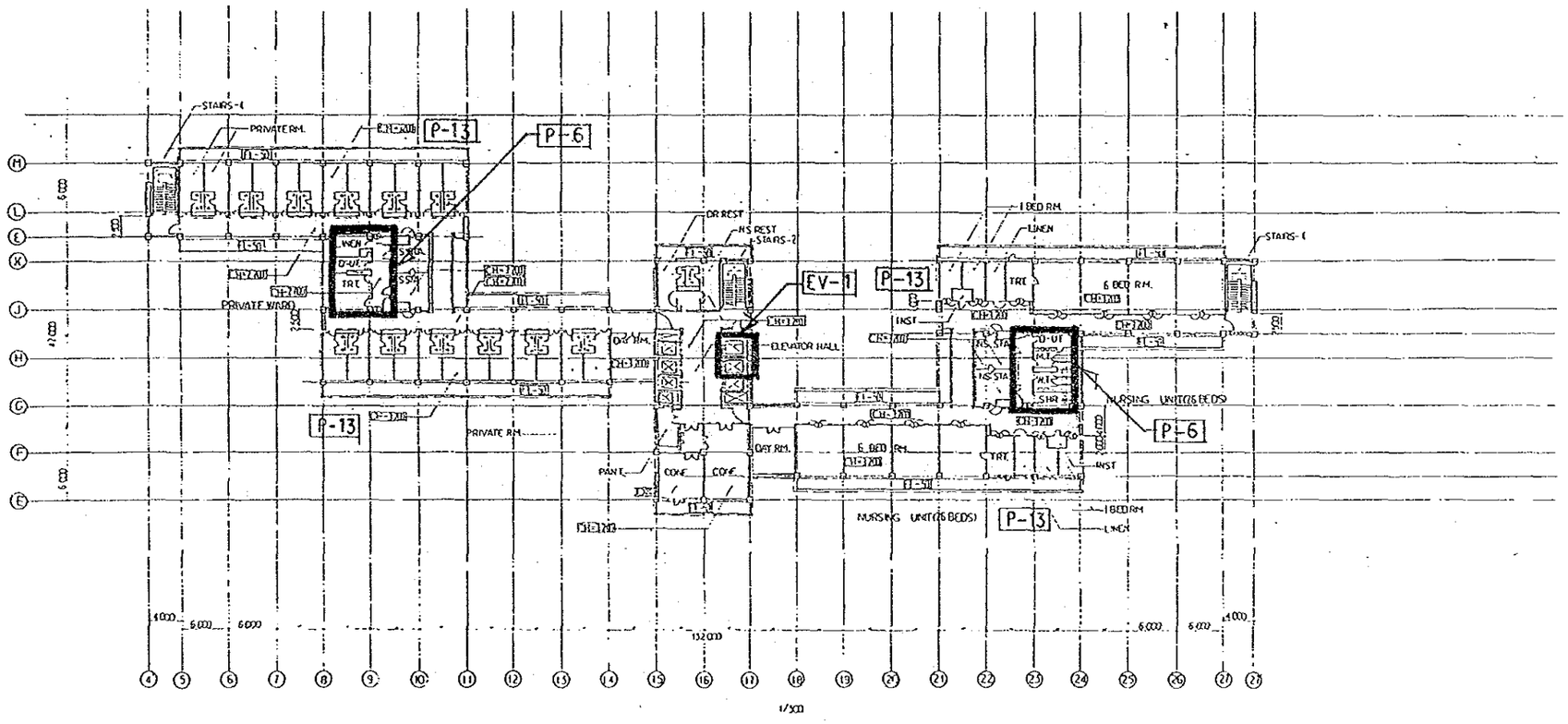
REHABILITATION OF CHO-RAY HOSPITAL

7TH FLOOR PLAN SCALE 1:600



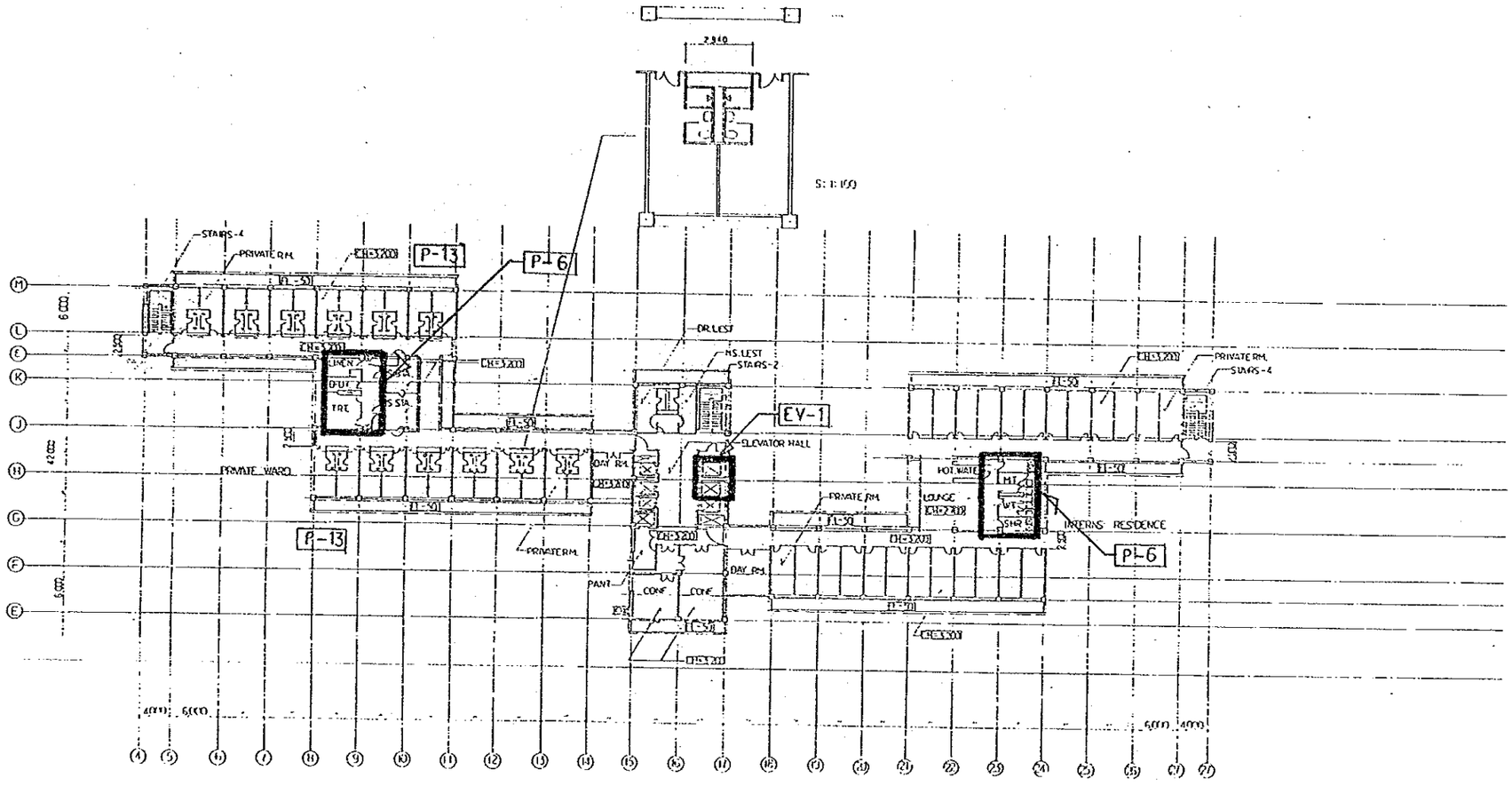
REHABILITATION OF CHO-RAY HOSPITAL

8TH FLOOR PLAN SCALE 1 : 600



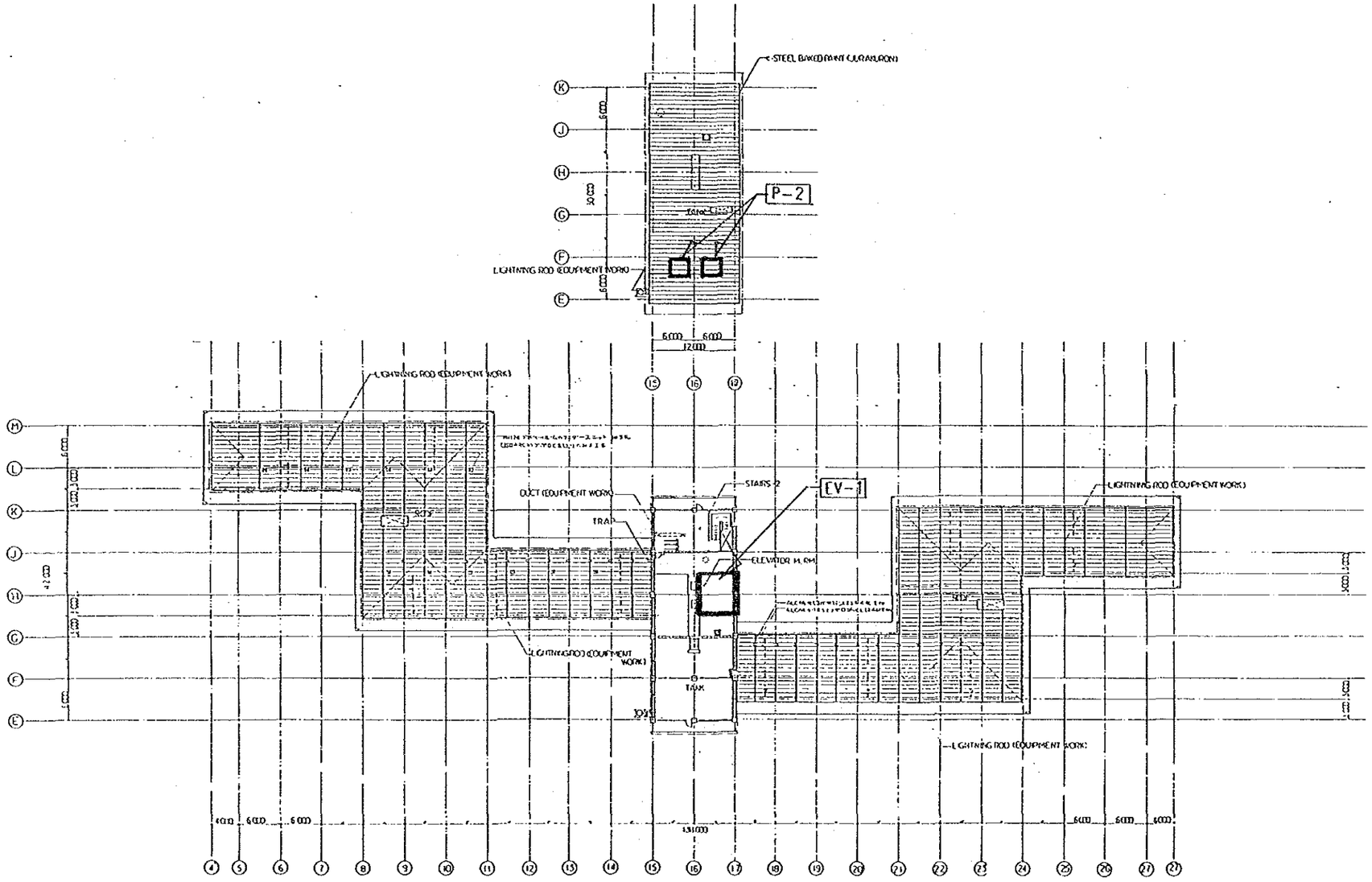
REHABILITATION OF CHO-RAY HOSPITAL

9TH FLOOR PLAN SCALE 1 : 600



REHABILITATION OF CHO-RAY HOSPITAL

10TH FLOOR PLAN SCALE 1:600



REHABILITATION OF CHO-RAY HOSPITAL

ROOF FLOOR PLAN SCALE 1 : 600

5-4 Implementation Plan

5-4-1 Implementation policy

The hospital is located in Ho Chi Minh City where communications and transportation are relatively good and conditions are considered favorable for construction.

The site is about 53,000 m^2 in area and has space for temporary facilities such as a site office, etc. On the other hand, since the improvement work is to a hospital that is in use, the construction details of this Project are complicated due to the relationships between each renovation task and the hospital activities in progress. In establishing the implementation plan, it is necessary to define the scope of the work for each different type of task, such as architectural, plumbing, air conditioning, electrical work, medical equipment and supplies, and to adjust and agree on the adjustment between task while confirming the work schedule with the hospital side.

The construction plan should be drawn up in full consideration of the fact that it will take place while the hospital is operating with many patients under medical treatment. The plan should be prepared taking the following matters into account.

(1) The construction should not interfere with the functions of the hospital; i.e., construction should first take place at a temporary location and dismantling of unused facilities should take place after the new facility is completed and in use. For facilities consisting of two units, work should progress one at a time.

(2) Adopt a construction method, which results in less noise, dust and odor and which makes minimal use of heat so as not to disturb patients and treatment activities.

(3) A clear construction zoning by means of fences, etc., and well-defined routes for bringing in construction materials and equipment so as not to cause harm to third parties.

(4) An accident prevention plan for the construction period to clarify means of escape for patients, etc. in an emergency. An organization should be established to throughly supervise accident prevention measures.

All major consultants and contractors belong to the Ministry of Construction and the field of specialty -- civil engineering, office building, etc. -- differs by enterprise. It is necessary to obtain advice from the Construction Bureau of Ho Chi Minh City in the selection of local contractors.

Although the implementation is supervised by the Japanese general contractor, the actual work will be carried out by local construction workers. For special tasks, such as elevators, control rooms, the ICU room, etc., it is necessary to dispatch experts from Japan to give technical guidance.

5-4-2 Construction situation and matters needing attention

Matters that require attention in Viet Nam include the following:

(1) The design drawings have to be explained to the Construction Bureau and fire department of Ho Chi Minh City before the commencement of construction. This is at the request of the Construction Bureau and Fire Department during the study.

(2) The design drawings are based on the Building Standards Law of Japan.

(3) The building materials procured locally will be checked for quality on site.

(4) Working hours will be fixed to match local customs, and workers will take a rest for 2-3 hours at lunchtime.

(5) Depending on details of the improvement work, it may be necessary to cut off electricity or water and to close off certain rooms. It is necessary to explain the schedule and details of the construction work to the hospital side and to obtain their approval in order to ensure smooth progress of the construction work.

5-4-3 Implementation plan

As this Project constitutes a remodeling work of the hospital, which is in operation at present, particularly the hospital is of a large-scale one having the total site area of about 37,000 m^2 and the main building is of 11-storey construction, the construction plan should be drawn up in consideration of such special circumstances.

(1) Temporary work plan

The temporary scaffold becomes important for this Project from viewpoint of safety measures as the main building is a high-rise building of 11-storey. Because of the scarcity of high-rise buildings in Viet Nam, only wooden scaffolds are available, requiring the procurement of prefabricated scaffolding and tube and coupler scaffolding for safety purposes. Also, to prevent falls, safety nets and protection sheets, etc. will be used.

To prevent accidents from occurring involving a third party when working on toilets, the Machine Room, etc., in the building, temporary works will be divided using a protection sheet, etc., for safety purposes.

It will also be necessary to have a Japanese engineer who can direct the work at the time of construction of scaffolding.

(2) Lifting plan

Although lifting machines are available in Viet Nam, the possibility is high that they will not be available when needed because of the problems of the number of machines on hand and the condition of maintenance causing the local procurement difficult. Therefore, a truck crane and long lift needed when lifting equipment and materials to each floor for repair work on toilets, etc., must be procured in Japan. Also, to prevent accidents from occurring involving a third party, a temporary enclosure will be installed so as to prevent the third party from approaching the heavy machine.

(3) Construction plan

(i) The construction plan for water supply work should be established by each system so that at least one supply location is available at each floor. The construction plan for drainage work should be similarly established to minimize obstacles for hospital management.

(ii) Where noise and dust would be generated from the works, such as chipping of concrete structure and block work, consideration should be paid to inpatients, medical staff, etc., by covering the work location using a protection sheet, etc.

(iii) If electricity supply has to be interrupted for replacement work of direct current supply source, automatic voltage adjustment device, etc., and water supply to water supply system, drainage system, etc., has to be suspended, the plan should cover such contingency to be rectified in the minimum possible time, and the work

schedule should be prepared after discussing the construction plan with the hospital and obtain its approval.

5-4-4 Work supervision plan

It is important in the supervision of this Project that the locally procured materials be ordered to match the construction schedule, that quality and accuracy of materials are secured, and that a transportation plan for equipment and materials brought in from overseas (including Japan) be properly established. These are extremely important elements when considering the supervision of quality and performance and schedule control. To guarantee smooth progress without the need for reworking, while using local skills and methods for structural work, it is considered essential to dispatch a resident supervisor, so as to maintain close contact between the management structure on site and the backup structure in Japan.

In addition, since the subcontractors used for construction work and for medical equipment work are different, it is important to clarify the scope of work. The system of adjustment and direction of the construction schedule will also be important in the supervision of construction work.

(1) Supervisory work to be performed in Japan

(i) Supervision of reports, such as comprehensive reports on schedule control and schedule reports, etc.

(ii) Approval of construction plans, site engineers, materials to be used, equipment, and manufacturers and subcontractors.

(iii) Inspection in Viet Nam of equipment, supplies, and materials.

(iv) Business reports to the authorities concerned in the Government of Japan.

(2) Supervisory services to be performed by Resident Supervisor

(i) To attend and supervise the various tests and give technical guidance

(ii) To inspect locally manufactured materials, equipment, and supplies

(iii) To solve problems and give site instructions on the construction work

(iv) To check and approve the execution drawings

(v) To carry out work related to reports to the Owner and matters of approval by the Owner

(vi) To attend the various tests

(vii) To inspect each stage of construction

(viii) To attend to business relating to reports to the Owner on daily activities and cooperate with the Owner on approval procedures by the Owner

(ix) To prepare daily reports on the schedule

(x) To supervise work progress reports at site schedule meetings

(xi) To supervise documentation on instructions on site, various meetings, arrangements, tests, inspections, etc.

5-4-5 Procurement plan for equipment and supplies

(1) Construction materials

The construction materials adopted shall in principle be those which can be obtained locally, but where high-quality fittings, mechanical and electrical equipment, are required or where there is a problem in supplying the quality required, products made in Japan may be used.

Procurement of materials from a third country (Thailand) should also be considered, to ensure that quality and connection to existing equipment do not become problems.

In cases where Japanese products are selected for equipment which requires consumables, spare parts, etc., models for which such items can be obtained locally shall be adopted in principle. However, if such consumables and spare parts cannot be procured, selection of those consumables and spare parts in this Project shall be examined. In the selection of equipment, designs which can be repaired locally to some degree should be chosen.

Table 11 Places of procurement for construction material and equipment

(1/2)

Type of work	Material/equipment	Local	Japanese	Third country (Thailand)	Remarks
Concrete	Portland cement	o			
	Coarse sand	o			
	Fine sand	o			
	Gravel	o			
	Crushed sand	o			
Reinforcing bars		o			
Bonding	Bricks materials	o			
	Void bricks	o			
	Concrete blocks	o			
Water-proofing	Asphalt water-proofing		o	o	Durability required
	Caulking material		o	o	" "
	Polyethylene sheet		o	o	" "
	Mortar waterproofing	o			
Tile	Semi-porcelain tile		o	o	
	Mosaic tiles		o	o	
	Terrazo blocks	o			
Wood	Timber	o			
Plaster work	Mortar	o			
	Plaster	o			
Fittings	Doors	o	o		High quality Japanese product
Hardware	Tee hinges		o		Durability required

Type of work	Material/equipment	Local	Japanese	Third country (Thailand)	Remarks
	Cylinder locks		o		Durability required
Glass	Polished glass	o			
Coating	Oil-based paint		o	o	Difficult to obtain in quality locally
	Emulsion paint		o	o	"
	Vinyl chloride paint		o	o	"
	Acrylic paint		o	o	"
Electrical work	Electric wires, cables		o	o	Reliability required
	Conduiting		o	o	No metallic tube available
	Equipment		o		Reliability required
	Wiring tools		o	o	" "
Sanitary	Piping		o	o	" "
	Fixtures		o		" "
	Joints		o	o	" "
Air conditioning	Equipment		o		" "

(2) Medical equipment and supplies

Generally, Japanese equipment will be adopted as much of the equipment is of great precision. Manual training will be given after installation.

5-4-6 Implementation schedule

(1) Work division

With this Project being implemented under Japanese Grant Aid Assistance, the division of work between the Japanese side and the Vietnamese side and its scope is summarized below.

Summary of work by the Japanese side	Summary of work by the Vietnamese side
1. Building work Architectural finishing, various fixtures 2. Electrical and mechanical work Supply and substation equipment, trunk line equipment, lighting and socket work 3. Plumbing and sanitary work Water supply equipment, hot water supply equipment, supply equipment, drainage system, sanitary equipment and fixtures, septic tank 4. Air conditioning equipment work Air conditioning and ventilation system 5. Medical equipment work Medical equipment and supplies	1. Furnishing, fixtures curtains, blinds, general furniture

In addition to the above work division, certain tasks has to be carried out by the Vietnamese side in parallel with or prior to construction work by the Japanese side. These have been agreed

on by the Vietnamese side, and it is important to the Project that they are implemented well and implemented in timely fashion.

(i) To pay the following commissions to the Foreign Exchange bank of Japan as per the agreement between banks:

1) Commission for issuance of Authorization to Pay (A/P)
2) Commission for payment

(ii) To guarantee exemption from cargo unloading charges, bonded warehouse charges, customs duties, etc., at the port of entry into Viet Nam for imported materials and equipment.

(iii) To guarantee exemption from Vietnamese customs duties and taxes of all sorts for all Japanese nationals engaged in the provision of materials, equipment, and services under the Verified Contract.

(iv) To carry out the necessary procedures for entry into and stay in Viet Nam of Japanese nationals engaged in the provision of materials, equipment, and services under the Verified Contract.

(v) To properly use, effectively operate, and maintain and manage the facilities constructed and the equipment and supplies provided under the Japanese Grant Aid Assistance.

(vi) To provide a counterparts to Japanese personnel in sufficient numbers and who are competent from viewpoint of both technical and administrative abilities.

(vii) To provide space for a site office, workshop, warehouse, material storage yard, etc., necessary for construction

work. To provide temporary power, water, and telephone services, etc., necessary for the construction work.

(viii) With regard to the matter of electricity and water supply stoppages, etc., which affect the operation of the hospital, to make arrangements and select the day and time, etc.

(2) Construction schedule plan

Because of the nature of this project - improvement work for a hospital under operation - the following construction term will be required.

	Construction document	Execution and procurement
Phase I	3 months	12 months
Phase II	3 months	12 months
Phase III	3 months	12 months
Total		36 months

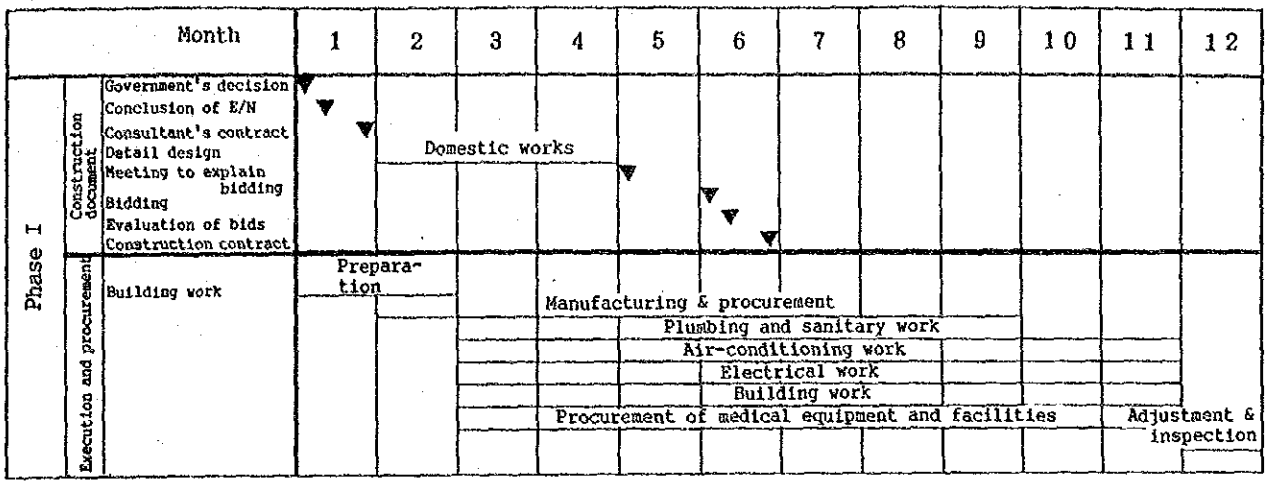
5-4-7 Estimated cost of the Project

Costs to be borne by the Government of Viet Nam

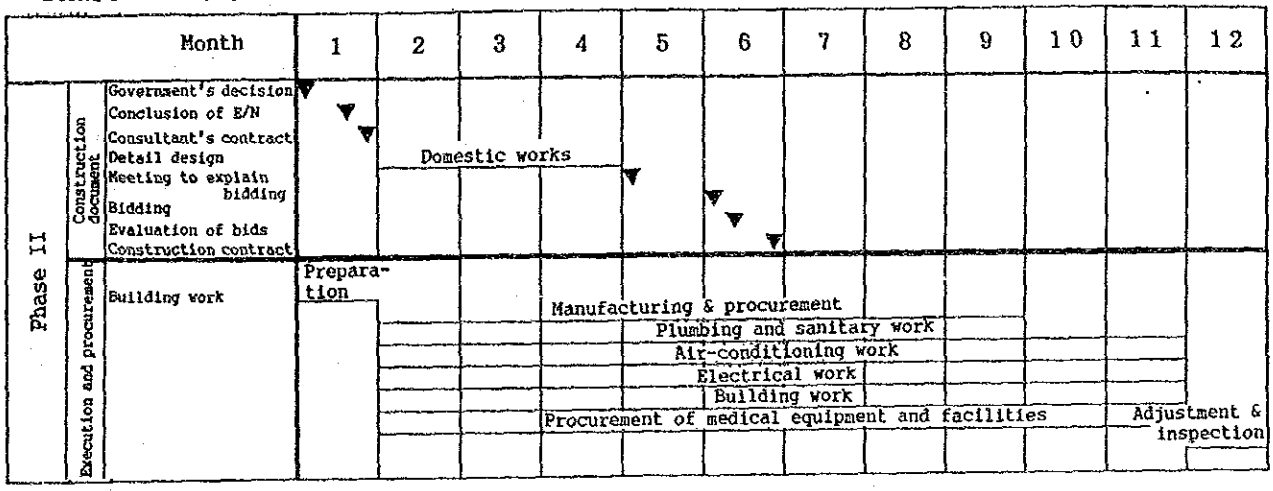
Although the costs to be borne by the Government of Viet Nam in the implementation of this Project do not have a direct bearing on construction work, annual maintenance cost after completion of this Project is estimated to be 80 million Dong.

Table 12 Schedule

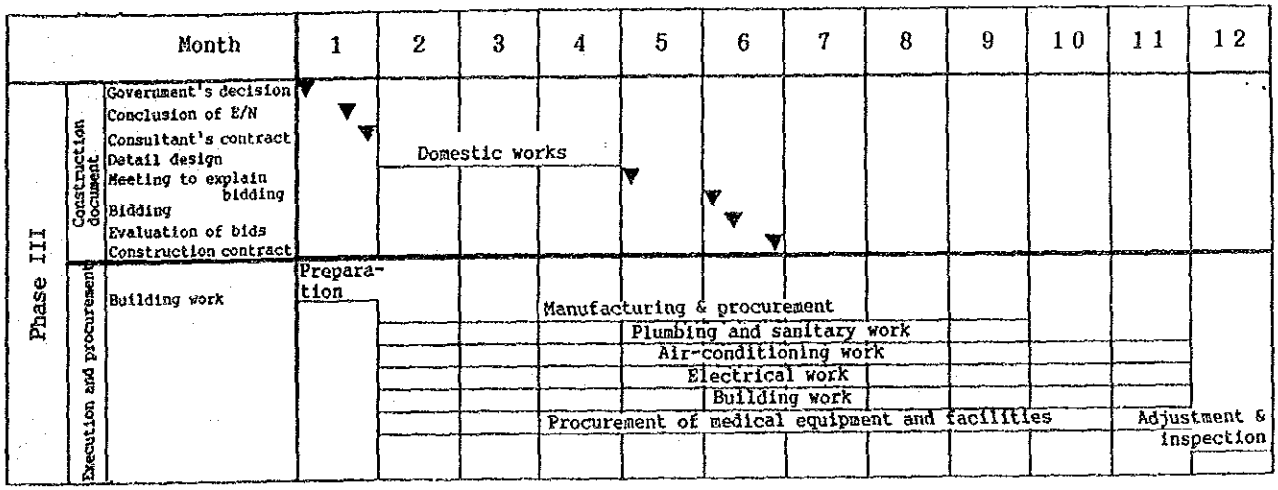
Phase I Work



Phase II Work



Phase III Work



CHAPTAR 6

EFFECT OF PROJECT AND CONCLUSIONS

CHAPTER 6 EFFECTS OF PROJECT AND CONCLUSIONS

6-1 Effects of the Project

(1) Effects in medical service

The following effects will be assured by implementation of this Project:

(i) Establishment as a top referral hospital

The Cho Ray Hospital, with about 110,000 outpatients and about 220,000 inpatients annually and serving 17 provinces in the south of Viet Nam, plays an important role as the top referral hospital in the pyramid-shaped health and medical care system of Viet Nam. The deterioration of the functions of the hospital (water supply and waste water treatment system, electricity system, air-conditioning system and elevator) will cause deterioration of this wide referral system.

From this point of view, the facility improvements and medical equipment supplies needed to maintain of the hospital are to be made under this Project with the aim of maintain and developing the referral system of which the hospital forms the apex.

In addition, improvements in medical technology and staff expertise lower down the pyramid through educational and training functions is expected. The improvement of facilities will firm up the referral system.

As a result, improvements and development of the wide referral system operating in the south of Viet Nam are expected through this Project.

(ii) Improvement in quality of medical service

The Cho Ray Hospital is a general hospital with about 1,000 beds. It provides medical care to the people of 17 provinces in the south of Viet Nam. However, almost all of the functions of its water supply and waste water treatment system, electricity system, and air-conditioning system have been lost, and the present state of the hospital is such that even maintenance of the environment needed in a hospital is difficult.

Improvements in the facilities and in the sanitary environment by implementation of this Project, and improvements in medical technology through technical cooperation will surely result in an improvement in medical care for hospital patients. Furthermore, an improvement in the lifesaving rate is also expected.

(2) Effects in operating hospital

The poor condition of the hospital makes operations extremely inefficient. Under the economic conditions of Viet Nam, where organizations are now semi-responsible for their own finances, efficient operation of the hospital is becoming an extremely important matter. Upon implementation of this Project, the indirect effects shown below will emerge.

Table 13 Effects

Improvement	Indirect effect
Automation of elevator by replacement	Possible to reduce the number of operators
Improvement of water supply system	Reduction of water consumption to half
Removal of boiler	Improved combustion efficiency by increasing the pressure
Repair of oxygen supply system	Reduction of manual work in moving oxygen cylinders and medical care activities
Provision of kitchen equipment (particularly refrigerators)	Purchase can be made when market prices are low
Renovation of workshop	Reduction of subcontracting expenses
Repair of shower units in foreigner's ward	Increase in revenues by raising hospital charges
Improvement of drainage system	Reduction in repairs to ceilings of the story below
Renewal of laundry equipment	Improvement in sanitary conditions by washing of white robes at home, and reduction in personnel expenses

6-2 Conclusions

The examinations in the preceding chapters show that the improvement project for Cho Ray Hospital is reasonable as a Grant Aid Assistance project of the Government of Japan.

(1) The restoration of the functions of this hospital, which is the top medical institution in the 17 provinces of South Viet Nam, will bring about a dramatic improvement and expansion in medical activities, the level of medical technology and services.

(2) By improving the medical equipment, a step will be taken towards up-grading medical technology.

(3) By improving the operation and management of the hospital, it will be possible provide broader medical care than before to the people in the lower income bracket.

(4) The reduction in costs mentioned in the preceding paragraph is an extremely large plus factor for a hospital which has the heavy burden of operating with a limited budget.

(5) As the method of improvement of this Project consideration should be given to saving of energy and easy maintenance and management. It is expected that the reduction in maintenance and management costs of Cho Ray Hospital will affect the medical services of other parts.

6-3 Recommendations

Since this Project is urgently needed on humane grounds, improvements needed on the grounds of sanitary conditions, appearance, or management have been eliminated. Also, the upgrading of medical equipment has dropped. But in the improvements eliminated this time, there are may other urgent matters.

A step further Grant Aid Assistance is awaited to make the posture and shape of the hospital as the Japanese Hospital both in name and in reality.

The hospital is a large one having 1,000 beds and about 1,208 staff, so it is necessary to train an expert in hospital management.

Also, it is necessary to render technical cooperation to and take in young doctors and technicians as trainees as early as possible. These personnel will then be the support and driving force for the next generation.

Improvements to the software and hardware of the maintenance and management system are urgently required to enable Cho Ray Hospital to continue medical activities through its own efforts in future.

Even though needed equipment will be supplied, this is simply a matter of hardware. The Cho Ray Hospital would be developed by the efforts of the hospital staff who prospect the future of the hospital from a long-term viewpoint.

APPENDIX

1-1 List of Study Team Members (the Preliminary Study Team)

The Preliminary Study Team was composed of following members.

Name	Service	Organization
Yasuo Saito	General Affairs	Director, Grant Aid Division, Economic Cooperation Bureau, Ministry of Foreign Affairs
Kazuhisa Matsuoka	Planning Management	Director of First Basic Design Study Division, Grant Aid Study and Design Department, Japan International Cooperation Agency
Tetsumi Murata	Grant Aid	Official, Grant Aid Division, Economic Cooperation Bureau, Ministry of Foreign Affairs
Junichi Kawaue	Regional Cooperation Planning	Official, First Southeast Asia Division, Asia Bureau Ministry of Foreign Affairs
Shigeru Kawamoto	Facility Planning	Assistant Director, Government Buildings Planning Division, Government Buildings Department, Minister's Secretaries, Ministry of Construction
Susumu Nakada	Hospital Planning	Medical Officer, Department of International Cooperation, National Medical Center Hospital, Ministry of Public Welfare
Masatoshi Tsuchiya	Facility Design	Japan International Corporation System
Isamu Chichii	Facility and Equipment Planning	Japan International Corporation System
Hai Sakurai	Interpretation	Special Technical Staff, International Cooperation Service Center

Additionally, Mr. Ishizuka, Technical Corporation Division of the Ministry of Foreign Affairs, joined the team in a part of the study, while he was staying in the country as a member of the plantation cooperative contact mission (Oct. 29 - Nov. 5).

Hayato Ishizuka	Technical Cooperation	Official, Technical Cooperation Division, Economic Cooperation Bureau, Ministry of Foreign Affairs

1-2 List of Study Team Members (the Basic Design Study Team)

The Basic Design Study Team was composed of following members.

Name	Service	Organization
Katsu Iwamoto	General Affairs	Managing Director, Grant Aid Project Management Department, Japan International Cooperation Agency
Torao Fujii	Hospital Planning, Technical Cooperation	Doctor, the City of Hirasaki Hospital
Tetsumi Murata	Grant Aid	Official, Grant Aid Division, Economic Cooperation Bureau, Ministry of Foreign Affairs
Shigeru Kawamoto	Facility Planning	Assistant Director, Government Buildings Planning Division, Government Buildings Department, Minister's Secretariat, Ministry of Construction
Susumu Nakada	Study on Medical Situation	Medical Officer, Department of International Cooperation, National Medical Center Hospital, Ministry of Public Welfare
Mitsuyoshi Kawasaki	Planning Management	First Basic Design Study Division, Grant Aid Study and Design Department, Japan International Cooperation Agency
Izumi Nasu	Interpretation	International Cooperation Service Center
Naoteru Shimazaki	Facility Improvement Planning	AXS SATOW INC.
Toshio Kodaka	Air-Conditioning System Planning	Same as above
Takayoshi Yoshii	Water Supply and Drainage System Planning	Same as above
Masami Mochida	Electric System Planning	AXS SATOW INC.
Yasumichi Doi	Medical Facility and Equipment Planning	Same as above
Teruhisa Hirashima	Interpretation	Same as above

1-3 List of Study Team Members (on the Explanation of Draft Report)

The Basic Design Study Team was composed of following members.

Name	Service	Organization
Yutaka Yokoi	General Affairs	Deputy Director of Grant Aid Division, Economic Cooperation Bureau, Ministry of Foreign Affairs
Torao Fujii	Hospital Planning, Technical Cooperation	The Hirasaki City Hospital
Tetsumi Murata	Grant Aid	Official, Grant Aid Division, Economic Cooperation Bureau, Ministry of Foreign Affairs
Ikufumi Tomimoto	Planning Management	Security Director, First Basic Design Study Division, Grant Aid Study and Design Department Japan International Cooperation Agency
Mai Hatsukano	Interpretation	International Cooperation Service Center
Naoteru Shimazaki	Facility Improvement Planning	AXS SATOW INC.
Masami Mochida	Facility Planning	Same as above
Teruhisa Hirashima	Interpretation	Same as above

1-4 Field Study Schedule (On the Preliminary Study)

(1/2)

Order	Date	Day of the week	Study schedule	Place of lodging	Facility study			
					Group of team leaders (Saito, Team leader and Kawakami)	Planning group (Matsuoka and Murata)	Facility study group (Kawamoto, Tsuchiya, and Sakurai)	Medical equipment study group (Nakada and Chichii)
1	Oct. 30	Tue.	Travelling	Bangkok	Left Narita (TG 641), Arrived Bangkok			
2	31	Wed.	Travelling	Hanoi Ho Chi Minh	Left Bangkok (TG 682), Arrived Hanoi, Courtesy visit to Japanese Embassy and the Ministry of Health, Meeting (submitted questions and requested answers, and explained grant aid project)		Left Bangkok (TG 680), Arrived Ho Chi Minh General study of the Cho Ray Hospital	
3	Nov. 1	Thu.		Ho Chi Minh	Left Hanoi (YM 211), Arrived Ho Chi Minh Courtesy visit to and general study of the Cho Ray Hospital		After courtesy visit, surveyed 1F Control Room, Pump Room, Outdoor drain system, Exterior/interior waste disposal space and rooftop high-elevated water tank	After a courtesy visit, surveyed Endoscope Room, Physiological Examination Room, Surgical Operation Room, CCU, ICU and X-Ray Rooms
4	2	Fri.		Ho Chi Minh	Courtesy visit to Ho-Chi-Minh Municipal authorities and observed local areas	Explain grant aid project, Discussed the plan of Minutes	Surveyed Elevator Machine Room for high elevated stories, 11F Foreigner's Ward, 3F Central Material Room, 4F Air-Conditioning Machine Room, 4F Elevator Machine Room for low stories, Annex's Lecture Hall, 1F X-Ray Room, and Annex's Generator Room	Surveyed Examination Room and mortuary
5	3	Sat.		Ho Chi Minh	Signed the Minutes		Surveyed 1F Transfer Room, 3F Experiment Room, 3F Surgical Operation Room and others	Surveyed Pharmacy, Outpatient's Department, Pharmaceutical Room, Tropical Disease Ward, Kitchen, Laundry, Malarial Ward, Isotope Lab, Endocrine Ward, Lecture Hall, and Rooftop Elevation Room

Order	Date	Day of the week	Study schedule	Place of lodging	Facility study			
					Group of team leaders (Saito, Team leader and Kawakami)	Planning group (Matsuoka and Murata)	Facility study group (Kawamoto, Tsuchiya, and Sakurai)	Medical equipment study group (Nakada and Chichii)
6	4	Sun.		Ho Chi Minh	Team leaders left Ho Chi Minh (TG 681), and returned to Japan by way of Bangkok (Kawakami joined planning group). The remaining members classified data and held an internal meeting.			
7	5	Mon.		Ho Chi Minh	Joined facility study group and medical equipment study group		Observed Annex's Repair Room, Lavatories on each floor and pipe shafts	Observed Health Center in Ho-Chi-Minh City Division 1 and Thong Niut Hospital (Mr. Sakurai joined till 7th)
8	6	Tue.		Ho Chi Minh Can Tho	Matsuoka and Murata observed the situation of local area		Surveyed 1F Oxygen Room, 3F Air-Conditioning Room for Experiment Room, and outdoor wastewater treatment system and others	Studied Tu Yu Maternity Clinic and a military hospital (South district No. 275)
9	7	Wed.		Ho Chi Minh	Joined facility study group or medical equipment study group		Surveyed the overall exterior, Annex's storage and others	Studied Xa Trung Wy Tay Clinic
10	8	Thu.		Ho Chi Minh	Reported study results to Hospital Headquarters and others			
11	9	Fri.		Hanoi	Left Ho Chi Minh (YN 212), Arrived Hanoi, Report to Japanese Embassy and the Ministry of Health			
12	10	Sat.	Travel-ling	Bangkok Hanoi	Left Hanoi (TG 683)		Collected data from the Ministry of Health, Studied Back Mai Hospital and IPC Hospital	
13	11	Sun.	Travel-ling		Left Bangkok (TG 683), Arrived Narita		Left Hanoi (TG 683), Arrived Bangkok, Left Bangkok (TG 642)	
14	12	Mon.	Travel-ling		----------		Arrived Narita	

Order	Date	Day of the week	Study schedule	Place of lodging	Facility study			
					Group of team leaders (Iwamoto, Murata, Kawamoto, Kawasaki)	Facility study group (Shimazake and 5 other members)	Medical situation study group (Fujii)	Medical situation study group (Nakada and Nasu)
1	Feb. 25	Mon		Bangkok at Bangkok	Left Narita, arrived (Kawasaki)	Left Narita, arrived at Bangkok		
2	26	Tue		Hanoi Ho Chi Minh	Left Bangkok, arrived at Hanoi (Kawasaki)	Left Bangkok, arrived at Ho Chi Minh Study team's internal meeting		Left Bangkok, arrived at Hanoi
3	27	Wed		Hanoi Ho Chi Minh	A courtesy visit of to the Ministry of Health. Observation of Facility and meeting. Study team's internal meeting.(Kawasaki)	A courtesy visit to and meeting with the Cho Ray Hospital staff. A courtesy visit to and meeting with the Construction Bureau.		Accompanied the group of team leaders
4	28	Thu		Hanoi Ho Chi Minh	Studied the organization and services of the Ministry of Health. Visited WHO Hanoi Office (Kawasaki)	General study of the Cho Ray Hospital. Surveyed tall buildings.	Studied the Cho Ray Hospital	Accompanied the group of team leaders
5	Mar. 1	Fri		Hanoi Ho Chi Minh	Visited the Ministry of Health, and pharmaceutical labratory. Observed N.I.H.E. Visited U.N.F.P. Visited U.N.D.P. (Kawasaki)	General study of the Cho Ray Hospital Surveyed low buildings and their peripheral buildings A courtesy visit to the Vice-Minister of Health.	Studied the Cho Ray Hospital	Accompanied the group of team leaders

Order	Date	Day of the week	Study schedule	Place of lodging	Facility study			
					Group of team leaders (Iwamoto, Murata, Kawamoto, Kawasaki)	Facility study group (Shimazake and 5 other members)	Medical situation study group (Fujii)	Medical situation study group (Nakada and Nasu)
6	2	Sat		Hanoi Ho Chi Minh	Visited the Waterworks Bureau and Sewerage Bureau A courtesy visit to the National 10-80 Committee. (Kawasaki)	Market research (within Ho Chi Minh) Study team's internal meeting	Classification data	Accompanied the group of team leaders
7	3	Sun		Hanoi Ho Chi Minh	Study team's internal meeting (Kawasaki)	Classification of data Study team's internal meeting	Classification of data	Accompanied the group of team leaders
8	4	Mon		Hanoi, Ho Chi Minh, Hai Hung	Explained grant aid system at the Ministry of Health Reported to Japanese Embassy (Kawasaki)	Studied the Cho Ray Hospital Surveyed electric room, boiler room and high elevated water tank	Studied the Cho Ray Hospital	Moved from Hanoi to Hai Hung Province A courtesy visit to an insurance office and the People's Committee. Observed the Hai Hung Province General Hospital
9	5	Tue		Hanoi, Ho Chi Minh, Hai Hun	Left Hanoi, arrived at Ho Chi Minh. A courtesy visit to the Choray Hospital (Kawasaki)	Studied the Cho Ray Hospital. Surveyed generator room, kitchen, laundry, building, repair building and 11F & 10F lavatories.	Studied the Cho Ray Hospital	Moved from Hai Hun Province to Nin Thanh county A coutesy visit to the People's Committee, observed a county's municipal hospital and Tran Giang Village's Health Center
10	6	Wed		Hanoi, Ho Chi Minh	Left Ho Chi Minh, arrived at Bankok (Kawasaki)	Studied the Cho Ray Hospital Surveyed 11 & 10F distribution board, automobile repair factory, mortuary and 9-7F lavatories.	Studied the Cho Ray Hospital	Left Hanoi, arrived at Ho Chi Minh. A courtesy visit to the Cho Ray Hospital Study team's internal meeting

Order	Date	Day of the week	Study schedule	Place of lodging	Facility study			
					Group of team leaders (Iwamoto, Murata, Kawamoto, Kawasaki)	Facility study group (Shimazake and 5 other members)	Medical situation study group (Fujii)	Medical situation study group (Nakada and Nasu)
11	7	Thu		Ho Chi Minh	Left Bangkok, arrived at Narita (Kawasaki)	Studied the Cho Ray Hospital Surveyed 9-4F distribution boards and 6-3F lavoratory.	Studied the Cho Ray Hospital	A courtesy visit to the Vice Minister of Health and Health office. Observation of the Fu San Hospital
12	8	Wed		Ho Chi Minh		Studied the Cho Ray Hospital Surveyed 3-2F distribution board, and observed oxygen production factory and waste treatment plant.	Studied the Cho Ray Hospital	Meeting at the Health Office. Observed Nhi Dong Primary Hospital and Family Hospital
13	9	Sat		Ho Chi Minh		Classification of data Study team's internal meeting Left Narita (Kodaka and Doi)	Studied the Cho Ray Hospital	Observed the Binh Dan Hospital Observed Hematological Research and Blood Transfusion Center.
14	10	Sun		Ho Chi Minh		Classification of data Arrived at Ho Chi Minh (Kodaka and Doi) Study team's internal meeting	Classification of data	Classification of data
15	11	Mon		Ho Chi Minh		Studied the Cho Ray Hospital Surveyed trunk lines, grounding resistance, and 2-1F water-supplied place.	Studied the Cho Ray Hospital	Observed the Nguyen Trai Hospital and the Pham Ngoc Thach

Order	Date	Day of the week	Study schedule	Place of lodging	Facility study			
					Group of team leaders (Iwamoto, Murata, Kawamoto, Kawasaki)	Facility study group (Shimazake and 5 other members)	Medical situation study group (Fujii)	Medical situation study group (Nakada and Nasu)
16	12	Tue		Ho Chi Minh		Observation of Thu Duc power plant and Thu Duc water purification plant.	Studied the Cho Ray Hospital	Observed the Tou Duc Hospital and the Tou Duc Heatlth Care Hospital Center
17	13	Wed		Ho Chi Minh		Visited the Bureau of Sewerage Studied the Cho Ray Hospital: 11-9F lighting fixture, hydrant pump, consultation department's facility.	Studied the Cho Ray Hospital	Studied the Saigon Hospital and the Cho Ray Hospital
18	14	Thu		Ho Chi Minh		Studied the Cho Ray Hospital: 8-5F lighting fixture, fixtures, incinerator, air-conditioning machine rooms, water supply pipes.	Studied the Cho Ray Hospital	Studied the Cho Ray Hospital Visited the Phu San Hospital
19	15	Fri		Ho Chi Minh		Studied the Cho Ray Hospital: 4-2F lighting fixture, heat source system, sewage purifier and cerebral, surgery department ward facility.	Studied the Cho Ray Hospital	Observed the H.C.N. medical staff training center. Meeting at the center's health care office. Studied the Cho Ray Hospital
20	16	Sat		Ho Chi Minh		Studied the Cho Ray Hospital: 1F lighting fixture, surgical room, ICU Room and wind coolers.	Studied the Cho Ray Hospital	Observed H.C.M. medical University and the malarial isolation hospital

Order	Date	Day of the week	Study schedule	Place of lodging	Facility study			
					Group of team leaders (Iwamoto, Murata, Kawamoto, Kawasaki)	Facility study group (Shimazake and 5 other members)	Medical situation study group (Fujii)	Medical situation study group (Nakada and Nasu)
21	17	Sun		Ho Chi Minh		Classification of data	Classification of data	Classification of data
22	18	Mon		Ho Chi Minh		Studied the Cho Ray Hospital: pits and ceiling recessed pipes	Studied the Cho Ray Hospital	Observed the Pasteur Institute and the H.C.M. Public Health Center
						Study team's internal meeting		Discussed with the Vice Minister of Health
23	19	Tue		Ho Chi Minh	Left Narita, arrived at Bangkok (Iwamoto, Murata, Kawamoto, Kawasaki)	Classificatio of data	Studied the Cho Ray Hospital	Observed the Nhi Dong Hospital study on the Cho Ray Hospital
24	20	Wed		Ho Chi Minh Song Be	Left Bangkok, arrived at Ho Chi Minh. Study team's internal meeting	Study data preparation	Studied the Cho Ray Hospital	Moved from Ho-Chi-Min to Song Be A courtesy visit to the People's Committee Observation of the Dong Phu Country Hospital.
						Study team's internal meeting		
25	21	Thu		Ho Chi Minh	A courtesy visit to and observation of the Cho Ray Hospital. A courtesy visit to the Ministry of Health			Observed the Song Be General Hospital and Bin Nyan Village Health Center Moved from Song Be to Ho Chi Minh.
					Studied the Cho Ray Hospital	Study team's internal meeting	Classification of data	
26	22	Fri		Ho Chi Minh	Discussion on the minutes at the Cho Ray Hospital			
						Market research	Classification of data	Classification of data

Order	Date	Day of the week	Study schedule	Place of lodging	Facility study			
					Group of team leaders (Iwamoto, Murata, Kawamoto, Kawasaki)	Facility study group (Shimazake and 5 other members)	Medical situation study group (Fujii)	Medical situation study group (Nakada and Nasu)
27	23	Sat		Ho Chi Minh	Signing on the minutes at the Cho Ray Hospital.			
					Studied the Cho Ray Hospital	Classification of data Study team's internal meeting	Classification of data	Classification of data
28	24	Sun		Ho Chi Minh Can Tho	Holiday			Moved No-Chi-Minh to Can Tho Meeting with the Bureau of Health and the People's Commitee
29	25	Mon		Hanoi, Ho Chi Minh, Can Tho	Left No-Chi-Minh. Arrived at Hanoi			Observed the Han Gyan province General Hospital, Chan Tan County Hospital, and Dong Thanh Village Health station.
30	26	Tue		Hanoi, Ho Chi Minh, Can Tho	Visited the Ministry of Health, and discussed with Director of Internal Cooperation Bureau. A courtesy visit to the Vice-Minister of Health.	Visited the Ministries of Labor and Finance Visited the Waterworks Bureau.	Accompanied the group of team leaders.	Observed the Soc Trang Country General Hospital, leprosarium and Han Giang Province's Ministry of Health
31	27	Wed		Hanoi, Ho Chi Minh, Dong Thap	Discussion at UNICEF (Kawasaki) Mr. Kawamoto acompanied the facility study grup. Mr. Iwamoto left Hanoi.	Visited the People's Committee, Meteorelogical Bureau, Ministries of Construction and Electricity.	Study data preparation	Moved from Can Tho to Dong Thap Province A courtesy visit to the People's Committee. Observation of the Hong Ngu Country General Hospital

Order	Date	Day of the week	Study schedule	Place of lodging	Facility study			
					Group of team leaders (Iwamoto, Murata, Kawamoto, Kawasaki)	Facility study group (Shimazaka and 5 other members)	Medical situation study group (Fujii)	Medical situation study group (Nakada and Nasu)
32	28	Thu		Hanoi	Visited the Ministry of Health, and Ministry of Education Mr. Kawamoto, in Ho Chi Minh, acompanied facility study group Mr. Iwamoto arrived at Narita.	Visited the National Planning Committee, and the Chamber of Commerce and Industry. Mr. Doi left Ho Chi Minh	Accompanied the group of team leaders	Observed the Dong Thap Province General Hospital and Thap Muoi Country Hospital. Moved from Dong Thap province to Ho Chi Minh
33	29	Fri		Hanoi Ho Chi Minh	Observed Viet Nam Hospital and Tan Nian Hospital			A courtesy visit to the Vice Minister of Health
						Mr. Doi arrived at Narita.		
34	30	Sat		Hanoi, Ho Chi Minh, Hue	Left Hanoi, arrived at Bangkok (Murata, Kawamoto and Kawasaki)	Market research A visit to the Meteorological Bureau. Study team's internal meeeting	Observation of the Vietnam.Soviet cooperative Hospital and Swedish Children's Hospital	Moved from Ho Chi Minh to Da-Nang Moved from Da-Nang to Hue.
35	31	Sun		Ho Chi Minh, Hue	Left Bangkok, arrived at Narita (Murata, Kawamoto, Kawasaki)	Left Hanoi, arrived at Ho Chi Minh	Classification of data	Classification of data
36	Apr. 1	Mon		Ho Chi Minh, Hue		Studied the Cho Ray Hospital Studied air flow of air-conditioner	Visited a medical equipment company and pharmaceutical association	A courtesy visit to the People's Committee and the Ministry of Health. Observation of the National Hue Central Hospital.

Order	Date	Day of the week	Study schedule	Place of lodging	Facility study			
					Group of team leaders (Iwamoto, Murata, Kawamoto, Kawasaki)	Facility study group (Shimazake and 5 other members)	Medical situation study group (Fujii)	Medical situation study group (Nakada and Nasu)
37	2	Tue		Hanoi, Ho Chi Minh, Hue		Visited the Construction Bureau and a fire station Observed the construction site of An Don market place	Visited the Malarial Society and the Provision Society	Observation of Hue Medical University Visit to the National Hue Central Hospital Observation of the Hue City Hospital
38	3	Wed		Hanoi, Ho Chi Minh, Hue		Visited the Song Be people's Committee. Observed the Song Be Hospital	Observed Bach Mai Hospital Visited the Ministry of Health	Observed Huong Thuy County Hospital and Thuy Phu Village Health Station. Visited the Waterworks Bureau.
39	4	Thu		Hanoi, Ho Chi Minh, Da-Nang		Visited Vietcong Bank. Studied the Cho Ray Hospital Classification of data.	Classification of data	Moved from Hue to Da Nang. Observed the Tam Ky Province Hospital.
40	5	Fri		Hanoi, Ho Chi Minh		Observed the People's Committee's Ten Nyang Office Study team's internal meeting	Classification of data Study team's internal meeting	Left Da-Nang, Arrived at Hanoi
41	6	Sat		Hanoi, Ho Chi Minh		Observed Ho Chi Minh trade port. Study team's internal meeting		Visited a general company of medical equipment.
42	7	Sun		Hanoi, Ho Chi Minh		Classification of data Study team's internal meeting	Classification of data Study team's internal meeting	

Order	Date	Day of the week	Study schedule	Place of lodging	Facility study			
					Group of team leaders (Iwamoto, Murata, Kawamoto, Kawasaki)	Facility study group (Shimazake and 5 other members)	Medical situation study group (Fujii)	Medical situation study group (Nakada and Nasu)
43	8	Mon		Hanoi, Ho-chi-Minh		Meeting at the Cho Ray Hosiptal Study team's internal meeeting	Observed malarial, entomological and epedemiological institutes. Visited the City Water and Sewage works Design Bureau. Reported to the Ministry of Health.	
44	9	Tue		Bangkok		Left Ho Chi Minh Arrived at Bangkok	Left Hanoi Arrived at Bangkok	
45	10	Wed				Left Bangkok Arrived at Narita		

1-6 Field Study Schedule (On the Explanation on Draft Report)

(1/2)

Order	Date	Day of the week	Study schedule	Place of lodging	Facility study			
					Team leader (Yokoi)	Planning group (Murata, Tomimoto, Fujii, and Hatsukano)	Facility study group (Shimazaki and Hirajima)	Planning study group (Mochida)
1	July 10	Wed.		Bangkok	Left Narita, Arrived Bangkok			
2	11	Thu.		Ho Chi Minh Bangkok	Left Narita, Arrived Bangkok	Left Bangkok, Arrived Ho Chi Minh, Study team's internal meeting		
3	12	Fri.		Ho Chi Minh	Left Bangkok, Arrived Ho Chi Minh, Study team's internal meeting	Meeting at the Cho Ray Hospital To discuss the schedule and content of plan Study team's internal meeting		
4	13	Sat.		Ho Chi Minh	Meeting at the Cho Ray Hospital To discuss the schedule and content of plan Study team's internal meeting			
5	14	Sun.		Ho Chi Minh	Study team's internal meeting			
6	15	Mon.		Ho Chi Minh	Meeting at the Cho Ray Hospital To discuss the content of Minutes Confirmed the content of plan			
7	16	Tue.		Ho Chi Minh	Meeting at the Cho Ray Hospital Explain and confirm the content of plan at each planned site Signed the Minutes			
8	17	Wed.		Hanoi Bangkok	Left Ho Chi Minh, Arrived Hanoi			Left Ho Chi Minh, Arrived Bangkok
9	18	Thu.		Hanoi Bangkok	Courtesy visit and report on the process of study to the Ministry of Health Observation of Viet Nam Soviet Cooperation Hospital Study team's internal meeting			Market research

Order	Date	Day of the week	Study schedule	Place of lodging	Facility study			
					Team leader (Yokoi)	Planning group (Murata, Tomimoto, Fujii, and Matsukano)	Facility study group (Shimazaki and Hirajima)	Planning study group (Mochida)
10	19	Fri.		Hanoi Bangkok	Left Hanoi, Arrived Bangkok	Courtesy visit and report on the process of study to Japanese Embassy		Market research
11	20	Sat.		Bangkok	Left Bangkok, Arrived Narita	Left Hanoi, Arrived Bangkok		Market research
12	21	Sun.				Left Bangkok, Arrived Narita		

1-7 List of Interviewed People

Cho Ray Hospital

Mr. Trinh Kim Anh	Director of Hospital
Dr. Nguyen Van Cu	Deputy Director of Hospital (Personnel)
Pr. Nguyen Khanh Du	Deputy Director of Hospital (Department of Surgery)
Pr. Nguyen Huy Dung	Deputy Director of Hospital (Internal Department)
Pr. Nguyen Dich	Deputy Director of Hospital (Clinical treatment)
Dr. Ha Van Duc	Deputy Director of Hospital (Finance, facility management)
Mrs. Nguyen Thi Van	Chief Nurse
Drs. Le Thi Xuany	Chief of General Planning Section
Dr. Nguyen The Hiep	Director of Burn Treatment Department
Dr. Hoang Hoa Hai	Secretary to the Director of Hospital
Dr. Phung Van Duc	Deputy Director of Neurosurgery Department
Dr. Hoang Van Thuc	Director of Pathological Department
Mr. Nguyen Trung Tuyen	Director of Facility Management Department
Mr. Nguyen Van Dien	Deputy Director of Facility Management Department
Mrs. Tran Thi Thien	Director of Pharmaceutical Department
Mrs. Dang Thi Minh Hien	Chief of Finance Section
Dr. Truong Van Viet	Neurosurgery Department
Mrs. Pham Thi Dieu Huong	Facility Management Department
Dr. Tran Dinh Nhan	Faciltiy Management Department (Computer)
Mr. Le Xuan Anh	Facility Management Department (Medical facility and equipment)

Mr. Long	Facility Management Department (Electricity)
Mr. Vo-Khac-Vu	Facility Management Department (Laundry Building)
Mr. Than Thach Tam	Facility management Department (Kitchen)

The Ministry of Health (Hanoi)

Dr. Pham Song	Minister
Dr. Nguyen Van Dan	Vice Minister
Dr. Ngo Van Hop	Director of International Cooperation Department
Mrs. Nguyen Thi Bach Yen	International Cooperation Department

The Ministry of Health (Ho Chi Minh)

Drs. Doan Thuy Ba	Vice Minister
Dr. Le Thi Ngoc Loan	Secretary to Vice Minister
Dr. Nong	
Mr. Bui Duc Phong	

Ho Chi Minh Municipal Construction Bureau

Mr. Nguyen Dang Son	Director of First Construction Department
Mr. Tran Thanh Ha	Chief of Estimation Section

Khanh Hoi National Oxygen manufacture Company

Mr. Duong Van Them	President
Mr. Cao Van Quang	Director of Technical Department

Ho Chi Minh Municipal Service Corporation

Mr. Duong Minh Hoc	Vice President
Mr. Do Dong Uyen	Chief of Planning Section
Mr. Nguyen Duc Trung	Chief of Business Management Section

Thu Duc Power Station

Mr. Nguyen Van Tainh	Director of Station

Thu Duc Water Purification Plant

Mr. Pham Tan Sy	Director of Plant
Mr. Mai Van Binh	In charge of Examination
Mr. Tran Quang Nhiep	In charge of Management Control

Ho Chi Minh Municipal Street Lighting and Drainage Corporation

Mr. Vo-Quang-Ke	President
Mrs. Le Thi Anh Hong	Vice President (In charge of Technical Service)

Ho Chi Minh Municipal Design Center

Mr. Le Quang Minh	Director of Center
Mrs. Anh	Chief of General Planning Section
Mrs. Sang	In charge of Construction Work Management
Mrs. Hoa	In charge of Construction Work Management

Construction Companies

Mr. Nghia	President, COSACO
Mr. Nguyen Van Sang	Vice President, COSACO
Mr. Nguyen Duc San	Vice President, COFICO
Mrs. Nguyen Thi Mai Thanh	President, REE
Mr. Vo Dhuoc Ngo	Vice President, COFICO

Son Be People's Committee

Mrs. Nguyen Phuong Lan	Vice Chairperson of Committee

Son Be Hospital

Dr. Pham Ngoc Thai	Director of Hospital

Dr. Thai Trong Thuong	In charge of Medical Service
Mr. Le	In charge of Construction Work

VIETCOM Bank Ho Chi Minh Branch

Mr. Ngo Dinh Ngon	Vice Manager of Branch

The Ministry of Labor (the Ministry of Injured Soldiers Social Rehabilitation)

Mr. Nghiem Xuan Tue	Deputy Director of International Department

The Ministry of Finance

Mr. Pham Van Trong	Vice Minister
Mr. Hoang Phi	International Cooperation Department
Miss Ha	Business Management Department

Hanoi Peoples' Committee

Mr. Nguyen Thanh Binh	Chairperson of Committee, Director of Transportation Bureau
Mr. Nguyen Do Khue	Director of International Cooperative Investment department
Dr. Hoang Long	Deputy Director of the Transportation Bureau
Mr. Tran Xuan Kieu	Interpretation

The Ministry of Construction

Mr. Le Doan Phach	Director of International Cooperation Department
Mr. Ngo Tao	Director of Design Bureau
Mr. Vo Van Nan	International Cooperation Department

National Planning Committee

Mr. Tran Dinh Con	Director of Labor, Culture and Social Department
Mr. Bui Lien	Overseas Economic Department

The Chamber of Commerce and Industry

Mr. Doan Ngoc Bong	Chairperson
Mr. Nguyen Duy Khien	Deputy Director of International Department

Power Office No.1

Mr. Do Van Loc	Vice President
Miss Mai	

Vietnam-Germany Hospital

Mr. Nguyen Duong Quang	Director of Hospital
Dr. Dao Ba Khu	Deputy Director of Hospital
Mr. Ngo Van Luc	Deputy Director of Hospital
Dr. Nguyen Manh Nhan	Chief of Planning Section

Thanh Nhan Hospital

Dr. Nguyen Van Xang	Director of Hospital
Dr. Ngo Hy	Deputy Director of Hospital
Dr. Tran Lam Phu	Chief of Medical Treatment Section
Dr. Bui Mai Huyen	Chief of Planning Section
Mrs. Tran Kim Thu	In charge of Finance

Tien Giang People's Committee

Mr. Chin	Chairperson of Committee
Mrs. Ba	Vice Chairperson of Committee

Saigon Port Construction Corporation

Mr. Mai Hoang Tan	President

Waterworks Corparation

Mr. Nguyen Dinh Nhien	Director

General Meteorological Bureau

Dr. Nguyen Duc Ngu	Director of Bureau
Mr. Nguyen Van Quang	Director of International Cooperation Department
Mr Phan Dinh An	Staff. International Cooperation Department
Mr Hoang Manh Hoa	Staff. International Cooperation Department

Central Pharmaceutical Factory 25

Mr. Phan Thi Thu Quy	President

The Vietnam Medical Equipment Company

Mr. Do Du Khanh	President

Medical Import Export Company (YTECO)

Mr. To Thi Buu Chau	President

Vipharco

Mr. Ha-Ngoc Hoa	Chairperson

1-8 Minutes of Meeting (on preliminary survey)

MINUTES OF DISCUSSION
ON
THE PRELIMINARY STUDY
ON
THE PROJECT FOR THE REHABILITATION AND UPGRADING OF THE CHO RAY HOSPITAL
IN
THE SOCIALIST REPUBLIC OF VIET NAM

In response to the request made by the Government of the Socialist Republic of Viet Nam, the Government of Japan has decided to conduct a Preliminary Study on the Project for the Rehabilitation and Upgrading of the Cho Ray Hospital (hereinafter referred to as "the Project") and Japan International Cooperation Agency (JICA) has sent the Preliminary Study Team headed by Mr.Yasuo Saito Director, Grant Aid Division, Economic Cooperation Bureau, Ministry of Foreign Affairs, from 31st October to 11th November, 1990.

The Team has had a series of discussions with the authorities concerned of the Government of the Socialist Republic of Viet Nam and conducted a field survey.

As the result of the study, both parties have agreed to recommend to their respective Government that the major points of understanding reached between them as attached herewith should be examined towards the realization of the Project.

Ho Chi Minh City, 3rd November 1990

Mr. YASUO SAITO	Prof. TRINH KIM ANH
Leader	Director
Preliminary Study Team	Cho Ray Hospital
JICA	

ATTACHMENT

1. The objective of the Project is the rehabilitation and the upgrading of the Cho Ray Hospital through the Humanitarian Grant Aid of JAPAN to VIET NAM, thus contributing to maintain health of the Viet Nam people.The objective will be achieved fast and step by step.

2. The Vietnamese side requested to the Japanese side the following proposals:

   2.1. Under the scheme of Japanese Grant Aid :
      2.1.1. Rehabilitating and upgrading the present facilities of the Cho Ray Hospital building. The details are shown in Annex 1 with priority order.
      2.1.2. Rehabilitating and upgrading the present medical equipment. The details are shown in Annex 2 with priority order.

   2.2. Under the scheme of Japanese Technical Cooperation (Grant):
      2.2.1. Training of hospital staff at all level in Japan to meet the requirement at management of the up-to-date hospital.
      2.2.2. Dispatch of Japanese experts to Viet Nam to give lectures and technology transfer in the field of medicine and hospital management.

3. The Japanese side will convey the requests of the Vietnamese side to the Government of Japan.

4. The Director of Cho Ray Hospital is responsible for execution and administration of the Project under the supervision of the Ministry of Health.

5. The Vietnamese side has understood the Japanese Grant Aid Scheme explained by the Japanese side and described in Annex 3, including the principle of use of a Japanese Consultant Firm and a Japanese Contractor for the implementation of the Project.

6. The scope of cooperation to be covered by the scheme of Grant Aid of the Government of Japan will be studied and clarified by the forthcoming Basic Design Study Team dispatched by JICA after the validity of the Project is confirmed by the Government of Japan.

7. The scope of works of the Basic Design Study will include as follows:
   7.1 Technical survey,
   7.2 Management and financial survey,
   7.3 Preparation of basic design of facilities and medical equipment,
   7.4 Preparation of implementation plan,
   7.5 Evaluation of the Project.

8. The Vietnamese side should prepare and submit data in English which are listed in the Questionnaire requested by the Japanese side, by the end of December 1990.

Annex 1

LIST OF REQUIRED REHABILITATION WORKS WITH PRIORITY ORDER

PRIORITY

A - I. Water supply and Waste water treatment system
  1.Interior drainage pipes
  2.Exterior drainage pipes and sewer pipes
  3.Water tanks at top floor
  4.Water pump system up to higher floors
  5.Underground water pump system
  6.Septic tank

A - II.Electricity system
  1.Generating system
  2.Control system

A - III.Oxygen supply and vacuum system
  1.Oxygen supplying set
  2.Oxygen producer
  3.Vacuum system

B - IV.Air-conditioning system

B - V.Elevators

B - VI.Transmission system
  1.Central telephone,accessory telephone unit
  2.Loudspeaker system
  3.Interphone system

B - VII.Freezing machines for cadaver,autopsy room

C - VIII.Steam and hot water supply system
  1.Boiler,piping and vacuum pump
  2.Storage tanks and piping

C - IX.Laundry facilities
  1-Washing machine
  2-Dryer

Annex 2

LIST OF REQUIRED MAJOR EQUIPMENT WITH PRIORITY ORDER

PRIORITY

A - 1. Defibrillator
A - 2. Respirator
A - 3. Mobile X-Ray Unit
A - 4. Blood Bank Refrigerator
A - 5. Water distiller
A - 6. Ultrasonic Diagnostic Apparatus
A - 7. Electro-Surgical Unit
A - 8. Anesthesia Apparatus
A - 9. Laboratory Small Item

B - 10. Electrocardiograph 1 channel
B - 11. ELISA System
B - 12. Mortuary Refrigerator
B - 13. Diagnostic X-ray System
B - 14. Medical Refrigerator
B - 15. Deep Freezer
B - 16. Centrifuge
B - 17. Suction Unit

C - 18. Spectrophotometer
C - 19. Electrophoresis Apparatus
C - 20. Laparoscope
C - 21. Fiberscope
C - 22. X-ray Film Processing Set
C - 23. Flame Photometer
C - 24. Precision Balance
C - 25. Hot Air Sterilizer
C - 26. pH Meter
C - 27. Repairing Instrument Set
C - 28. Microscope

Annex 3

1. To ensure prompt unloading, tax exemption, custom clearance at ports of disembarkation and prompt internal transportation of the equipment purchased under the Grant Aid.

2. To bear the following commissions to the Japanese foreign exchange bank for the banking services based upon the Banking Arrangement.

   2-1. Advising commission of authorization to pay (about ¥ 3,000.- for each authorization to pay).
   2-2 Payment commission (about 0.1% of each payment).

3. To exempt Japanese Nationals involved in the Project from custom duties, internal taxes and other fiscal levies which may be imposed in the Socialist Republic of Viet Nam with respect to the supply of the products and services under the Verified Contracts.

4. 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 Socialist Republic of Viet Nam and stay therein for the performance of their works.

5. To bear all the expenses other than those to be born by the Grant, necessary for the execution of the Project.

6. To ensure the proper and effective operation and maintenance of equipment purchased under the Grant.

1-9 Minutes of Meeting (on basic design study)

MINUTES OF DISCUSSIONS
ON
THE BASIC DESIGN STUDY
ON
THE PROJECT FOR REHABILITATION AND UPGRADING OF THE CHO RAY HOSPITAL
IN
THE SOCIALIST REPUBLIC OF VIET NAM

In response to the request made by the Government of the Socialist Republic of Viet Nam, the Government of Japan decided to conduct a Basic Design Study on the Project for Rehabilitation and Upgrading of the Cho Ray Hospital (hereinafter referred to as "the Project") and Japan International Cooperation Agency(JICA) has sent the Basic Design Study Team head by Mr.katsu Iwamoto, Managing Director,Grant Aid Project Management Department,JICA, from February 26 to April 9, 1991.

The Team had a series of discussions with the authorities concerned of the Government of the Socialist Republic of Viet Nam and conducted a field survey.

As the result of the discussions and field survey, both parties confirmed the main articles described on the attached sheets. The Team will proceed the works and prepare the Basic Design Study Report on the Project based on the articles.

Ho Chi Minh City, March 23 , 1991

Mr.Katsu Iwamoto
Leader,
Basic Design Study Team
JICA

Prof. Trinh Kim Anh
Director,
Cho Ray Hospital,
Socialist Republic of Viet Nam

ATTACHMENT

1. Objective of the Project

The objective of the Project is fundamental rehabilitation in Cho Ray hospital through the Japanese Grant Aid on humane grounds, and thus to contribute to maintaining health of the Viet Nam people. The objective will be achieved fast and step by step.

2. Executing Agency

The Cho Ray Hospital is responsible for execution and administration of the Project under the supervision of the Ministry of Health.

3. Items requested for the Implementation of the Project

The items requested by the Cho Ray hospital are shown in Annex- I.

The Vietnamese side and the Team reconfirmed that the request of Vietnamese side is indispensable for fundamental rehabilitation in the Cho Ray hospital.

Respecting the request mentioned above, the Team will examine the result of the field survey and prepare the Basic Design on the Project.

4. Grant Aid Program

(1) The Vietnamese side has understood the Japanese Grant Aid System explained by the Team including principle of use of a Japanese Consultant Firm and a Japanese Contractor for the implementation of the Project.

(2) The Vietnamese side will take necessary measures as listed in Annex- II on condition that the Grant Aid by the Government of Japan would be extended to the Project.

5. Schedule of the Study

(1) JICA will prepare the draft report and dispatch a mission in order to finalize the contents of the report around June, 1991.

(2) In case the contents of the report is accepted in principle by the Vietnamese side, JICA will complete the Basic Design Study Report and submit it to the Vietnamese side by September, 1991.

Annex- I

1. Rehabilitation Works
   (1) Water Supply and Waste Water Treatment System Works
      ①Water and Drainage Pipe, and Sanitary Fixture
      ②Water Storage tank and Pump
      ③Septic Tank
      ④Oxygen Supply and Vacuum System
      ⑤Steam and Hot Water Supply System (Boiler and Storage Tank)
      ⑥Laundry and Kitchen Equipment
      ⑦Tool and Machine
      ⑧Others
   (2) Electricity System Works
      ①Electricity Supply System
      ②Generating System
      ③Control Board
      ④Lighting and Receptacle System
      ⑤Transmission System
      ⑥Others
   (3) Air-conditioning System Work
   (4) Elevator
   (5) Architectural Works related to the above mentioned Works

2. Procurement of Equipment
   (1) Clinical Examination Equipment
      ①Physical Examination Equipment
      ②Clinical Laboratory Equipment
      ③Apparatus of Radiology Department
   (2) Curative Equipment
      ①Emergency and ICU
      ②Operation Theater
      ③Surgical Ward
      ④Medical Ward
   (3) Others
      ①Central Supply
      ②Medical Equipment Spare Parts

3. Technical Cooperation
   (1) Training in Japan
      ①Hospital Administration
      ②Clinical Department (Surgical Department and Medical Department)
      ③Nursing Care
      ④Paramedical Staff
      ⑤Staff of Workshop
   (2) Dispatch of Japanese Expert
      ①Hospital Management
      ②Neuro Surgery
      ③Chest Surgery / General Surgery
      ④C.T. Scanner
      ⑤Maintenance of Equipment
      ⑥Patient Care (Head Nurse)

K.D.

Annex- II

1. To ensure prompt unloading, tax exemption, customs clearance at ports of disembarkation and prompt internal transportation of the equipment purchased under the Grant Aid.

2. To bear the following commissions to the Japanese foreign exchange bank for the banking services based upon the Banking Arrangement.
   (1) Advising commission of authorization to pay (A/P) (about ¥3,000 for each A/P)
   (2) Payment commission

3. To exempt Japanese Nationals involved in the Project from custom duties, internal taxes and other fiscal levies which may be imposed in the Socialist Republic of Viet Nam with respect to the supply of the products and services under the Verified Contracts.

4. To accord Japanese Nationals whose services may be required in connection with the supply of the products and the services under the Verified Contracts such facilities as may be necessary for their entry into the Socialist Republic of Viet Nam and stay therein for the performance of their works.

5. To bear all the expenses other than those to be born by the Grant, necessary for the execution of the Project.

6. To assure the proper and effective operation and maintenance of facilities and medical equipment improved under the grant.

1-10 Minutes of Meeting (on explanation of draft report)

MINUTES OF DISCUSSIONS

BASIC DISIGN STUDY ON THE PROJECT

FOR THE REHABILITATION OF THE CHORAY HOSPITAL

IN THE SOCIALIST REPUBLIC OF VIET NAM

From February to April 1991, the Japan International Cooperation Agency (JICA) dispatched a Basic Design Study team on the Project for the Rehabilitation of the Cho Ray Hospital (hereinafter referred to as 'the Project') to the Socialist Republic of Viet Nam. Based on the results of discussions, field survey and examination in Japan, JICA has prepared the draft report of the study.

In order to explain and consult the Vietnamese side on the components of the draft report, JICA sent to Viet Nam a explanation team , which is headed by Mr. Yutaka Yokoi, Deputy Director, Grant Aid Division , Economic Cooperation Bureau,Ministry of Foreign Affairs,and is scheduled to stay in the country from July 11 to 20, 1991.

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

Ho Chi Minh City, July 16, 1991

Mr. Yutaka Yokoi Leader Draft Report Explanation Team JICA	Prof. Trinh Kim Anh Director Cho Ray Hospital Socialist Republic of Viet Nam

ATTACHEMENT

1. Components of Draft Report

The Government of Viet Nam has agreed and accepted in principle the components of the Draft Report submitted by the team.

2. Japan's Grant Aid system

1) The Vietnamese side has understood the system of Japan's Grant Aid as explained by the team.

2) The Vietnamese side will take the necessary measures, as described in Annex I for the smooth implementation of the Project,on condition that the Grant Aid by the Government of Japan would be extended to the Project.

3. Further schedule

JICA will commpile the Final Report in accordance with the confirmed items , and send it to the Government of Viet Nam in September 1991.

4. Technical cooperation

The Vietnamese side requested the Japanese side to dispatch Japanese experts and to accept counterpart personnel in Japan. The team explained that a new proposal for technical cooperation from the Government of Viet Nam would be necessary.

Annex I

Necessary measures to be taken by the Government of Viet Nam on condition that Japan's Grant Aid would be extended :

1. To ensure prompt unloading , tax exemption , customs clearance at ports of disembarkation and prompt internal transportation of the equipment purchased under the Grant Aid.

2. To bear the following commissions to the Japanese foreign exchange bank for the banking services based upon the Banking Arrangement.

   1) Advising commission of authorization to pay (A/P) (about Y 3.000 for each A/P)

   2) Payment commssion

3. To exempt Japanese nationals from customs duties , internal taxes and other fiscal levies which may be imposed in the Socialist Republic of Viet Nam with respect to the supply of the products and services under the Verified Contracts.

4. To accord Japanese Nationals whose services may be required in connection with the supply of products and the services under the Verified Contracts such facilities as may be necessary for their entry into the Socialist Republic of Viet Nam and stay therein for the performance of their work.

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

6. To ensure the proper budget for effective operation and maintenance of facilities and medical equipment improved under the Grant.

JICA