

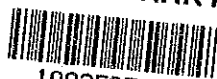
**BASIC DESIGN STUDY REPORT  
ON  
THE PROJECT  
FOR  
UPGRADING MEDICAL EQUIPMENT  
OF  
PROVINCIAL HOSPITALS  
(PHASE II)  
IN  
THE REPUBLIC OF THE PHILIPPINES**

**JULY 1991**

**JAPAN INTERNATIONAL COOPERATION AGENCY**



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## PREFACE

In response to a request from the Government of the Republic of the Philippines, the Government of Japan decided to conduct a basic design study on the Project for Upgrading Medical Equipment of Provincial Hospitals Phase-II and entrusted the study to the Japan International Cooperation Agency (JICA).

JICA sent to the Philippines a study team headed by Dr. Yasuhiro Arasaki, Department of International Cooperation, National Medical Center Hospital from February 19th to March 20th, 1991.

The team held discussions with the officials concerned of the Government of the Philippines and conducted a field study at the study area. After the team returned to Japan, further studies were made and the present report was prepared.

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

I wish to express my sincere appreciation to the officials concerned of the Government of the Republic of the Philippines for their close cooperation extended to the team.

July 1991



Kensuke Yanagiya

President

Japan International Cooperation Agency





# REPUBLIC OF THE PHILIPPINES

## Provincial and regional map

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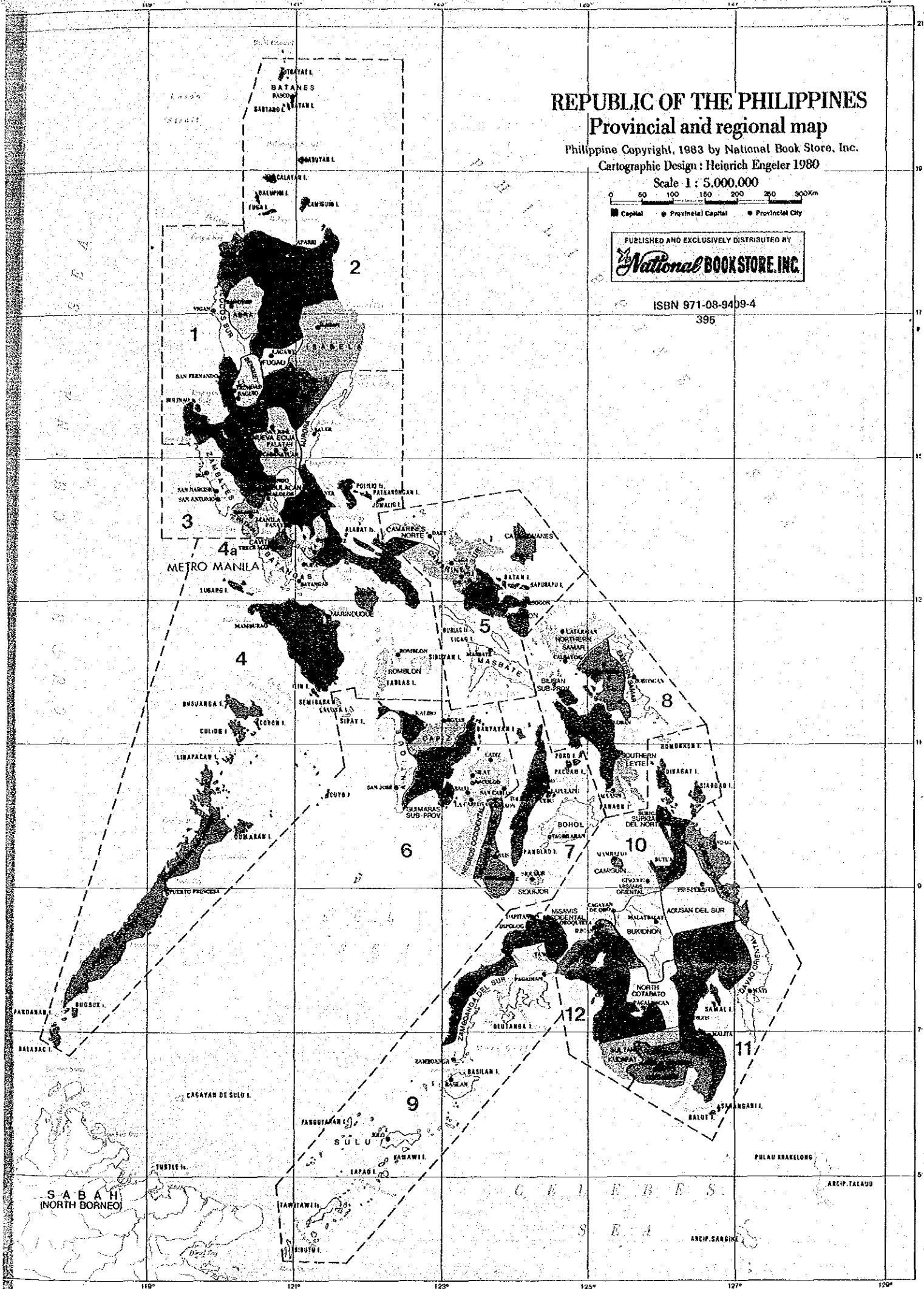
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● Capital ● Provincial Capital ● Provincial City

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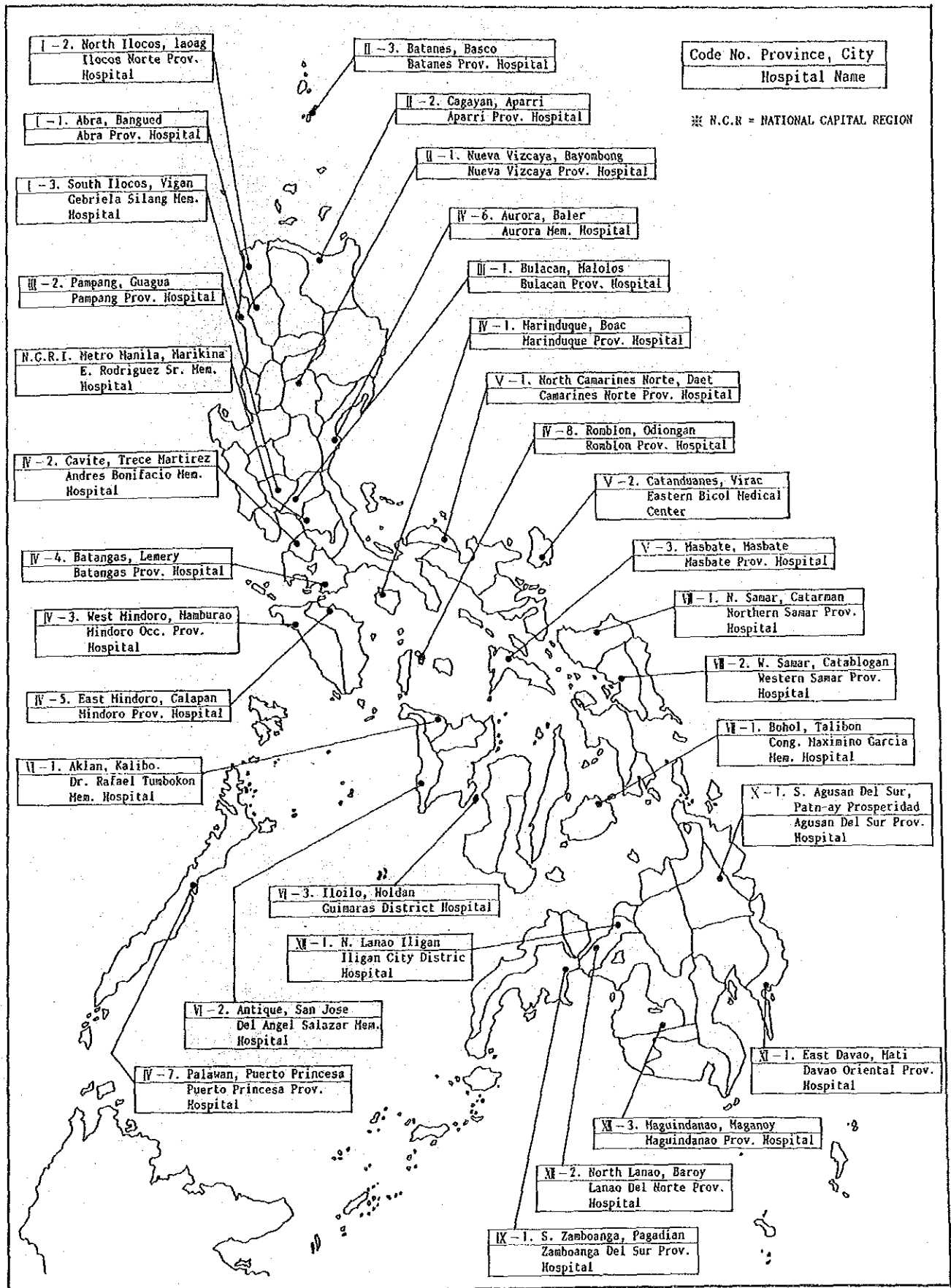
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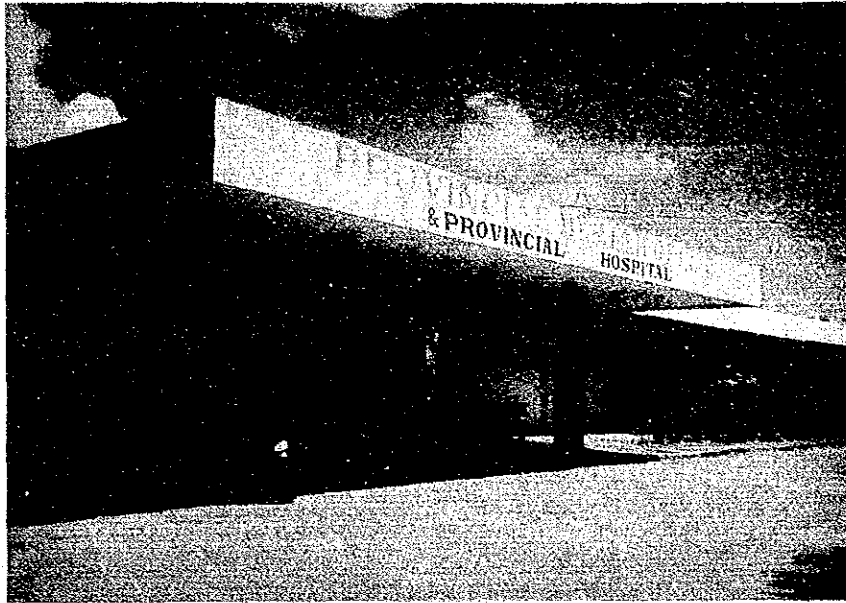


# THE SUBJECTED FACILITIES

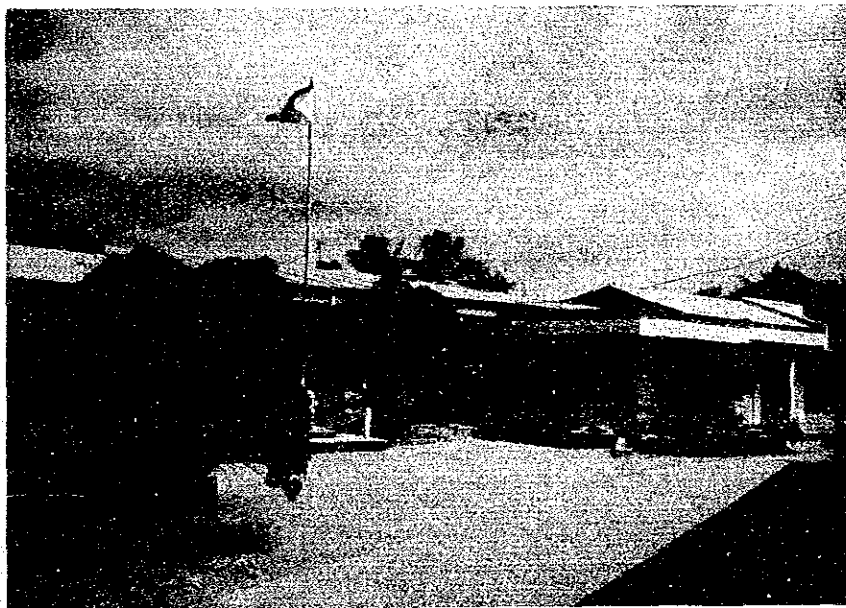
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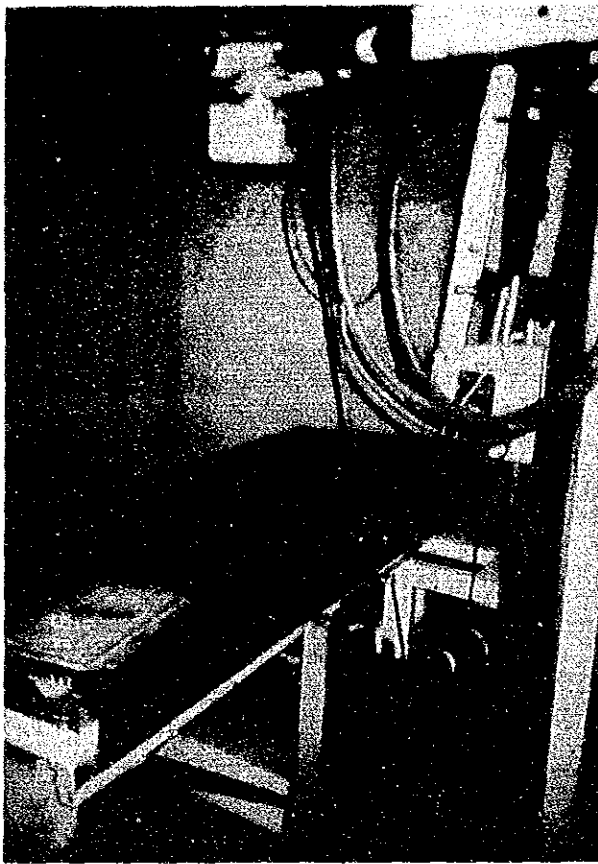




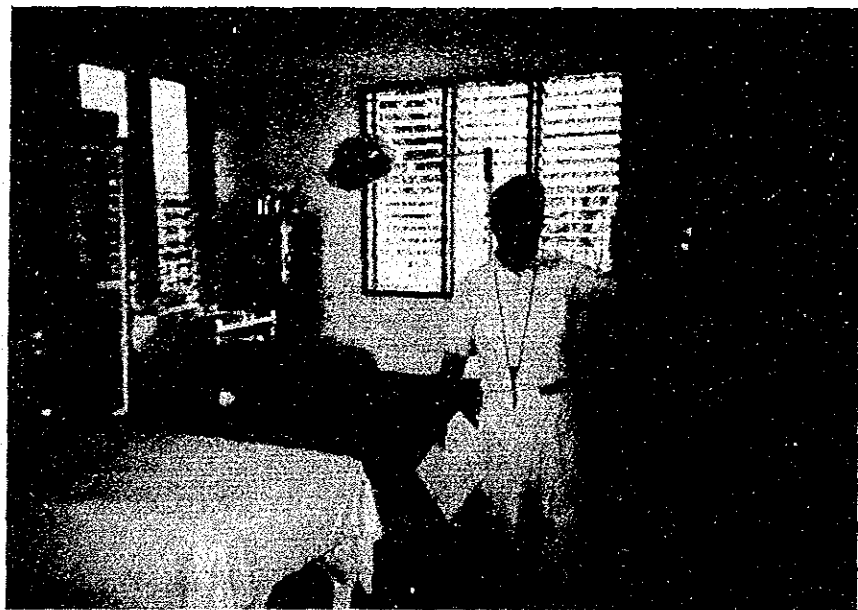
E. RODRIGUEZ SR. MEM. HOSPITAL



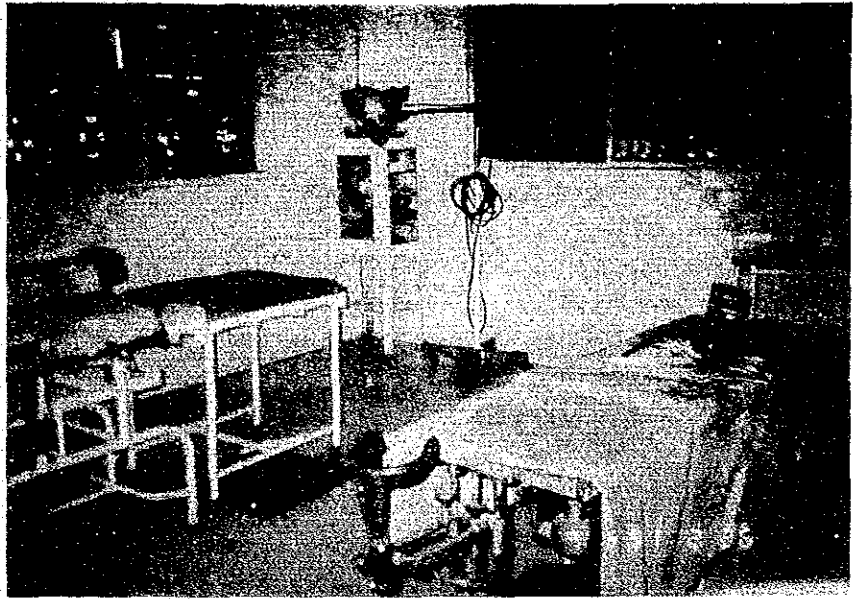
BATANGAS PROVINCIAL HOSPITAL



DIAGNOSTIC X-RAY EQUIPMENT



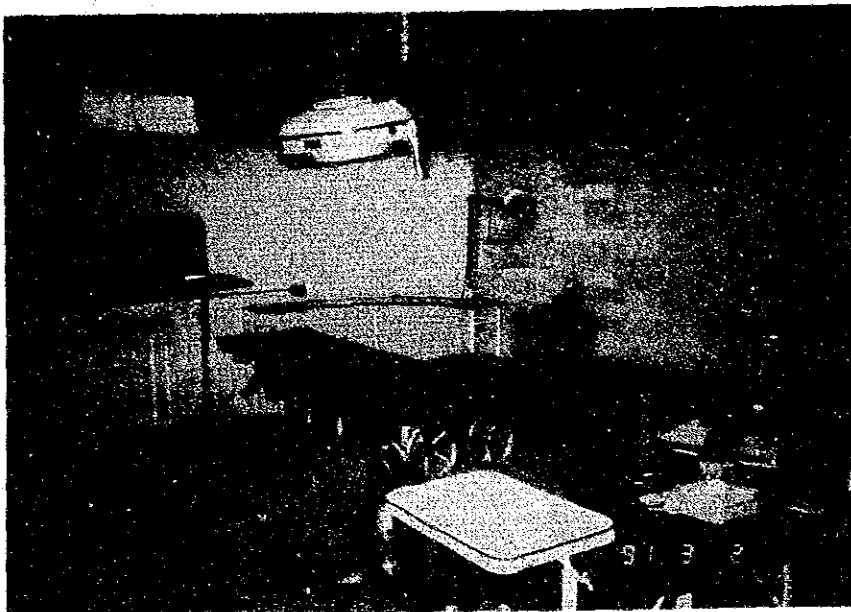
EMERGENCY DEPARTMENT



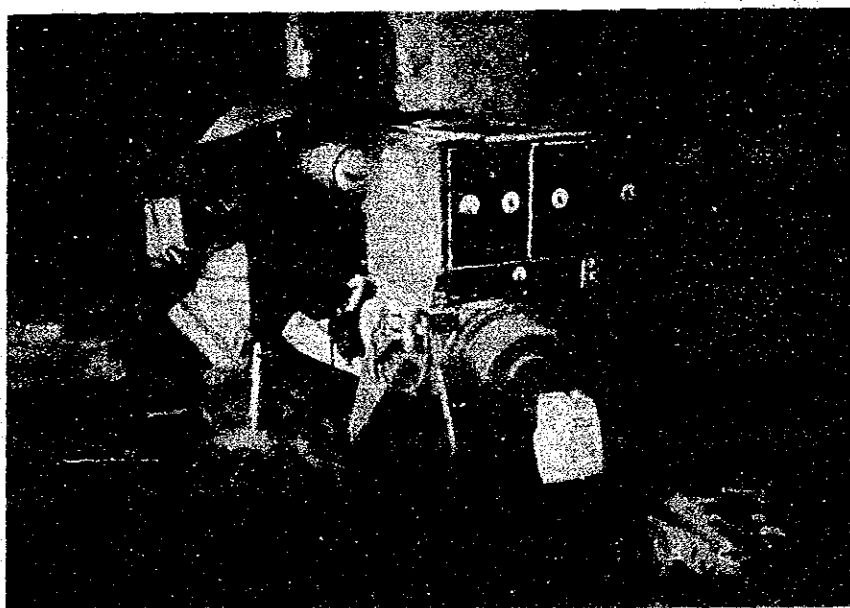
OPERATING ROOM FOR GYNECOLOGY



NURSERY



OPERATING ROOM AT PROPOSED HOSPITAL

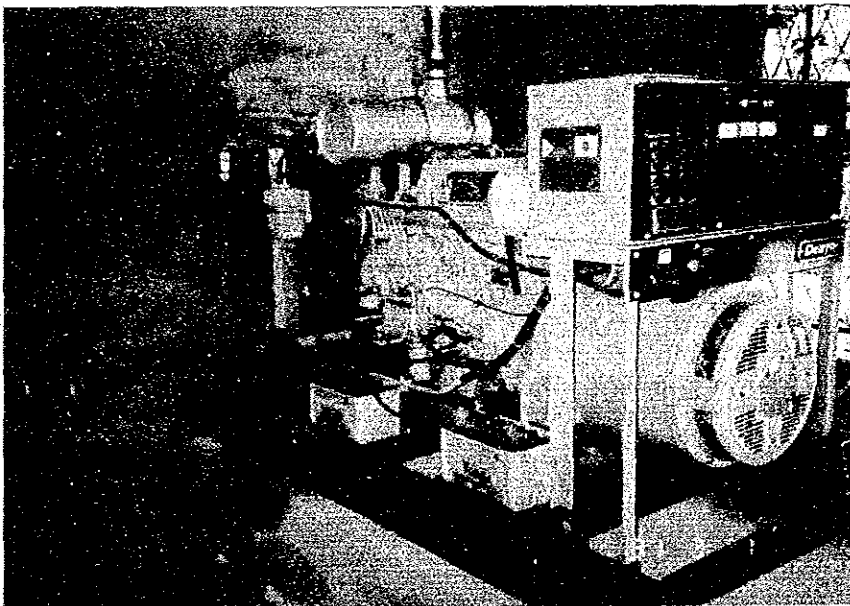


POWER GENERATOR AT PROPOSED HOSPITAL





MINOR OPERATING ROOM EQUIPPED UNDER  
JAPANESE GRANT ASSISTANCE IN 1988



POWER GENERATOR EQUIPPED UNDER  
JAPANESE GRANT ASSISTANCE IN 1988



WELL PUMPING SET AT PROPOSED HOSPITAL



KITCHEN AT PROPOSED HOSPITAL



OFFICE OF HOSPITAL MAINTENANCE SERVICE



TRAINING OF TECHNICIANS FOR REPAIR  
(HOSPITAL MAINTENANCE SERVICE)



## SUMMARY

The Republic of the Philippines established in 1979 a health care system for the improvement of health & medical cares in the country. This was a step taken in line with the spirit of "providing the people with opportunities of receiving health and medical services which are necessary and effective for a healthy social life by the government's responsibility for the people's health and the rights and obligations of the people's health and the rights and obligations of the people themselves" which is the basic principle of primary health care. This system is intended to provide nutritional guidance, health education, family planning, etc. on the primary medical level, preventive measures against infectious diseases, group examination and regional health & medical services, etc. on the secondary medical level and reinforcement of supporting system to regional health & medical services on the tertiary medical level as well as inclusive health & medical services covering from the primary medical services to the tertiary medical level based on the health and medical policies.

In the Philippines, diseases due to infection present serious health problems and, in 1989, the top 6 of the 10 major diseases were represented by infectious diseases such as bronchitis, diarrhea, influenza, pneumonia, tuberculosis, malaria, etc. The number of patients of the infectious diseases included in those 10 major diseases is reported to be approximately 2.54 millions representing 82% of the total number of patients of the 10 major diseases. Among the infants, as much as 54% of the distribution ratio of mortality in the 10 major causes of death are represented by infectious diseases, bringing down the average life expectancy of the people and also reducing the young working population of the country as it is reported.

Under such circumstances, the Philippine Government elaborated in 1986 a state development plan (1987 ~ 1992) with a view to maintaining social and economic developments and improving the country's international balance of payments. In the field of health and medical services, the government established a hospital service service development project under the state development plan and has been making efforts for the achievement of the 3

major targets of ① improvement of nutrition situation of the nation, ② implementation of effective medical services for the entire nation leading to the promotion of primary health care, and ③ promotion of family plan for the improvement of living conditions.

However, a shortage of budget for medical facilities, etc. makes it difficult to realize renewal of equipment as well as improvement of medical facilities necessary for the basic medical services, putting an obstacle to the achievement of the said objectives. On the other hand, this difficulty has produced differences among regions in the number of people engaged in medical services. For example, a medical institution having 200 beds has 44 doctors in one region while another institution of the same size has 33 doctors only. The number of doctors against the number of beds is sometimes reversed and there is a case where a hospital of 100 beds has as many as 47 doctors but a hospital of same size has only 13 doctors in another place. Such differences among regions prevent implementation of effective medical services to the entire nation which is one of the main objectives of the Project.

With the above-mentioned situation as background, the Philippine Government has been improving regional medical activities by receiving a grant aid from Japan intended for the improvement of medical equipment in regional hospitals, for the purpose of modernizing regional medical institutions and improving the medical services there. Moreover, in 1988, the Philippine Government selected 26 hospitals from the 77 provincial hospitals and has been trying to improve health and hygiene services to the regional inhabitants under Japanese Grant Aid Programme intended for the upgrading of medical equipment in those hospitals. This time, the government selected 32 provincial hospitals (including one medical center and two district hospitals of the same level as provincial hospitals) requiring immediate improvement, elaborated a medical equipment improvement plan for the facilities concerned and requested for a grant aid for that plan from the Japanese Government. Those hospitals are positioned at the top of the public medical institutions in each province as hospitals of referral for the tertiary medical services and are providing the local inhabitants with inclusive medical services

centering on medical services of secondary and tertiary medical levels. Those 32 proposed hospitals of this Project have been selected according to such standards as "large population in the service area", "located in an area with a remarkable increase of population", "insufficient assignment of budget from the Department of Health in the past", "urgent necessity for improvement of medical equipment", etc.

In response to this request, the Japan International Cooperation Agency dispatched a basic design study team to the Philippines for 30 days from 19th February to 20th March, 1991. The Study Team had discussions with the people concerned of the Department of Health and made confirmations about the background, the objective and the content, etc. of the Project. Moreover, the Team also made an on-the-spot investigation of the facilities in 7 of the 32 provincial hospitals planned for upgrading of medical equipment by the Philippine Government, made an investigation by hearing on the rest of the proposed hospitals and collected other necessary information and data. In addition, the Team made a field survey of 5 of the 26 hospitals which received a supply of medical equipment during the year 1988.

After returning to Japan, the Study Team analyzed the content of the field survey and found that the medical and health budget was curtailed for distribution to various hospital because of financial difficulties of the Philippines. The greater part of the budget is consumed for the management of existing facilities, etc. As a result, there is little room for renewal or new purchases of equipment and many of the proposed hospitals find it impossible to provide sufficient medical services due to extreme deterioration or being unserviceable of their equipment. Especially, there is a remarkable shortage of equipment indispensable for the diagnosis of diseases such as X-ray unit, laboratory equipment, etc. and no sufficient cares are taken for infectious diseases which are serious diseases in this country.

The equipment requested this time are those which are used for the daily health and medical activities such as diagnosis, treatment, etc. of diseases in the proposed hospitals in the Project, indispensable and of an extreme urgency for the promotion of the health & medical project including

countermeasures against infectious diseases being carried out by the Philippine Government. The proposed hospitals of the Project are medical institutions which carry out medical activities of secondary level most closely associated with countermeasures against infectious diseases. Moreover, they are established one in each of the provinces and are important facilities situated at the top of the medical services in the respective provinces. Furthermore, under the primary health care system, the proposed hospitals are requested to provide not only medical services of secondary level mentioned before but also primary medical services which are basic medical activities and even services up to tertiary medical services including professional medical activities of high level because of the lack of sufficient medical facilities in the service area concerned. Therefore, they constitute the nucleus of the health and medical policies of the Philippines also in this respect.

On the other hand, the equipment procured for 26 provincial hospitals under a grant aid from Japan in 1988 ("The Project for the Equipment Upgrading of 26 Provincial Hospitals") meet the demands and the technical level of the respective hospitals and are being used effectively and at a high efficiency, contributing to the improvement of provincial health and medical services. The use of the equipment procured within the framework of the said Project is made sufficiently managed with the existing budget arrangement and number of personnel designed. As for the maintenance of those equipment, the Hospital Maintenance Service of the Department of Health is providing biannual regular inspections and repair services as required. Therefore, the said Project is being carried out as it was originally planned. From those viewpoints, it is considered that the current Project is sufficiently workable with the present maintenance system and is feasible if only it is designed based on a concept similar to that of the previous Project. Moreover, it is judged that implementation of the current Project will greatly contribute to the upgrading of health and medical activities for the entire nation of the Philippines and is sufficiently significant in light of the spirit of grant aid of Japan.

The principles of the Project worked out based on the basic design study are the following:



The problem of the medical activities on provincial level in the Philippines is a quantitative and qualitative drop of services due to deterioration of medical equipment installed in each hospital. In the elaboration of this basic design, due attention will be paid to the objective, the budget system, the maintenance system, the operating effects, etc. of the current Project in the premise that it is indispensable to provide equipment necessary mainly for the improvement and strengthening of secondary medical services. The selected equipment will be those which can be well managed and maintained with the technical level and the budget allocation and will be carefully planned to be distributed according to the current situation, such as scale of activities, etc. in the respective hospitals.

In addition, as a condition in the aspect of demand, it will be planned to provide basic medical equipment partially including equipment of the primary and tertiary medical services together with the equipment necessary for the secondary medical services on one hand and to intend to supply reference literature relating to diagnosis of diseases accompanied with the equipment on the other hand so as to improve the technical level of the medical personnel in charge.

Due attention has been also paid to the unstable power supply condition, the tropical environments and the availability of spare parts, etc. in the Philippines in the selection of the most suitable equipment. The proposed hospitals and the planned equipment selected according to those principles are the following:

### THE PROPOSED HOSPITALS

CODE NO.	NAMES OF FACILITIES	LOCATIONS
I	1. ABRA PROVINCIAL HOSPITAL.	BANGUED, ABRA
	2. ILOCOS NORTE PROVINCIAL HOSPITAL	LAOAG CITY, ILOCOS
	3. GABRIELA SILANG GENERAL HOSPITAL	VIGAN, ILOCOS SUR
II	1. NUEVA VIZCAYA PROVINCIAL HOSPITAL	BAYOMBONG, NUEVA VIZCAYA
	2. APARRI PROVINCIAL HOSPITAL	APARRI, CAGAYAN
	3. BATANES PROVINCIAL HOSPITAL	BASCO, BATANES
III	1. BULACAN PROVINCIAL HOSPITAL	MALOLOS, BULACAN
	2. PAMPANGA PROVINCIAL HOSPITAL	GUAGUA, PAMPANGA
N.C.R.	1. EULOGIO RODRIGUEZ SR. MEMORIAL HOSPITAL	MARIKINA, METRO MLA.
IV	1. MARINDUQUE PROVINCIAL HOSPITAL	BOAC, MARINDUQUE
	2. ANDERS BONIFACIO MEMORIAL HOSPITAL	TRECE MARTIREZ CITY CAVITE
	3. MINDORO OCCIDENTAL PROVINCIAL HOSPITAL	MAMBURAO, MINDORO OCC.
	4. BATANGAS PROVINCIAL HOSPITAL	LEMERY, BATANGAS
	5. MINDORO PROVINCIAL HOSPITAL	CALAPAN, MINDORO ORIENTAL
	6. AURORA MEMORIAL HOSPITAL	BALER, AURORA
	7. PUERTO PRINCESA PROVINCIAL HOSPITAL	PUERTO PRINCESA, PALAWAN
	8. ROMBLON PROVINCIAL HOSPITAL	ODIONGAN, ROMBLON
V	1. CAMARINES NORTE PROVINCIAL HOSPITAL	DAET, CAMARINES NORTE
	2. EASTERN BICOL MEDICAL CENTER	VIRAC, CATANDUANES
	3. MASBATE PROVINCIAL HOSPITAL	MASBATE, MASBATE
VI	1. DR. RAFAEL TUMBOKON MEMORIAL HOSPITAL	KALIBO, Aklan
	2. DELEGATE ANGEL SALAZAR MEMORIAL HOSP.	SAN JOSE, ANTIQUE
	3. GUIMARAS DISTRICT HOSPITAL	JORDAN, GUIMARAS
VII	1. CONGRESSMAN. MAXIMINO GARCIA MEMORIAL HOSPITAL	TALIBON, BOHOL
VIII	1. NORTHERN SAMAR PROVINCIAL HOSPITAL	CATARMAN, NORTHERN SAMAR
	2. WESTERN SAMAR PROVINCIAL HOSPITAL	CATBALOGAN, WESTERN SAMAR
IX	1. ZAMBOANGA DEL SUR PROVINCIAL HOSPITAL	PAGADIAN CITY, ZAMBOANGA DEL SUR
X	1. AGUSAN DEL SUR PROVINCIAL HOSPITAL	PATIN - AY PROSPERIDAD, AGUSAN DEL SUR
XI	1. DAVAO ORIENTAL PROVINCIAL HOSPITAL	MATI, DAVAO ORIENTAL
XII	1. ILIGAN CITY DISTRICT HOSPITAL	ILIGAN CITY, LANA DEL NORTE
	2. LANA DEL NORTE PROVINCIAL HOSPITAL	BAROY, LANA DEL NORTE
	3. MAGUINDANAO PROVINCIAL HOSPITAL	MAGANOF, MAGUINDANAO

※ NCR: National Capital Region

# PROPOSED EQUIPMENT TO BE PROCURED

1) Diagnosis Equipment	
• Diagnostic X-ray Equipment	• Ultrasound Scanner
• X-ray Accessories Set	• Electrocardiograph
• Defibrillator	• Others
2) Operating Room Equipment (including Emergency Unit)	
• Major Operating Light	• Minor Operating Light
• Mobile operating Light	• Major Operating Table
• Orthopedic Surgery Table	• Gynecological Surgery Table
• Minor Operating Table	• Anesthesia Apparatus
• Electro Surgical Unit	• Others
3) Intensive Care Unit Equipment	
• I.C.U. Monitor Scope	• I.C.U. Bed
• Critical Care Ventilator	• Portable Suction Unit
• Others	
4) OB & GNY Equipment	
• Infant Incubator	• Phototherapy Unit
• Clinical Examination Table	• Others
5) Ward Equipment	
• Examination Lamp	• Orthopedic Bed
• Instrument Sterilizer	• Others
6) Laboratory Equipment	
• Spectrophotometer	• Autoclave
• Blood Bank Refrigerator	• Laboratory Refrigerator
• Water Bath	• Others
7) Miscellaneous	
• Ambulance	• High Pressure Sterilizer
• Service Vehicle	• Others

The implementation body of this Project is the Department of Health of the Philippines and the Under Secretary of the Department of Health is in charge of business liaison and general administration.

No additional budgetary appropriation by the Government of the Philippines is necessary for this Project since the equipment shall be supplied to the existing hospitals fully equipped with facilities of water supply and drainage as well as power supply.

The expenses to be borne by the Government of the Philippines for maintenance and management of this Project include electricity charge, water supply and sewage fees, gas rate and costs for medical equipment consumables.

Most pieces of the equipment to be supplied are to supplement the equipment presently in use which is worn-out or recently got in trouble and unrepairable. And the present budget appropriated for the above purpose is sufficient enough to cover these expenses.

The work schedule of the Project will be started upon conclusion of the Exchange of Notes (E/N) between the Government of Japan and the Government of the Philippines in accordance with the following three steps. The period of time required for the completion of the Project will be approximately 12 months.

- (1) For detailed design: approx. 2.5 months
- (2) For tendering: approx. 1.5 months
- (3) For project execution: approx. 7.8 months.

Implementation of the Project will improve the level of health services in 32 provinces, and the estimated total population of approximately 27.4 million of 32 provinces in 1989, nearly 46.7% can be benefited by more effective health services to be rendered mainly from the secondary health care level. In the budget of the Department of Health, the ratio of maintenance and repair expenses will be reduced and the amount thus saved can be utilized for the accomplishment of purposes of the National Health Plan which is being executed. In addition to these direct effects, the supply of equipment can help more efficiently the activities of health services including secondary health care, which has so far been rather insufficient as well as primary and tertiary health care. Furthermore, the scope of medical activities in the fields of treatment and diagnosis will be extended.

As described above significant effects can be expected from the Project, of which management shall also be properly materialized. Therefore, this Project is considered to be appropriate for the Grant Aid.

In this connection, it is firmly recommended that the Government of the

Philippines put in practice the following proposals in order to make the Project more effective.

- (1) A visiting maintenance team from Hospital Maintenance Services of the Department of Health shall be sent to each facility same as in the case of "Phase 1" at least once in half of a year to spend four or five days at one facility in order to maintain equipment in good condition as long as possible.
- (2) Upgrading' of medical equipment of provincial hospitals other than the hospitals in the Phase 1 and in this project will be followed for the complete upgrading of all provincial hospitals in the Philippines and consequently medical service in provincial level will be strengthened.



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## CHAPTER I INTRODUCTION



## CHAPTER 1 - INTRODUCTION

The Government of the Republic of the Philippines (hereinafter referred to as "the Philippines" ) elaborated in 1986 a state development plan 1987~1992) with a view to maintaining social and economic developments and improving the country's international balance of payments. In the field of health and medical services under this project, the government has been making efforts for the achievement of such objectives as improvement of nutrition situation of the nation, promotion of family planning, implementation of effective medical services for the entire nation leading to the promotion of primary health care, etc. However, a shortage of budget for health and medical sector prevents any increase in the assignment of budget to the medical facilities and, for that reason, not only procurement of equipment necessary for the basic medical services but even renewal of deteriorated equipment cannot be made in a satisfactory manner. As a result, many hospitals find it difficult to "provide effective medical services for the entire nation" which is one of the objectives of the said project.

Under such circumstances, the Philippine Government requested the Japanese Government for a grant aid for the improvement of medical equipment ("The Project for the Equipment Upgrading of 26 Provincial Hospitals" hereinafter referred to as "Phase I") in 26 provincial hospitals in 1988, for the strengthening and improvement of provincial hospitals. This time, the Philippine Government selected 32 provincial hospitals requiring immediate upgrading, elaborated a medical equipment upgrading plan for the improvement of medical services in the areas concerned and requested for a grant aid for that plan from the Japanese Government.

In response to this request, the Japanese Government decided to conduct a basic design study and the Japan International Cooperation Agency dispatched a study team for this Project to the Philippines for 30 days from 19th February to 20th March, 1991. The Basic Design Study Team led by Mr. Yasuhiro NIIZAKI, doctor in Department of International Cooperation, National Medical Center Hospital, made confirmations about the background, the content, of the project, the executing agency, etc. of the Project. The Team also made an on-

the-spot investigation of the facilities in 7 proposed hospitals as well as 5 hospitals which acquired medical equipment in "Phase I" and made a survey at the Department of Health by hearing with the representatives of all proposed hospital.

The present report presents optimal ideas such as basic design regarding improvement of medical services, approximate budget cost, maintenance plan, etc. for the realization of this Project on the basis of the said field as well as the examination of appropriateness of this Project made in the course of the analytical work in Japan after the returning to Japan of the Study Team. The member list of the survey team, the survey schedule, the list of parties concerned in the Philippines and the minutes of meeting are as shown in the attached data.

## CHAPTER II BACKGROUND OF THE PROJECT





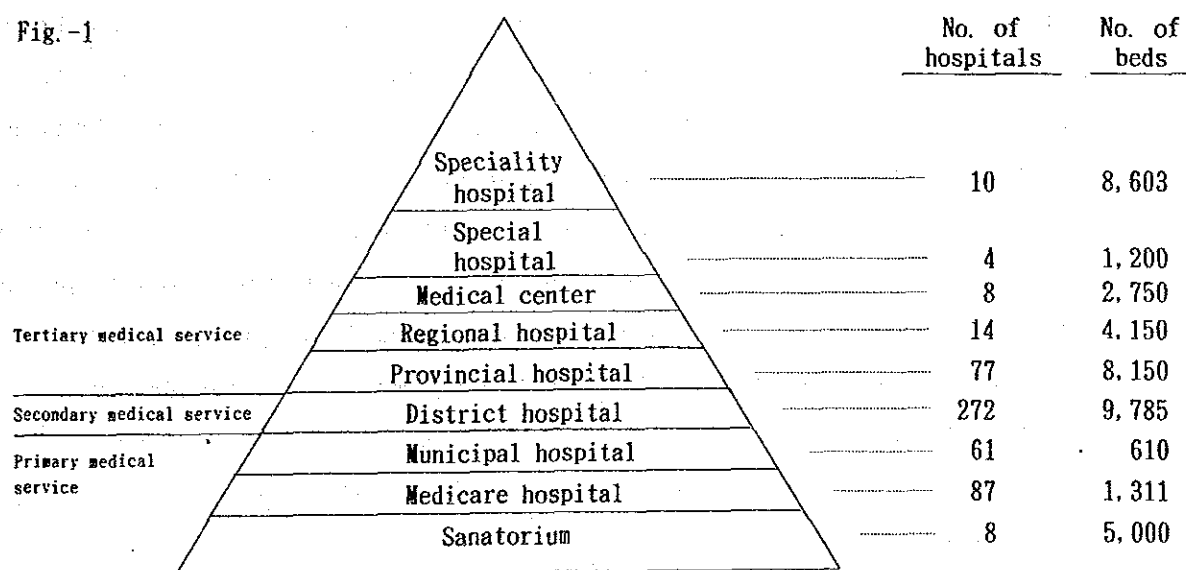
## CHAPTER 2 - BACKGROUND OF THE PROJECT

### 2-1. Background of the Project

The Philippine Government elaborated in 1986 a state development plan (1987~1992) with a view to maintaining social and economic developments and improving the country's international balance of payments. In the field of health and medical services under this plan, the government has been making efforts for the achievement of such objectives as improvement of nutrition situation of the nation, "implementation of effective medical services for the entire nation".

The public health and medical service system in the Philippines is constructed as a pyramidal system as shown in Fig. 1 having 14 regional hospitals, 77 provincial hospitals, 8 medical centers, etc. as tertiary medical institutions, 272 district hospitals, etc. as secondary medical institutions and rural health units, municipal/medicare hospitals, Balangai Health Station, etc. as primary medical facilities.

Fig.-1



Source: Department of Health

In the main diseases in the Philippines, high morbidity rates are recorded by digestive diseases malaria and measles, etc. due to infection. Thus diseases arising from an insufficiency of public health system show a high rate of occurrence and the mortality rate by malignant tumor or heart disease is also rising recent years.

However, a shortage of budget for health and medical sector prevents any increase in the assignment of budget to the medical facilities and, for that reason, not only procurement of equipment necessary for the basic medical services but even renewal of deteriorated equipment cannot be made satisfactorily. As a result, many medical hospitals find it difficult to "provide effective medical services for the entire nation" which is one of the objectives of the said plan.

Under such circumstances, the Department of Health of the Philippines requested the Japanese Government for a grant aid for the implementation of a medical equipment upgrading of Provincial Hospitals. In response to this request, the Japanese Government provided a grant aid for the medical equipment upgrading project for 26 hospitals from among the 77 provincial hospitals on the basis of the basic design study for medical equipment improvement project conducted in September, 1988 and completed this Project in February, 1990. The "Project for Upgrading of Medical Equipment of Provincial Hospitals Phase-II" for which the Philippine Government requested a grant aid of the Japanese Government this time is on the same line with the "Project for the Equipment Upgrading of Provincial Hospitals Phase I" which was already executed with the cooperation of the Japanese Government and the Philippine government aims at achieving quantitative and qualitative improvements of provincial medical services with the implementation of this Project.

## 2-2. Status of the Proposed Hospitals

### (1) Outline of the Hospitals

#### 1) Operating condition

The provincial hospitals of this Project are the key hospitals in the respective provinces having 25~200 beds and are mainly providing free diagnosis and treatment for the poor (chargeable diagnosis and treatment represent about 10% of all activities). However, there are also cases where a part (50~500 peso/day) of the expenses for diagnosis and treatment hospitalization, etc. are made chargeable even for people entitled to free diagnosis and treatment, depending on the financial situation of the hospital. Those hospital of this Project not only provide secondary medical services but also are provided with departments of internal medicine, surgery, radiology, pediatry, obstetrics & gynecology, emergency outpatients (dentistry, ophthalmology, otorhinolaryngology = E.N.T. in some hospitals) as initial referral hospital of tertiary medical services and engaged in the diagnostic and treatment activities by having operation rooms, radiographic examination room, delivery room, nursery, etc. belonging to such departments. A general doctor who takes care of internal medicine, pediatry and obstetrics by himself is assigned in hospitals with a comparatively small number of beds (25~50 beds). Table 11-1 indicates details about the operating condition of different hospitals.

#### 2) Buildings

Table 11-2 indicates the situation of facilities in 32 hospitals of the present Project. Those hospitals are located mostly in major cities of the respective provinces including the hospitals visited in the field study of this time and have good traffic and road conditions. They, therefore, have no particular problem about carrying in of equipment, infrastructures, etc.

Many of the hospitals have spacious sites and are blessed with good natural environments except for the climatic conditions of high

temperature and high humidity. The buildings have floors, pillars and beams made of concrete, walls of concrete block painted with mortar and roofs made of steel structure or wood frame. As for the finish of the interior, the floor of the operating room is made of tiles, terrazzo or marble, the walls are covered with tiles in the lower half, the ceilings are made of boards finished with paints in the many hospitals. The airtightness of rooms is not so good except for the operating room, the nursery, etc. and especially the fitting of entrance doors and windows is poor. The floor of the inspection room is made of PVC tiles or terrazzo, the floor of the radiology room is painted concrete, PVC tiles or terrazzo and the walls are coated with mortar and finished with a paint. Window type air conditioners are provided in the operating room, the delivery room and the doctor's room but are generally installed in poor conditions. The inspection room and the radiographic room have only fans and rarely have air conditioning. For that reason, there is much dust in the rooms and the equipment is rather stained. In the patients' rooms, even fans are rarely found and the rooms were either open at the top or had windows open in most hospitals. The kitchen was furnished with rather old equipment and was not so clean as a whole. There were also some hospitals having no place for storing food or kitchens located outdoors.

### 3) Facilities

The electric power supply is often interrupted and there are lots of voltage fluctuations, constituting one of the causes of equipment troubles. Most hospitals are provided with a generating system but such system is often very old and not fit for use requiring immediate replacement. As for water supply, some hospitals are using both well water and tap water but many of the hospitals are procuring water by pumping up from a well. However, the pump is old and not capable of supplying water sufficiently. Also in the survey of this time, many extension or repair works under way were seen in anticipation of the upgrading of equipment by the present Project. The equipment environments of the hospitals of the Project are the

following:

- Electric Power Supply : 110V, 60Hz and 220V, 60Hz  
Rate of Fluctuations  $\pm 25\%$
- Water supply : Well water, Rain water and Public service water
- Sewerage : Public sewer
- Gas supply : Propane gas (Cylinder base)
- Air conditioning : Partial air conditioning

**TABLE II -1 OPERATION STATUS OF THE PROPOSED HOSPITAL**

Code No.	Name of Hospital	No. of Bed	No. of Out-Patient/Y	No. of In-Patient/Y	Physician/Nurse	Annual Budget	Expense of Purchasing Equipment
I	1. ABRA PROVINCIAL HOSPITAL	100	20,134	4,292	20/28	P19,275,908	P 112,000
	2. ILOCOS NORTE PROVINCIAL HOSPITAL	100	61,865	8,874	29/36	P25,298,020	P 324,000
	3. GABRIELA SILANG GENERAL HOSPITAL	100	27,791	7,130	28/30	P23,828,016	P 194,000
II	1. NUEVA VIZCAYA PROVINCIAL HOSPITAL	200	26,378	8,859	44/50	P24,946,672	P 79,440
	2. APARRI PROVINCIAL HOSPITAL	50	11,977	3,248	12/11	P 3,030,000	P 390,000
	3. BATANES PROVINCIAL HOSPITAL	75	14,919	2,220	9/18	P 8,668,309	P 243,000
III	1. BULACAN PROVINCIAL HOSPITAL	200	72,669	8,712	44/58	P26,090,916	P1,000,000
	2. PAMPANGA PROVINCIAL HOSPITAL	150	36,319	7,873	23/28	P14,563,000	0
N.C.R.	1. EULOGIO RODRIGUEZ SR. MEMORIAL HOSPITAL	100	65,862	9,154	47/53	P13,907,412	0
IV	1. MARINDUQUE PROVINCIAL HOSPITAL	100	34,779	3,588	20/25	P22,463,984	P1,079,135
	2. ANDERS BONIFACIO MEMORIAL HOSPITAL	150	24,276	5,694	44/38	P56,342,000	0
	3. MINDORO OCCIDENTAL PROVINCIAL HOSPITAL	100	20,057	2,808	16/22	P24,393,793	P 324,000
	4. BATANGAS PROVINCIAL HOSPITAL	50	38,320	4,336	14/13	P28,141,808	P 614,000
	5. MINDORO PROVINCIAL HOSPITAL	100	22,911	6,791	29/31	P16,138,000	P 695,691
	6. AURORA MEMORIAL HOSPITAL	25	19,676	2,854	6/6	P 7,596,000	P 773,000
	7. PUERTO PRINCESA PROVINCIAL HOSPITAL	50	55,635	5,173	10/13	P31,538,995	P 303,000
	8. ROMBLON PROVINCIAL HOSPITAL	100	14,009	2,350	13/25	P14,960,000	P 400,000
V	1. CAMARINES NORTE PROVINCIAL HOSPITAL	150	41,184	7,664	37/55	P23,774,866	P 919,892
	2. EASTERN BICOL MEDICAL CENTER	200	39,789	5,911	34/41	P12,230,000	P 703,598
	3. MASBATE PROVINCIAL HOSPITAL	100	39,482	5,736	24/35	P34,602,017	P1,420,000
VI	1. DR. RAFAEL TURBOKON MEMORIAL HOSPITAL	100	40,772	10,909	43/58	P26,855,698	P 811,000
	2. DELEGATE ANGEL SALAZAR MEMORIAL HOSPITAL	100	17,009	8,050	21/33	P47,947,330	P2,176,554
	3. GUIMARAS DISTRICT HOSPITAL	25	18,785	2,247	6/9	P10,018,856	P 506,384
VII	1. CONGRESSMAN. MAXIMINO GARCIA MEMORIAL HOSPITAL	75	27,276	4,442	7/26	P 5,430,385	P 225,000
VIII	1. NORTHERN SAMAR PROVINCIAL HOSPITAL	100	30,879	6,708	20/38	P31,829,710	P 418,000
	2. WESTERN SAMAR PROVINCIAL HOSPITAL	100	34,699	5,250	18/32	P25,990,437	P 629,000
IX	1. ZAMBOANGA DEL SUR PROVINCIAL HOSPITAL	50	29,065	6,763	21/15	P35,415,876	P 144,000
X	1. AGUSAN DEL SUR PROVINCIAL HOSPITAL	100	33,966	9,033	16/24	P23,371,923	P 263,000
XI	1. DAVAO ORIENTAL PROVINCIAL HOSPITAL	100	30,255	4,591	19/20	P11,276,477	P 65,782
XII	1. ILIGAN CITY DISTRICT HOSPITAL	100	34,847	8,636	43/28	P13,550,317	P 262,315
	2. LANA DEL NORTE PROVINCIAL HOSPITAL	75	25,467	5,172	32/36	P23,563,287	P 300,000
	3. MAGUINDAHO PROVINCIAL HOSPITAL	50	9,479	1,814	12/12	P 4,756,616	P 275,000
TOTAL			1,020,531	186,882	761/947	691,796,628	15,650,791

※NCR: National Capital Region

Source: DOH

**TABLE II -2 PRESENT CONDITION OF THE PROPOSED HOSPITAL**

CODE NO.	NAME OF HOSPITAL	Age of Building (Years)	Area	Water Supply	Transformer		Generator	
					Voltage	Capacity	Power	Status
I	1. ABRA PROVINCIAL HOSPITAL	20	2,538m <sup>2</sup>	Well, Rain	220V.	75KV	75KVA	Good
	2. ILOCOS NORTE PROVINCIAL HOSPITAL	52	4,243m <sup>2</sup>	Well	1φ 220V	25KVA	25KVA	Mal function
	3. GABRIELA SILANG GENERAL HOSPITAL	5	3,208m <sup>2</sup>	Water work, Well	1φ 240V	25KVA	25KVA	Works
II	1. NUEVA VIZCAYA PROVINCIAL H.	9	5,942m <sup>2</sup>	Water work	3φ 220V	300KVA	450KVA	Good
	2. APARRI PROVINCIAL HOSPITAL	3	1,692m <sup>2</sup>	Water work, Well, Rain	3φ 220V	50KVA	25KVA	Good
	3. BATANES PROVINCIAL HOSPITAL	35	1,402m <sup>2</sup>	Water work	3φ 220V	25KVA	10KVA	Time-worn
III	1. BULACAN PROVINCIAL HOSPITAL	50	6,200m <sup>2</sup>	Well	3φ 220V	88KVA	25KVA	Short of power
	2. PAMPANGA PROVINCIAL HOSPITAL	5	3,110m <sup>2</sup>	Well	3φ 220V	75KVA	75KVA	Mal function
					1φ 220V	25KVA	25KVA	Good
N.C.R 1. EULOGIO RODRIGUEZ SR. MEMORIAL HOSPITAL		25	3,833m <sup>2</sup>	Public water work	220V	300KVA	10KVA	Time-worn
IV	1. MARINDUQUE PROVINCIAL HOSPITAL	7	1,741m <sup>2</sup>	Well	220V	100KVA	12KVA	Mal function
							15KVA	Good
							47KVA	Good
	2. ANDERS BONIFACIO MEMORIAL HOSPITAL			Well	220V	125KVA	45KVA	Mal function
	3. MINDORO OCCIDENTAL PROVINCIAL HOSPITAL	28	2,000m <sup>2</sup>	Well	220V	100KVA	7.5KVA	Good
							21KVA	Time-worn
							20KVA	Mal function
	4. BATANGAS PROVINCIAL HOSPITAL	25	1,246m <sup>2</sup>	Water work, Well	240V	375KVA	24KVA	Time-worn
	5. MINDORO PROVINCIAL HOSPITAL	51	1,116m <sup>2</sup>	Water work	1φ 220V	—	25KVA	Works
	6. AURORA MEMORIAL HOSPITAL	3	1,861m <sup>2</sup>	Well	—	—	25KVA	Mal function
V	7. PUERTO PRINCESA PROVINCIAL HOSPITAL	4	1,816m <sup>2</sup>	Public water work	3φ	25KVA	5KVA	Short of power
					1φ			Too small
	8. ROMBLON PROVINCIAL HOSPITAL	38	1,463m <sup>2</sup>	Water work	3φ 220V	100KVA	10KVA	Short of power
	1. CAHARINES NORTE PROVINCIAL H.	10	6,601m <sup>2</sup>	Water work	1φ 220V	50KVA	18KVA	Short of power
	2. EASTERN BICOL MEDICAL CENTER	19	6,126m <sup>2</sup>	Well	3φ 220V	25KVA	140KVA	Good
	3. HASBATE PROVINCIAL HOSPITAL	44	2,761m <sup>2</sup>	Water work, Well	3φ 220V	25KVA	28KVA	Mal function
VI	1. DR. RAFAEL TUMBOKON MEMORIAL H.	55	2,660m <sup>2</sup>	Water work	3φ 220V	30KVA	30KVA	Mal function
	2. DELGATE ANGEL SALAZAR MEMORIAL H.	25	4,640m <sup>2</sup>	Water work, Well	3φ 220V	50KVA	25KVA	Time-worn
	3. GUIHARAS DISTRICT HOSPITAL	14	2,252m <sup>2</sup>	Well	1φ 240V	30KVA	30KVA	Time-worn
VII	1. CONGRESSMAN. MAXIMINO GARCIA MEMORIAL HOSPITAL	40	3,395m <sup>2</sup>	Well	1φ 220V	15KVA	30KVA	Time-worn
VIII	1. NORTHERN SAMAR PROVINCIAL H.	45	3,119m <sup>2</sup>	Well	1φ 220V	15KVA	18KVA	Short of power
	2. WESTERN SAMAR PROVINCIAL H.	18	3,785m <sup>2</sup>	Well	Unknown	3φ	47KVA	Time-worn
						1φ	25KVA	New
IX	1. ZAMBOANGA DEL SUR PROVINCIAL H.	20	3,102m <sup>2</sup>	Well	3φ 220V	50KVA	25KVA	Mal function
X	1. AGUSAN DEL SUR PROVINCIAL H.	16	1,014m <sup>2</sup>	Water work, Rain	3φ 220V	25KVA	25KVA	Time-worn
XI	1. DAVAO ORIENTAL PROVINCIAL H.	18	984m <sup>2</sup>	Well	3φ 220V	50KVA	55KVA	Time-worn
XII	1. ILIGAN CITY DISTRICT HOSPITAL	14	4,585m <sup>2</sup>	Water work, Well	1φ 220V	—	Not installed	
	2. LANA DEL NORTE PROVINCIAL H.	17	3,305m <sup>2</sup>	Well	3φ 220V	15KVA	25KVA	Good
	3. MAGUINDANAO PROVINCIAL H.	11	1,239m <sup>2</sup>	Well	3φ 220V	100KVA	25KVA	Good

Source : DOH

(2) Outline of the Hospital Facilities

1) The quantities and the current situation of the main medical equipment existing in the hospitals of the present Project are as shown in Table II-3 hereunder.

TABLE II -3 PRESENT STATUS OF MAIN EQUIPMENT POSSESSED HOSPITAL

Status													
A ..... Good condition													
B ..... Partially not good condition													
C ..... Out of order, but still usable													
D ..... Out of order, not repairable													
E ..... Unserviceable because of time-worn													
I	1. ADRA PROVINCIAL HOSPITAL	Number	Diagnostic X-ray Equipment	Ultrasound Scanner	Defibrillator	Electrocardiograph	Major Operating Light	Major Operating Table	Anesthesia Apparatus	High Pressure Sterilizer	Incubator	Spectrophotometer	Well Pump
		Status	1	0	3	1	2	2	1	1	2	1	1
II	2. ILOCOS NORTE PROVINCIAL HOSPITAL	Number	1	0	0	1	1	1	2	2	1	1	2
		Status	E	E	E	E	E	E	E	E	E	E	E
III	3. GABRIELA SILANG GENERAL HOSPITAL	Number	2	0	1	2	1	2	1	1	1	1	2
		Status	E	E	E	E	E	E	E	E	E	E	E
IV	1. NUEVA VIZCAYA PROVINCIAL HOSPITAL	Number	1	0	3	4	2	2	4	1	1	2	1
		Status	E	E	E	E	E	E	E	E	E	E	E
V	2. APARRI PROVINCIAL HOSPITAL	Number	1	0	0	—	2	1	2	—	2	1	2
		Status	E	E	E	E	E	E	E	E	E	E	E
VI	3. BATANES PROVINCIAL HOSPITAL	Number	1	0	0	1	1	1	1	2	1	—	2
		Status	C	E	E	E	E	E	E	E	E	E	E
VII	1. BULACAN PROVINCIAL HOSPITAL	Number	1	0	1	1	2	2	2	—	4	2	1
		Status	D	E	C	E	E	E	E	E	E	E	E
VIII	2. PAMPANGA PROVINCIAL HOSPITAL	Number	1	0	0	1	1	1	3	1	2	2	2
		Status	D	E	E	D	A	C	D	E	E	E	E
IX	1. EULOGIO RODRIGUEZ SR. MEMORIAL HOSPITAL	Number	2	0	0	1	2	1	1	1	2	2	2
		Status	B	E	E	C	D	C	D	C	E	E	E
X	1. MARINODQUE PROVINCIAL HOSPITAL	Number	1	0	0	0	1	1	1	0	0	1	2
		Status	D	E	E	E	E	C	C	E	E	E	E
XI	2. ANDERS BONIFACIO MEMORIAL HOSPITAL	Number	3	0	0	3	1	1	2	1	2	1	2
		Status	D	E	E	E	E	C	C	E	E	E	E
XII	3. MINDORO OCCIDENTAL PROVINCIAL HOSPITAL	Number	2	0	0	1	1	1	2	1	2	1	1
		Status	C	E	E	A	E	E	A	D	D	E	E
XIII	4. DATANGAS PROVINCIAL HOSPITAL	Number	1	0	1	2	1	1	1	1	2	2	1
		Status	D	E	A	D	A	A	A	A	E	A	D
XIV	5. MINDORO PROVINCIAL HOSPITAL	Number	2	0	1	1	2	2	1	1	1	1	2
		Status	D	E	E	E	E	E	E	E	E	E	E
XV	6. AURORA MEMORIAL HOSPITAL	Number	1	0	1	1	1	2	1	1	1	1	1
		Status	C	E	E	E	E	E	E	D	D	E	E
XVI	7. PUERTO PRINCESA PROVINCIAL HOSPITAL	Number	1	0	1	1	1	1	2	1	2	2	—
		Status	D	E	E	E	E	E	E	E	E	E	E
XVII	8. ROMBLON PROVINCIAL HOSPITAL	Number	1	0	1	1	2	2	1	—	2	1	—
		Status	D	E	E	E	C	A	D	E	E	E	E
XVIII	1. CAHARINES NORTE PROVINCIAL HOSPITAL	Number	1	0	1	1	1	1	1	1	1	1	1
		Status	D	E	E	D	E	E	E	E	E	E	E
XIX	2. EASTERN BICOL MEDICAL CENTER	Number	2	0	0	2	2	2	1	1	1	1	1
		Status	D	E	E	E	E	D	E	E	E	E	E
XX	3. HASDATE PROVINCIAL HOSPITAL	Number	2	0	0	1	1	1	1	0	1	1	—
		Status	D	E	E	E	E	E	E	E	E	E	E
XXI	1. DR. RAFAEL TUHOKON MEMORIAL HOSPITAL	Number	1	0	0	1	3	3	1	0	1	1	1
		Status	B	E	E	E	E	E	E	E	E	E	E
XXII	2. DELEGATE ANGEL SALAZAR MEMORIAL HOSPITAL	Number	1	—	1	1	1	1	1	1	1	2	1
		Status	C	E	E	E	E	E	E	E	E	E	E
XXIII	3. GUINARAS DISTRICT HOSPITAL	Number	1	0	0	—	2	1	1	1	1	1	1
		Status	D	E	E	E	D	E	D	E	E	E	E
XXIV	1. CONGRESSMAN MAXIMINO GARCIA MEMORIAL HOSPITAL	Number	1	0	0	—	1	2	1	2	1	1	1
		Status	D	E	E	E	E	E	E	E	E	E	E
XXV	1. NORTHERN SAHAR PROVINCIAL HOSPITAL	Number	1	0	—	—	1	1	1	0	—	1	—
		Status	C	E	E	E	E	E	E	E	E	E	E
XXVI	2. WESTERN SAHAR PROVINCIAL HOSPITAL	Number	2	0	—	—	2	2	1	1	1	1	1
		Status	D	E	E	E	E	E	E	C	D	E	E
XXVII	1. ZAMBOANGA DEL SUR PROVINCIAL HOSPITAL	Number	1	0	—	1	1	—	1	—	1	1	—
		Status	E	E	E	D	E	E	E	E	E	E	E
XXVIII	1. AGUSAN DEL SUR PROVINCIAL HOSPITAL	Number	1	0	—	1	1	2	1	0	1	1	—
		Status	E	E	E	D	E	E	E	E	E	E	E
XXIX	1. DAVAO ORIENTAL PROVINCIAL HOSPITAL	Number	1	0	—	1	1	1	1	—	1	1	—
		Status	C	E	E	E	E	E	E	E	E	E	E
XXX	1. ILIGAN CITY DISTRICT HOSPITAL	Number	1	0	1	1	1	1	1	2	1	1	—
		Status	B	E	E	E	E	E	E	E	E	E	E
XXXI	2. LANA DEL NORTE PROVINCIAL HOSPITAL	Number	1	0	0	1	2	1	2	1	1	—	1
		Status	C	E	E	D	E	E	A	E	D	E	E
XXXII	3. MAGUINDANAO PROVINCIAL HOSPITAL	Number	1	0	0	1	1	1	1	1	1	1	—
		Status	D	E	E	E	E	E	E	E	E	E	E

— data were not obtainable.

Source: Field Survey



Each hospital is provided with the minimum level of equipment necessary for the basic diagnosis and treatment of secondary and tertiary medical services. However, the reality is that the equipment does not fully perform its essential functions because many of the equipment units are too old and not fit for use.

## 2) Problems of existing equipment

The budget for the maintenance of operation in the hospitals is distributed in proportion to the population and the service area in each province. However, the distribution of budget is limited to the expenses of imminent necessity such as personnel expenses, expenses for purchasing medicines and a small allocation of maintenance expenses, etc. and is far from being sufficient because of a financial difficulty in the Philippines. For that reason, hardly any renewal or supplementation of equipment has been made in the hospitals in those areas and many of the existing equipment and facilities are badly deteriorated, making it impossible to provide sufficient medical services. Even simple troubles are often left unrepaired because of an insufficiency of fund for the purchase of spare parts, traffic expenses of repair technicians, etc. The followings show the situation of main equipment having a problem among the equipment requested in the present Project.

- X-ray equipment: Many of the units are those installed 15~30 years ago and are no longer fit for use. They produce only about  $1/3 \sim 1/5$  of the rated output (mA). For that reason, there is a significant drop in the diagnosis functions of belly portions such as chest, abdomen, etc. The diagnostic table does not work well because of rust and corrosion and cannot take the position necessary for diagnosis.

- Operating light: Two to three bulbs are burnt out per operation table and no sufficient quantity of light is

obtained necessary for the operation. The lamps cannot be fixed because of corrosion in the balancing unit and repair parts are difficult to obtain because the equipment is of an old type.

- Operating table: These are old models installed 20~40 years ago and their upper limbs base, side supporting base, leg supporting base, etc. cannot be fixed normally. Positioning such as up-down movement, inclination, etc. is impossible because of rust and corrosion and the top mat of the table is worn out with long years of use. There are even such tables without mat at all and the patient is laid on a sheet placed directly on the metallic part.
- Surgical set: The forceps, surgical knives, scissors, etc. deteriorate in function as they are used and are usually replaced with new ones in 3 to 4 years. They are considered as consumables in a sense. However, because of a lack of new supplies, there are such problems as the tip of forceps which cannot be fixed, knives of poor cut, scissors with blades not fitting well each other, etc.
- Instrument sterilizer: A casserole for cooking is substituted for the sterilizer. Some instruments are disinfected by using a chemical solution.
- Phototherapy unit: This unit in the real sense of the wards is not being use. An ordinary bare fluorescent lamp is directly hung over newborn babies as a substitute for a phototherapy unit.
- Ambulance: Ambulances of Korean made (used for 2~3 years) are

provided in some hospitals but are insufficient. Many hospitals are using ambulances made by modifying small jeeps "Pinoi" of Philippine make. These are also rather old (10~15 years old) and get into trouble frequently. An early replacement of those ambulances is strongly required.

• Engine driven generator:

There is a strong demand for engine driven generator because of a poor power supply condition. However, most of the generators frequently get into trouble because they were installed 20 to 40 years ago. There are also many cases where the generator is out of use because of unavailability of repair parts. Some of the hospitals are using a 0.5 KVA generator (portable type) to operate the operating light only as an emergency means to temporarily meet the immediate needs.

The hospitals are provided with the necessary equipment to some extent for their medical activities and apparently provide an operating system conformable to the hospital service development plan promoted by the Department of Health. However, problems are quantitative insufficiency of equipment due to deterioration, etc. and measures taken against the failure of equipment. Among the equipment provided in the hospitals, there were some which were left in trouble for many years without being repaired. Many of those troubles are believed to be caused by environmental conditions of the Philippines or high temperature, high humidity and dust. It is believed that the health and medical situation on the provincial level of the Philippines will be greatly improved by ① adopting equipment protected against corrosion, ② improving the environmental conditions with the use of air conditioners, and ③ establishing a clear-cut responsibility system for the maintenance of equipment in the hospital, to solve the said problems.



## CHAPTER III    OUTLINE OF THE REQUEST



## CHAPTER 3 - OUTLINE OF THE REQUEST

### 3-1. Background of the Request

The Philippine Government elaborated in 1986 a state development plan (1987 ~ 1992) and has been making efforts for the qualitative improvement of public hospitals to achieve the major objectives of improvement of nutrition situation of the nation, implementation of effective medical services for the entire nation leading to the promotion of primary health care, etc.

However, under a long economic recession in the country, a shortage of budget for the health and medical sector makes it difficult to realize renewal and purchases of equipment necessary for providing basic medical services, putting an obstacle to the achievement of the said objectives. This difficulty also produces differences among provinces in the quality of medical services and the number of people engaged in medical services, and such differences among provinces prevent implementation of effective medical services to the entire nation aimed at by the health administration of the Philippines.

With the above-mentioned situation as background, the Philippine Government implemented in 1983 a medical equipment upgrading program for 13 regional hospitals positioned above the proposed hospitals of the present project by receiving a grant aid from Japan. Moreover, in 1988, the Philippine Government selected 26 hospitals requiring immediate upgrading from among the 77 provincial hospitals positioned on the same level as the proposed hospitals of this Project and implemented a medical equipment improvement program under a grant aid from Japan for those hospitals, producing positive results for the improvement of health and hygiene services to the provincial inhabitants.

Following the success of those programs, the Department of Health selected 32 Provincial hospitals requiring improvement requested a grant aid for that project from the Japanese Government to implement a medical equipment improvement plan for those hospitals.

### 3-2. Objective of the Project

The present Project aims at recovering and strengthening the essential functions of the provincial hospitals which play the role of initial referral tertiary medical services by improving the equipment of those hospitals, thus contributing to the quantitative and qualitative improvement of medical services in those hospitals so that the provincial hospitals may be placed in a position to provide medical services of higher grade among the health organization of the country. On the other hand, the Project is also intended to achieve the objectives of the hospital service development plan which is being promoted within the framework of the state health development plan. In other words, the present Program aims at strengthening the technical level of the provincial hospitals as a whole by expanding the "Phase I" Project implemented earlier.

### 3-3. Outline of the Request

The hospitals and the medical equipment which have been requested this time by the Philippine Government are the following:

#### (1) Outline of the Hospitals

The proposed hospitals are the 32 hospitals including two district hospitals and one medical center and of the same level as provincial hospitals and the Hospital Maintenance Service, Office for Hospital and Facilities Services of the Department of Health responsible for the maintenance of medical equipment.

The original number of the proposed hospitals of the request was 31 but the Department of Health later requested to add Zamboanga del Sur Provincial Hospital located in Western Mindanao (Region IX) for the following reasons:

- ① In the present Project, no proposed hospital was included in Region IX only among the 12 Regions all over the country and the addition of this hospital was strongly requested by the Philippine Government on the occasion of the basic design study. This is also important



to realize "implementation of effective medical services to the entire nation" which is one of the main objectives of the health plan currently being promoted by the Department of Health.

- ② In Pagadian City where this hospital is located, administrative functions and major organizations as well as provincial health office, etc. are planned to be transferred (from Zamboanga City) in the near future for the purpose of providing first-hand services for the inhabitants. With the implementation of this program, the population in the area will increase and there will be increased demands for health and medical services.

CODE NO.	NAME OF HOSPITAL	LOCATION
I	1. ABRA PROVINCIAL HOSPITAL 2. ILOCOS NORTE PROVINCIAL HOSPITAL 3. GABRIELA SILANG GENERAL HOSPITAL	BANGUED, ABRA LAOAG CITY, ILOCOS VIGAN, ILOCOS SUR
II	1. NUEVA VIZCAYA PROVINCIAL HOSPITAL 2. APARRI PROVINCIAL HOSPITAL 3. BATANES PROVINCIAL HOSPITAL	BAYOMBONG, NUEVA VIZCAYA APARRI, CAGAYAN BASCO, BATANES
III	1. BULACAN PROVINCIAL HOSPITAL 2. PAMPANGA PROVINCIAL HOSPITAL	MALOLOS, BULACAN GUAGUA, PAMPANGA
N.C.R.	1. EULOGIO RODRIGUEZ SR. MEMORIAL HOSPITAL	MARIKINA, METRO MNL.
IV	1. MARINDUQUE PROVINCIAL HOSPITAL 2. ANDERS BONIFACIO MEMORIAL HOSPITAL 3. MINDORO OCCIDENTAL PROVINCIAL HOSPITAL 4. BATANGAS PROVINCIAL HOSPITAL 5. MINDORO PROVINCIAL HOSPITAL 6. AURORA MEMORIAL HOSPITAL 7. PUERTO PRINCESA PROVINCIAL HOSPITAL 8. ROMBLON PROVINCIAL HOSPITAL	BOAC, MARINDUQUE TRECE MARTINEZ CITY CAVITE MAMBURAO, MINDORO OCC. LEMERY, BATANGAS CALAPAN, MINDORO ORIENTAL BALER, AURORA PUERTO PRINCESA, PALAWAN ODIONGAN, ROMBLON
V	1. CAMARINES NORTE PROVINCIAL HOSPITAL 2. EASTERN BICOL MEDICAL CENTER 3. MASBATE PROVINCIAL HOSPITAL	DAET, CAMARINES NORTE VIRAC, CATANDUANES MASBATE, MASBATE
VI	1. DR. RAFAEL TUMBOKON MEMORIAL HOSPITAL 2. DEDEGATE ANGEL SALAZAR MEMORIAL HOSP. 3. GUIMARAS DISTRICT HOSPITAL	KALIBO, Aklan SAN JOSE, ANTIQUE JORDAN, GUIMARAS
VII	1. CONGRESSMAN. MAXIMINO GARCIA MEMORIAL HOSPITAL	TALIBON, BOHOL
VIII	1. NORTHERN SAMAR PROVINCIAL HOSPITAL 2. WESTERN SAMAR PROVINCIAL HOSPITAL	CATARMAN, NORTHERN SAMAR CATBALOGAN, WESTERN SAMAR
IX	1. ZAMBOANGA DEL SUR PROVINCIAL HOSPITAL	PAGADIAN CITY, ZAMBOANGA DEL SUR
X	1. AGUSAN DEL SUR PROVINCIAL HOSPITAL	PATIN - AY PROSPERIDAD, AGUSAN DEL SUR
XI	1. LAVA O ORIENTAL PROVINCIAL HOSPITAL	MATI, DAVAO ORIENTAL
XII	1. ILIGAN CITY DISTRICT HOSPITAL 2. LANA O DEL NORTE PROVINCIAL HOSPITAL 3. MAGUINDANAO PROVINCIAL HOSPITAL	ILIGAN CITY, LANA O DEL NORTE BAROY, LANA O DEL NORTE MAGANAY, MAGUINDANAO
NCR	1. HOSPITAL MAINTENANCE SERVICE, OFFICE FOR HOSPITAL & FACILITIES, DOH	MANILA

⌘ N.C.R.: NATIONAL CAPITAL REGION

(2) Outline of the Proposed Equipment

Equipment required to run hospitals inclusive of large type of equipment, small surgical instruments, dietary service equipment and ambulance etc. as follows.

1) Diagnosis Equipment

- |                              |                      |
|------------------------------|----------------------|
| • Diagnostic X-Ray equipment | • TV Monitor         |
| • X-Ray Accessories Set      | • Ultrasound Scanner |
| • Defibrillator              | • Electrocardiograph |
| • Others                     |                      |

2) Operating Room Equipment (Including Emergency Unit)

- |                            |                               |
|----------------------------|-------------------------------|
| • Major Operating Light    | • Minor Operating Light       |
| • Mobile Operating Light   | • Major Operating Table       |
| • Orthopedic Surgery Table | • Gynecological Surgery Table |
| • Minor Operating Table    | • Anesthesia Apparatus        |
| • Electro Surgical Unit    | • Others                      |

3) Intensive Care Unit Equipment

- |                            |                         |
|----------------------------|-------------------------|
| • I.C.U. Monitor Scope     | • I.C.U. Bed            |
| • Critical Care Ventilator | • Portable Suction Unit |
| • Others                   |                         |

4) OB & GYN Equipment

- |                              |                     |
|------------------------------|---------------------|
| • Infant Incubator           | • Phototherapy Unit |
| • Clinical Examination Table | • Others            |

5) Ward Equipment

- |                         |                  |
|-------------------------|------------------|
| • Examination Lamp      | • Orthopedic Bed |
| • Instrument Sterilizer | • Others         |

6) Laboratory Equipment

- |                           |                           |
|---------------------------|---------------------------|
| • Spectrophotometer       | • Autoclave               |
| • Blood Bank Refrigerator | • Laboratory Refrigerator |
| • Water Bath              | • Others                  |

7) Dietary Service Equipment

- |                        |                    |
|------------------------|--------------------|
| • Tableware Sterilizer | • Ice Cube Machine |
| • Food Refrigerator    | • Tableware Cart   |
| • Cooking Table        | • Others           |

- 8) Ophthalmology Equipment
  - Ophthalmologic Diagnosis Equipment
  - Ophthalmologic Surgery Unit
  - Ophthalmoscopy Unit
  - Others
- 9) E.N.T. Equipment
  - Diagnostic Equipment for Head and Neck
  - Tracheotomy Instrument Set
  - Others
- 10) Pharmaceutical Equipment
  - Precision Balance
  - Mortar and Pestle
  - Hot Plate
  - Others
- 11) Medical Statistics Equipment
  - Computer
  - Others
- 12) Maintenance and Repair Equipment
  - Repair Service Car
  - Others
  - Repair Tool Set
- 13) Miscellaneous
  - Ambulance
  - Well Pump
  - high Pressure Sterilizer
  - Others

### 3-4. Study and Examination on the Request

#### (1) Appropriateness of the Request

We examined objective of the project, level of targets, formation of the plan, content of the plan, scale of operations, execution system, technical level, management plan, proposed hospitals, etc. of the present Project and judge the respective items as described hereunder. As a result, no problem is found with the feasibility of the Project and believe that all conditions for the implementation of the Project are satisfied.

##### 1) Examination of the objective and the target level of the Project.

This Project is believed to be a project which can support the improvement of health & medical services for the entire nation aimed at by the Philippines as well as the achievement of objectives in line with the state health plan and the hospital service development plan which are being promoted by the Philippine Government. The proposed hospitals of the Project are key medical hospital of the country which take charge of the furnishing of medical services up to the tertiary level. Improvement of medical equipment in those hospitals under this Project will be able to upgrade the level of medical services on the provincial level and lead eventually to the dissolution of differences among provinces in medical services which are at issue in the Philippines.

##### 2) Examination of the formation and the content of the Project

Under the difficult financial conditions of the Philippines, the said provincial hospitals, etc. cannot be given a sufficient distribution of the national budget. For that reason, many of the medical equipment in those hospitals are very much deteriorated and unfit for use because of expiration of their service life. The present Project is intended to supply medical equipment lacking in those hospitals as well as other materials necessary for the maintenance of those equipment. The planned equipment are basically those indispensable for the medical activities and are believed to meet the requirements of providing not only primary and secondary medical services but also tertiary medical services. Considering

the trend of diseases in the Philippines, the equipment selected include such things as delivery tables, clinical examination table, infant incubators for the department of obstetrics and gynecology to cope with large number of inpatients in the proposed hospitals, laboratory equipment such as microscope, spectrophotometer, etc. to cope with infectious diseases such as tuberculosis, malaria, measles, etc., dish sterilizers to prevent infection inside the hospital and water pumps for well for supplying clean water, ambulances for receiving patients from places far away from the hospital, service cars for supporting health and medical activities in the field, etc. All those equipment are urgently required to improve the health and medical services in the Philippines.

3) Examination of the scale of operations

This operation plan selects provincial hospitals (as well as district hospitals and medical centers of the same level) located in the capital of 31 provinces and other communities of equal importance from the 73 provinces in the Philippines and intends to supply medical equipment and materials such as X-ray equipment, diagnosis equipment, surgery equipment, laboratory equipment, etc. which are badly needed in the field of medical services in those hospitals in order to improve the level of medical activities. The 31 provinces in which those proposed hospitals of the Project are located do not overlap with the provinces in which the hospitals of the "Phase I" executed earlier exist.

4) Examination of execution system

The present operations are implemented under the initiative of the Department of Health of the Philippines. In practice, Office for Hospital and Facilities Services of the Department of Health executes the operations according to the procedure of grant aid from Japan. This Office already has an experience of executing such operations with no special difficulty in the "Phase I" Project and we judge that the execution system for the operations of the present Project can be secured sufficiently well.

## (2) Examination of Operating Plans

### 1) Budget arrangement

The operating budget for each hospital is decided by the central government under the judgement of the Office for Hospital and Facilities Services of the Department of Health. The amount of assignment of the budget is determined according to the scale of hospital, area characteristics and the amount of revenue from diagnosis and treatment. Basically, the personnel expenses and a part of operating expenses such as meals for the patients, etc. are supplied by the government, but other expenses must be covered by the revenue from diagnosis and treatment. In each hospital, 60 ~ 70% of the expenditure is represented by the personnel expenses and this lies heavily on the management of the hospital. Table III-1 indicates the budget for 1990 assigned to the different departments belonging to the Office for Hospital and Facilities Services of the Department of Health which directly controls the respective medical institutions. The assignment of budget to the departments in charge is also compressed because the order of priority for the distribution of budget to health administration is not so high in the Philippines. Also in those departments, a little over 30% of the operating budget are used for personnel expenses. However, no new budget is required for the execution of the present Project because the proposed hospitals have long been being operated and their personnel expenses, maintenance and operating expenses, etc. are budgetized every year and that the planned equipment and materials are designed to either renew those which are currently owned or were owned up to a recent time by the proposed hospitals but went out of use because of deterioration or supplement the equipment insufficient in quantity. Therefore, we judge that the execution of the present Project is sufficiently possible within the scope of the current budget of the Department of Health.

TABLE III-1 BUDGET OF OFFICE FOR HOSP. & FACILITIES SERVICE, DOH  
(1990)(In : Thousand pesos)

Particulars	Personal Service	Maintenance & Other Operating Expenses	Capital Outlays	Total
Off. for Hosp. & Facilities Service	6,380	6,202	5,461	18,043
Hosp. Operations & Management				4,011
Radiological Health				2,897
Hospital Maintenance				2,947
Health Infrastructure				2,727
Expense for Procuring Equipment				5,461
Total	6,380	6,202	5,461	18,043

2) Manpower plan

The proposed hospitals of the present Project are all medical institutions currently in activity and a significant number of medical staff members are already assigned there as shown in Table IV-2. Moreover, the planned equipment are mainly those for either renewing or supplementing the existing equipment. For that reason, the existing personnel in the respective institutions will be enough to cope with the execution of the Project.

3) Situation of management and activities

The proposed hospitals of the Project are having a number of beds of 25 ~ 200 or an average number of 100 beds. These are key medical institutions of provincial health and medical services comparatively active in their operations having an annual number of outpatients of approximately 10,000 to 70,000 and an annual number of patients of



approximately 10,000 to 70,000 and an annual number of inpatients of 2,000 ~ 10,000 approximately although those figures vary a great deal depending on the province. The doctors seem to be assigned regardless of the actual number of patients as a general tendency but 6 ~ 45 doctors are provided in each hospital. This is because each hospital must keep the minimum number of staff members necessary for making medical activities as an institution which provides tertiary medical services regardless of the number of patients. The small number of patients accepted in the hospital explains the insufficiency of the medical equipment necessary for the diagnosis and examination assigned to those hospitals. The budget for personnel expenses, operating expenses, etc. is assigned but is insufficient in amount and, in many hospitals, the percentage of the budget used for the purchase of new equipment is extremely low at 2 ~ 5%. Therefore, the health and medical activities in each hospital will be strengthened if the medical equipment now in shortage is supplied with the execution of this Project. It will also reduce differences among provinces in health and medical services and further support the finance of those hospitals indirectly, contributing to enhance the willingness for work of the field workers engaged in medical services.

### (3) Examination of Technical Level

The proposed hospitals of the Project are currently engaged mainly in medical activities centering on the basic subjects of internal medicine, surgery, radiology, pediatry and obstetrics & gynecology as key facilities for the provincial medical services which provide mainly secondary and tertiary medical services in all areas. Each hospital has departments and sections indicated Table III-2 hereunder to cover those subjects of diagnosis and treatment and is providing tertiary medical services of the content as described hereunder. Therefore, they maintain the necessary technical level as far as the content of those diagnosis and treatment activities is concerned.

Moreover, we believe there will be no difficulty in the technical matters such as operating method, application, etc. in relation to the

supply of the equipment because the equipment and materials planned to be supplied by the present Project are mainly those which are already in daily use in those hospitals and that an orientation including the method of daily control and operating method is planned to be given on the occasion of delivery of the equipment. However, it is also true that there are some differences in the number of specialized technicians who can handle the equipment among the proposed hospitals and this point must be well taken into account in the elaboration of the equipment arrangement plan.

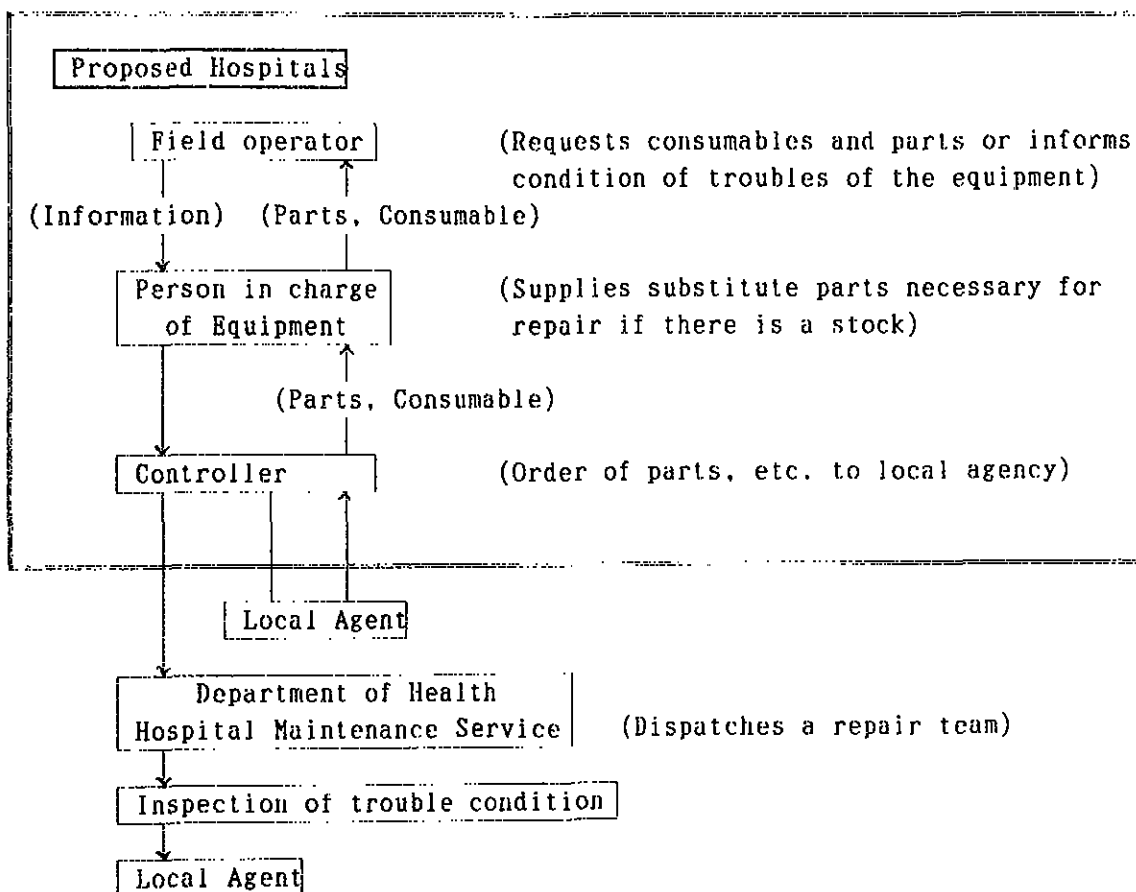
TABLE III-2 MEDICAL SERVICE BY CATEGORY-WISE

Category	Medical Service
Radiology	Diagnosis of chest tuberculosis, digestive organ and orthopedic.
General Surgery	Ulcer and perforation of digestive organ, appendicitis, urethrotomy and craniotomy
Obstetric Surgery	Abortion, Sterilization, Caesarean
Orthopedic Surgery	External fixer
I.C.U	Post operation care by electrocardiac, monitor care of patient of cardiac insufficiency
Laboratory	Malaria, T.B., Parasite test, Blood test

#### (4) Examination of Maintenance Plans

##### 1) Maintenance control system in object institutions of the Project

When it has become necessary to either repair the equipment or supply consumables in the hospital, the following steps and procedure are generally taken:



In case of failure of any equipment installed in the hospital, it must be informed and a request for repair must be made to the Hospital Maintenance Service, Dept. of Health in principle (case of large repair only). If the degree of failure is more than that which can be handled by a technician of the Dept. of Health, the Hospital Maintenance Service will issue a certificate of approval of repair and the hospital concerned will directly ask the local agency for repair based on this certificate of approval of repair. In this case, the repair cost and the expenses necessary for the trip of a technician of the Hospital Maintenance Service will all be

borne by the requesting party (hospital). The expenses to be paid to the Hospital Maintenance Service is small in amount but a large amount of expenses may become necessary depending on the type of equipment. For that reason, there are cases where the repair is largely delayed if there is any shortage of budget in the hospital concerned.

## 2) Maintenance system in Hospital Maintenance Service, Department of Health

### ① Personnel

The Hospital Maintenance Service is currently working with a total number of 45 members including 13 engineers, 20 technicians and 12 administrative staff members. The engineers are those who passed a state examination after completing 5 years of study in the engineer course of a university and the technicians are either those who studied in the engineer course but have not yet passed the state examination or those who completed 3 years of technician course in the university. From June, 1990 to April, 1991, one of the engineers was dispatched to Japan to participate in a training course of technical staff under the trainee receiving program of JICA. The organization chart of the Hospital Maintenance Service is indicated in Fig. V-1. "Organization Structure and Staffing"

### ② Facilities

The buildings were constructed in 1990 with the help of Germany (GTZ) and have a workshop on the first floor and the administrative department on the second floor. The workshop is provided with such equipment as drilling machine, milling machine, bending machine, spot welding machine, etc. There are also vacuum oil pump for refilling X-ray producing tube, simulator of aspirator, simulator of air conditioner and simulator of hydraulic and motorized up-down moving patient chairs for dentistry for training use, etc. in the workshop. The repair work of X-ray unit, spectrophotometer, analyzing balance,

control part of incubator, etc. is actually performed by using those equipment and tools.

③ Activities

Usually, the daily allowance, lodging expenses, travelling expenses, etc. of repair service technicians of the Hospital Maintenance Service are borne by the hospital which requested the repair. For that reason, hospitals having no margin in the budget are rather reluctant to make requests for repair service. Moreover, any repair of large scale must be submitted to the inspection of the Hospital Maintenance Service before the start of actual repair work for the inspection of the necessity of repair and all equipment and materials installed in the public hospitals are under the control of the Hospital Maintenance Service. The equipment procured in the "Phase I" Project are expected to receive a visiting maintenance service every 3 months but actually this visiting maintenance service has been practiced every 6 months (in some hospitals) because of the restriction in budget. However, as for the "Phase I" Project, it is reported that there has been no case of impossibility of repair because it is not yet a long time since the equipment was installed and the equipment is still within the period of warranty by the manufacturer. Even in the implementation of the present Project, the Hospital Maintenance Service confirmed that it will make a visiting maintenance service every 3 months as for "Phase I" and we believe sufficient maintenance will be provided for the equipment to be supplied. However, there are some hospitals which do not have a sufficient budget for repair and have difficulty especially in purchasing expensive spares. Therefore, it seems necessary to include a proper number of such expensive parts in the equipment and materials to be supplied in the execution of this Project.

④ Spare parts control

The maintenance parts procured under the "Phase I" Project are

stored in the warehouse of the Hospital Maintenance Service under code numbers and are supplied as required. If there is any request for supply of maintenance parts from any hospital other than the proposed hospitals of the "Phase I" Project, those parts are temporarily lent to such hospital to maintain the activities. This system produced positive results by lending X-ray generating tubes to Pampanga Provincial Hospital and Bulacan Provincial Hospital on the occasion of our survey.

⑤ Budget

The Hospital Maintenance Service is operated under an independent budget in the same way as other section. The total amount of the budget is not so large at 0.5% of the total budget of the Department of Health of 7,654,968 thousand pesos in 1990 but efforts are being made to reduce the expenditure by partially introducing a chargeable repair system. More effective activities of this Service can be expected if it becomes possible to supply a fairly good volume of maintenance parts under the present Project as in the case of the "Phase I" Project.

TABLE III-3 EXPENDITURE OF HOSPITAL MAINTENANCE SERVICE  
(1,000 Peso)

Fiscal Year	1988	1989	1990
Item			
Purchase of Equipment	421	-	960
Repair, Spare Parts, Travel Expenses, Telephone, Electric Power Fere	1,466	1,466	1,466
Personnel Allowance	1,467	1,467	1,467
Total Expenditure	3,354	2,933	3,893

(5) Examination of a Similar Project

1) Assistance program for supply of equipment

The assistance programs as indicated hereunder have been implemented during the past 8 years under a grant aid from Japan. Of those programs, the one which was executed in 1988 made great

achievements as the "Phase I" Project of the present Project. The Present Project is intended to be implemented following the "Phase I" Project to cover the institutions which could not be improved within the framework of the "Phase I" Project.

2) Assistance programs of international organizations, etc.

No assistance from international organizations etc. is reported relating to improvement of medical equipment in recent years. On the other hand, the Department of Health is now promoting a maintenance program of health and medical equipment with the help of GTZ of Germany. This program is intended to improve the building and the maintenance system of the Hospital Maintenance Service and expand maintenance services to the public medical facilities all over the country. In the present Project, the said Hospital Maintenance Service aims at procuring circular vehicles for repair and repair tools to reinforce the maintenance service to not only the object institutions of the present Project but also other public medical institutions. Therefore, the achievement of the targets will become more realistic with the execution of the present Project.

TABLE III-4 RECENT MEDICAL GRANT AID PROJECTS FROM JAPAN

Year	Name of Project	Amount (million yen)
1983	Regional hospital Equipment Upgrading Project	7.90
1984	Upgrading Medical Equipment of the Philippine Cancer Center	5.92
1986	Upgrading Medical Equipment of the Philippine Children's Hospital	3.43
1987	Upgrading Medical Equipment of the Philippine Heart Center	4.27
1988	The Project for the Equipment Upgrading of 26 Provincial Hospital	8.06

(6) Examination of the First Phase Project

We examined the situation of use, problems of the equipment supplied to the proposed hospitals of the "Phase I" Project implemented earlier. The study was made on 5 hospitals located in the southern part of the Luzon Island among the 26 hospitals of the Project while a survey by questionnaire was conducted on the remaining 21 hospitals through the Department of Health. 13 questionnaires were returned and therefore we could know the operating conditions of the equipment procured under the Project at 18 hospitals altogether. The condition of the institutions surveyed and the results of reply of the questionnaires recovered were as follows:

1) Results of study on 5 hospitals surveyed

① Gov. Tefil Sison Memorial Hospital

After the great earthquake in July, 1990 which destroyed the hospital, all the departments other than a part of the functions of Outpatients Dept. moved together with equipment to the Pangasinan Provincial Hospital located about 7 km in the north to continue the activities. This hospital was originally of a small scale with only 25 beds but is now working with 130 beds by prefabricated wards provisionally to meet immediate needs. This place is close to the sea and, for that reason, injury from salt of the equipment is feared. The equipment procured by the "Phase I" Project is used effectively in the Pangasinan Provincial Hospital except the items indicated hereunder.

<u>Equipment name</u>	<u>Cause &amp; Condition of trouble</u>	<u>Current status</u>
Suction Unit	Break of bolt due to earthquake	Unusable (repair required)
Sphygmomanometer	Shock such as drop due to earthquake	Unusable (repair required)
AVR for air conditioner	Breaking due to large voltage fluctuations	Unusable



Orthopedic bed

Lack of spaces

Out of use

In addition to above, the automatic fixed tissue processor is manually operated because of failure of the automatic function. For those troubles, repair is requested to the Hospital Maintenance Service of the Department of Health. The Hospital Maintenance Service is making a visit for maintenance every 3 months approximately.

② Tarlac Provincial Hospital

No any big trouble has been produced to the supplied equipment from the time of execution of the Project. However, to cite some cases of trouble, the middle cover of the centrifugal separator was broken because of an operating error and the voltage stabilizer for a part of the air conditioners was broken. Quite recently, there was a case where the pulse noise of one of the two patient monitors in the intensive care unit became inaudible while on the other monitor set the indication turned into Japanese on the display. The cause of those troubles is believed to be a change in program resulting from an operating error.

A request for repair has been made to the Hospital Maintenance Service for those troubles. Two sphygmomanometers were left broken and simply stored without repair though it is just a small problem. Recently, one of the electrocardiographs provided in the Emergency Outpatients Dept. was stolen. The power generator supplied in the "Phase I" Project is not working well because there are frequent power failures but the terminal supply voltage dropped from 220V to 160 ~ 170V because the power is distributed to many different departments. This is probably the major cause of the trouble of the AVR for air conditioner. The total power consumption of this hospital is now 200KVA as the transformer was replaced recently. An increase of capacity of the generator is desired.

③ Quezon Provincial Hospital

The equipment in trouble and out of use was as follows:

•Spectrophotometer :

The light source lamp was burnt out a few days ago. It used to be used every day and very frequently (100~300 bodies) until that time. A spare lamp is under arrangement.

The equipment which is not in trouble but out of use currently is the following: Current status

•Broncho-fiberscope :

The current specialized doctor is receiving training in Manila because of a transfer of the technician.

•Gastrointestinal fiberscope :

Same as above.

•Laboratory autoclave :

This equipment is intended for inspection of bacteria but was not in use because it took much time for the purchasing procedure of culture medium. The culture medium and other necessary materials are now ready and the autoclave will start to be used for inspections immediately.

•Laboratory incubator :

Same as above.

•Auto tissue processor :

This equipment is not currently used because of taking long leave of female technician who received training. It is said that the equipment will become usable normally in 2 to 3 months.

So far the repair works were made without problem.

④ Albay Provincial Hospital

the X-ray equipment is used for the diagnosis of an average number of 50 peoples per day while the ultrasound scanner is used for an average number of 5 peoples each day. Quite recently, the ultrasound scanner went into trouble and carried on an ambulance

to the local agency in Manila for repair. The cause of the trouble was a defective resistor and this part was replaced free of charge under the manufacturer's warranty. The phototherapy unit for newborn babies has so far been used for 351 hours. The waterbath went into trouble with a damage to the resistor on the control circuit board in several months after it was purchased. A request for repair has been made to the Hospital Maintenance Service. It takes several months to obtain this circuit board from Japan because it is not stocked locally as spare parts. Of the 3 units of voltage stabilizer for air conditioner supplied under the Project, one which is installed in the auxiliary operating room went into trouble but the two others are in operation. Other supplied equipment are working normally.

⑤ Sorsogon Provincial Hospital

Of the supplied equipment, the laboratory autoclave is not yet used because the operator is now in Manila to attend a seminar (probably a training). This equipment is expected to be used for bacteriological inspections of water. Of the 3 voltage stabilizers for air conditioner, one which is installed in the X-ray room and another for operation room went into trouble but the one for intensive care unit is working normally. Of the two voltage stabilizers in trouble, one leaves a trace of replacement of carbon brush. It seems that the voltage stabilizer for intensive care unit is not in trouble simply because it has not been used for a long time. The ultrasound scanner which was used for the diagnosis of about 500 people last year because it was introduced some time during last year. It has so far been used for 200 people this year. Since the diagnosis is costly, only one or two shots are photographed on a film by a multiframat camera usually. There are two units of X-ray equipment or one old unit and the one which was supplied under the "Phase I" Project. The old unit is mainly used for outpatients while the new one is used for inpatients.

2) Results of study on 13 hospitals checked by questionnaire and 5 hospitals visited by survey team.

No major trouble or malfunction of equipment was seen because it is still a little less than one year since the "Phase I" Project was implemented. The supplied equipment are judged to be utilized comparatively effectively. If there is any trouble with the equipment, each hospital is contacting the Hospital Maintenance Service of the Department of Health to discuss the method of repair, the repair procedure and other necessary matters to cope with the situation. We analyzed the answers to questionnaire collected from 13 hospitals and judged them by the standards indicated hereunder. The results of this analysis are given in Table III-5.

TABLE III-5 WORKING CONDITIONS OF MAIN EQUIPMENT PROCURED BY PHASE I PROJECT

Hospital	Equipment	Diagnostic Equipment										Remarks
		① X-Ray Diagnostic Equipment	② Ultrasound Scanner	③ Defibrillator	④ Electrocardiograph	⑤ Operating Light	⑥ I.C.U. Monitor Scope	⑦ Spectrophotometer	⑧ Ambulance	⑨ Generator	⑩ High Pressure Sterilizer	
Pres. Ramon Magsaysay Memorial Hosp.	Working Condition	A	A	A	A	A	A	A	A	A	A	Electrocardiograph and I.C.U. monitor was out of order. Repaired by DOH
	Frequency of Use	1	1	2	1	1	1	1	1	2	1	
Negros Oriental Hospital	Working Condition	A	A	A	A	A	A-C	A	-	A	A	One of the two I.C.U. monitors is out of order
	Frequency of Use	1	2	2	1	1	2	2	-	2	1	
Roxas Memorial General Hospital	Working Condition	A	-	A	B	A	A	-	-	-	-	Patient cord of electrocardiograph is defective, asking for repair
	Frequency of Use	1	-	2	1	1	1	-	-	-	-	
Gov. Telfo Sison Memorial Hospital	Working Condition	A	A	A	A	A	A	A	A	A	A	Asked DOH to repair sphygmomanometer
	Frequency of Use	1	1	1	1	1	2	1	1	2	1	
Bataan Provincial Hospital	Working Condition	B	A	A	A	A	A	A	A	A	C	Disorder of Control of electric Current of X-Ray equipment. Ased repair
	Frequency of Use	1	2	2	1	1	2	1	2	2	1	
Bontoc General Hospital	Working Condition	A	-	A	A	A	A	A	A	A	A	There has been no particular out of order
	Frequency of Use	1	-	1	1	1	1	1	1	1	1	
Eastern Samar Provincial Hospital	Working Condition	A	A	A	A	A	A	C	A	A	A	Cause of fault of spectrophotometer is unknown
	Frequency of Use	1	2	2	1	1	1	1	1	1	1	
South Cotabato Provincial Hospital	Working Condition	C	A	A-C	C	A	A	A	A	-	-	One of the two defibrillator is out of order
	Frequency of Use	1	1	2	2	1	2	1	1	-	-	
Quezon Memorial Hospital	Working Condition	A	A	A	A	A	A	C	A	A	A	travelling mileage of ambulance is 22487km the terminal of sterilizer is out of order
	Frequency of Use	1	1	1	1	3	2	1	1	1	1	
Sulu Hospital	Working Condition	A	A	A	A-C	A	A	A	A	-	-	One of the electrocardiograph is out of order. Under repair
	Frequency of Use	1	1	1	1	1	2	2	1	-	-	
Tarlac Provincial Hospital	Working Condition	A	A	A	A	A	B	-	-	A	-	Pulse Sound of I.C.U. monitor is out of order. On of cardiograph was stolen
	Frequency of Use	1	1	1	1	1	1	-	-	1	-	
Ifugao General Hospital	Working Condition	A	-	A	A	A	A	-	A	-	C	Error message is shown when switch is on.
	Frequency of Use	1	-	2	2	2	2	-	2	-	5	
Sorsogon Provincial Hospital	Working Condition	A	A	A	A	A	A	A	A	A	A	Number of patients using I.C.U. monitor is approx. 10
	Frequency of Use	1	1	2	1	1	2	1	2	2	1	
Albay Provincial Hospital	Working Condition	A	A	A	A	A	A	A	A	A	A	Base of water bath is out of order. Asked to repair
	Frequency of Use	1	1	2	1	1	1	1	1	1	1	
Zamboanga del Norte Provin. Hosp.	Working Condition	A	A	A	A	A	A	A	A	A	-	Ultrasound Scanner was out of order. Repaired by DOH
	Frequency of Use	1	2	1	1	2	1	1	1	2	-	
Misamis Occidental Provincial Hosp.	Working Condition	A	A	A	A	A	A	A	A	A	A	Defibrillator was not frequently used because of few patients
	Frequency of Use	1	1	4	1	1	1	1	1	1	-	
Davao del Sur Provincial Hospital	Working Condition	A	A	A	A	A	A	A	A	A	-	There is demand for polaroid camera attached to ultrasound scanner
	Frequency of Use	1	1	1	1	1	2	1	1	1	-	
Surigao del Norte Provincial Hospital	Working Condition	A	A	A	A	A	A	C	D	A	A	#Untill recently not being used because operator was under training
	Frequency of Use	1	2	2	1	1	1	2	1	1	1	

Remarks: Working Condition

A - Good

B - Usable(Trouble partially)

C - Unusable(Break down)

D - Unusable(Damage)

E - Irreparable

Frequency of Use

1 - Very frequently

2 - Frequently

3 - Sometimes

4 - Rarely

5 - Not use

### 3) Problems with "Phase I" Project

- ① In some hospitals, the maintenance system of the equipment is not very clear and there are cases where it happened breakdown and damage without any taking of necessary measures. Therefore, no request for repair, etc. is made to the Department of Health in such a case.
- ② There are cases where the technician in charge of maintenance service becomes absent because of a personnel transfer, etc. It sometimes happens that the equipment cannot be used for 4 ~ 7 months because of formation of personnel for operating the supplied equipment.
- ③ As for the equipment for laboratory use, the fund for the purchase of reagents, etc. becomes short and it happens that the equipment cannot be used though only temporarily.
- ④ Some of the installation works of equipment (wiring for switchboard of generator, for example) executed by the responsibility of the Philippine Government were insufficient, presenting a risk of some eventual accident or trouble due to leakage of rain water, etc.

The supplied equipment units are judged to be utilized effectively as a whole although there are a lot of small problems as we have seen so far. In the current Project, however, it will be necessary to make one further step forward to cope with the reality to avoid such problems as mentioned above.

### (7) Examination of the Request

#### 1) examination of the object institutions

The 32 proposed hospitals of this Project have been selected by the Department of Health at a rate of 1 ~ 4 hospital from each of the 12 regions on the Philippines and from among the provinces (there are 73 provinces in the entire country) by the following standards:

- ① Hospitals making effective medical activities.
- ② Hospitals having sufficient manpower capable of fully utilizing the supplied equipment after the implementation of the Project.
- ③ Hospitals the facilities of which are insufficient for reason of deterioration, etc. of equipment compared with the normal standards of provincial hospitals in the Philippines.
- ④ Hospitals located in areas under economic recession and in financial difficulty.
- ⑤ Hospitals ready to accept the equipment supplied with a grant aid from Japan in all respects.
- ⑥ Hospitals having a large population to cover with their medical activities.

It is examined the proposed hospitals in the light of more concrete standards indicated hereunder and believe that the selection of the proposed hospitals institutions of the Project is proper and suitable to the objective of the Project.

- ① Hospital of a province having a comparatively large population in which a large helping effect can be expected with the execution of this Project.
- ② Hospital of a province which recieved little support from the Department of Health in the past because the degree of priority was kept low in the distribution of budget for reasons of a comparatively small population and geographical handicap of being located far from major cities.
- ③ Hospital of a province marking a sharp increase of population.
- ④ Hospital of a province in which there is no public institution accessible to the local inhabitants other.

Tables III-1A ~ C on the following pages indicate the estimated population and increase rate in different regions and provinces of the Philippines for the period 1985 ~ 1990 and the applicable standards for the selection of area by using the symbols ① ~ ④.

TABLE III - 6A

## POPULATION, ITS INCREASING RATE AND CRITERIA OF SELECTION

Region	Province	Population 1985	1987	1990	Population increasing rate	Priority on selection
I. Ilocos		3,902,587	4,055,638	4,291,931	2.00%	
	☆ Abra	176,689	183,757	194,694	2.04	②③
	Benguet	408,973	431,260	465,355	2.76	
	☆ Ilocos Norte	425,005	440,087	463,489	1.82	①②
	☆ Ilocos Sur	487,987	508,274	540,543	2.16	①③
	La Union	508,316	532,118	568,931	2.38	
	★ Mt. Province	110,059	112,863	116,927	1.24	②
	★ Pangasinan	1,785,548	1,847,302	1,941,989	1.76	①
II. Cagayan Valley		2,520,974	2,647,809	2,844,695	2.56	
	☆ Batanes	12,979	13,395	14,052	1.66	②④
	☆ Cagayan	795,277	829,709	882,326	2.18	①③
	★ Ifugao	122,898	127,803	135,435	2.04	②
	Isabela	998,984	1,052,180	1,135,340	2.72	①③
	Kalinga-Apayao	211,061	221,849	238,513	2.60	
	☆ Nueva Vizcaya	279,441	295,246	319,832	2.90	③
	Quirino	100,338	107,633	119,209	3.76	
III. Central Luzon		5,456,140	5,725,567	6,141,618	2.52	
	★ Bataan	385,479	411,539	452,120	3.46	③
	☆ Bulacan	1,265,541	1,334,696	1,441,261	2.78	①③
	Nueva Ecija	1,194,410	1,245,862	1,325,281	2.20	
	☆ Pampanga	1,346,340	1,415,226	1,522,709	2.62	①③
	★ Tarlac	757,377	785,271	827,678	1.86	①
	★ Zambales	506,983	532,969	572,569	2.58	③
N.C.R.	☆ Metro Manila		7,374,000	7,970,000	2.24	①③
IV. Southern Tagalog		7,089,368	7,488,370	8,104,632	2.86	
	☆ Aurora	127,969	137,174	152,049	3.76	③
	☆ Batangas	1,312,287	1,372,047	1,461,993	2.28	①③
	☆ Cavite	933,553	1,003,900	1,113,454	3.86	①③
	Laguna	1,142,909	1,215,027	1,325,941	3.20	①③
	☆ Marinduque	191,448	199,133	210,872	2.02	②③④
	☆ Occ. Mindoro	255,772	269,305	289,867	2.66	②③
	☆ Or. Mindoro	518,615	546,107	588,959	2.72	②③
	☆ Palawan	438,801	464,815	505,664	3.04	②③④
	★ Quezon	1,286,791	1,346,948	1,439,679	2.38	①
	Rizal	673,066	719,413	792,048	3.54	
	☆ Romblon	208,158	214,491	224,105	1.54	②
V. Bicol		3,921,550	4,104,517	4,388,134	2.38%	
	★ Albay	906,215	945,248	1,004,570	2.18	①②
	☆ Camarines Norte	352,054	370,364	398,899	2.66	③
	Camarines Sur	1,247,063	1,308,911	1,405,422	2.54	
	☆ Catanduanes	192,833	200,277	211,992	1.98	②

Source: Annual Report of the Philippines 1987



TABLE III - 6B

## POPULATION, ITS INCREASING RATE AND CRITERIA OF SELECTION (CONT.)

Region	Province	Population 1985	1987	1990	Population increasing rate	Priority on selection
VI. Western Visayas	☆ Masbate	656,623	685,483	729,915	2.24	①③
	★ Sorsogon	566,767	594,239	637,341	2.50	②③
		5,092,409	5,322,782	5,672,311	2.28	
	☆ Aklan	363,320	379,063	403,010	2.18	①②
	☆ Antique	388,294	405,994	433,119	2.30	①③
	★ Capiz	558,745	585,938	627,828	2.48	②③
	☆ Iloilo	1,595,198	1,660,767	1,759,428	2.06	①②④
VII. Central Visayas	★ Negros Occidental	2,186,858	2,291,022	2,448,923	2.40	①
		4,195,015	4,362,065	4,616,038	2.00	
	☆ Bohol	871,898	899,732	942,438	1.62	①②
	Cebu	2,329,803	2,426,444	2,572,826	2.08	
	★ Negros Oriental	917,416	957,509	1,018,480	2.20	①
	Siquijor	75,892	79,671	82,302	1.68	
VIII. Eastern Visayas		3,072,765	3,185,274	3,360,434	1.88	
	Leyte	1,428,321	1,478,953	1,556,078	1.78	
	★ Southern Leyte	334,272	350,971	377,776	2.60	②③
	★ Eastern Samar	357,623	373,825	400,053	2.38	②
	☆ Northern Samar	429,760	451,989	487,945	2.70	①③
	☆ Western Samar	522,783	529,555	538,581	0.60	①②
		2,862,969	2,994,381	3,184,803	2.24	
IX. Western Visayas	Basilan	229,951	241,370	258,466	2.48	
	★ Sulu	404,800	421,073	445,477	2.00	②
	★ Tawi-Tawi	217,957	227,913	243,930	2.38	②
	★ Zamboanga del Norte	660,465	688,006	729,898	2.10	②
	☆ Zamboanga del Sur	1,349,810	1,416,011	1,517,026	2.48	①
		3,178,376	3,350,020	3,615,614	2.76	
	★ Agusan del Norte	419,937	442,313	477,160	2.72	②③
X. Northern Mindanao	☆ Agusan del Sur	310,463	329,572	359,555	3.16	②③
	★ Bukidnon	725,784	766,149	828,945	2.84	①③
	Camiguin	60,865	61,904	63,408	0.84	
	★ Misamis Occidental	433,843	451,601	478,253	2.04	②
	Misamis Oriental	807,723	855,759	931,314	3.08	
	★ Surigao del Norte	420,457	442,718	476,986	2.68	②③
		3,836,236	4,032,422	4,333,696	2.60	
	Davao del Norte	817,601	853,452	907,755	2.20	
XI. Southern Mindanao	★ Davao del Sur	1,315,187	1,388,733	1,501,136	2.82	①③
	☆ Davao Oriental	386,800	406,202	436,601	2.58	①③
	★ South Cotabato	881,136	925,887	995,241	2.58	①③
	★ Surigao del Sur	435,737	458,157	492,982	2.62	②③

Source: Annual Report of the Philippines 1987

TABLE III - 6C

## POPULATION, ITS INCREASING RATE AND CRITERIA OF SELECTION (CONT.)

Region	Province	Population 1985	1987	1990	Population increasing rate	Priority on selection
XII. Central Mindanao		2,597,734	2,733,010	2,942,259	2.66	
	☆ Lanao del Norte	531,397	559,392	602,792	2.68	①②③④
	Lanao del Sur	445,791	465,386	495,156	2.22	
	☆ Maguindanao	602,829	631,301	674,494	2.38	①②③
	North Cotabato	657,513	693,716	750,119	2.82	
	* Sultan Kudarat	360,192	383,217	419,692	3.30	②③

Source: Annual Report of the Philippines 1987

☆ ..... Provinces in which the proposed hospitals in Phase II are located.

\* ..... Provinces in which the hospitals in phase I are located.

## 2) Examination of request equipment

A detailed study of the proposed equipment carried out through field survey and analyses in Japan. As a result, many of the equipment of this Project are conformable to the objective, the content and the targets of the national health plan currently being promoted by the Philippines and are also indispensable for the achievement of the objectives of this Project. Moreover, those equipment can be managed sufficiently well with the experiences and technical level of the related personnel currently owned by the proposed hospitals as well as their maintenance capacity for equipment. It find no difficulty at all in the implementation of this Project even with the budget arrangement, etc. relating to the operating costs considered as necessary for the procurement of the equipment. In addition, judging from the results of study on the condition of operation and use of the equipment supplied within the framework of the "Phase I" Project and various problems, the implementation of the present Project will certainly contribute to the enrichment of the medical activities in provincial societies in the Philippines.

However, as for the equipment items indicated hereunder among the requested equipment, it will be decided to exclude them from this Project for the reasons given together with the name of equipment.

Equipment excluded from the Project	Main purpose of use	Reason for exclusion
Ophthalmology equipment and E.N.T. equipment	Ophthalmological diagnosis and eye examination, diagnosis and treatment of E.N.T.	The number of the object institutions requested is small and only a limited number of hospitals has specialized doctors capable of handling those equipment and materials. However, certain items of equipment such as ophthalmoscope, etc. will be included in the Project as part of diagnostic equipment.
Pharmaceutical equipment	Storage and division of medicines in doses	No division of medicines in doses is made and most medicines are handled in tablets, capsules, etc. in the pharmacy.
Dietary service equipment	Supplying food to inpatients	The existing equipment is sufficiently capable of meeting the needs though not so functional, and there is no urgent need for this equipment. However, a part of the equipment which is directly needed for the control of health of inpatients such as tableware sterilizer, etc. will be supplied as part of other equipment.
Computer for medical recording	Recording the condition of patients and diseases	The priority of this item is rather low in the light of the current situation of activities and budget arrangement. The existing recording system is sufficiently workable.
Maintenance equipment	Maintenance and repair of medical equipment	Since the number of requested equipment items is small, they will be included in the category.

For the following equipment, the level of the equipment will be selected or the quantity will be adjusted for the reasons indicated hereunder:

Object equipment	Content of selection
X-ray equipment	An equipment provided with a diagnostic table will be planned for a large scale hospital while an equipment with a .....? table for a medical institution of small scale according to the class of medical institutions.
Examination lamp	A distribution plan will be made up so that the lamps may be supplied in a sufficient number to hospitals with a large number of beds.
Laboratory sterilizer; Laboratory incubator	Basically, those equipment items will be distributed only to those hospitals which are currently making microbe inspection, water inspection and bacteria inspection.

Of the main equipment, the following items will be reduced in number for the reasons indicated hereunder:

Object equipment	Requested number	Proper number	Reason for reduction
X-ray equipment	27	22	The existing equipment is usable in some hospitals as shown in Table II-26.
X-ray equipment accessories	27	4	Ditto
Major operating light	28	18	It has been found that in some hospitals this equipment was supplied recently or the existing equipment is sufficiently usable.
Minor operating light	26	13	Ditto
Mobile operating light	24	18	Ditto
Major operating table	24	15	Ditto
Orthopedic surgery table	22	2	There is no urgent necessity of this equipment in most hospitals. (The treatment made is that of a level sufficiently covered by a general surgery table.)
Gynecological surgery table	25	4	Ditto
Anesthesia apparatus	27	20	This equipment is already provided and is in operation in a part of the hospitals as shown in Table II-26.
Critical care ventilator	23	1	In most hospitals, the medical environments and medical level do not meet the requirements for using this equipment.
Incubator	34	12	There is no urgent need for this equipment in some of the hospitals.
Orthopedic bed	31	12	Some hospitals already have this bed though of modified type and it is still usable.
Engine driven generator	32	22	It has been found as a result of the study that the existing equipment is usable. (See Table II-25)

(8) Examination of Necessity of Technical Cooperation

All the equipment and materials planned for supply in this Project are of the items which are already provided in the proposed hospitals of the Project but either require replacement because of deterioration or are short in number because of the growing population to cover. Therefore, each hospital has already experiences of handling equipment of similar level and there is no particular need for technical assistance in relation to the supply of the equipment in this Project on the operating method, control method, of the equipment. However, as for the maintenance service, the Hospital Maintenance Section desires education, instruction and training of maintenance and repair technicians by a technical assistance from Japan in order to establish a more reliable maintenance system, although it is out of the scope of this Project.

(9) Basic Policy of Implementation of Cooperation

The Project is intended to support the national health plan and the hospital service development plan being promoted by the Department of Health of the Philippines and provide the provincial inhabitants with medical services of high quality by improving the provincial hospitals located all over the country which play the key role in the regional health and medical services.

The equipment and materials installed in the proposed hospitals of the Project are very old and largely in excess of the normal duration of services, presenting such problems as drop of function due to deterioration, insufficiency in number by breaking, etc.

Therefore, we will study the outline of the Project hereafter and proceed with the basic design work on the precondition of a grant aid from Japan. However, it is desirable to modify a part of the request as it was mentioned in the description of the content of the request.

## CHAPTER IV OUTLINE OF THE PROJECT



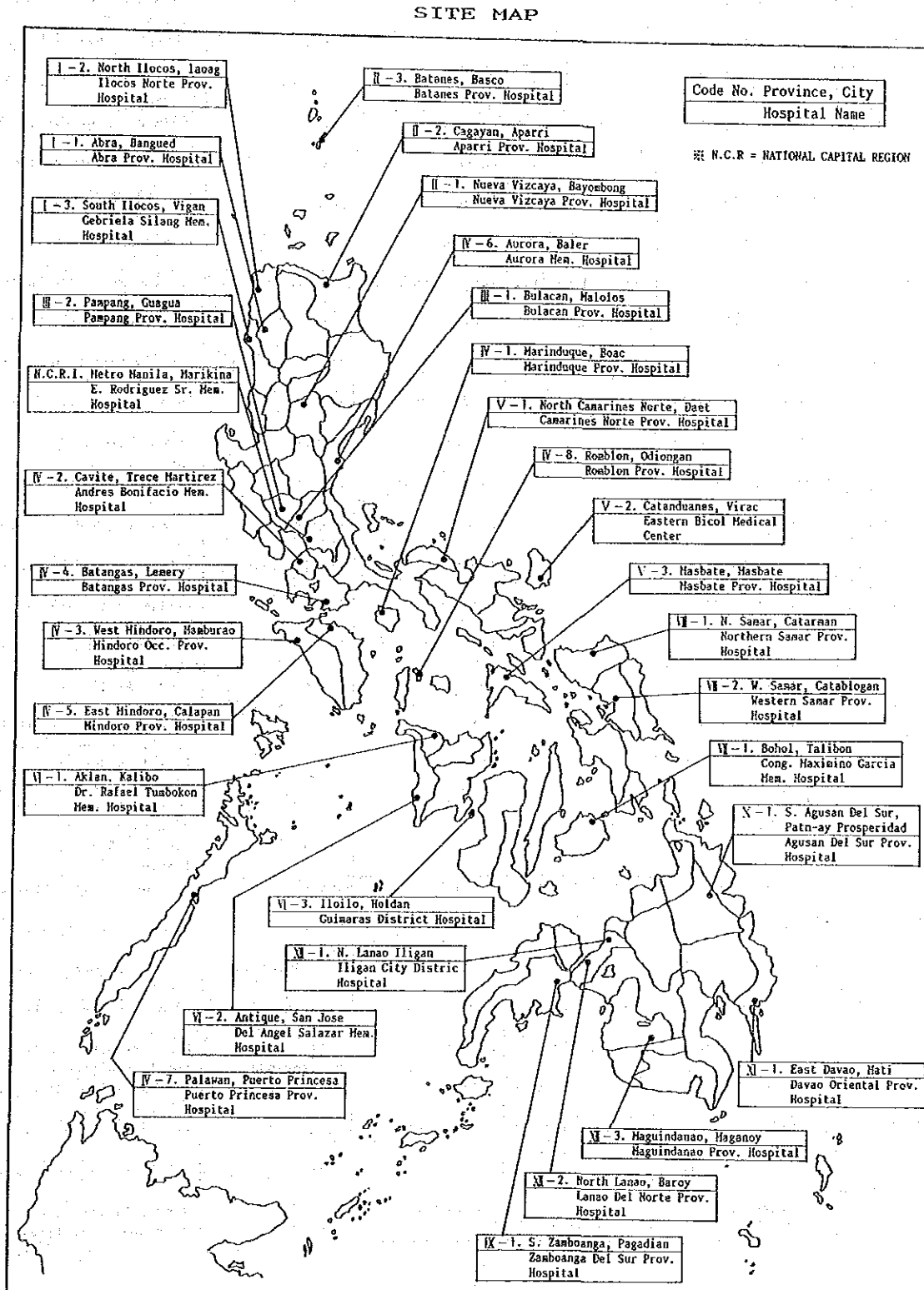


## CHAPTER 4 - OUTLINE OF THE PROJECT

### 4-1. Outline of the Project Site

#### (1) Locations of the Proposed Hospitals

The locations of the 32 proposed hospitals in this project are as shown below.



## (2) Geographic Status of The Proposed Hospitals

Geographic Status of the proposed hospitals is as follows.

TABLE IV-1 ACCESSIBILITY OF THE PROPOSED HOSPITALS

Code No.	Name of Hospital	Region	Province	Municipality	Accessibility
I	1 ABRA PROVINCIAL HOSPITAL	Ilocos	Abra	Bangued	405km north of Manila, 6-7 hours by car
	2 ILOCOS NORTE PROVINCIAL HOSPITAL		Ilocos Norte	Laosig City	500km north of Manila, 2 hours by car
	3 GABRIELA SILANG GENERAL HOSPITAL		Ilocos Sur	Vigan	8 hours by bus, 1 hours by air
II	1 NUEVA VIZCAYA PROVINCIAL HOSPITAL	Cagayan Valley	Nueva Vizcaya	Bayombong	250km north of Manila 6 hours by car
	2 APARRI PROVINCIAL HOSPITAL		Cagayan	Aparri	500km north of Manila, 8 hours by car
	3 BATANES PROVINCIAL HOSPITAL		Batanes	Basco	Island, 2 hours by air
III	1 BULACAN PROVINCIAL HOSPITAL	Central Luzon	Bulacan	Malolos	60km north of Manila
	2 PAMPANGA PROVINCIAL HOSPITAL		Pampanga	Guagua	70km north of Manila, 1.5 hours by car
NCR	1 EULOGIO RODRIGUEZ SR. MEMORIAL HOSPITAL	National Capital	(Metro Manila)	Marikina	50 minutes by car in Manila City
IV	1 MARINDUQUE PROVINCIAL HOSPITAL	Southern Tagalog	Marinduque	Boac	50 minutes by air from Manila
	2 ANDERS BONIFACIO MEMORIAL HOSPITAL		Cavite	Trece Martires	60km South-West of Manila, 2 hours by car
	3 MINDORO OCCIDENTAL PROVINCIAL HOSPITAL		Mindoro Occ.	Hambrao	50 minutes by air from Manila
	4 BATANGAS PROVINCIAL HOSPITAL		Batangas	Lemery	130km South of Manila 2 hours by car
	5 MINDORO PROVINCIAL HOSPITAL		Mindoro Oriental	Calapan	45 minutes by air from Manila
	6 AURORA MEMORIAL HOSPITAL		Aurora	Baler	200km from Manila, 9 hours by car
	7 PUERTO PRINCESA PROVINCIAL HOSPITAL		Palawan	Puerto Princesa	Island, 1 hour by air
	8 ROMBLON PROVINCIAL HOSPITAL		Romblon	Odiongan	Island, 9 hours by sea from batangas
V	1 CAMARINES NORTE PROVINCIAL HOSPITAL	Vicol	Camarines Norte	Daet	320km from Manila, 55 minutes by air
	2 EASTERN BICOL MEDICAL CENTER		Catanduanes	Virac	1 hour by air from Manila
	3 MASBATE PROVINCIAL HOSPITAL		Masbate	Masbate	Island, 1 hour by air from Manila, 24 hours by sea
VI	1 DR. RAFAEL TUMBOKON MEMORIAL HOSPITAL	Western Visayas	Aklan	Kalibo	Island, 400km South of Manila, 50 minutes by air, 18 hours by sea
	2 DELEGATE ANGEL SALAZAR MEMORIAL HOSPITAL		Antique	San Jose	Island, 500km South of Manila, 45 minutes by air
	3 GUIMARAS DISTRICT HOSPITAL		Guimaras	Jordan	Island, 30 minutes by sea from Iloilo
VII	1 CONGRESSMAN. MAXIMINO GARCIA MEMORIAL HOSPITAL	Central Visayas	Bohol	Talibon	1.5 hours by air from Cebu
VIII	1 NORTHERN SAMAR PROVINCIAL HOSPITAL	Eastern Visayas	Northern Samar	Catarman	Island, hours by air from Manila
	2 WESTERN SAMAR PROVINCIAL HOSPITAL		Western Samar	Catbalogan	Island, 2 hours by air from Manila
IX	1 ZAMBOANGA DEL SUR PROVINCIAL HOSPITAL	Western Mindanao	Zamboanga del Sur	Pagadian	50 minutes by air from Cebu
X	1 AGUSAN DEL SUR PROVINCIAL HOSPITAL	Northern Mindanao	Agusan del Sur	Patina Prosperidad	For Butuan by air from Manila and 1 ours by car
XI	1 DAVAO ORIENTAL PROVINCIAL HOSPITAL	Southern Mindanao	Davao Oriental	Matl	1.5 hours from Manila and 4 hours by car
XII	1 ILIGAN CITY DISTRICT HOSPITAL	Central Mindanao	Lanao del Norte	Iligan City	For Iligan by air from Manila
	2 LANAO DEL NORTE PROVINCIAL HOSPITAL			Baroy	1.5 hours by car from Iligan
	3 MAGUINDANAO PROVINCIAL HOSPITAL		Maguindanao	Maganoy	1 hour by air from cotabato, 97km south of Iligan

Source : Field Survey

(3) Present condition of the proposed hospitals

1) State of the proposed hospitals to be examined

① Eulogio Rodriguez Sr. Memorial Hospital

Established : 1965

Number of beds : 145 beds

Population of service area : 1,004,496 people

Diagnosis items : Medicine, obstetrics and gynecology,  
surgery, pediatrics, emergency outpatients,  
dentistry, ophthalmology

Sections : Administration, radiology, surgery,  
examination, power generation, service  
laundry, others

Outline and activities:

Renovation project is being advanced on the present facilities with completion scheduled this year. According to the project, the medical, surgery, and obstetric & gynecology departments will be newly constructed and expanded. Although this is a provincial hospital, training of medical personnel is being conducted here similar of the regional hospitals.

• Surgical department

There are four surgery rooms consisting of three major and one minor surgery rooms.

One suspended type operating light is provided in each major surgery room. Although many faulty parts can be observed on the operating tables, they are still managing to use them. The intensive care unit is equipped with a high grade " BENNET " critical care ventilator.

• Radiology department

Since the space of its department is limited, the radiological diagnosis room is being used store exposed films.

Although the facilities are provided with a 125 kv, 120

mA X-ray unit and a mobile type X-ray, both are out of order and unusable.

- Examination department

The examination room is a small room in which hematology, hemobacillus and parasitic studies are being conducted. Pathological examinations are not being conducted here.

- Gynecology & Obstetrics

There are three delivery tables in the delivery room but one is unusable. The major surgery room is used for gynecology related surgery (caesarean deliveries, etc.).

- Power generation department

There are two small generators (1975 Yanmar 10 kv unit and a 1983 German make 15 kv unit) but they are old and are not of much use because of their small capacities.

- Others

City water is being use presently.

② Pampanga Provincial Hospital

Established : 1986

Number of beds : 150 beds

Population of service area: 1,250,000 peoples

Diagnosis items : Medicine, gynecology, surgery, pediatrics and emergency outpatients

Sections : Administration, radiation diagnosis, surgery, examination, power generation service and laundry, others

Outline and activities :

Although this was previously a Guagua (municipality) district hospital, it was duly rated up to a provincial hospital two years ago in line with grading up of the

Absisha regional hospital to a medical center, and the San Fernando provincial hospital to a regional hospital. The equipment installed are also old and obsolete since they are from the previous district hospital. Although there are 100 beds, the occupation rate is normally 110%. There is a shortage of manpower in its hospital. Medical personnel has increased to the present 12 people from the original four and it is planned to improve the equipment accordingly. Plans are presently being advanced towards providing an intensive care unit in the facilities.

• Radiology section

Although the X-ray unit is comparatively new (2~3 years), replacement is strongly desired because of its small capacity of 100 mA. Plans are to transfer the present equipment to a district hospital if an x-ray unit of a suitable capacity can be supplied.

③ Bulacan Provincial Hospital

Established : 1941

Number of beds : 200 beds

Population of service area: 203,743 peoples

Diagnosis items : Medicine, obstetrics & gynecology,  
surgery, pediatrics, emergency outpatients

Sections : Administration, radiation diagnosis,  
surgery, examination, power generation,  
service and laundry, others

Outline and activities :

This is a comparatively large facility for a provincial hospital with 40 doctors. However, the facilities are old and practically no new equipment has been installed recently. On confidence that equipment will be supplied under this project, renovation construction has commenced on the radiological diagnosis room and the ultrasonic

diagnosis room.

- Surgery

Two major surgery rooms and one each surgery room are provided for emergency and outpatients.

- Pediatrics

The room is small and in a state of disorder because of the large number of patients.

- Power generating section

The facilities maintenance service section is in charge of power generation with a one 25 kv unit.

#### ④ Mindoro Occidental Provincial Hospital

Established : 1963

Number of beds : 100 beds

Population of service area: 289,867 peoples

Diagnosis items : Medicine, obstetrics & gynecology,  
surgery, pediatrics, emergency  
outpatients

Sections : Administration, radiation diagnosis,  
surgery, examination, power generation,  
service and laundry, others

Outline and activities :

This is a small scale medical facility located outside of Mambrao. The registered number of beds is 100 but it actually has only 60. Although it has a low bed occupancy rate of 40 ~ 50 % , it is the core hospital of the five district hospitals in the region. This hospital was established as a district hospital with 25 beds in 1963 and was increased to 50 beds in 1973. It was upgraded to provincial hospital in 1979. However, the actual state is that it is financially ranked as a

district hospital and it is unable to increase to receive patients because of the lack of personnel and equipment.

- Radiology section

Although there is one 1940 U.S. X-ray unit and one 1960 Japanese X-ray unit, one is actually unusable and one has inadequate functions.

- Surgery section

Sufficient light cannot be obtained from the operating light since its position cannot be fixed. Up and down movement of the operating table is out of order.

#### ⑤ Batangas Provincial Hospital

Established : 1966

Number of beds : 50 beds

Population of service area: 184,500 peoples

Diagnosis items : Medical, obstetrics & gynecology,  
surgery, pediatrics, emergency outpatient

Sections : Administration, radiation diagnosis,  
surgery, examination, power generation,  
service and laundry, others

#### Outline and activities :

Located in the town of Lemery. It is named Don Juan Mayaga Memorial Hospital after Don Juan Mayaga who donated the land in 1962, and was built as a 25-bed emergency hospital. It was then upgraded to a 50-bed district hospital and then to a provincial hospital with the number of beds unchanged. In addition to the 10 physicians, six visiting consultants (physicians) are also registered. If necessary, they will attend medical activities call basis.

Although it is a small hospital, it is neat and clean inside and equipment maintenance is comparatively good.

- Radiology section

The X-ray equipment is old and unusable.

- Surgery

The operating table is old (about 25 years) and difficult to use. The operating light is also old but is in usable condition.

⑥ Anders Bonifacio Memorial Hospital

Established : 1956

Number of beds : 150 beds

Population of service area: 972,343 peoples

Diagnosis items : Medicine, obstetrics & gynecology, surgery, pediatrics, emergency outpatients, dentistry, ophthalmology, psychiatry

Sections : Administration, radiation diagnosis, surgery, examination, power generation, service and laundry, others

Outline and activities :

This hospital is located outside the town of Tres Murtires. A 150-bed general hospital and a 350 bed psychiatric hospital are operating in integrated state on a large 7 hectare site. The buildings also have semi-basements because of the difference in height of the land. Although there is no interchange between personnels of the general hospital and the psychiatric hospitals, and also no exchange or common use of equipment, the budget for the equipment of both hospitals is lumped and allocated to the provincial health office. There are 37 physicians in the general hospital (five of the 37 are on part time basis) and occupancy of the beds averages 70%.



• Surgery

There is a major surgery room, a minor surgery room and a delivery room but in all cases the equipment is in dilapidated state since they were installed 20 to 30 years ago.

• Radiology

A fixed type X-ray equipment is provided but the X-ray generating tube is faulty and has required repairs a number of times in the past. Repair costs is, therefore, becoming a burden on the equipment budget. At present, the only X-ray equipment in operation is a mobile type (small capacity).

• Power generation

Although a 44.5 KVA and 7 KVA power generation plant are installed, the 44.5 KVA unit is out of order and there is no outlook of obtaining repair parts since it is an old 1940 vintage equipment. Although the 7 KVA unit is older, it is still operating but it is unable to satisfy needs because of its small output.

⑦ Marinduque Provincial Hospital

Established : 1984

Number of beds : 100 beds

Population of service area: 120,589 peoples

Diagnosis items : Medicine, obstetrics & gynecology, surgery, pediatrics, emergency outpatient

Sections : Administration, radiation diagnosis, surgery, examination, power generation, service and laundry, others

Outline and activities :

This is a provincial hospital with 100 beds. All

equipment is maintained in good order and in sanitary state. All equipment except for the two operating lights (made in China) and the high pressure sterilizer (manufacturing country unknown) which were said to have been purchased recently, have far exceeded their useful life.

- Radiology

The X-ray equipment breaks down frequently because of its superannuated state (1960 make) and is presently in unusable state.

- Examination

Although the examination room is small, blood and tuberculosis sputum tests are conducted here.

- Obstetrics

The delivery table and examination table are old and in difficult-to-use state.

- Power generation

Power failures are frequent so two motor generators are provided but one of which is an old unit (1950 model) therefore the replacement is desired since it is unable to display its function adequately.

- Others

The dining room is practically bare of equipment and procurement of a tableware sterilizer is especially being strongly demanded to prevent from infectious diseases in the hospital. Although the well water pump is driven by a motor with generating power, breakdowns occur frequently because the equipment is old (over 20 years after installation).

2) Outline of Subjected Facilities of the Project

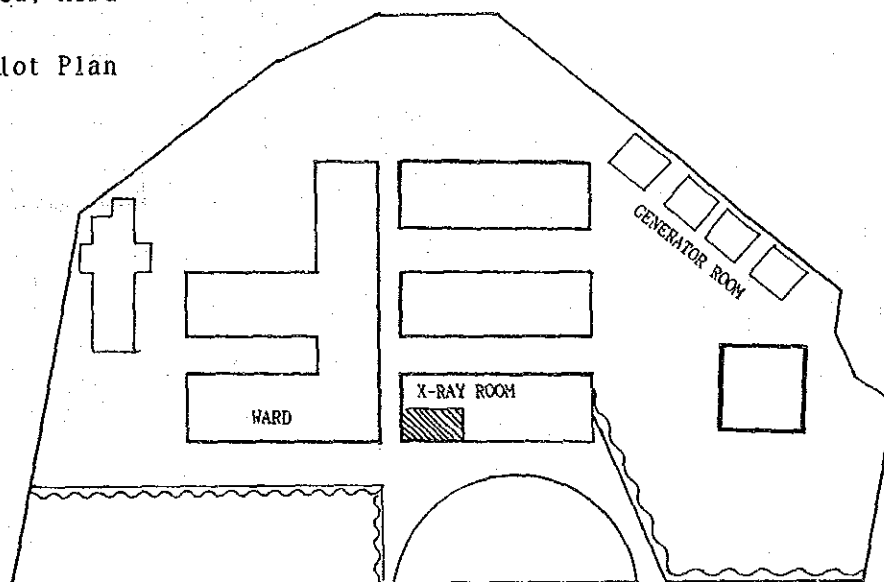
The plot plans and the photographs of the subjected facilities of the project are shown as follows

Code no. : I - 1

1 Abra Provincial Hospital  
Bangued, Abra

No. of Beds: 100

A. Plot Plan

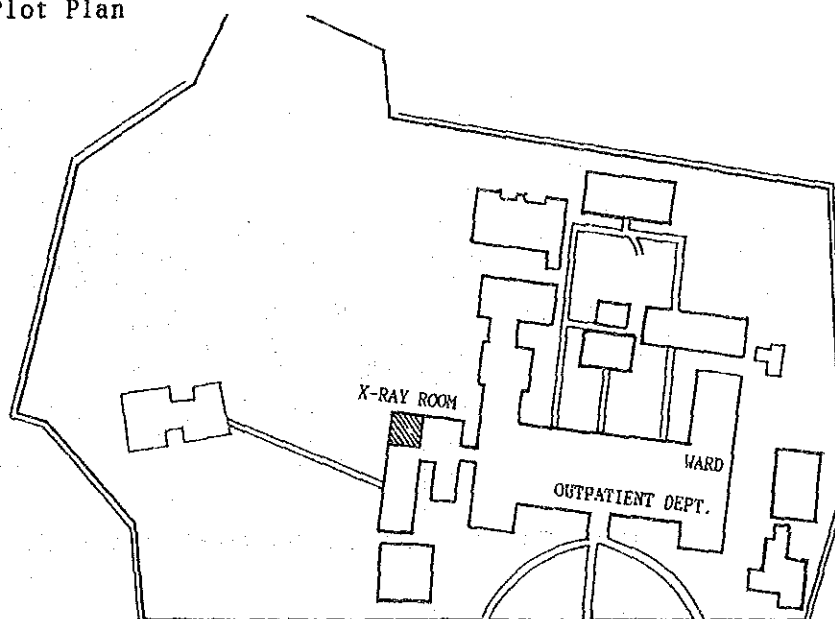


Code no. : I - 2

2 Ilocos Norte Provincial Hospital  
Laoag, Ilocos

No. of Beds: 100

A. Plot Plan

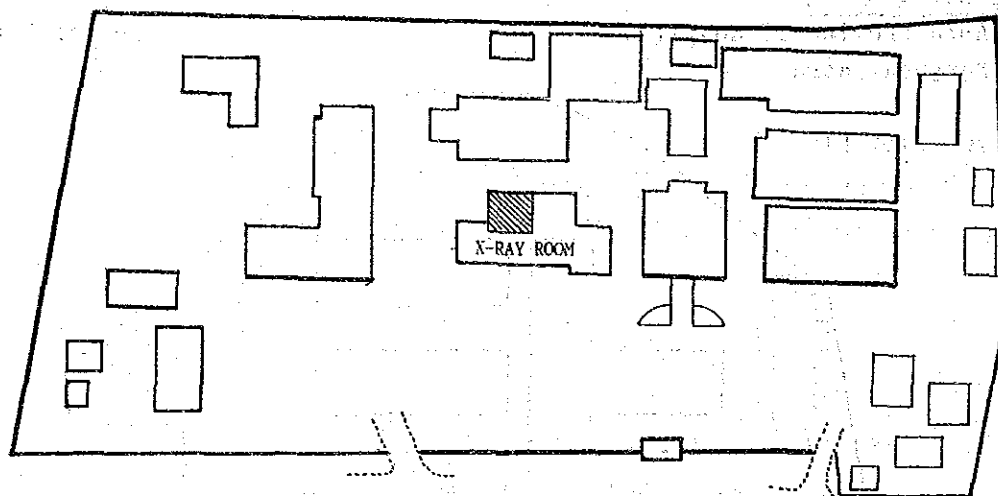


Code no. : I - 3

3 Gabriela Silang General Hospital  
Vigan, Ilocos Sur

No. of Beds: 100

A. Plot Plan

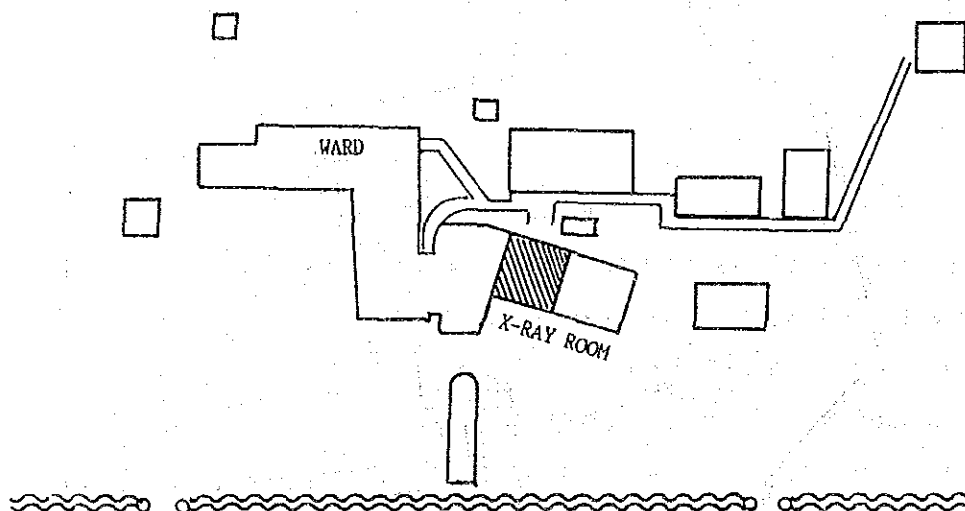


Code no. : II - 1

4 Nueva Vizcaya Provincial Hospital  
Bayombong, Nueva Vizcaya

No. of Beds: 200

A. Plot Plan

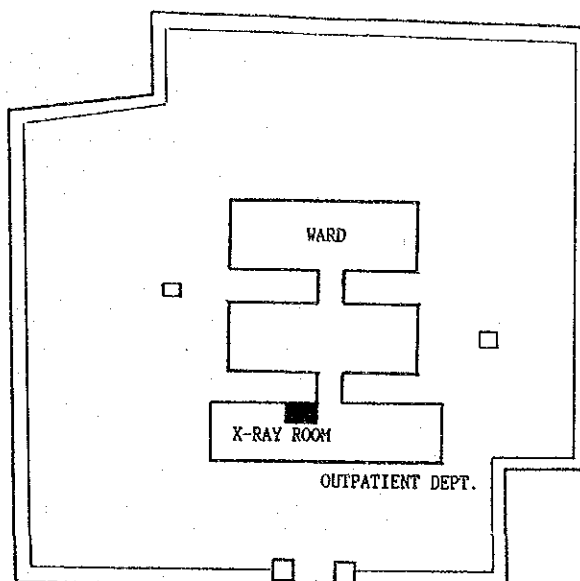


Code no. : II - 2

5 Aparri Provincial Hospital  
Aparri, Cagayan

No. of Beds: 50

A . Plot Plan

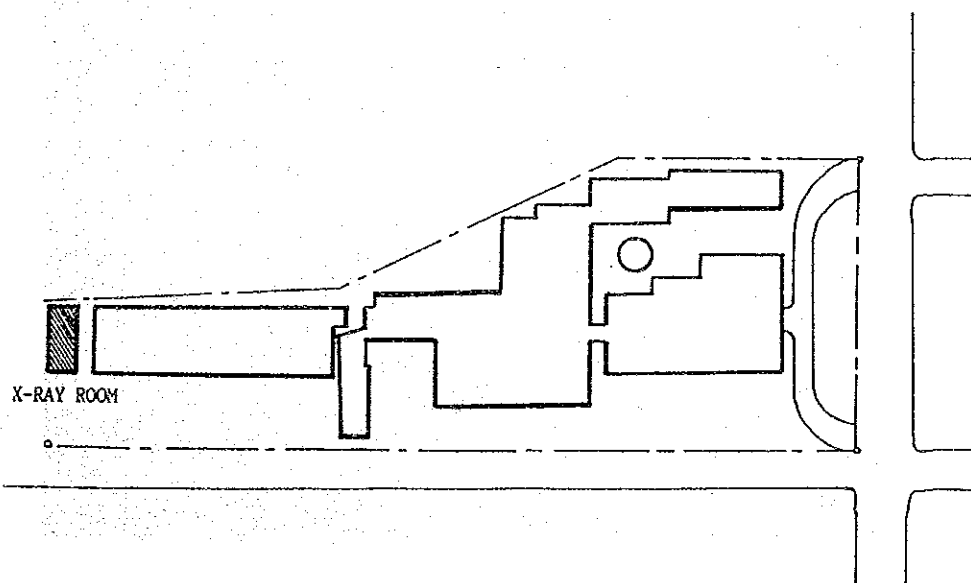


Code no. : II - 3

6 Batanes Provincial Hospital  
Basco, Batanes

No. of Beds: 75

A . Plot Plan

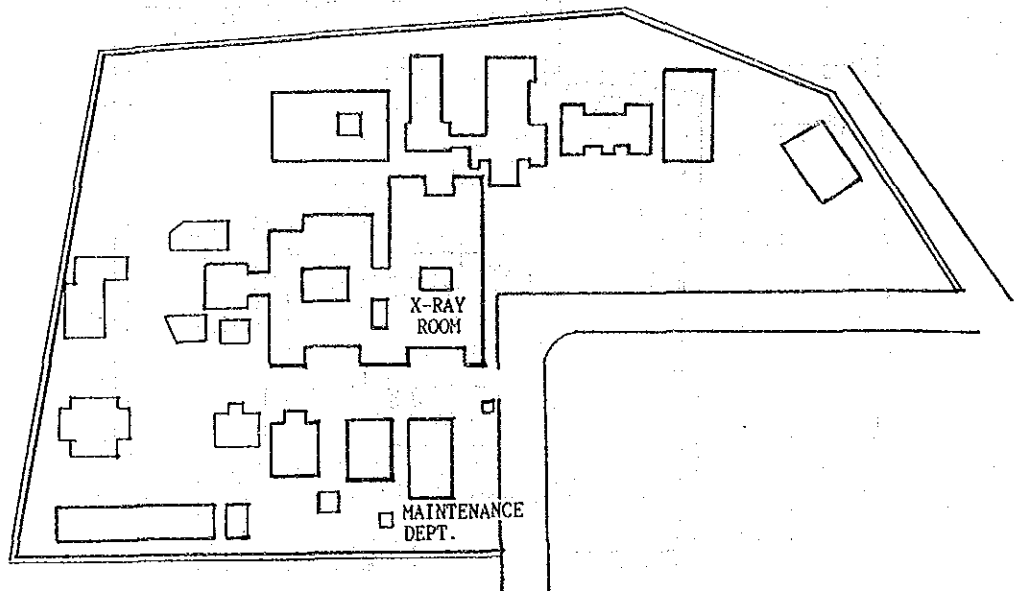


Code no. : III - 1

7. Bulacan Provincial Hospital  
Malolos, Bulacan

No. of Beds: 200

A. Plot Plan



B. Photo

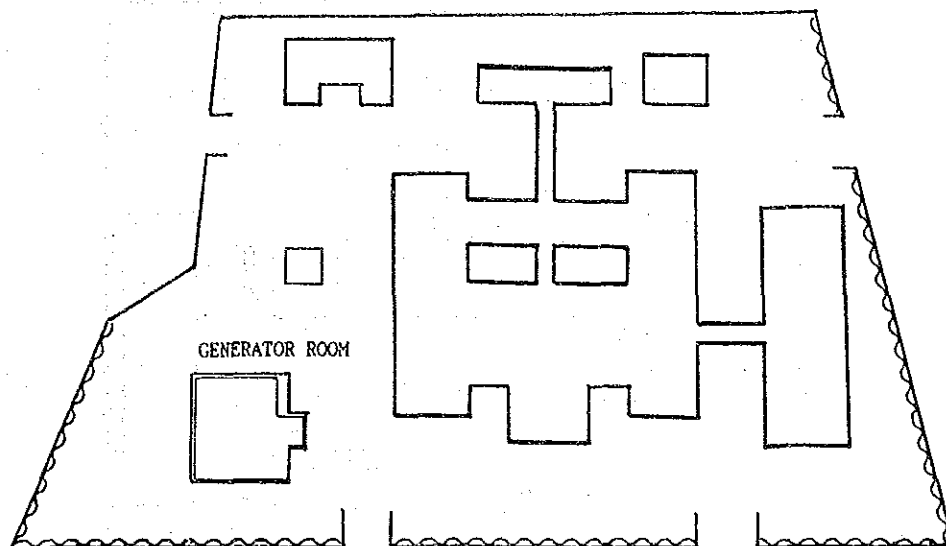


Code no. : III - 2

8 Pampanga Provincial Hospital  
Guagua, Pampanga

No. of Beds: 150

A . Plot Plan



B . Photo

