Japan International Cooperation Agency
Department of Health, the Government of
the Republic of the Philippines

Basic Design Study Report
on
The Project for Construction and Equipping
of The Out-patient Department of
The Vicente Sotto Memorial Medical Center
in
The Republic of The Philippines

June 1993

NIHON SEKKEI, INC.

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 Construction and Equipping of the Out-Patient Department of the Vicente Sotto Memorial Medical Center and entrusted the study to the Japan International Cooperation Agency (JICA).

JICA sent to the Philippines a study team headed by Dr. Takeki Shiina, Department of International Cooperation, National Medical Center Hospital and constituted by members of Nihon Sekkei, Inc., from March 4 to 27, 1993.

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. Then, a mission was sent to the Philippines in order to discuss a draft report, and as this result, the present report was finalized.

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

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

June 1993

Kensuke Yanagiya

Kensuke Yanagiya
President
Japan International Cooperation Agency

Mr. Kensuke Yanagiya

President

Japan International Cooperation Agency

Tokyo, Japan

June, 1993

Letter of Transmittal

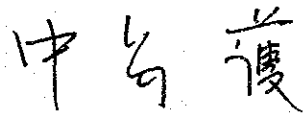
We are pleased to submit to you the basic design study report on the Project for Construction and Equipping of the Out-patient Department of the Vicente Sotto Memorial Medical Center in the Republic of the Philippines.

This study has been made by Nihon Sekkei, Inc., based on a contract with JICA, during the period February 24, 1993 to June 30, 1993. In conducting the study, we have examined the feasibility and rationale of the project with due consideration to the present situation of the Republic of the Philippines, and formulated the most appropriate project design for the project under Japan's grant aid scheme.

We wish to take this opportunity to express our sincere gratitude to the officials concerned of JICA, the Ministry of Foreign Affairs, the Ministry of Health and Welfare in Japan. We also like to express our deep gratitude to the officials concerned of the Vicente Sotto Memorial Medical Center, the Department of Health of the Philippines, JICA Philippine Office and Embassy of Japan in the Philippines for their close cooperation and assistance throughout our field survey.

Finally, we hope that this report will contribute to further promotion of the project.

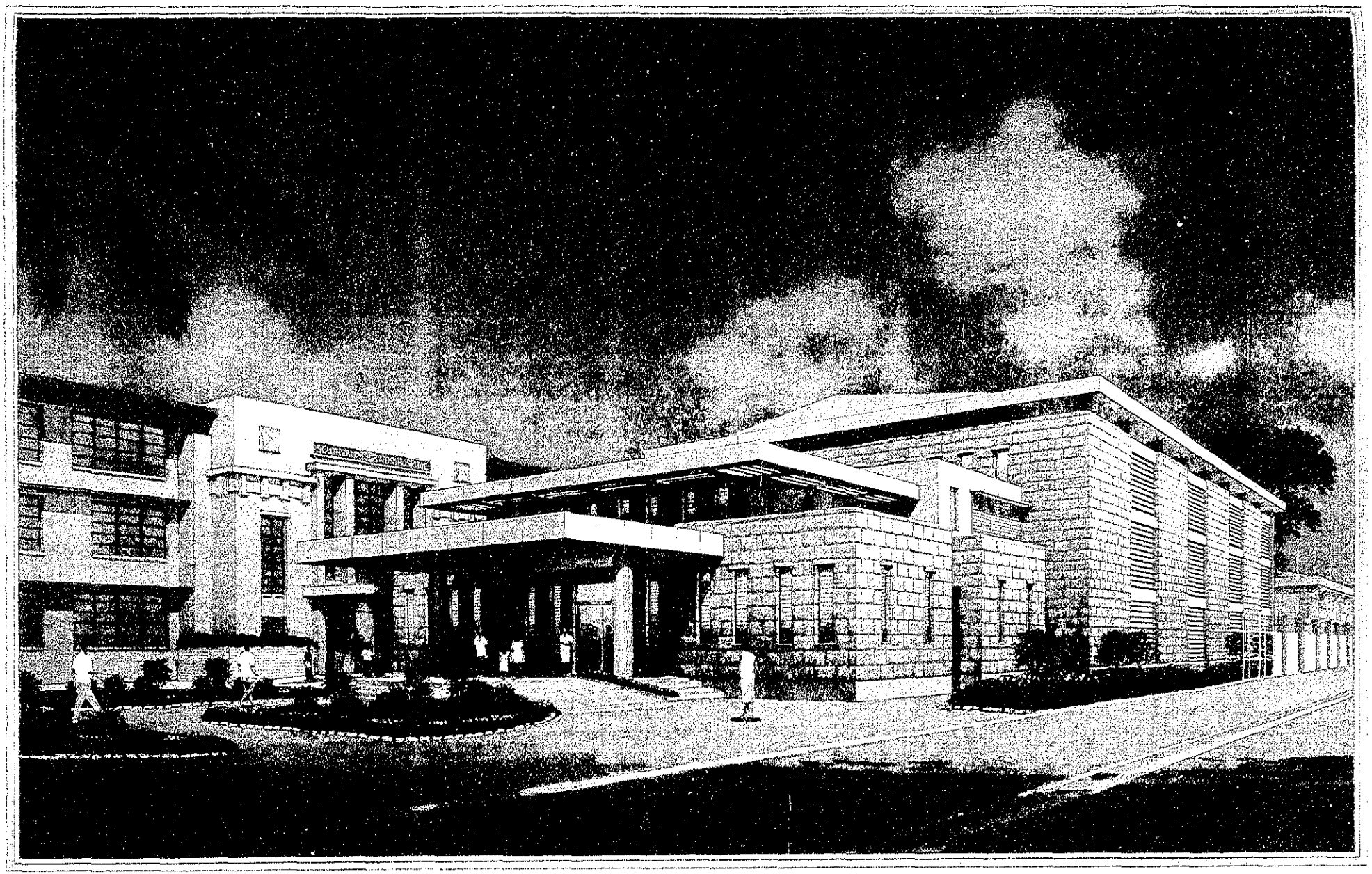
Very truly yours,



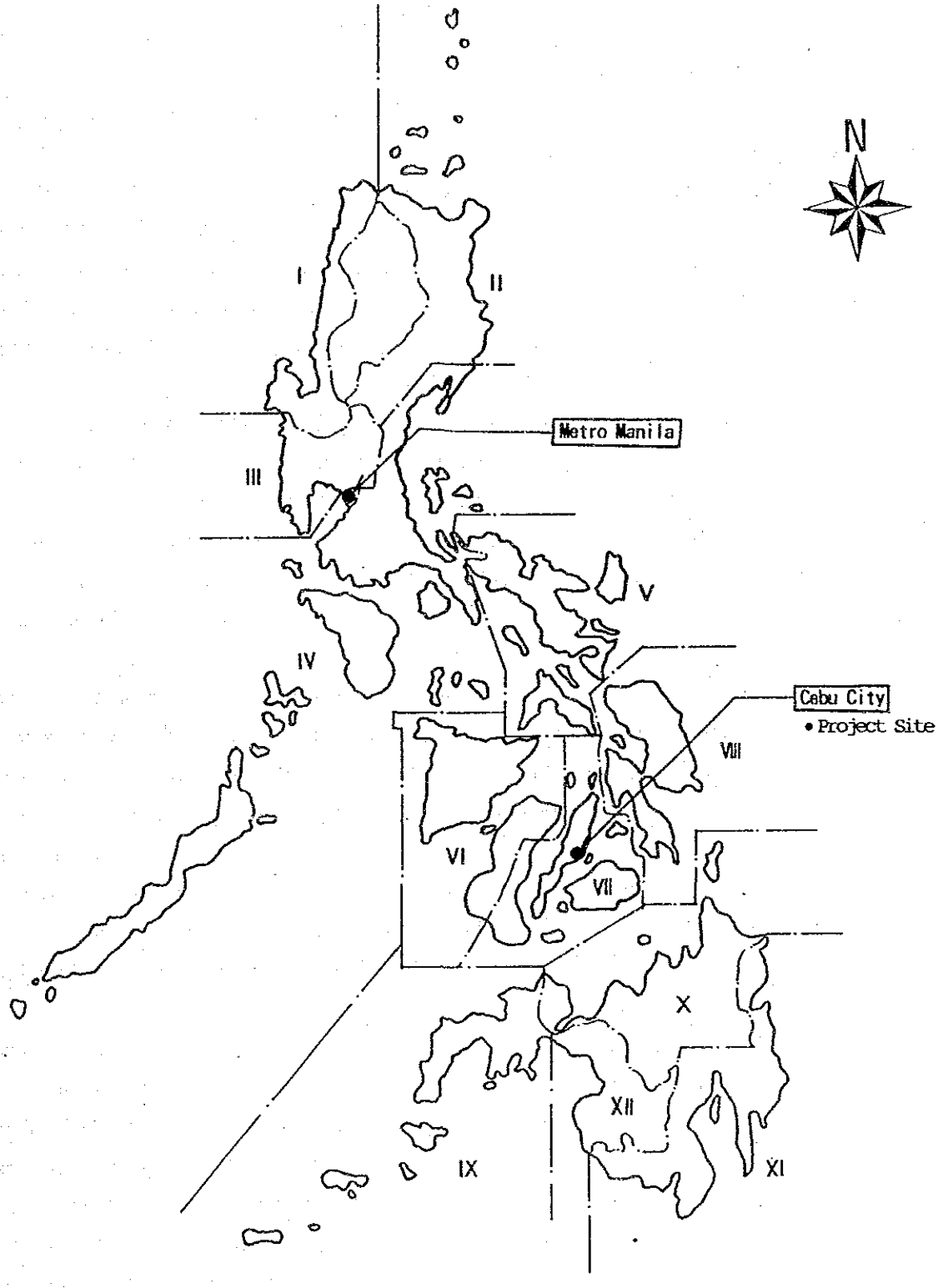
Mamoru Nakajima

Project Manager,
Basic design study team on the Project for Construction and Equipping of the Out-patient Department of the Vicente Sotto Memorial Medical Center in the Republic of the Philippines

Nihon Sekkei, Inc.



PERSPECTIVE



LOCATION MAP OF THE PROJECT

SUMMARY

The Government of the Republic of the Philippines formulated the National Development Plan (1987 - 1992) in 1986 to maintain social and economic development and improve international payments. In the field of health and medical care the Government formulated the National Health Plan under the above mentioned program. Efforts have been made to realize the three major objectives of the plan: (1) improvement of the population's nutritional condition; (2) effective medical services for all people in order to promote Primary Health Care; and (3) promotion of family planning in order to raise living standards.

Health and medical services in the Republic of the Philippines can be classified broadly into services available at private medical institutions and those available at public medical institutions. Public medical institutions offer medical services mainly to the low income group. They either charge nothing or charge for a part of the services unlike private medical institutions which charge for services. Public medical institutions play an essential and important role in the country.

However, public medical institutions, which depend on the national budget for most of their funds, suffer from a shortage of facilities and medical equipment because of the long economic depression in the country. As a result they are unable to offer adequate medical services to the people. This has been one of the obstacles to the accomplishment of the targets of the national plan. In particular, the difference between Metro Manila and the regions is prominent in the standard of medical services. While the number of beds versus the number of residents is 1: 639 in Metro Manila, the national average is 1: 1445. Effective medical services cannot be offered to all the people in this situation.

Vicente Sotto Memorial Medical Center (hereinafter referred to as VSMMC), which falls under the current project, is one of the eight national medical centers in the country. It is located in Cebu City of Cebu Province in Central Visayas (Region No.7). It gives medical services not only to Central Visayas , but also to other regions, including Leyte Island and Mindanao Island. It accepts referral patients as well. VSMMC plays an important role as a tertiary medical institution in the Region because it gives education and training to those who are engaged in medical services in addition to ordinary examination and treatment. Under the current administrative organization, VSMMC is under the jurisdiction of the Regional Health Office, which belongs to the Management Committee for National Field Operations under the Secretary of Health. It is operated by Regional Health Office No. 7. However, the

Philippine Government is promoting a drastic reform in administrative organization. A study is being made on placing National Medical Centers under the direct control of the Department of Health.

VSMMC officially has 350 beds (in actual fact 549 beds) and is operated by 607 employees including 141 doctors, 70 assistant doctors, 187 registered nurses and 90 practical nurses. The major indices (average of the past 5 years) of VSMMC's medical activities are as follows:

Number of out-patients:	130,000 persons/year (520 persons/day)
Number of in-patients:	17,000 persons/year
Number of operations:	8,600 operations/year
	(including minor operations: 3,600 operations/ year)
Bed occupancy rate:	104%
Number of X-ray examinations:	15,600 per year

Since its establishment in 1913 VSMMC has expanded its facilities and functions in response to immediate demand without consideration for their efficient layout. For this reason the efficiency of medical services has suffered due to the poor layout of facilities and equipment, especially during recent years. Lately it has become unable to meet the increasing demand for medical services because of the shortage of examination and treatment space as well as the old and outdated state of most of the facilities and equipment.

The above situation is particularly obvious at the Out-patient Department Building (hereinafter referred to as OPD Building). The severe financial situation of the whole country accounts partly for the delay of improvements in both facilities and equipment. For this reason the Philippine Government made a plan for extending the OPD Building of VSMMC, renovating a part of the existing related facilities and upgrading medical equipment, and requested grant aid from the Japanese Government.

In response to this request the Japan International Cooperation Agency (JICA) dispatched a preliminary study team in December 1992. The team had discussions with the Philippine Government staff concerned, inspected the related facilities and collected the necessary information. After returning to Japan, the team analyzed the information gathered and studied the justification for grant aid for the Project and how extensive that aid should be. The study cited how much the OPD Building is important in VSMMC, the shortage of examination and treatment space, the inefficient layout of the facilities, the old and outdated state and shortage of medical equipment and the need for renovating a part of the related existing

facilities. As a result, the justification and necessity of the Project for improving medical services at VSMMC was recognized.

Based on the result of the preliminary study, the Japanese Government determined to conduct a basic design study. JICA dispatched the Basic Design Study Team in March 1993. The team had discussions with the Philippine Government staff concerned, investigated the related facilities, collected the necessary information and examined the background and the contents of the request for this project. The team prepared the present Basic Design Study Report after analyzing the above information in Japan and explaining the draft report at the project site in May 1993.

The results of the study led to the conclusion that medical services in various areas, not only in Cebu City but also in Central Visayas, Leyte Island and Mindanao Island, can be improved by constructing facilities and procuring the medical equipment needed for improving and upgrading out-patient examination and treatment at VSMMC.

The facilities and equipment that are planned under the Project are as follows.

1) Construction site: In the premises of Vicente Sotto Memorial Medical Center in Cebu City, Cebu Province
2) Construction area: 1,539.71 m^2
3) Total floor area: 4,145.48 m^2 (New Out-patient Department Building)
   188.23 m^2 (Renoration of the existing Building)
4) Number of stories and structure: Reinforced concrete structure, 3 stories with semi-basement
5) Description of the New Out-patient Department Building (hereinafter referred to as the New OPD Building)
   - Semi-basement: Mechanical and Electrical Room
   - 1st floor: Reception office, Waiting Hall, Consultation Rooms (Department of Family Medicine, Department of Medicine, Department of Pediatrics, Department of Surgery, Department of Orthopedics etc.), Wellness Clinic, Treatment Room, Offices etc.
   - 2nd floor: Consultation Rooms (Department of Gynecology, Department of Ophthalmology, Department of ENT, Department of Dental etc.), Examination Rooms (EEG, ECG, Endoscope, Ultrasound Examination), Treatment Room etc.
   - 3rd floor: Rehabilitation Room, Minor Operation Room, Sterilizing Room, Consultation Room (Department of Psychiatry), Lounge for Nurses, Medical Record Room, Conference Room etc.

6) Renovation of existing facilities: Renovation of emergency section and X-ray section
7) Medical equipment: Examination and treatment equipment, education and training equipment, management equipment

Twelve (12) months is estimated to be an adequate construction period. The organization responsible for executing the Project is the Office for Hospital and Facility Services, Department of Health. The New OPD Building will be operated and managed by VSMMC.

The total number of employees, including the doctors and nurses, at the existing VSMMC is 607. The existing OPD Building is operated by 93 employees at present. When the New OPD Building is completed, 43 employees (nurses, medical technicians and office workers) will be newly assigned to it. Therefore it will be operated by 136 employees in total.

The plan calls for the New OPD Building to save utility cost fuel and electricity. A considerable amount of thought was given to the availability of maintenance and management services at the site in the formulation of the medical equipment plan. The additional personnel expenses and facility and equipment maintenance expenses required for the operation of the New OPD Building are estimated to be approximately 15.5 million pesos. This accounts for 20% of the VSMMC's budget and for 2.6% of the budget of the 8 Medical Centers. The average annual growth rate of the budget of the eight (8) Medical Centers during the last five (5) years was 8.4% and it has increased steadily year by year. Therefore the budget appropriation for maintenance and management expenses shall be subsidized by the Department of Health.

When the Project is executed, it is expected to bring about the following improvements and effects in medical services in the Project Area.

1) The facility will become large enough to meet the potential demand for medical services and the projected number of out-patients.

   Current number of out-patients: 520 persons/day

   Number of out-patients that will be able to be handled after completion of the project: 700 persons/day

   As a result, medical services will be expanded and improved both qualitatively and quantitatively and medical demand in the service area around Cebu Province will be adequately met.

2) The efficiency of VSMMC will be increased due to improvements in facilities and medical equipment. As a result, education and training activities will be able to be improved both in quality and quantity. In particular, it will be possible to raise medical standards in the area by the acquisition of knowledge about new equipment and training through examination and treatment activities.

The prolonged economic depression in the Republic of the Philippines has seriously delayed improvements in medical facilities and equipment. It is difficult to offer adequate medical services especially to people in the regions. In these circumstances improving the functioning of VSMMC, which is located in Cebu City, the second largest city after Metro Manila, is of great significance.

When the New OPD Building is completed, the related sections are renovated and medical equipment is upgraded under the Project, not only will out-patient services improve but the efficiency of medical care at the whole hospital will be raised. Therefore, it is judged that the Project is essential.

The Project will enable VSMMC to offer adequate tertiary medical services to 13 million residents in its service area and to offer a place for adequate education and training of medical staff. Thus, it will make a large contribution to health and medical care in the area.

The Department of Health must assign adequate staff for the operation of the New OPD Building and make the necessary budget appropriation so that medical activities can be carried out smoothly. Efforts should be made to enhance the overall functioning of the hospital in order to promote the independent execution of the VSMMC Improvement Program by the Department of Health.

CONTENTS

CHAPTER 1 INTRODUCTION

CHAPTER 1 INTRODUCTION

The Government of the Republic of the Philippines has been making efforts to "offer effective medical services to all the people" as the target of the National Health Plan. However, the improvement of facilities and medical equipment has been delayed due to the country's economic depression that has continued over many years. In particular, there is a marked difference in the level of medical services between Metro Manila and the Regions. The number of hospital beds versus the number of residents in Metro Manila is 1: 639, but the national average is 1: 1445. In light of this, the Philippine Government adopted "The Project for Construction and Equipping the Out-patient Department" (hereinafter referred to as the Project) for the purpose of improving medical services at Vicente Sotto Memorial Medical Center (hereinafter referred to as VSMMC), which is located in Cebu City, the largest city in the southern Philippines. In September 1992, the Philippine Government requested grant aid for the execution of the Project from the Japanese Government.

In response to this request the Japan International Cooperation Agency (JICA) dispatched a preliminary study team in December 1992. The team had discussions with the Philippine Government staff concerned, inspected the related facilities and collected the necessary information. After returning to Japan, the team analyzed the information gathered and studied the justification for grant aid for the Project and how extensive that aid should be. The study cited how much the OPD Building is important in VSMMC, the shortage of examination and treatment space, the inefficient layout of the facilities, the old and outdated state and shortage of medical equipment and the need for renovating a part of the related existing facilities. As a result, the justification and necessity of the Project for improving medical services at VSMMC was recognized.

Based on the result of the preliminary study, the Japanese Government decided to conduct a basic design study. JICA dispatched the Basic Design Study Team to the project site from March 4 through March 27, 1993. The study team was led by Dr. Takeki Shiina, Department of International Cooperation, National Medical Center Hospital, the Ministry of Health and Welfare. The Study Team investigated the following issues with reference to the feasibility of grant aid assistance for the Project, taking account of the position and role of the Project in the Philippines' strategy for improving medical services.

1) Current conditions at the Vicente Sotto Memorial Medical Center
2) Current conditions at related medical facilities
3) Justification of the contents and scale of the request

4) How the project will be executed, operated and managed, budget appropriation, work to be done by the Philippines
5) Proposed construction site and related infrastructure
6) Circumstances related to construction and medical equipment

After returning to Japan, the Study Team analyzed the results of the field study and prepared the Basic Design Study Report on the Project. The team explained this report in the Philippines in May 1993, and discussed its contents with the Philippine Government and reached a mutual agreement.

This report is a summary of the results of the above study. A Member List of the Study Team, the Survey Schedule, a List of Major People Interviewed and a copy of Minutes of Discussion etc. appear in the Appendix.

CHAPTER 2 BACKGROUND OF THE PROJECT

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2-1 Current State of Health and Medical Services in the Philippines

2-1-1 Organization and Functions of Medical Administration

In the Republic of the Philippines medical administration falls under the jurisdiction of the Department of Health (DOH). Medical administration organizations can be classified broadly into the following two areas. The five offices under the Secretary of Health are in charge of measures at the national level, while Regional Health Offices, which are controlled by the Management Committee for National Field Operations under the Secretary of Health, are in charge of measures at the regional level.

The new administration which took office in 1992 is planning a drastic administrative reform. Under the current system, the establishment, installation, maintenance and management of regional/provincial medical facilities and equipment are the direct responsibility of Regional/Provincial Health Offices. On the other hand, strategies etc. are developed by the Management Committee for National Field Operations within the Department of Health. However, under the planned reform the management and operation of these regional/provincial medical facilities would be entrusted entirely to regional/provincial administrative organizations.

The five offices in charge of policies at the national level have the following functions.

- Office for Public Services

  The Office for Public Services is headed by the Undersecretary and consists of the Assistant Secretary and ten sections.

  Its main services consist of planning, extending and supervising measures against infectious diseases, child and maternal health guidance, family planning and environmental and hygiene measures, all of which need to be coordinated at the national level.

- Office for Hospital and Facility Services

  The Office for Hospital and Facility Services is headed by the Undersecretary and consists of the Assistant Secretary and four sections.

  Its main services consist of installing, maintaining and managing national-level medical facilities and equipment. This Office determines policies for national hospital

construction and extension projects and approves design documents etc. as a part of its services.

- Office for Standards and Regulations

  The Office for Standards and Regulations is headed by the Undersecretary and consists of the Assistant Secretary, three sections and one national quarantine office. Its main services consist of formulating and examining various standards and regulations related to health and hygiene. The standards and regulations formulated by this Office are transmitted to related organizations via Regional Health Offices. Also, the Office provides education, training, advice and consultation services. This Office also monitors the observance of standards at various organizations and reports the results to the Secretary of Health.

- Office for Management Services

  The Office for Management Services is headed by the Undersecretary and consists of the Assistant Secretary and six sections.

  This Office supports not only the Department of Health but also Regional Health Offices and related organizations by educating health staff, procuring materials and managing finances.

- Office for the Chief of Staff

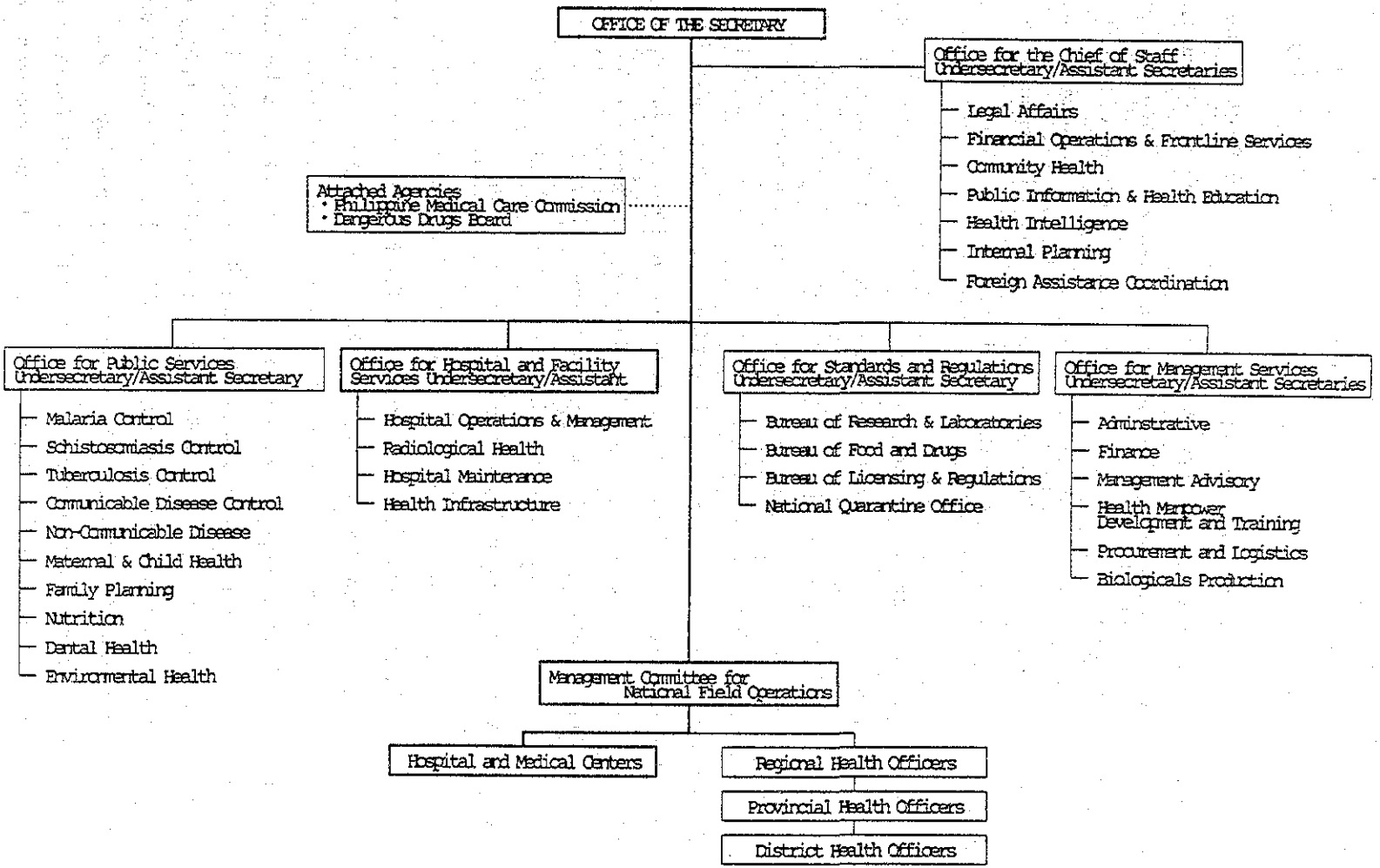
  The Office for the Chief of Staff consists of the Secretary, the Aide to the Secretary, the Undersecretary, the Assistant Secretary and seven sections. It is in charge of accounting and legal issues and has a section for administering assistance from overseas.

- Management Committee for National Field Operations

  This committee is headed by the Secretary of Health and consists of the Undersecretaries of the above Offices (the Undersecretary of the Office for the Chief of Staff is the head). Regional Health Offices in Metro Manila and the 12 Regions (one in each region) (with provincial and district health offices under them) and national medical institutions (four speciality hospitals, five national hospitals, eight medical care centers and one research center) fall under the Committee's jurisdiction. Strategies and policies relating to their operation are determined by this Committee.

An organizational chart of the Department of Health is given in Figure/Table 2-1.

Figure/Table 2-1 National Administrative Organization for Medical Services



2-1-2 Current State of Health and Medical Services

(1) Health and Medical Service System

Public medical institutions in the Philippines consist of medical facilities that offer primary, secondary and tertiary medical care. The purpose of classifying medical services into these three levels is to promote primary health care (hereinafter PHC) and to strengthen health and medical care through the adequate utilization of these medical facilities. Tertiary medical care is offered by special hospitals, speciality hospitals, medical centers, provincial hospitals and regional hospitals. Secondary medical care is offered by regional hospitals, district hospitals and municipal hospitals. On the other hand, primary medical care is offered by rural health units etc.

In medical centers and provincial hospitals, medical services are divided into departments, and medical education and training are carried out for medical staff. In regional hospitals, medical services are similarly divided into departments, but an educational function is not always offered. In district hospitals and municipal hospitals, medical services are not divided into departments. Regional hospitals are located in cities having high population density in all the states. They function as the first referral facilities for secondary medical care and accept those patients who cannot be treated at district hospitals. They have departments of internal medicine, surgery, pediatrics, obstetrics & gynecology and related auxiliary departments. Some of the regional hospitals have facilities for giving training to interns and medical staff of municipal hospitals and rural health units.
Primary, secondary and tertiary medical care may be described as follows.

- Primary Medical Care

  Primary medical care is offered by health units (district health units, rural health units, Balangay Health Stations) under the jurisdiction of district health offices, municipal hospitals, medi-care hospitals and district hospitals. Basically, health units have no facilities for hospitalization and accept out-patients only. One rural health unit serves a population of about 10,000. One doctor along with several nurses and hygiene supervisors are assigned to each rural health unit. Balangay health units, the smallest administrative unit, are established to assist the activities of rural health units. One Balangay health unit serves a population of about 1,500. Two health workers and two midwives work constantly at each Balangay health unit. These facilities are engaged mainly in child and maternal health consultation, family planning, public hygiene guidance, nutritional guidance, protective inoculation and simple medical services. Medi-care hospitals and district hospitals are engaged mainly in family planning consultation, internal

medicine and pediatrics, and offer simple surgery to out-patients. They send patients with complicated conditions to the district hospitals or regional hospitals above them.

- Secondary Medical Care

  Secondary medical care is offered by sanitary hospitals, regional hospitals and provincial hospitals. These hospitals have the basic four departments (internal medicine, surgery, pediatrics and obstetrics & gynecology) and provide screening service for group tuberculosis examinations, malaria examinations, blood tests, stool tests and drinking water tests. However, municipal level facilities do not have sufficient equipment and materials for these examinations and tests. They must be supported by district hospitals and regional hospitals which have equipment such as X-ray equipment, microscopes, spectrophotometers, autoclaves and thermostatic chambers. Secondary medical care is oriented mainly to infectious disease measures. These institutions offer medical service to local people in cooperation with primary medical care facilities that are in charge of protective inoculation and public health guidance etc.

- Tertiary Medical Care

  While secondary medical care consists mainly of diagnosis, tertiary medical care offers comprehensive medical services including prevention, diagnosis and treatment. Medical institutions engaged in tertiary medical care offer advanced medical services in the departments of ophthalmology, ENT, pharyngology, orthopedics and radio therapy in addition to the basic departments (internal medicine, surgery, pediatrics and obstetrics & gynecology). District hospitals and regional hospitals, which function as initial referral facilities from secondary medical care facilities, in general have the basic departments. Regional hospitals and medical centers have some specialized departments in addition to the basic departments so that they can accept more complicated cases. Special hospitals and speciality hospitals offer specialized medical services including advanced services.

(2) Number of Medical Facilities and Number of Beds

Figure/Table 2-2 shows the medical service system, the number of medical facilities falling under public organizations and the number of beds at these facilities.

Figure/Table 2-2 Number of Public Medical Institutions and Beds

Management Body in Charge	Name of Hospital	Number of Institutions	Beds	Medical Service System		
				Primary Care	Secondary Care	Tertiary Care
Department of Health	Speciality Hospital	4	953			◎
	Special Hospital	5	7,750			◎
	Medical Center	8	2,950		○	◎
	Research Center	1	50			◎
Local Government	Provincial Hospital	14	3,950		○	◎
	Regional Hospital	75	7,845	○	○	◎
	District Hospital	275	10,235	○	◎	○
	Municipal Hospital	60	605	○	◎	
	Medi-care Hospital	87	1,250	◎	○	
	Sanitary Hospital	8	2,000		◎	
Health Unit	District	433	0	◎		
	Rural	1,851	0	◎		
	Balangay	9,836	0	◎		

Source : DOH 1993 ◎Main Duty, ○Sub Duty

Public medical institutions, excluding sanitary hospitals for leprosy patients, have about 35,600 beds. About 50% of them are located in regional hospitals and district hospitals which offer secondary and tertiary medical care.

The number of beds at all medical institutions in the Philippines is shown in Figure/Table 2-3. This shows that about 50% of these belong to private medical institutions. This indicates the importance of private medical institutions to health and medical care in the Philippines.

Figure/Table 2-3 Number of Beds in Medical Institutions

Institutions	No. of Beds
Public Hospital	39,625
Private Hospotal	42,351
Community Hospital	1,206
Sanatorium etc.	8,070
Total	91,252

Figure/Table 2-4 shows the distribution of medical facilities under the jurisdiction of the DOH. The population per bed is 639 persons in Manila, but 1,655 persons, more than double this, in Central Visayas. This indicates that a large difference exists between Metro Manila and the Regions in the availability of public medical facilities.

Figure/Table 2-4 Medical Institutions by Administrative Region

Regions	Population	S	A	B	C	D	E	F	G	No. of Beds	Bed: Population
Metro Manila	7,928,867	4	3	2	–	3	–	–	1	12,403	1:639
1. Ilocos Region	3,550,606	–	–	1	4	20	–	6	–	1,790	1:1983
2. Cagayan Valley	2,340,652	–	–	1	5	19	4	5	–	1,690	1:1385
3. Central Luzon	6,198,957	–	1	1	6	27	2	6	–	2,985	1:2076
4. Southern Luzon	8,265,784	–	–	1	11	36	7	20	1	4,060	1:2035
5. Bicol Region	3,909,799	–	–	1	6	21	6	8	1	2,100	1:1862
6. Western Visayas	5,393,333	–	1	1	6	25	8	6	1	2,540	1:2123
7. Central Visayas	4,593,151	–	1	1	4	20	4	5	1	2,775	1:1655
8. Eastern Visayas	3,055,184	–	–	1	5	27	5	9	–	2,120	1:1441
9. Western Mindanao	3,159,197	–	–	1	5	16	8	4	2	1,865	1:1693
10. Northern Mindanao	3,509,826	–	–	1	7	20	3	7	–	1,845	1:1902
11. Southern Mindanao	4,457,076	–	1	1	5	14	6	6	–	1,690	1:2638
12. Central Mindanao	3,171,368	–	–	1	5	10	5	1	1	1,215	1:2610
CAR	1,145,880	–	1	–	5	18	2	4	–	1,430	1:801
TOTAL	58,573,680	4	8	14	74	276	60		8	40,508	1:1445

Source: DOH 1993

S : Speciality Hospital
A : Medical Center
B : Provincial Hospital
C : Regional Hospital
D : District Hospital
E : Municipal Hospital
F : Medi-care Hospital
G : Sanitary Hospital

(3) Medical staff

It is reported that 35,759 persons were engaged in medical services at public medical institutions in the Philippines in 1989. Figure/Table 2-5 shows medical staff classified by type of facility and profession.

Figure/Table 2-5 Number of Medical Workers in Public Medical Institutions

	Personnels	Speci-ality H	Special H	Medical Center	Provi-ncial H	Region H	Dist-rict H	Muni-cipal H	Medi-care H	Total
1	Doctor	174	426	968	922	1234	1461	73	106	5364
2	Nurse	873	592	968	1061	1671	2112	180	178	7635
3	Nurse Attend	390	171	494	484	1015	1489	113	198	4354
4	Midwife	98	102	18	24	174	838	32	22	1308
5	Dentist	1	20	26	27	86	215	6	7	388
6	Dental Assistant	0	3	12	24	57	110	3	2	211
7	Medical Technician	189	29	71	72	113	263	38	60	835
8	Pharmacist	32	37	42	42	95	204	31	0	483
9	Assistant Pharmacist	8	3	12	16	47	84	0	1	171
10	Nutritionist	17	81	163	209	425	844	25	3	1767
11	Clerk	515	108	690	461	1317	1861	69	2	5023
12	Clerk for Medical Record	0	2	3	11	20	31	0	0	67
13	Labratory Technician	0	6	21	3	34	32	1	0	97
14	Lab.Assist. Technician	26	4	8	69	58	52	4	1	222
15	Radiologist	48	11	34	36	66	176	39	1	411
16	Social Worker	21	21	41	26	60	78	1	1	249
17	Other Technician	4	3	50	9	34	64	7	10	181
18	Worker	24	97	272	445	695	947	48	71	2599
19	Part Time Worker	79	0	46	146	506	592	5	49	1423
20	Others	127	674	233	257	492	1042	49	97	2971
	Total	2626	2390	4172	4344	8199	12495	724	809	35759

Sorce : DOH 1989 H : Hospital

VSMMC is in a relatively good situation in view of the fact that it has 0.8 doctors and 0.49 nurses per bed, while the nationwide average of public medical institutions is 0.05 doctors and 0.08 nurses per bed. Figure/Table 2-6 shows the number of medical staff at the eight (8) medical centers throughout the country. It shows that VSMMC has fewer doctors and nurses per bed than the East Avenue Medical Center in Manila.

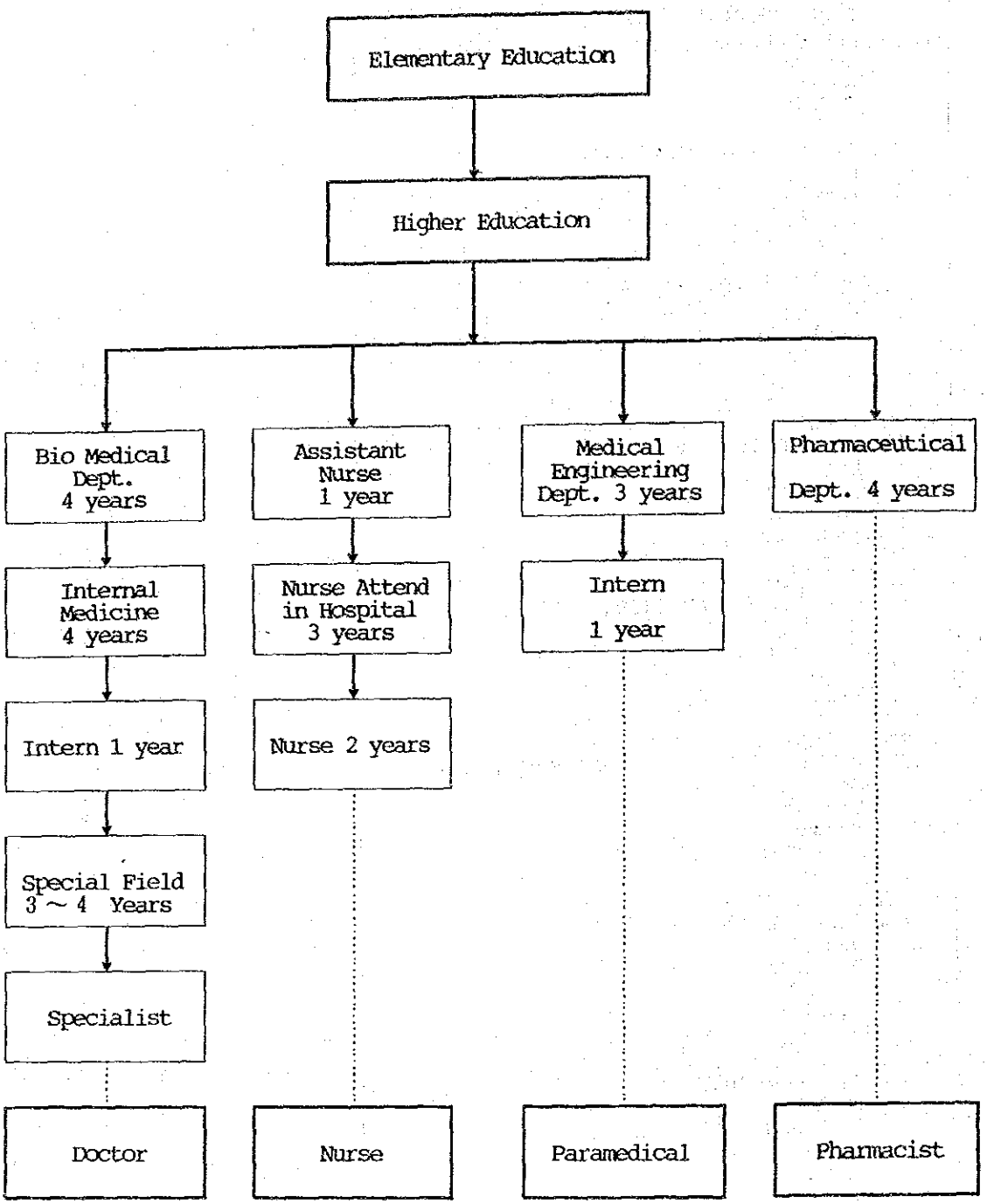
Figure/Table 2-6 Number of Medical Workers in Medical Centers

MEDICAL CENTERS	NO. OF BED	1989	1990	1991
Metro Manila				
1 : RIZAL MEDICAL CENTER	300			
Doctors		115	123	126
Dentists		6	6	6
Nurses		107	135	134
Midwives		9	9	9
2 : EAST AVENUE MEDICAL CENTER	350			
Doctors		195	215	203
Dentists		5	5	4
Nurses		193	210	284
Midwives		2	3	3
3 : JOSE R REYES MEMO MED CTR	450			
Doctors		233	257	240
Dentists		5	7	6
Nurses		211	224	202
Midwives		2	2	2
CENTRAL LUZON				
4 : DR. PAULINO GARCIA MEMO & MEDICAL CENTER	300			
Doctors		85	84	90
Dentists		2	2	2
Nurses		82	84	83
Midwives		—	3	3
WESTERN VISAYAS				
5 : WESTERN VISAYAS MEDICAL CTR	300			
Doctors		107	106	106
Dentists		3	3	9
Nurses		107	111	111
Midwives		1	1	—
CENTRAL VISAYAS				
6 : VICENTE SOTTO MEMORIAL MEDICAL CENTER	350			
Doctors		152	152	152
Dentists		3	3	3
Nurses		185	185	185
Midwives		1	1	1
SOUTHERN MINDANAO				
7 : DAVAO MEDICAL CENTER	350			
Doctors		126	113	—
Dentists		2	2	—
Nurses		99	103	—
Midwives		4	4	—
C A R				
8 : BAGUIO MEDICAL CENTER	300			
Doctors		—	—	134
Dentists		—	—	3
Nurses		—	—	137
Midwives		—	—	8

Sourse : DOH VSMMC

Figure/Table 2-7 shows the education system for medical staff in the Philippines. One must study for 9 years after graduating from high school to become a doctor. To become a specialized doctor, one must receive practical training in a specialized department at a regional hospital, a medical center or a speciality hospital for 3 to 4 more years.

Figure/Table 2-7 Educational System for Medical Workers



Source : DOH

(5) Current State of Diseases

1) Trends in diseases

One of the most serious problems confronting health and medical care in the Philippines is infectious disease. Figure/Table 2-8 shows the rate of contraction of major diseases. The top six diseases are infectious diseases. Cases of infectious disease account for 92% of all cases of the ten major diseases.

Figure/Table 2-8 Ten Leading Diseases

	5YEAR AVERAGE(1982~89)		1990	
	No.	Per100,000	No.	Per100,000
Acute Respiratory Infection	1,970,188	3,434.22	3,624,770	5,895.84
Diarrhea	744,320	1,297.42	1,051,362	1,710.08
Influenza	550,669	959.87	537,360	874.04
Nutritonal Deficiency	178,821	311.70	500,993	814.88
Parasitism	309,353	539.23	285,681	464.67
Tuberculocis	189,834	330.90	227,190	369.53
Skin Disorders	61,974	108.03	177,019	287.93
Pneumonia	162,220	282.76	162,257	263.92
Accidents	91,859	160.12	160,564	261.16
Malaria	137,531	239.73	71,028	115.53

Source : DOH

2) Major diseases causing death

Many of the major diseases that cause death in the Philippines are infectious diseases. In particular, pneumonia has been the leading cause over the past several years. Figure/Table 2-9 shows the ten major diseases causing death from 1985 to 1989 (average) and in 1990.

Figure/Table 2-9 Ten Leading Diseases of Death

	5YEAR AVERAGE(1982~89)		1990	
	No.	Per100,000	No.	Per100,000
Pneumonia	52,672	91.81	39,094	63.59
Vascular Diseases	26,750	46.63	31,424	51.11
Heart Diseases	20,650	35.99	22,655	36.85
Tuberculosis	23,092	40.25	17,468	28.41
Accidents	21,086	36.75	15,626	25.42
Malignant Neoplasm	13,525	23.58	14,274	23.22
Diarrhea	10,133	17.66	4,697	7.64
Speticemia	2,555	4.45	2,806	4.56
Acute Respiratory Infection	3,161	5.51	2,136	3.47
Kidney Diseases	904	1.58	1,563	2.54

Source : DOH

3) Major diseases causing infant death

Regarding infant deaths, Pneumonia has been the leading cause over the past several years. Figure/Table 2-10 shows the causes and distribution of infant deaths between 1985 and 1989 (average) and in 1990.

Figure/Table 2-10 Ten Leading Diseases of Infant Death

	5YEAR AVERAGE(1982~89)		1990	
	No.	RATE	No.	RATE
Pneumonia	13,814	10.31	8,819	6.41
Immaturity	4,591	3.43	2,661	1.94
Diarrhea	2,948	2.20	2,088	1.52
Asphyxia Neonatorum	2,157	1.61	1,929	1.40
Speticemia	1,517	1.13	1,427	1.04
Congenital Anomaly	1,754	1.31	1,216	0.88
Acute Respiratory Infection	1,196	0.89	812	0.59
Sepsis Neonatorum	573	0.43	621	0.45
Congenital Debility	411	0.31	407	0.30
Nutritional Deficiency	713	0.53	376	0.27

Source : DOH

(6) Budget of the Department of Health

The following table shows the evolution of the budget of the DOH over the 5 years from 1987 to 1991. The budget for 1991 decreased due to the expenditure for the eruption of Pinatubo Volcanos, but the average annual growth rate of the DOH's budget during the 5 years was about 18%. The percentage of appropriations to the DOH in the total national budget has recently been increasing, reaching 4.89% in 1990.

Figure/Table 2-11 Budget of Department of Health

Unit : Million Pesos

	1987	1988	1989	1990	1991
Budget of DOH (Ratio to Previous year)	4,088 ——	6,049 (48% up)	7,353 (21% up)	7,655 (4.1%up)	7,465 (2.5%down)
Ratio in National Budget	2.63%	3.16%	3.21%	4.89%	4.49%

Source: DOH

The following table shows the evolution of total budget appropriations to public medical institutions in Region No.7 from the budget of the DOH. The average annual growth rate during the 5 years from 1986 to 1990 was about 20%. This growth rate is quite high.

Figure/Table 2-12 Budget of Public Medical Institutions in Region No.7

Unit : Thousand Pesos

	1986	1987	1988	1989	1990
Budget of Public Medical Institution in Region No.7 (Ratio to Previous year)	176,939 ——	223,871 (26% up)	270,243 (20% up)	325,802 (20% up)	366,416 (12% up)

Source: DOH

The following table shows the budget for the eight (8) medical centers to which VSMMC belongs. Although the budget for 1991 decreased due to the expenditure for the eruption of Pinatubo Volcanos, the average annual growth rate during the past 5 years is about 8.4%. Since the total number of beds at the medical centers was 2,950 in 1992, the budget per bed works out to 191,000 peso for that year.

Figure/Table 2-13 Budget of Eight(8) Medical Centers

Unit : Thousand Pesos

	1989	1990	1991	1992	1993
Budget of Eight(8) Medical Centers	445,385	506,039	407,406	563,769	603,396
(Ratio to Previous year)	——	(13.6%up)	(7% down)	(20% up)	(7 % up)

Source : DOH

The growth rate (18% in 5 years average) of the budget for public medical institutions in Region No.7 is nearly the same as that for the growth rate (20% in 5 years average) of the total budget for the DOH. The growth rate for the eight medical centers (8.4% in 5 years average) is quite a bit lower (note however that there is some difference in the years being compared). The DOH is aware of this situation at the medical center and has expressed a plan to increase the budget.

2-1-3 National Health Plan

(1) Health Care System

In 1979 the Government of the Republic of the Philippines institutionalized the health care system in order to improve health and medical care services in the country. This was based on the basic principle of PHC: "Offering chances to receive health and medical care services which are effective and necessary for living a healthy life in accordance with the Government's responsibility for the people's health and the people's own right and duty."

Under the health care system, medical services were classified into primary, secondary and tertiary levels and the functions of each level were identified. At the same time, public medical institutions were assigned to the primary through tertiary medical care levels according to their roles.

(2) National Development Plan

In 1986 the Philippine Government formulated the National Development Plan (1987 - 1992) and prepared the National Health Plan under this program for the purpose of improving the nation's health and hygiene.

This plan aims to improve health and hygiene in regional areas, to eradicate diseases, improve and extend medical facilities and the medical system, improve hygiene and increase

medical staff for the purposes of raising the health, hygiene and welfare standards of the Philippines. It has the following three major objectives:

a. Providing medical services to all by the year 2000 through PHC facilities (1st Phase Medical Plan)
b. Improving the health, medical care and nutritional standards of the Philippine people (Food and Nutrition Plan)
c. Promoting family planning to improve the living environment (Family Planning)

In order to accomplish the above objectives, the Philippine Government set concrete goals, under various plans and made projections of the effects of these plans. To achieve these goals the Government made efforts to improve the infrastructure of medical facilities and to secure medical staff, and implemented measures for suppressing infectious diseases under the 1st Phase Medical Plan. Under the food and nutrition plan, the Government supplemented foods, increased the production of foods and took measures to aid undernourished children. Under family planning, the Government increased family planning clinics, educated instructors and increased medical staff. At the same time, the Government set the following targets for 1992. Figure 2-14 shows the indices for the Philippines in 1990 and the averages for advanced countries in the same year.

Figure/Table 2-14 Medical Index of National Health Plan

	1987	1992 (Target)	1990 Actual Data	Developed Countries *1
Average Life	63.7	65.2	65.0	75.0
Neonatal Mortality Rate	55.5/1,000	47.8/1,000	40.0/1,000	12.0/1,000
Mortality Rate	7.6/1,000	7.1/1,000	7.0/1,000	10.0/1,000
Birth Rate	31.3/1,000	28.6/1,000	30.0/1,000	14.0/1,000
Population Growth Rate	2.41%	2.21%	2.30%	0.50%

Source : UN Annual Report 1991 *1 1990 Average

The Philippine Government is preparing the Medium Term National Development Plan for 1993 - 1998 (5 years). The DOH is preparing a National Health Plan based on the Medium Term National Development Plan. The following health targets are set for 1998.

Figure/Table 2-15 Target Medical Index of National Health Plan in 1998

	1998 (Target)
Average Life	67.0
Neonatal Mortality Rate	18.0/1,000
Mortality Rate	6.4/1,000
Birth Rate	25.1/1,000

Source: A Proposal for the National Health Plan
DRAFT Revised Edition, March 1993

(3) Major Health and Medical Development Programs

Based on Presidential Decree No. 119 of January 1987, the DOH made a drastic organizational reform, prepared and executed health plans, and reviewed and strengthened medical services. These plans aim to institutionalize the efficient utilization of PHC and to contribute to health and medical care in regional communities. The contents and results (1990) of the major programs are described below.

a. National Tuberculosis Program

In 1990 1,910,325 samples of phlegm were tested for tuberculosis and 107,583 cases were found to be positive (percentage of positive cases: 5.63%). This program provided treatment to 236,590 patients under the Short Course Chemotherapy and 177,884 under the Standard Regimen.

b. Malaria Control Program

Under this program insecticides were sprayed at 707,541 households in 1990. Of the 1,400,107 cases that were examined, 93,907 cases were found to be positive. Presumptive and radical treatments were given to 1,228,319 and 92,581 patients respectively.

c. Schistosomiasis Control Program

Under this program 630,315 persons were examined and 45,325 persons were diagnosed as positive. 91.4% of the positive people (41,429 persons) were subsequently treated.

d. Targeted Food Assistance Program

This program benefits 538,960 children under the age of 33 months. Vitamin A and iron are given to 454,509 babies and 681,684 babies, respectively. Iodine is given to 4,238 children over the age of 7.

e. Expanded Program on Immunization

Under this program 1,383,132 babies and infants, 76% of the babies and children in the whole country, were given protective tests.

f. Family Planning Program

In 1990 1,949,722 people participated in this program. New applications accounted for 681,955 people, while 1,267,767 persons were existing participants.

g. Dental Health Program

Under this program 3,955,788 persons received oral examinations, 1,899,802 persons had tartar removed and 2,438,041 persons were given fluorine treatment. At the same time 485,783 persons were given fillings, while 1,621,516 persons had teeth extracted.

h. Leprosy Control Program

Of the 351,574 persons who are suspected to have leprosy, 15,289 persons received treatment and 7,589 persons were given MDT.

2-1-4 Trend in Aid From Overseas

Aid from other countries in the health and medical field since 1980 is shown below. Most of aid provides for primary and secondary medical care.

Figure/Table 2-16 Medical Assistances to the Republic of Philippines

FUNDING SOURCES	PROJECT TITLE	DURATION
Gov't of Japan	Philippine Health Development Project III	1990~94
	Equipment Upgrading of Provincial Hospitals (Phase II)	1989~94
	Research Institute for Tropical Medicine	1981~89
	Philippine General Hospital	1987~89
	Bureau of Food and Drugs Project	1986~87
	Equipment Upgrading of 26 Provincial Hospitals	1988~90
German Agency for Technical Corporation	Equipment Maintenance for Public Health Sector Facilities in the Philippines	1989~92
	Health and Management Information System	1989~92
Gov't of Italy	Assistance to the National Tubercoulosis Control Program	1989~92
	Institutional Support Program in the National Capitol Region	1989~92
United States Agency for International Development	Child Survival Program	1989~92
	Family Planning Assistance Project	1990~94
	Health Finance Development Project	1992~96
	AIDS Surveillance and Education Project	1993~97
	Primary Health Care Financing Project	1983~90
Holland	Family Planning	1989~94
World Bank	Philippine Health Development Project II	1989~94
United Nation	Family Planning	1990~93
Asian Development Bank	National Hospital Service Development Plan	1990~91

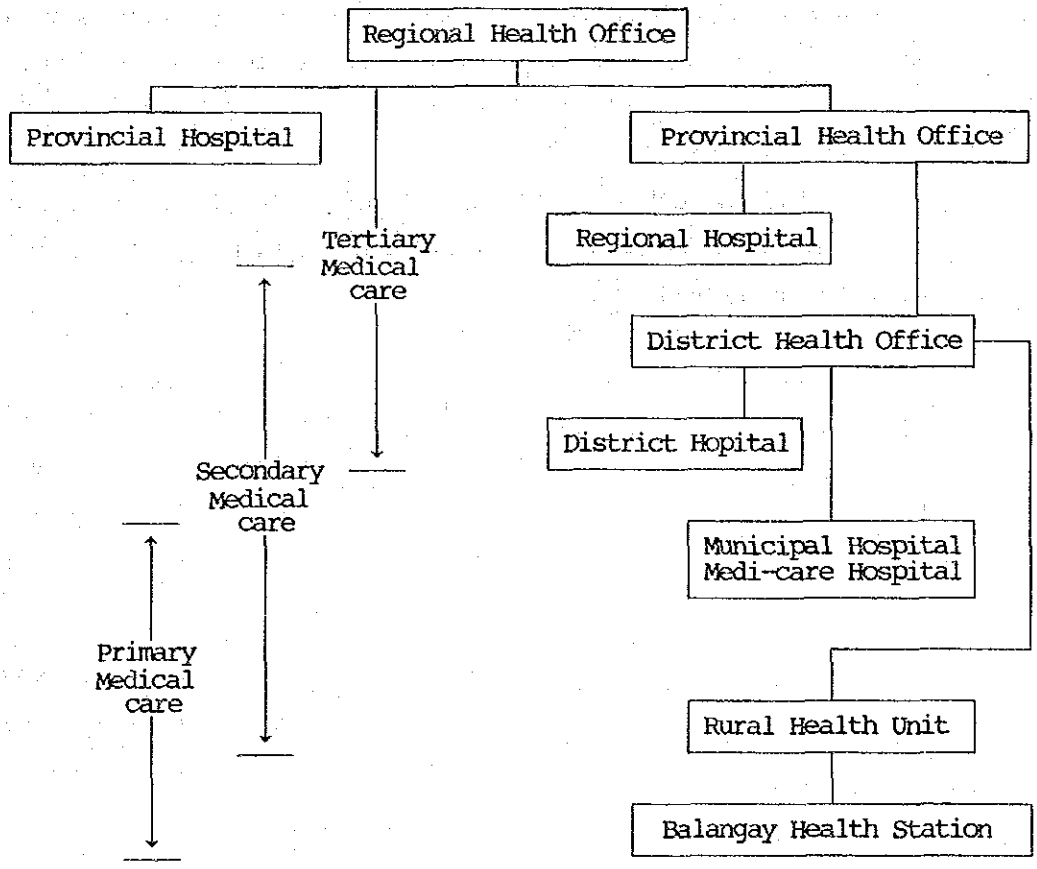
Source : DOH 1993

2-2 Health and Medical Services in the Project Area (Region No. 7)

2-2-1 Medical Administrative Organization and the Medical Service System in the Project Area

Under the current system the establishment, installation, maintenance and management of regional/provincial medical facilities and equipment are the direct responsibility of Regional/Provincial Health Offices in the Philippines. Strategies are developed by the Management Committee for National Field Operations within the DOH. Under the new administration which took office in 1992, the Philippine Government is promoting a reform (re-centralization) that would place medical facilities below the level of provincial hospitals under the jurisdiction of local administrative organizations rather than that of the DOH.

Figure/Table 2-17 Medical Institutions in Regional Administrations



Source : Regional Health Office No.7

As shown in Figure 2-17, the local medical administrative organization is headed by the Regional Health Office and consists of a Provincial Health Office in each state and a District Health Office in each district. These offices have the following functions.

- Regional Health Office

  There is one Regional Health Office in Metro Manila and one in each of the 12 regions. Each office is in charge of administering hygiene in its region. It directly controls provincial hospitals and has a regional health and medical care training center that provides education for the medical staff. It provides health and hygiene education to local residents and has a technology section in charge of rural health. It also controls the Provincial Health Office.

- Provincial Health Office

  The Provincial Health Office manages, operates and coordinates health and medical care activities in each region and directly controls regional hospitals.

- District Health Office

  The District Health Office controls not only district hospitals but also municipal hospitals, medi-care hospitals, rural health units and balangay health stations in charge of primary medical care.

2-2-2 Current State of Medical Services in the Project Area

(1) Medical Services

Region No.7, which includes the Project Area, has six (6) municipal hospitals, twenty-five (25) district hospitals, three (3) regional hospitals, three (3) city hospitals, one (1) provincial hospital, one (1) medical center and fifty-six (56) private hospitals. The ratio of people to number of beds in each state is shown in Figure/Table 2-18. This indicates that there are large differences among the Provinces in Region No.7. Although Cebu Province has a rather small number of public hospital beds for its population, Cebu city has a larger number of public and private hospital beds than other cities. This indicates that there are large differences among the cities even within Cebu Province.

Figure/Table 2-18 Population and Number of Beds in Region No.7

Province/city	Population 1992	No. of Beds			Total Beds (Government & Private)	Bed Population Ratio (Government)
		Government		Private		
		DOH	NON-DOH			
Bohol	920,723	235	0	422	657	1:3,918
Cebu	1,589,128	305	0	139	444	1:5,210
Negros Oriental	766,227	165	0	8	173	1:4,644
Siquijor	74,530	115	0	0	115	1: 648
Total(Province)	3,350,608	820	0	569	1,389	1:4,086
Bais city	61,877	25	0	15	40	1:2,475
Canlaon city	39,260	0	0	0	0	0
Cebu city	637,571	750	130	1,388	2,268	1: 725
Danao city	77,222	25	0	25	50	1:3,089
Dumaguete city	84,161	250	0	185	435	1: 337
LapuLapu city	158,123	85	25	0	110	1:1,437
Mandaue city	198,764	500	0	100	600	1: 398
Tagbilaran city	59,564	237	0	237	474	1: 251
Toledo city	126,536	25	0	99	124	1:5,061
Total (city)	1,443,078	1,897	155	2,049	4,101	1: 703
Region VII	4,793,686	2,717	155	2,618	5,490	1:1,669

Source : Regional Health Office No.7

Figure/Table 2-19 shows a comparison of the number of medical care staff in each Province of Region No.7. Even within this region there are huge differences among the ratios for each Province. The physician population ratio of Siquijor is nearly seven (7) times that of Bohol.

Figure/Table 2-19 Number of Medical Workers in Region No.7

	Provinces									
	BOHOL		CEBU		NEGROSORIEN.		SIQUIJOR		TOTAL	
	A	B	A	B	A	B	A	B	A	B
1. Physician	51	1: 18053	66	1: 24078	30	1: 25541	8	1: 9316	155	1: 21617
	35	1: 26306	65	1: 24448	68	1: 11268	19	1: 3923	187	1: 17918
2. Nurse	80	1: 11509	134	1: 11859	62	1: 12359	10	1: 7453	286	1: 11715
	73	1: 12613	115	1: 13819	131	1: 5849	28	1: 2662	347	1: 9656
3. Midwife	284	1: 3242	396	1: 4013	217	1: 3531	37	1: 2014	934	1: 3587
	2	1:460362	8	1:198641	2	1:383114	--		12	1:279217
4. Sanitary Inspector	48	1: 19182	61	1: 26051	25	1: 30649	6	1: 12422	140	1: 23933
	-		-		-		-		-	
5. Dentist	14	1: 65766	26	1: 61120	10	1: 76623	2	1: 37265	52	1: 64435
	4	1:230181	8	1:198641	4	1:191557	1	1: 74530	17	1:197085
6. Medical Technician	21	1: 43844	35	1: 45404	24	1: 31926	2	1: 37265	82	1: 40861
	15	1: 61382	15	1:105942	8	1: 95778	6	1: 12422	44	1: 76150
7. Nutri-tionist	2	1:460362	3	1:529709	2	1:383114	1	1: 74530	8	1:418826
	5	1:184145	11	1:144466	7	1:109461	1	1: 74530	24	1:139609
8. Pharma-cist	-		-		-		-		-	
	6	1:153454	15	1:105942	8	1: 95778	1	1: 74530	30	1:111687
9. Health Educator	1	1:920723	2	1:794564	1	1:766227	1	1: 74530	5	1:670122
	-		-		-		-		-	
10. Sanitary Engineer	2	1:450362	2	1:794564	1	1:766227	1	1: 74530	6	1:558435
	-		-		-		-		-	

Source:Regional Health Office No.7, 1992

A: No of Personnel
B: Personnel:Population
Upper : Field Health Service
Lower : Hospital Health Service

(2) Trends in Diseases

Figure/Tables 2-20 and 2-21 show the top ten diseases ranked by rate of contraction and cause of death, respectively.

Figure/Table 2-20 Ten Leading Deseases in Region No.7

	5Year Average(1987~1991)		1992	
	Number	Rate	Number	Rate
Acute Respiratory Infection	N/A	N/A	703,976	14,685
Gastrointestinal Disorder	99,812	2,186	129,391	2,698
Skin Problem	71,470	1,565	127,787	2,666
Parasitism	58,013	1,271	123,800	2,583
Anemia	42,325	927	101,074	2,108
Nutritional Deficiency	50,800	1,113	80,623	1,682
Injuries	19,676	431	79,408	1,657
Influenza	43,793	959	56,371	1,426
Pnemonia	505,347	11,068	62,008	1,294
Bronchitis	45,692	1,001	54,809	1,143

Source : Regional Health Office No.7

Figure/Table 2-21 Ten Leading Causes of Death in Region No.7

	5Year Average(1987~1991)		1992	
	Number	Rate	Number	Rate
Pneumonia	4,160	91.11	3,939	82.17
Vascular Diseases	2,709	59.33	2,302	48.02
Hypertensive Dis.	728	15.94	2,016	42.06
Cancer	1,593	34.69	1,609	33.56
Tb Pulmonary	1,177	26.78	1,127	23.51
Septicaemia	371	8.13	647	13.50
Accidents	790	17.30	626	13.06
Liver Diseases	389	8.52	536	11.18
Diarrhea	165	3.61	414	8.64
Kidney Diseases	274	6.00	393	8.20

Source : Regional Health Office No.7

These two Figure/Tables indicate that infectious diseases are prominent in the Project Area. Adult diseases, such as blood vessel disease, high blood pressure and malignant tumors, are in the top group. Problems caused by external injuries are increasing.

Figure/Table 2-22 shows the ten major diseases causing infant death. They are generally decreasing, but some (measles, meningitis etc.) are increasing.

Figure/Table 2-22 Ten Leading Causes of Infant Death in Region No.7

	5Year Average(1987~1991)		1992		
	Number	Per 100,000	Number	Per 100,000	% of Infant Death
Pneumonia	1,004	8.86	814	6.70	33.72
Diarrhea	157	1.39	132	1.09	5.47
Septicemia	149	1.32	125	1.03	5.18
Measles	46	0.41	64	0.53	2.65
Meningtis	14	0.12	33	0.27	1.37
Vascular Diseases	0	0.00	24	0.20	0.99
Neonatal Tetanus	10	0.09	21	0.17	0.87
Liver Diseases	2	0.02	9	0.07	0.37
Accident	0	0.00	7	0.06	0.29
Cancer	-	-	2	0.02	0.08

Source : Regional Health Office No.7

(3) Health and Medical Problems in the Project Area

Problems in medical services in the Project Area can be broadly classified as follows.

1) Many of the diseases seem attributable to the poor state of basic environmental hygiene. Infectious diseases still account for a large part of the 10 major diseases and the 10 major causes of death, although they have been decreasing over the past several years. Although malnutrition is increasing, chronic adult diseases such as blood vessel diseases, high blood pressure, cancer and liver diseases are beginning to join the leading causes of death. This indicates the need for not only extending the range of primary medical care service but also improving secondary and tertiary medical care services.

2) There is the problem of regional and social differences. Regional differences in the state of medical facilities and the number of medical staff are considerable. It is a fact that economic differences exist among the people. There is an urgent need to

improve public medical institutions that offer mostly free services in order to make uniform medical services available in the whole area.

3) "Strategic Health Plan 1993 - 1998" prepared by Regional Health Office No. 7 points out that improvements in social services are not keeping up with the speed of population increase and social changes. In some areas rapid urbanization due to population increase has resulted in a rise in crime and the spread of drugs. The lack of medical services for these matters has become a new problem.

2-3 Current State of the Vicente Sotto Memorial Medical Center (VSMMC)

2-3-1 State of Medical Service Activities

(1) Trends in Diseases

The top ten diseases over the past 5 years at VSMMC are shown below.

Figure/Table 2-23 Major Diseases and Number of Patients in VSMMC

Disease	1988	1989	1990	1991	1992
Normal Delivery	3,227	3,583	3,812	2,949	3,407
Bronchopneumonia	517	680	509	839	763
Abortion	539	750	685	751	676
Fracture	430	470	513	544	540
Schizophrenia	529	605	562	452	678
Appendicitis	399	408	372	463	450
Cancer	218	308	414	434	440
Heart Diseases	210	255	375	352	363
Stab Wound	146	320	308	290	292
Acute Infections Diarrhea	640	599	664	278	537

Source : VSMMC

Excluding ordinary delivery, the top group consists of bronchopneumonia and fracture. Both of these are on the increase. Schizophrenia is ranked relatively high and is increasing.

Among infectious diseases, pulmonary tuberculosis, measles and typhoid fever are ranked high, while cases of dengue fever are increasing rapidly. Pneumonia accounts for by far the largest number of deaths. It is followed by heart diseases, brain blood vessel ailments and cancer.

Figure/Table 2-24 Major Infectious Diseases and Number of Patients and Deaths in VSMMC

Disease	1988		1989		1990		1991		1992	
	N	D	N	D	N	D	N	D	N	D
P.T.B.	125	36	254	33	145	51	170	28	243	31
Measles	260	20	211	10	225	6	220	3	262	15
Meningitis	80	8	54	13	92	12	59	4	66	4
Typhoid Fever	149	12	181	12	102	14	193	5	209	11
Tetanus	111	26	75	18	82	21	92	12	51	11
Dengue Fever	145	4	158	1	306	3	198	1	773	13
Cholera	13	-	10	-	14	-	16	-	59	-
Hepatitis	12	5	25	2	21	3	14	3	10	1
Encepphalitis	9	1	5	2	8	-	1	-	10	1
Amebiasis	11	-	8	-	4	-	10	-	15	-

Source : VSMMC

N:Number of Patients
D:Deaths

Figure/Table 2-25 Number of Cases of Major Diseases in VSMMC

Disease	1988	1989	1990	1991	1992
Pneumonia	111	90	109	95	157
Heart Diseases	48	65	43	29	60
Stroke	40	31	40	52	37
Cancer	39	50	51	54	36
P.T.B.	40	33	51	37	31
Infant Diarrhea	26	22	43	28	27
Measles	20	10	6	3	1
Meningitis	10	13	14	8	12
Tetanus	21	10	21	17	11
Typhoid	12	12	14	5	6
Brain wound	45	61	32	35	26
Stab wound	15	10	4	15	2

Source : VSMMC

(2) Medical Services

1) Number of Patients

Data on out-patients, in-patients and referral patients from other hospitals in 1988 through 1992 is given below.

The average number of out-patients is about 520 persons/day, remaining nearly unchanged over the past five years. The average number of referral patients from other hospitals is about 10 persons/day, also remaining nearly unchanged. Similarly, the average number of in-patients per year has remained steady at about 18,000. The official bed occupancy rate in the 5-year average is about 104%. This rate is high because the official number of beds at VSMMC is given as 350. Since VSMMC in actual fact has 549 beds, the real bed occupancy rate is suspected to be lower. VSMMC will have enough capacity even if in-patients increase in future as out-patients increase.

Figure/Table 2-26 Index of Medical Activities in VSMMC

Desease	1988	1989	1990	1991	1992
Out-Patient	120,990 (484/day)	134,999 (540/day)	136,889 (548/day)	136,568 (546/day)	125,569 (502/day)
In-Patient	16,312	16,945	17,941	16,776	18,983
Bed Occupancy rate	103.29%.	106.75%	107.90%	96.78%	105.51%
Referral Out-Patient	2,624 (10.5/day)	2,637 (10.5/day)	3,093 (12.4/day)	1,925 (7.7/day)	2,246 (9.0/day)
Referal In-Patient	475	350	592	466	623

Source : VSMMC

The average annual growth rate of population in Region No.7, the VSMMC's medical service area, is about 1.9%. The fact that both the number of out-patients and the total number of hospital beds in this region have remained unchanged in spite of a population growth rate of 1.9% leads one to suspect that medical service capacity has reached the maximum allowable level because of the delay in improving facilities even though the demand (number of patients) is large.

Figure/Table 2-27 Change of Population and Number of Beds in Region No.7

	1988	1989	1990	1991	1992
Population of Region No.7	4,446,459	4,531,177	4,616,046	4,680,421	4,769,349
(Increasing Ratio to Previous year)	(1.93%)	(1.91%)	(1.87%)	(1.39%)	(1.90%)
Number of Beds of Public Medical Institutions in Region No.7	2,775	2,775	2,775	2,775	2,775
Number of Beds of Private Medical Institutions in Region No.7	——	——	2,550	——	2,618

Source : Regional Health Office No.7

The average number of patients in the emergency section is about 80. Its development is shown in the following table. The emergency section accounts for 15% of the total number of out-patients and shows a high rate. According to VSMMC this is because some patients who do not need first aid come to the emergency section because the existing OPD Building is very hard to find from the front entrance, while the emergency section is immediately visible.

Figure/Table 2-28 Number of Out-patients in Emergency Section

	1988	1989	1990	1991	1992
Internal Medicine	5,208	5,389	6,486	6,176	3,651
Surgery	5,892	5,000	6,193	6,000	6,397
Orthopedics	2,281	2,344	2,201	2,017	2,242
Neurosurgery	978	843	897	878	910
Pediatrics	6,011	5,817	6,406	4,972	6,627
Obstetrics & Gynecology	1,405	1,456	1,473	1,464	1,436
E/ENT	2,098	2,089	2,106	2,070	2,359
Family Medicine	——	——	——	4,753	6,158
Total	23,878 (65/day)	22,938 (63/day)	25,763 (70/day)	28,330 (78/day)	29,780 (81/day)

Source : VSMMC

2) Clinical Departments

The following table shows the main departments, the number of out-patients for each department over the past 5 years and their respective ratios.

Figure/Table 2-29 Change in Number of Out-patients by Department

	1988	1989	1990	1991	1992	Average	Ratio
Internal Medicine	15,575	18,915	17,341	11,403	12,803	15,207 (61/day)	11.6%
Surgery	10,660	10,819	11,374	14,199	15,381	12,487 (50)	9.5
Orthopedic	3,068	3,109	2,296	2,398	2,704	2,715 (11)	2.1
Pediatric	8,075	8,888	9,455	9,416	12,329	9,633 (39)	7.4
Pediatric (under 5)	18,905	22,021	22,164	19,435	12,329	18,971 (76)	14.5
Obstetric/ Gynecology	11,017	15,346	14,360	15,715	17,845	14,857 (59)	11.3
Dental	8,208	8,934	9,288	7,628	9,745	8,761 (35)	6.7
E/ENT	10,900	13,337	11,307	12,315	11,944	11,961 (48)	9.1
Family Medicine	——	——	1,219	5,128	5,525	3,957 (16)	3.0
Dermatology	1,241	920	826	748	493	846 (3.4)	0.6
Physio-therapy	5,162	6,251	5,756	5,723	8,081	6,195 (25)	4.7
Acupuncture	3,992	3,634	3,426	3,253	2,039	3,269 (13)	2.5
Psychiatric	6,608	6,907	7,153	9,222	9,430	7,864 (31)	6.0
Family Planning	2,860	2,870	4,343	3,292	5,525	3,778 (15)	2.9
Others						9,499 (38)	8.1
Total						131,000	100.0

Source : VSMMC

3) Number of Operations

The following table shows the annual number of operations at VSMMC over the past 5 years.

Figure/Table 2-30 Number of Operations

	1988	1989	1990	1991	1992	Average
Out-Patient	2,846	2,309	2,573	4,232	6,059	3,603
In-Patient	4,577	4,597	4,910	5,260	5,664	5,001
Total	7,423	6,906	7,483	9,492	11,723	8,604

Source : VSMMC

In 1992 11,723 operations were carried out at VSMMC. Operations (minor operations) for out-patients accounted for more than 50% of this total. At present, the operation section has number of eight operating rooms and two of them are being used as storage rooms. Therefore the actual operating rooms is six, two of which are used for emergency operations. The existing OPD Building has one operating room (about 3m x 5m) for minor operations. There are three operating tables installed in this small operating room. At VSMMC 6,059 minor operations were performed in these small operating rooms in 1992.

The following table classifies operations by department and gives the percentage of the total number of operations. The department of obstetrics & gynecology and the department of surgery account for 92% of the whole.

Figure/Table 2-31 Operations by Major Departments

Departments	% of Operations
Surgery	32.0 %
Neurosurgery	3.8
Orthopedic	12.6
Obstetric/ Gynecology	44.1
E/ENT	7.6

Source : VSMMC 1992

4) Number of Examinations

The following table shows the number of major examinations at VSMMC over the past 5 years.

Figure/Table 2-32 Number of Major Examinations

Items	1988	1989	1990	1991	1992	Average
X-ray	14,550	18,488	17,145	14,780	13,161	15,625
Ultrasound	——	——	3,106	1,290	Broken	2,198
E C G	3,488	6,694	7,681	8,960	6,006	6,578
Endoscopy						
Gastroscopy	157	200	Broken	218	305	220
Colonoscopy	23	65	76	78	40	56
Bronchoscopy	38	39	44	40	Broken	40

Source : VSMMC

In 1992 13,161 X-ray examinations were performed, which averages out to 36 examinations/day. The X-ray machines are operated 24-hours a day. VSMMC has two X-ray rooms, which have one X-ray machine each, at present, but one of them is out of order. The following table shows how the X-ray room was used in February 1993.

Figure/Table 2-33 Number of X-ray Examinations in February 1993

Items	Out-Patient	Emergency	In-Patient	Total
Chest	23	444	165	632 (50.4%)
Extremities	30	180	242	452 (36.1%)
Others	4	159	6	169 (13.5%)
Total	57 (4.5%)	783 (62.5%)	413 (33.0%)	1,253 (100.0%)

Out-patients account for only 4.5% of all X-ray examinations. This percentage is very small because apparently priority is given to emergency patients and in-patients.

The following table shows how the number of major clinical examinations has changed over the past 5 years. According to the data for February 1993 (not shown in table) the total number of major clinical examinations was 18,352 per month and the ratio of out-patients to in-patients was 22: 88. The ratio is suspected to be the same throughout the year.

Figure/Table 2-34 Number of Major Clinical Examinations

Items	1988	1989	1990	1991	1992
Hematology	87,185	101,968	137,774	161,329	177,243
Bacteriology	18,999	10,095	10,460	10,659	10,671
Immunity serum	1,450	4,095	4,914	5,847	4,037
Public Health	-	-	261	335	646
Pathology	3,760	4,547	4,613	6,092	10,327
Microscopic Exam.	26,858	28,192	29,498	31,913	25,256
Biochemical Exam.	11,639	18,560	15,289	15,707	14,225
Blood Bank	9,081	10,008	11,899	126,332	11,365

Source : VSMMC

5) Number of Beds

Figure/Table 2-35 shows the actual number of beds in each department as of March 1993. The official number of beds authorized by the DOH is 350. This figure was used as the basis for the budget appropriation by the DOH.

Figure/Table 2-35 Number of Beds by Department

Wards	Number of Beds
Internal Medicine	38
Surgery	77
Neurosurgery	22
Orthopedic	44
Pediatric	47
Obstetric/Gynecology	62
E/ENT	20
Family Medicine	17
Psychiatric	60
Infectious	50
Pay Ward	80
Tagunul Extension	25
Guba Extension	10
Total	549 Beds

Source : VSMMC

6) Referral Patients

The following table shows the change in the number of referral patients from areas outside Cebu Province over the past 5 years.

Figure/Table 2-36 Change in Number of Referral Patients by Administrative Region

Administrative Regions	1988		1989		1990		1991		1992	
	OP	IP	OP	IP	OP	IP	OP	IP	OP	IP
Region No 5	92	18	55	11	180	35	118	28	83	14
6	232	6	227	5	185	18	102	16	202	18
7 *	503	207	697	163	897	287	532	211	621	205
8	576	75	411	65	488	57	213	69	377	148
9	291	54	420	22	387	67	337	57	368	104
10	537	69	449	49	704	85	327	46	332	71
11	353	26	378	26	405	33	280	28	252	40
12	-	19	-	9	5	18	16	15	11	23
Total	2624	474	2637	350	3251	600	1925	470	2246	623

Source : VSMMC

OP:Out-patient, IP:In-patient
* Cebu Province is not included.

The average annual number of referral out-patients is 2,536, which accounts for about 1.9% of the total number of referral out-patients (131,000 persons) at VSMMC. The average annual number of in-patients is 503, which accounts for about 2.9% of the total number of in-patients (17,500 persons) at VSMMC. Although the number of referral out-patients has remained nearly unchanged, the number of referral in-patients has been increasing.

Referral patients come from Regions No.5 through No.12 to VSMMC. This means that patients come or are brought not only from nearby islands such as Leyte Island, Bohol Island and Negros Island, but also from North and West Mindanao Island etc. In the south Philippines excluding Cebu Province a medical center exists only in South Mindanao.

A large number of referral patients were sent from the following provinces in 1992.

Figure/Table 2-37 Number of Referal Patients by Province, 1992

Order	Province	Out-patient	Province	In-patient
1	Bohol	401	Bohol	176
2	Reyte	377	Reyte	141
3	Zamboanga del Norte	193	Zamboanga del Norte	76
4	Negros Occidental	191	Misamis Occidental	34
5	Negros Oriental	185	Zamboanga del Sur	28

Source : VSMMC

7) Education and Training Activities

In the Republic of the Philippines doctors are educated in compliance with the Hospital Residency Law. After one year as an intern, a doctor who has passed the national examination receives education and training in his specialized field at a training hospital. The education period of a resident is usually 4 years (2 to 3 years for some departments).

VSMMC started education and training programs in 1955. The number of trainees in all fields has steadily increased since then. The total number of trainees was 6,500 in 1992. The breakdown of trainees by department is shown in the following table. At VSMMC a target level of training is set for each department and each student based on a doctor training manual. When a trainee completes the residency period, his or her skill, knowledge and attitude etc. are evaluated.

Figure/Table 2-38 Number of Trainees by Department, 1992

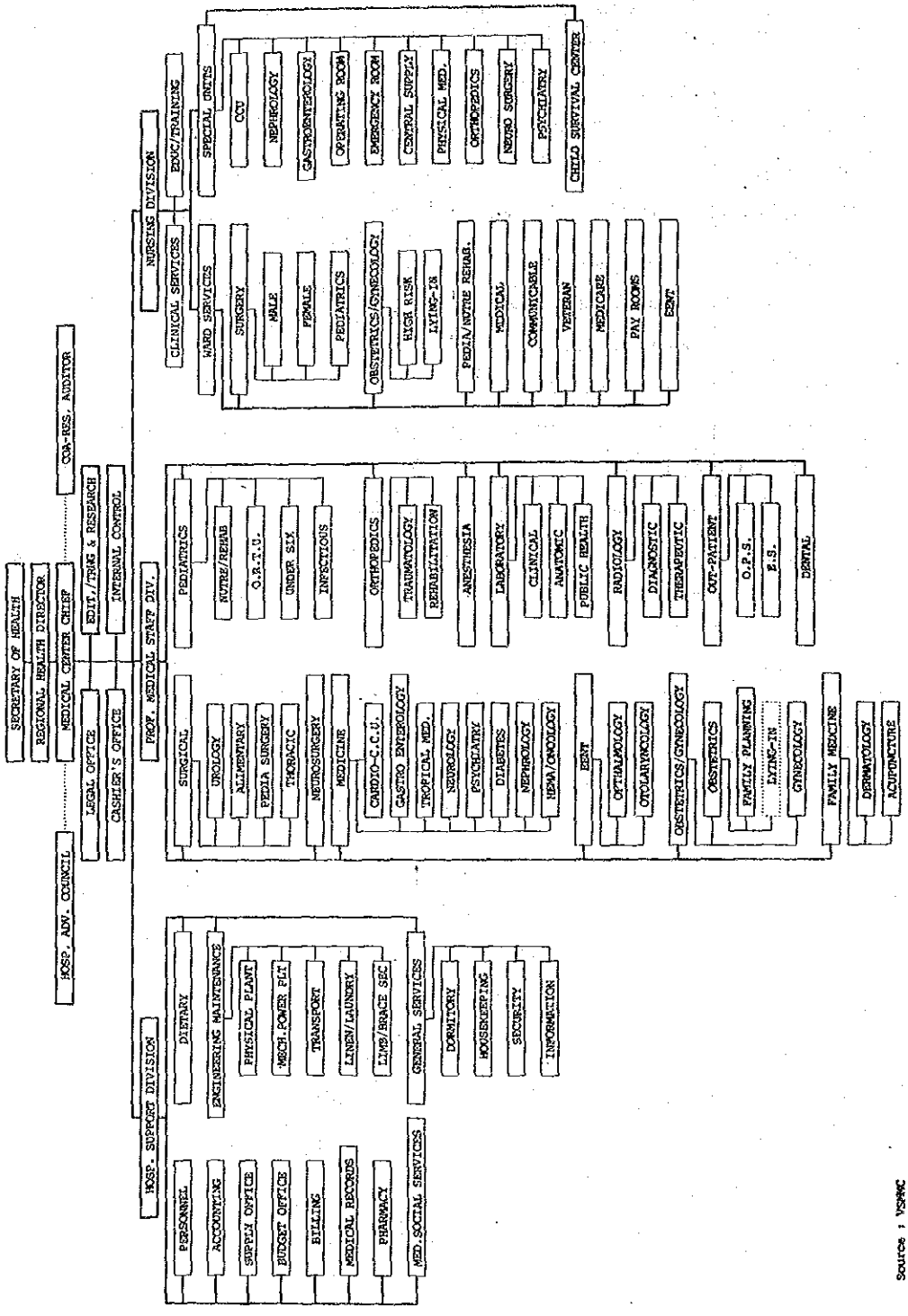
	Trainees	Number of Institions Sending Trainees	No. of Trainees
Doctor	Medical Intern	4	239
	Post Graduate Intern	8	59
	Resident Doctor	7	53
	Others	–	64
Sub-total		19	415
Medical Worker	Nurse Student	20	5,605
	X-ray Technician	3	98
	Medical Technician	3	155
	Physio Therapist	3	200
Sub-total		29	6,058
Total		48	6,473

Source : VSMMC

(3) Organization and Employees

1) Organization

The Organization Program is shown below.



Figure/Table 2-39 Organization of VSMMC

Source : VSMMC

VSMMC consists of the hospital supply division, the professional medical staff division and the nursing division under the Director. The hospital supply division is in charge of personnel, accounting, budget, facility maintenance and management, and pharmaceutical and food services. The professional medical staff division is the nucleus of medical activities. The out-patient department, which comprises out-patient service and emergency service, belongs to this division. The nursing division is in charge of education and training in addition to nursing. It also includes the Child Survival Center.

2) Employees

VSMMC staff totaled 607 as of February 1993, consisting of 141 doctors, 70 assistant doctors, 187 registered nurses and 90 nurse attendants.

The following table shows the number of doctors and nurses in each department of VSMMC as of February 1993.

Figure/Table 2-40 Number of Doctors and Nurses by Department in February 1993

Department	Resident	Specialist Doctor			Nurse		X-ray Tech	Lab.	
		full time	part time	Visiting consult. (1988)	Registered	Attendant		Tech	Assis.
Internal Medicine	14	3	2	5	12	6			
Pediatrics	13	5	1	2	18	7			
Gyne & Obstetrics	11	6	0	6	22	9			
Family Planning	0	1	0	0	1	0			
Surgery	13	4	2	10	24	11			
Orthopedics	6	3	2	2	9	4			
Rehabilitation	0	0	2	0	1	1			
Neuro-surgery	1	1	0	3	7	4			
E/ENT	6	2	2	7	6	4			
Family Medicine	6	3	0	15	0	0			
Acupuncture	0	1	0	0	0	0			
Anesthesia	10	4	0	2	0	0			
Radiology	1	1	1	1	0	0	7		
Cobalt Therapy	0	1	0	0	0	0			
Psychiatrics	3	2	0	5	9	7			
Laboratory	3	4	1	2	0	0		15	5
Emergency					16	5			
Operation					23	5			
I C U					9	5			
C S S D					1	8			
Other wards					29	14			
Total	87	41	13	60	187	90	7	15	5
		141							

Source : VSMMC

Patients are given diagnosis and treatment mainly by residents, who account for 60% of the doctors. They are managed by doctors called specialists. Specialists can be classified into full-time staff (8 hours/day), part time staff (4 hours/day) and visiting consultants who are unpaid doctors. Each department has 2 to 10 visiting consultants. Visiting consultants improve their skills by using medical equipment at VSMMC for diagnosis and treatment and, at the same time, have the job of educating residents. Therefore VSMMC has 141 doctors who are registered as hospital employees, this number does not include the visiting consultants.

2-3-2 Evolution of the Budget

The following table shows how budgets at VSMMC have evolved over the past 5 years. The rate of budget increase was over 10% between 1988 and 1991. Most of the increase was appropriated to personnel expenses. Personnel expenses increased by 27% between 1991 and 1992. Thus no funds were appropriated for facility/equipment expenses in 1992.

Figure/Table 2--41 Change of VSMMC's Budget

Unit:Peso

Items	1988	1989	1990	1991	1992
Personnel	18,680,462	18,366,071	29,777,643	36,172,571	46,098,297
Expendables	19,510,922	22,176,380	23,707,000	25,697,280	20,840,000
Equipment Purchase	0	1,862,000	4,100,196	1,865,000	0
Total (Ratio to Previous year)	38,191,384	42,404,451 (11% up)	57,584,839 (36% up)	63,734,851 (11% up)	66,938,297 (5 % up)

Source : VSMMC

Operating costs are basically determined by the following formula: "number of authorized beds x unit price authorized by the DOH x 365 days". VSMMC's income and expenditure for 1991 and 1992 are shown in detail in the following table.

Figure/Table 2-42 Detailed Breakdown of Income and Expenditure

Unit:Peso

Subsidy from DOH		Expenditure of VSMMC		
1991	1992	Items	1991	1992
63,734,851	66,938,297	Personnel	36,172,571	46,098,297
		Expendables	25,697,280	20,840,000
		Electricity	1,993,413	2,288,483
		Energy	19,762	44,094
		Water	3,378	7,349
		Medical Consumables	9,917,986	17,586,913
		Others	13,762,741	913,161
		Medical Equipment	1,865,000	—
63,734,851	66,938,297	Total	63,734,851	66,938,297

Source : VSMMC

The following table shows how VSMMC's income from diagnosis and treatment has changed over the past 5 years. Although income decreased in 1991, it increased by more than 10% in all the other years. In 1992 income accounted for about 6.7% of the total budget. At present VSMMC's own income has to be submitted entirely to the DOH. VSMMC is unable to use it at its discretion. However, the Philippine Government is considering the adoption of a system (income generation system) that will enable each hospital to use its own income.

Figure/Table 2-43 Change of VSMMC's Medical Fee Income

Unit:Peso

	1988	1989	1990	1991	1992
Medical Fee	2,262,721	2,571,028	3,245,324	2,984,478	3,717,395
Others	629,035	792,439	672,156	683,858	746,785
Total (Ratio to Previous year)	2,891,756	3,363,467 (16% up)	3,917,480 (16% up)	3,668,336 (6% down)	4,464,183 (21% up)

Sorce:VSMMC

2-3-3 Maintenance and Management System

VSMMC had eleven (11) maintenance/management staff members in 1992. An engineer for electronic has been assigned to the Center since 1991 engaged mainly in the maintenance and repair of medical equipment. Unfortunately, some equipment is left out of order because spare parts are hard to obtain or the repair cost is high. The following table shows the growth in staff over the past 5 years.

Figure/Table 2-44 Change of Number of Workers for Maintenance Activities

Type of Job	1988	1989	1990	1991	1992
Administrative	1	1	1	1	1
Electrical	1	1	1	1	1
Electronic				1	1
Mechanical	2	2	2	1	1
Wooden	1	1	2	2	2
Driver	4	4	5	4	5
Total	9	9	11	10	11

Source:VSMMC

Facilities

Most of the facility maintenance/management staff are technicians for building facilities. Since nobody is assigned to the septic tanks they are badly maintained. As a result their operating condition is very poor. At present VSMMC does not have enough staff, adequate equipment, the proper materials or the space to manage its facilities.

Medical equipment

At present professional school graduates who have studied electrical engineering are engaged in the maintenance and repair of equipment. However, outside organizations must be engaged to do most of the repairs, except those for simple equipment. The Hospital Equipment Maintenance Center (established with technical cooperation from GTZ) located within VSMMC gives full support to equipment maintenance and management. Its technical standards are quite high and much can be expected of it in future. The equipment management staff participate in training at the Center to improve their skills.

Hospital Equipment Maintenance Center

The Hospital Equipment Maintenance Center, which began operation in 1992 with the cooperation of GTZ (the German overseas cooperation organization), is located within VSMMC's grounds. Here technical guidance and aid are provided. This organization is controlled directly by the Office for Hospital and Facility Services in the DOH. This center covers not only the Central Visayas District (Region No.7) but also West and East Visayas. At present twelve (12) engineers are working at the Center. Their technical standards are quite high. They are probably capable of repairing simple ultrasound equipment, simple X-ray units and simple ECG equipment.

2-3-4 Current State of Existing Buildings

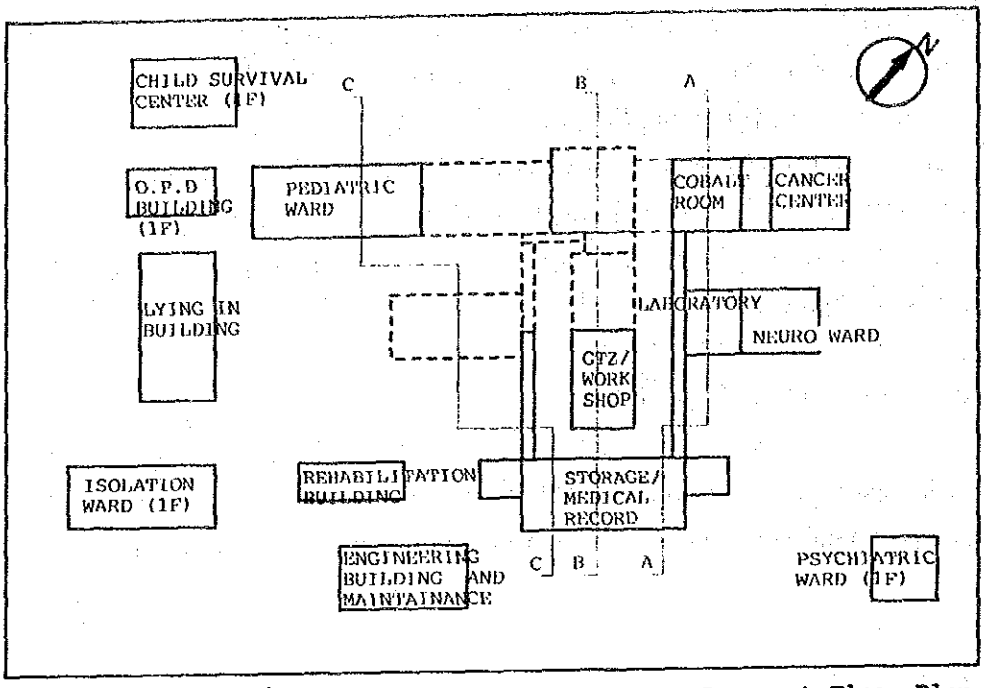
VSMMC is located at the center of Cebu city facing Rodriguez Street. It was previously called "Southern Island Hospital" and is regarded as a tertiary medical institution in Region No.7.

(1) Layout of Facilities

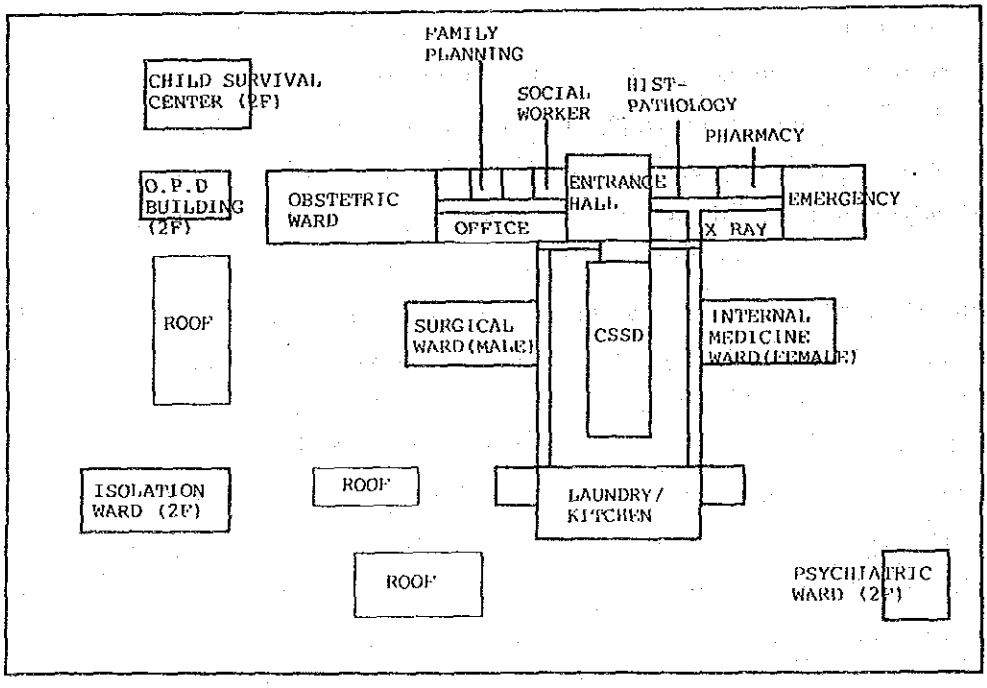
The main building has been extended and remodeled repeatedly. The front entrance faces Rodriguez Street and the facilities are symmetrically arranged on both sides of the north-south axis. The operation and central supply sterilized departments are located in the center with two corridors running from north to south on both sides. Wards are connected to these corridors. The wards are in the so-called pavilion style. The corridors have a laundry room and a medical record room on the 1st floor, and a kitchen and a canteen etc. on the 2nd floor. The building probably reflected the latest in architectural planning when it was constructed. The main building is a reinforced concrete building with a rigid-frame column and beam structure.

The Child Survival Center, an existing OPD Building, an isolation building, a workshop, a rehabilitation ward, and an energy plant etc. are located around the main facilities.

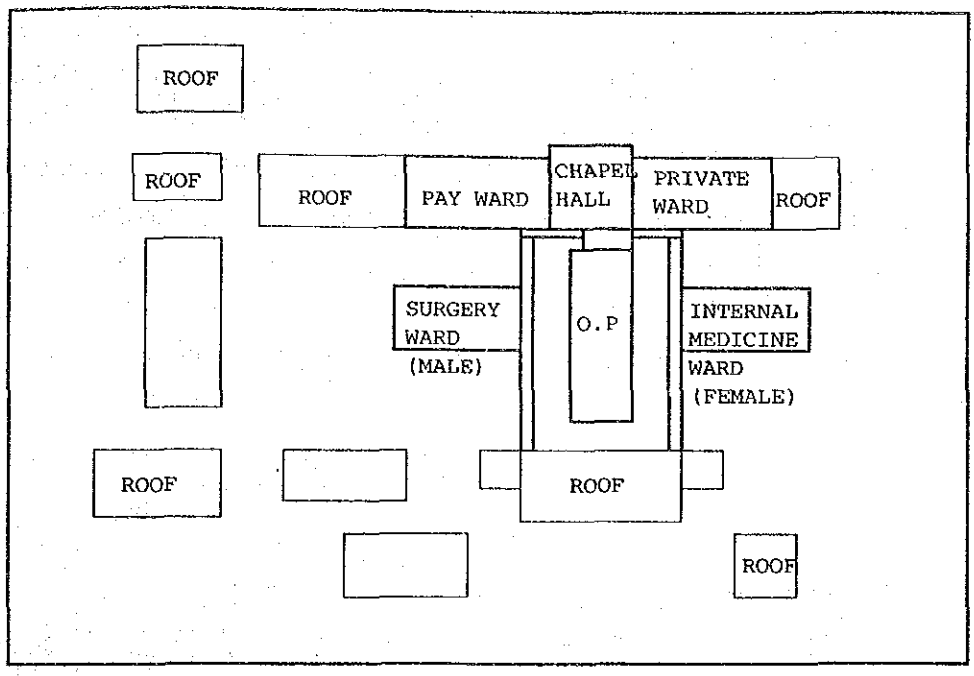
Figure/Table 2-45 Layout Plan of Major Existing VSMMC's Facilities



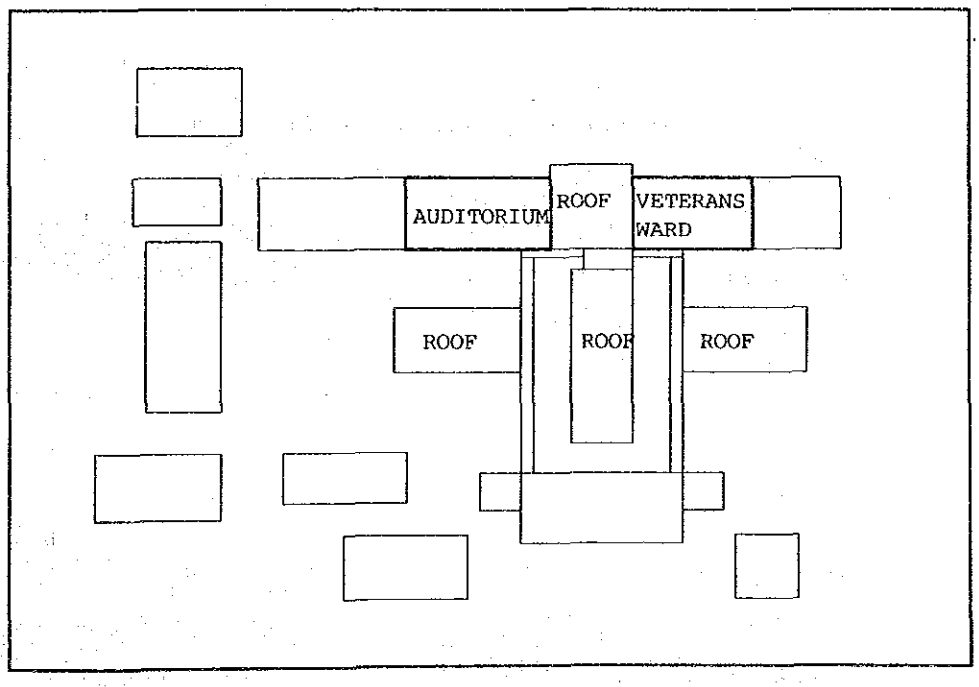
Basement Floor Plan



Ground Floor Plan



SECOND FLOOR PLAN

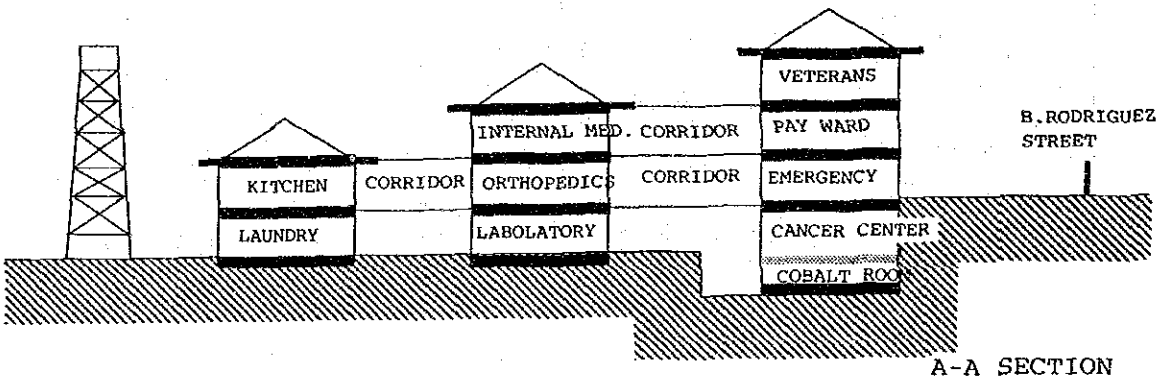


THIRD FLOOR PLAN

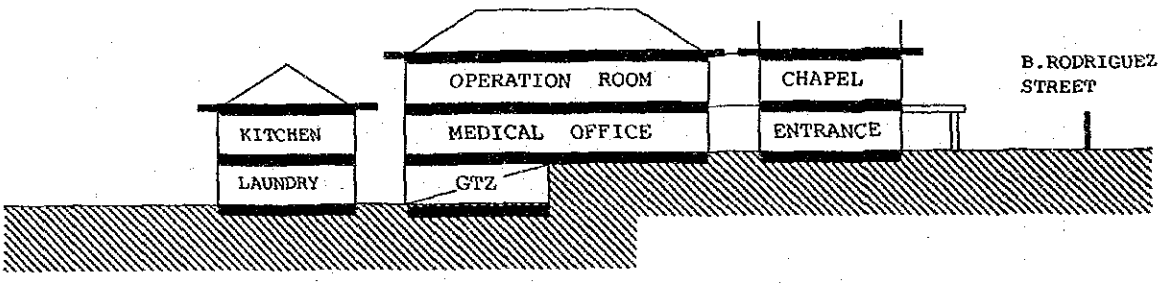
(2) Sectional Layout

The building consists of 2 to 4 stories. Its plan takes advantage of height differences in the ground upon which it is constructed. The front is the highest part. Since a 3-level building (the main building) is located here, it gives the overall impression of VSMMC being a 3-story structure. Since the main building has one underground floor (a cobalt treatment facility occupying 1.5 stories), it looks like a 4-story building when seen from the south side.

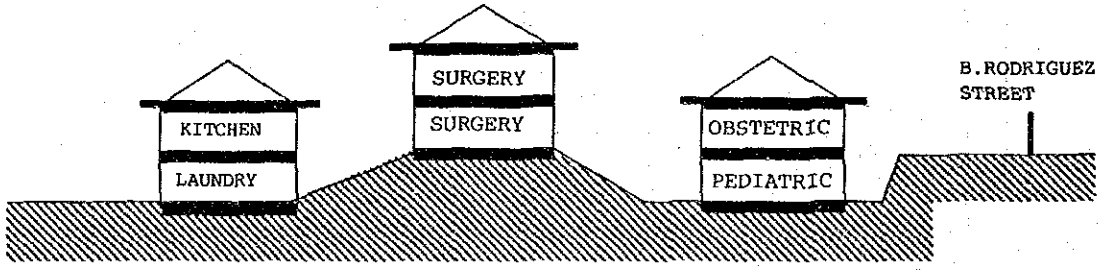
Figure/Table 2-46 Sectional Plan of Major Existing VSMMC's Facilities



A-A SECTION



B-B SECTION



C-C SECTION

(3) Functional Problems

The facilities as a whole have the following functional problems:

1) Problems regarding the location of the departments

a. The ward on the top floor (Veteran's Ward) can be approached only by stairs.

b. Since the pediatrics ward is at the semi-basement level, it is poorly lit and ventilated. This is very undesirable from the standpoint of hygiene. Since the patients consist mainly of infants, damaged ceiling materials etc. need to be repaired quickly.

c. The department of pathology and the department of clinical examination are separated. This is not functionally desirable.

2) Problems regarding relations between departments

a. The department of clinical examination is far from both the wards and the existing OPD Building.

b. The locations of the emergency section, the department of radiology, the pharmacy and the existing OPD Building are poorly arranged.

The existing OPD Building is quite far from the pharmacy and the department of radiology. This is very inconvenient especially for those out-patients who need an X-ray examination. Since emergency patients account for about 60% of the users of the department of radiology it should be closer to the emergency section.

(4) Current Space for Each Department

The following table shows the space occupied by each facility at VSMMC.

Figure/Table 2-47 Floor Area Tabulation of Major Existing VSMMC's Facilities

		Ward	O P D	Central Clinic	Office	Service	Total
Main Building	B1F	732	115	566	283	1,020	2,716
	1F	1,984	416	1,241	564	930	5,135
	2F	2,587		774			3,361
	3F	504				504	1,008
	Total	5,807	531	2,581	847	2,454	12,220
OPD Building	1F		252				
	2F		252				
	Total		504				504
Lying-In Build.				420			420
Child Survival Center	1F		400				
	2F		400				
	Total		800				800
Isolation Ward	1F	448					
	2F	448					
	Total	896					896
Psychiatric Ward	1F	625					
	2F	109					
	Total	734					734
Office					125		125
Brace Shop					165		165
Total		7,437	1,835	3,001	1,137	2,454	15,864㎡
Rate		46.9%	11.5%	18.9%	7.2%	15.5%	100.0%

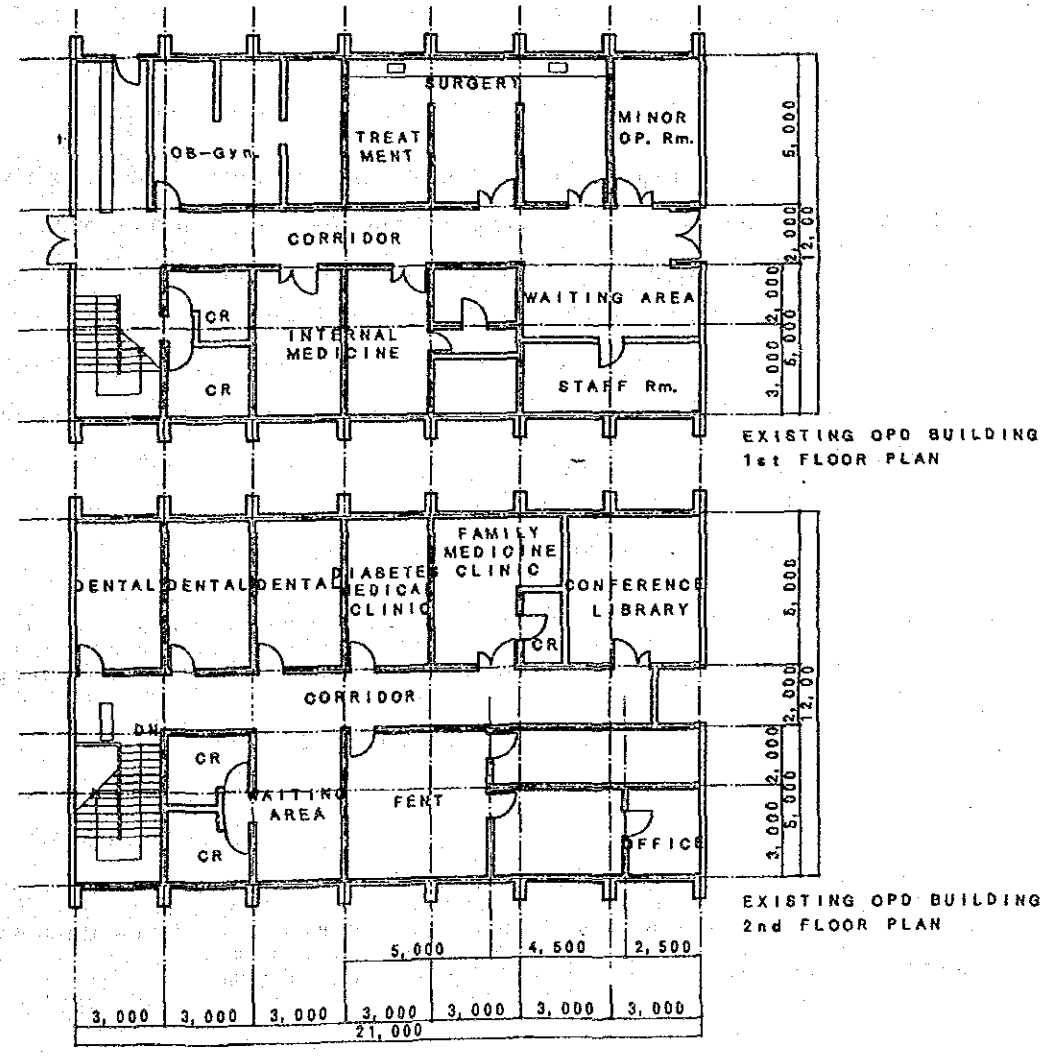
Source : VSMMC

(5) Current State of the Existing OPD Building

The existing OPD Building is a detached 2-storied building located on the west side of the main building. Both the 1st floor and the 2nd floor have a 2-meter-wide middle corridor. The corridors are filled with patients and their families. Since they are only 2 meters wide there is no space for benches. Some patients crouch on the floor. The rooms of the department of medicine, the department of obstetrics & gynecology, the treatment room etc. on the 1st floor are only 3 meters wide. The rooms of the department of dentistry, the diabetes clinic, the department of ophthalmology/ENT, the department of family medicine etc. are on the 2nd floor.

The waiting room for out-patients is located in front of the entrance on the 1st floor. It is a semi-outdoor space with a simple roof and some benches.

Figure/Table 2-48 Floor Plan of Existing OPD Building



2-3-5 Current State of the Existing Building Equipment (Mechanical and Electrical)

(1) Water Supply

Water is supplied entirely from wells. There are three wells at present, but one of them is not used because of drought. They supply about 450m^3 per day, but it is said that about 30% of this leaks from the pipes. The rate of water supply during peak hours is 200 gallons/minute (760 liters/minute). Two wells are operated simultaneously for supplying water. They have enough capacity for the current hospital facilities.

Water is supplied to each ward from an elevated water tank with a 30,000 gallons'(114m^3) capacity. No data on the quality of the water from the wells is available. Since the water is reported to be quite hard (about 400 ppm), it will be necessary to install a water softener for each of the facilities that need soft water. Since the wells are shallow (67m, 81m), they are susceptible to pollution and drought. The main service water pipe of the city is buried under the front road (Rodriguez Street), but priority is given to houses and stores because of the capacity problem. No service water is supplied to VSMMC.

(2) Drainage

Sewage and discharged water are treated at the septic tank installed in each building. They are mixed with rain water without being sterilized and discharged into an open ditch outside the hospital premises. Discharged water emits an offensive odor and is creating an environmental hygiene problem. Since the septic tanks have not been given any maintenance such as sludge discharge over the past several years, they are not very effective in treating water. The septic tanks are made of concrete and have a 2-tank structure. Each has a manhole and a cleaning hole.

(3) Gas

Liquid propane gas is used because Cebu city has no city gas system. Gas is used mainly as the heat source for kitchens. Gas is supplied to the kitchens centrally from the propane gas cylinder system.

(4) Medical Gas

Oxygen and nitrous oxide are supplied by bringing cylinders to where they are needed. They are supplied to the central operating rooms from the central system. Suction equipment is brought in where necessary. Nitrogen gas and compressed air are not used.

(5) Waste and Garbage Disposal

Cebu city's garbage trucks collect waste and garbage everyday free of charge. They are $5m^3$ compression-type garbage trucks procured with aid from Japan. Waste and garbage are transported without being sorted and are disposed of at a seashore disposal site. There is a large disposal site in Inayawan District located in the southeast of Cebu Island. Items that can be recycled such as cans and bottles are removed, while the rest is burnt and compressed. Waste and garbage from VSMMC is left unsorted in an open-air storage area and collected by city trucks. The waste storage area is a space consisting of a 5m x 5m concrete floor surrounded by a 90 cm high net fence on top of a base wall made of 50 cm blocks. It has no roof. Polluted water seeping from the waste merges with water used for washing floors or rain water and permeates the soil. Since this could pollute nearby wells, there is concern about pollution of the water source.

As for medical waste, liquid waste is treated in a septic tank, while solid waste is collected by city garbage trucks together with other waste.

Radioactive waste from the cobalt treatment section is put into storage containers and given to a specialized collector. Previously the hospital sprayed oil on the waste and burnt it. However, this method was discontinued because oil is expensive and the city agreed to collect the waste free of charge.

(6) Electric Power

The supply voltage from the power company (VECO) is 3 ø 3W 220V 60Hz. The voltage is lowered by pole-mounted transformers of high voltage (13.8KV) over head lines on the hospital grounds and supplied to the power house in 2 lines.

The total capacity of the pole-mounted transformers is [3– 50KVA × 2 sets], that is, 300KVA. The current capacity is sufficient for the existing facilities, but not for the New OPD Building.

Since VECO has a plan to raise distribution voltage from 13.8KV to 23KV in 4 - 5 years, the New OPD Building will have to be equipped for it.

On average, a power failure occurs less frequently than twice per month. The highest rate of occurrence has been 5 times in one month. One power failure usually lasts for about 3 hours. Voltage fluctuations are within 10% and have little effect on equipment.

(7) Generating Facilities

Private generators are installed for back-up during a power failure. One 250KVA diesel generator can be operated, but the other is already virtually scrap. The current back-up capacity for the existing facilities is limited and not sufficient for the entire hospital.

When a power failure occurs, an engineer must manually start the generator and switch equipment to the generator circuit. It takes time before equipment is switched to generator power. When a power failure occurs at night, an engineer must rush to the hospital from an external facility.

(8) Telephone Facilities

Telephone lines come from a telephone company (PLDT). They are connected with the facilities using extension lines via the telephone switchboard (PABX) in an existing facility.

Sixteen lines out of the 24 outside lines .and 64 lines out of the 72 extension lines are used at present. They have no capacity for direct use at the New OPD Building.

(9) Fire Extinguishers

Fire extinguishers, outdoor fire hydrants and an automatic fire alarm are installed at the existing facilities. However, the outdoor fire hydrants consist only of stand pipes at present. Pumps etc. are to be installed in future. The automatic fire alarm is a smoke-detection-type system which is installed only at the Child Survival Center.

2-3-6 Current State of Existing Medical Equipment

Most of the medical equipment used at VSMMC is more than 10 years old and is still in use although past its serviceable life. The operating condition of this equipment is generally not that poor, but some of it cannot be used because the maintenance and management budget is insufficient to make necessary repairs.

The models and quantity of the currently available equipment are insufficient for a kernel hospital offering tertiary medical service to Central Visayas District.

The current state of medical equipment in each department or room of VSMMC is described below.

(1) Existing OPD Building

Scarcely any medical equipment is found in the old OPD Building: a gynecological examination table, three units for the dental department, one slit lamp for ophthalmology, one ophthalmoscope and one operating microscope.

(2) Clinical Examination Room

This room is more or less equipped with the necessary equipment and its operating condition seems to be good. However, the current equipment is inadequate to perform necessary examinations. Since there is no water distilling equipment, a basic type of equipment, distilled water must be purchased from the outside. This raises doubts about the reliability of examinations. Although HIV examination equipment has been installed, no reagent can be obtained for financial reasons. As a result the demand for examinations cannot be met.

(3) Pathology Room

This room has only an old microtome and a blood refrigerator. Even consumable supplies are insufficient.

(4) X-Ray Room

Two general X-ray units are installed, but both of them have been used for more than 10 years. One of them is unusable because its radioscopy is out of order. The other is more or less usable though it has frequent troubles with the collimator etc.

Both the X-ray protection and air-conditioning facilities are poor. The dark room is small and the water supply and discharge facilities are not working. Films are processed with automatic development equipment that was recently installed.

This room has one mobile X-ray unit, but it is unusable because its service life has expired.

(5) Radio Therapy Room

The cobalt equipment for cancer patients and tumor patients operates at maximum capacity (30 to 50 patients per day). No simulation equipment is installed.

(6) Surgery, Operating Room, Anesthesia Room

A central oxygen gas and nitrous oxide supply system is installed. Most of the equipment is very old and outdated. There is an urgent need for general anesthesia machines, artificial respirators, lamps and monitors for operations etc.

(7) Central Supply and Sterilizing Room

Three old and outdated vertical-type electric steam sterilizers are in operation. However, the EOG gas sterilizer used for sterilizing surgical gloves is not in usable condition.

(8) Ultrasound Room

This room has only one simple portable ultrasound scanner. It is used mainly for in-patients, though the demand for examinations is increasing rapidly.

(9) Rehabilitation Room

Two old electric simulation machines, one traction and one paraffin treatment unit are installed. The ultra-short wave equipment and the bubbles bathing unit are not in usable condition. Acupuncture treatment is given in this room.

(10) ICU/ CCU Room

This room is in the pay ward. It has four beds along with a monitor, a defibrillator, an electrocardiograph and an artificial respirator.

(11) Emergency Section

The main equipment found in this room includes an oxygen inhaler, a manual resuscitator, a gynecological examining table made of iron and an examining table.

(12) Wards

All the wards suffer from a serious shortage of medical equipment.

(13) Maintenance and Management Section

VSMMC does not have its own medical equipment maintenance/management section. At present it depends on the Hospital Equipment Maintenance Center (located in VSMMC's premises) that began operation in 1992 with cooperation from GTZ, a German overseas cooperation organization. This center charges for spare parts but charges nothing for repairs. It covers West, East and Central Visayas. Repair equipment, spare parts, repair tools and technicians are managed under a clear and orderly system. However, These are difficulties with obtaining spare parts, technical documentation about equipment, service manuals etc.

Figure/Table 2-49 Present Condition of Major Existing Medical Equipment

Department	Name of Major Equipment	Quantity	Condition
Dept. of Radiotherapy	Cobalt-60 therapy system	1	good
	X-ray therapy system	1	out of order
Neurology Ward	no equipment		
Obstetrics & Gynecology Ward	Incubator	2	good
		1	out of order
	Electric boiling sterlizer	1	good
	Operating light	1	good
	Gynecological examining table	3	good
	Examining instrument set	3	good
Pediatrics Ward	Suction unit	2	good
	O2 meter	2	good
	Weighing scale	1	good
Dept. of Pediatrics (OPD)	Weighing scale	2	good
Orthopedics Ward	no equipment		
Isolation Ward	no equipment		
Central Sterilization Room	Electric sterilizer	2	poor
		1	out of order
	EOG sterilizer	1	out of order
Operating Room	Operating light	8	poor
	Operating table	3	good
		3	poor
	Anethesia apparatus	3	good
		3	out of order
	Suction unit	3	good
		4	out of order
	Electro cautery unit	1	good
		3	poor
	Spot light	4	out of order
	Ventilator	1	out of order
	Central piping system	1	good
Surgery Ward (male)	Suction unit	1	good
Surgery Ward (female)	Suction unit	2	good
	Drip set with stand	12	good
	Treatment instrument table	2	good
	0^2 meter	1	good
Dept. of Family Planning	Anesthesia apparatus	1	good
	Suction unit	1	good
	Spot light	1	good
	Instrument set	1	good
	Operating table	1	good
Emergency Room	0^2 meter	6	good
	Suction unit	3	good
	Gynecological examining table	2	new machine
		2	out of order

Department	Name of Major Equipment	Quantity	Condition
Dept. of Pharmacy	Refrigerator	1	good
	Medicine refrigerator	1	good
Pathological Laboratory	Incubator	1	good
	Freezing microtome	1	good
	Electric oven	1	good
	Microtome	1	good
	Blood refrigerator	1	good
		1	out of order
	Freezer	1	out of order
Clinical Laboratory	Blood gas analyzer	1	out of order
	Incubator	1	new machine
	Incubator	1	good
	Clean bench	1	new machine
	Hemat centrifuge	1	good
	Spectrophotometer	1	good
	Elisa system	1	good
	Rotary chaker	1	new
Dept. of Radiology	X-ray system	1	poor
		1	out of order
	Mobile X-ray unit	1	out of order
OPD			
Dept. of Surgery	no equipment		
Dept. of Orthopedics	no equipment		
Dept. of Medicine	no equipment		
Dept. of OBS/GYN	no equipment		
Dept. of Psychiatry	no equipment		
Dept. of E/ENT	Slit lamp	1	new machiner
		1	good
Dept. of Dentistry	Dental unit	3	poor
	Operating microscope	1	good
PAY WARD with CCU	ECG machine	2	good
	Defibrillator	2	good
	Gastrointestinalscope	1	good
	Suction unit	2	good
	Personal computer for doctor	1	good
Veterans waxrd	Suction unit	2	good

Source : VSMMC

2-4 Circumstances and Contents of the Request

2-4-1 Circumstances of the Request

The Government of the Republic of the Philippines formulated the National Development Plan (1987 - 1992) in 1986 to maintain social and economic development and improve international payments. In the field of health and medical care the Philippine Government formulated the National Health Plan under the above program. Efforts have been made to realize the three major objectives of the plan: (1) improvement of the population's nutritional condition; (2) effective medical services for all people in order to promote PHC; and (3) promotion of family planning in order to raise living standards.

Health and medical services in the Republic of the Philippines can be classified broadly into services available at private medical institutions and those available at public medical institutions. The public medical institutions in this country include four (4) speciality hospitals, five (5) special hospitals, eight (8) medical centers, fourteen (14) provincial hospitals, and regional hospitals. Public medical institutions offer medical services mainly to the low income group charging nothing or a very small amount, unlike private medical institutions that charge for services. Public medical institutions play an essential and important role in the life of the Philippine people.

However, public medical institutions, which depend on the national budget for most of their funds, suffer from a shortage of facilities and medical equipment because of the long economic depression in the country. As a result they are unable to offer adequate medical services to the people. This has been one of the obstacles to achieving the goals of the national plan. Effective medical services cannot be offered to all the people in this situation. This has resulted in regional differences in medical care services. While the number of beds versus the number of residents is 1: 639 in Metro Manila, the national average is 1: 1445.

VSMMC, which falls under the current Project, is located in Central Visayas (Region No.7). Although it is located in Cebu Island, patients come not only from Cebu Island but also from the northern and western parts of Mindanao Island. It is functioning as the kernel medical institution in the area. VSMMC officially has 350 beds (in actual fact 549 beds) and is operated by 141 doctors, 187 registered nurses and others. It offers tertiary medical care and gives education and training to medical staff. VSMMC's activities in 1992 can be summarized as follows: a bed occupancy rate of 106%, approximately 19,000 in-patients, approximately 125,000 out-patients, 5,700 in-patient operation, and 6,000 outpatient operations.

Since its establishment in 1913 VSMMC has expanded its facilities and functions in response to immediate demand without consideration for their efficient layout. For this reason the efficiency of medical services has suffered due to the poor layout of facilities and

equipment, especially during recent years. Lately VSMMC has become unable to meet the increasing demand for medical services because of the shortage of examination and treatment space and the old and outdated state of most of the facilities and equipment.

The existing OPD Building is in particularly bad shape. For this reason the Philippine Government made a plan for extending the OPD Building of VSMMC, renovating a part of the existing related facilities and upgrading medical equipment, and requested grant aid from the Japanese Government. In response to this request the Japanese Government dispatched a preliminary study team in December 1992 and studied the background and objectives of the request and current conditions at VSMMC. The study revealed the considerable needs of the OPD Building, the shortage of examination and treatment space, the inefficient layout of the facilities, and the old and outdated state and shortage of medical equipment. As a result the justification and the necessity of the Project for improving medical services at VSMMC was recognized.

2-4-2 Contents of the Request

The contents of the request as confirmed by the preliminary study team consists of the construction of the New OPD Building, partial renovation of related existing facilities and installation of medical equipment. The executing agencies will be the Department of Health (Office for Hospital and Facility Services) and VSMMC.

The details of the request are as follows:

(1) Construction of the New OPD Building

Building: 3 stories above ground

Total floor area: 2,520m^2; connecting corridor 36m^2

Description of Requested Building:

1st floor: Reception Office, Waiting Room, Department of Pediatrics, Department of Family Medicine, Department of Obstetrics & Gynecology, Department of Medicine, Department of Orthopedics, Toilets etc.

2nd floor: Waiting Room, Clinical Laboratory, X-Ray Room, ECG Room, EEG Room, Endoscope Room, Department of Dermatology, Department of Dentistry, Department of Ophthalmology, Department of ENT, Toilets etc.

3rd floor: Waiting Room, Department of Rehabilitation, Conference Room, Doctors' Room, Nurses' Room, Toilets etc.

Proposed construction site: Within the premises of Vicente Sotto Memorial Medical Center

(2) *Renovation of the Following Sections*

1) Radiology section
2) Emergency section
3) Pharmaceutical section

(3) Medical Equipment

Dept. of Surgery	:	Operating light, Suction Unit, Autoclave, Treatment Instrument Set etc.
Operating Room:		
(General surgery)		Operating Light, Anesthesia Apparatus, ICU Bed Operating Instrument Set etc.
(Neurosurgery)		Operating Binocular Microscope, Cranial Instrument etc.
(Ophthalmology)		Vitrectomy and Phaco Machine, Bronchoscope, Operating Instrument for Ophthalmology etc.
(Anesthesia)		Pulse Oxymeter etc.
(Other Rooms)		Catheter Set etc.
Dept. of Neurosurgery	:	CT scanner, EMG Machine, Cranial Ultrasound Scanner, Stereotactic Device etc.
Dept. of Orthopedics	:	Athroscopy Set, Computer, Laryngoscope etc.
Dept. of Medicine	:	ECG Machine, EEG Machine, Echocardiography etc.
Diabetes Clinic Room	:	Examining Table, Glucometer etc.
Dept. of Pediatrics	:	ECG Machine, Computer, Examining Instrument Set etc.
Dept. of Family Medicine	:	Computer, Sphgmomanometer etc.
Dept. of Dermatology	:	Microscope, PUVA Lamp etc.
Dept. of Radiology	:	General X-Ray Unit, Multi-Purpose X-Ray Unit with TV Set, Mobile X-Ray Unit; Automatic Film Processor, CT Scanner etc.