

**BASIC DESIGN STUDY REPORT
ON
THE PROJECT FOR THE REDEVELOPMENT
OF
THE FIJI SCHOOL OF MEDICINE
AND
THE COLONIAL WAR MEMORIAL HOSPITAL
IN
THE REPUBLIC OF FIJI**

AUGUST 1990

JAPAN INTERNATIONAL COOPERATION AGENCY

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PREFACE

In response to a request from the Government of the Republic of Fiji, the Government of Japan has decided to conduct a Basic Design Study on the Project for the Redevelopment of the Fiji School of Medicine and the Colonial War Memorial Hospital and entrusted the study to the Japan International Cooperation Agency (JICA). JICA sent to Fiji a survey team headed by Dr. Atsuaki Gunji, Director, Department of Public Health Administration, the Institute of Public Health, Ministry of Health and Welfare, from April 9 to May 8, 1990.

The team exchanged views with the official concerned of the Government of Fiji and conducted a field survey. After the team returned to Japan, further studies were made. Then, a mission was sent to Fiji in order to discuss the draft report and the present report was prepared.

I hope that this report will serve for the development of the Project and contribute to the promotion 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 Fiji for their close cooperation extended to the team.

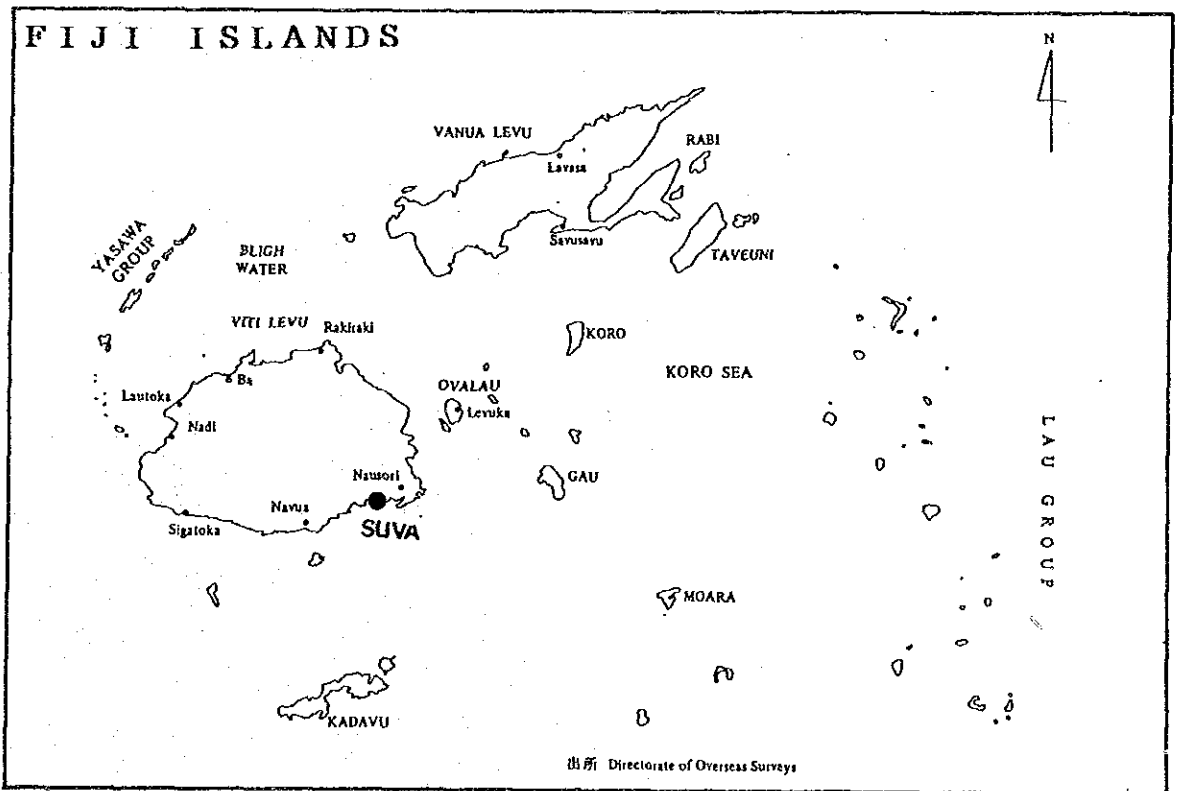
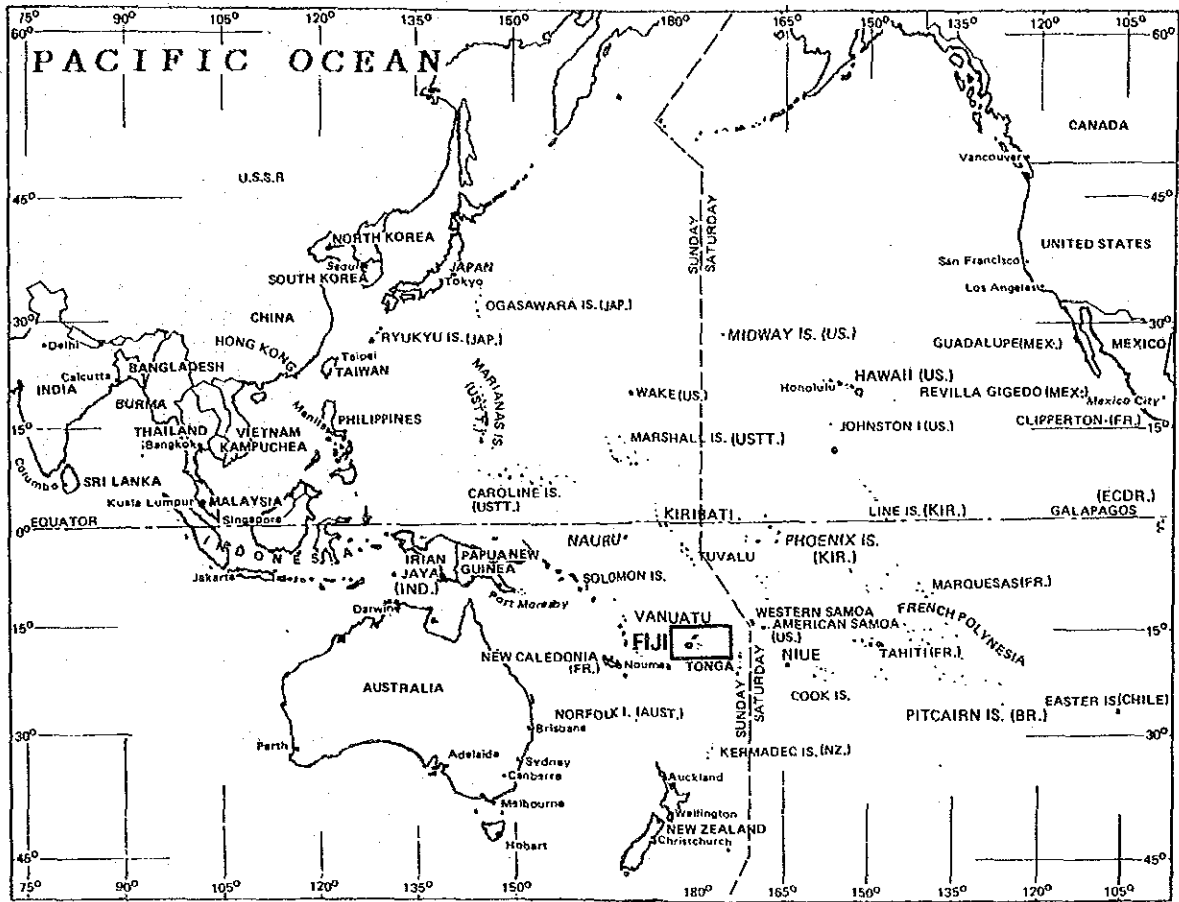
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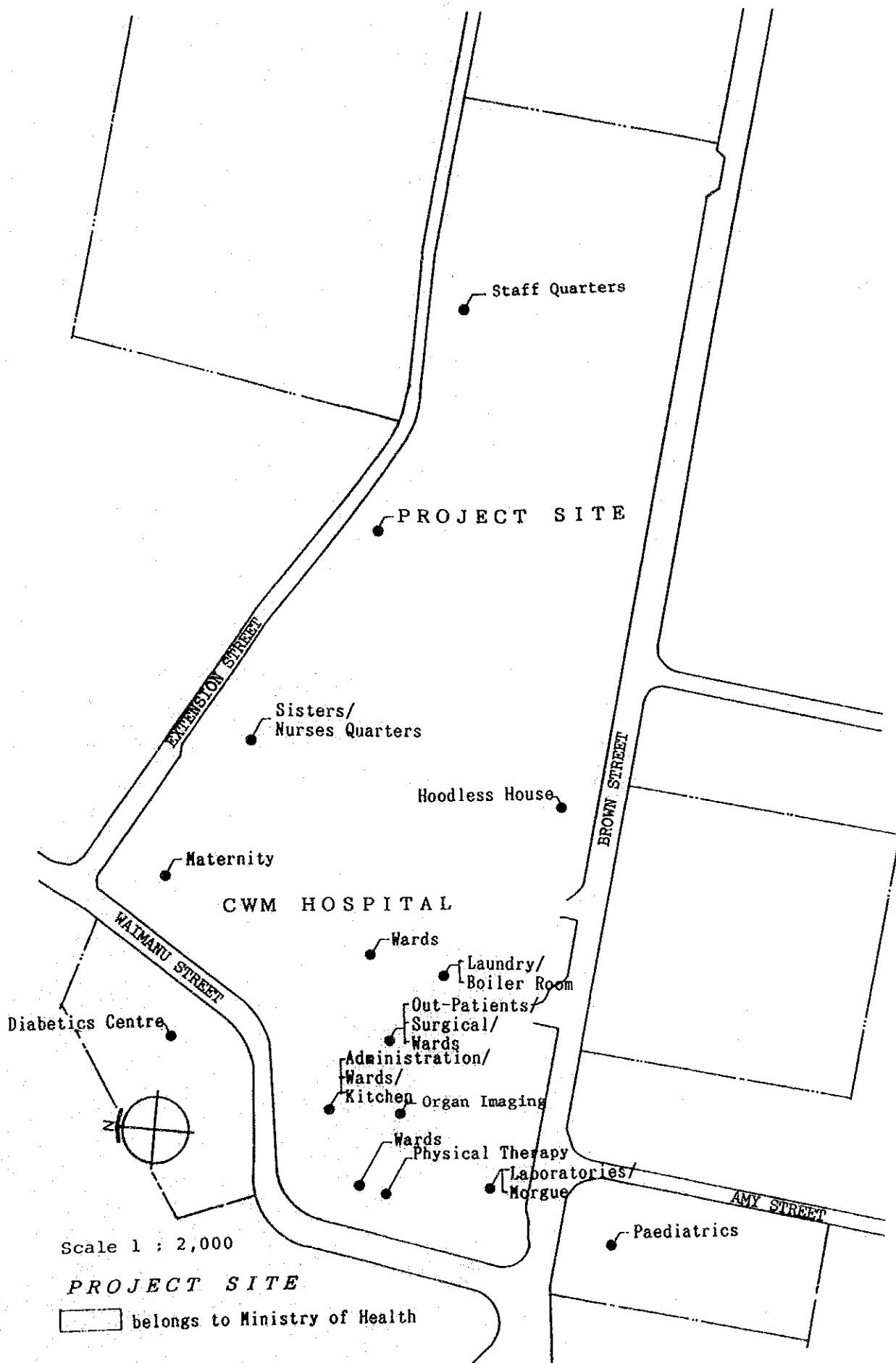


Kensuke Yanagiya

President

Japan International Cooperation Agency

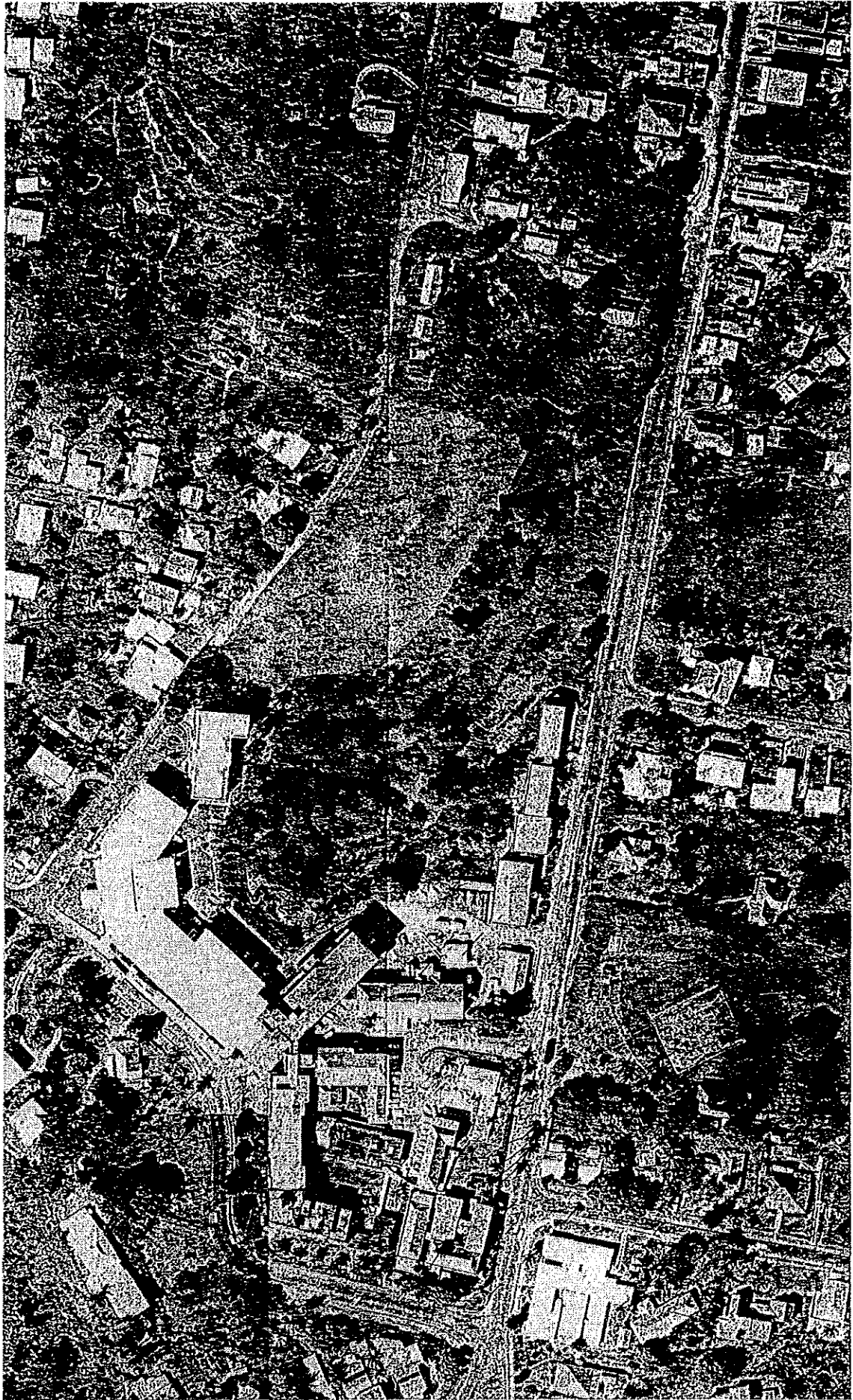


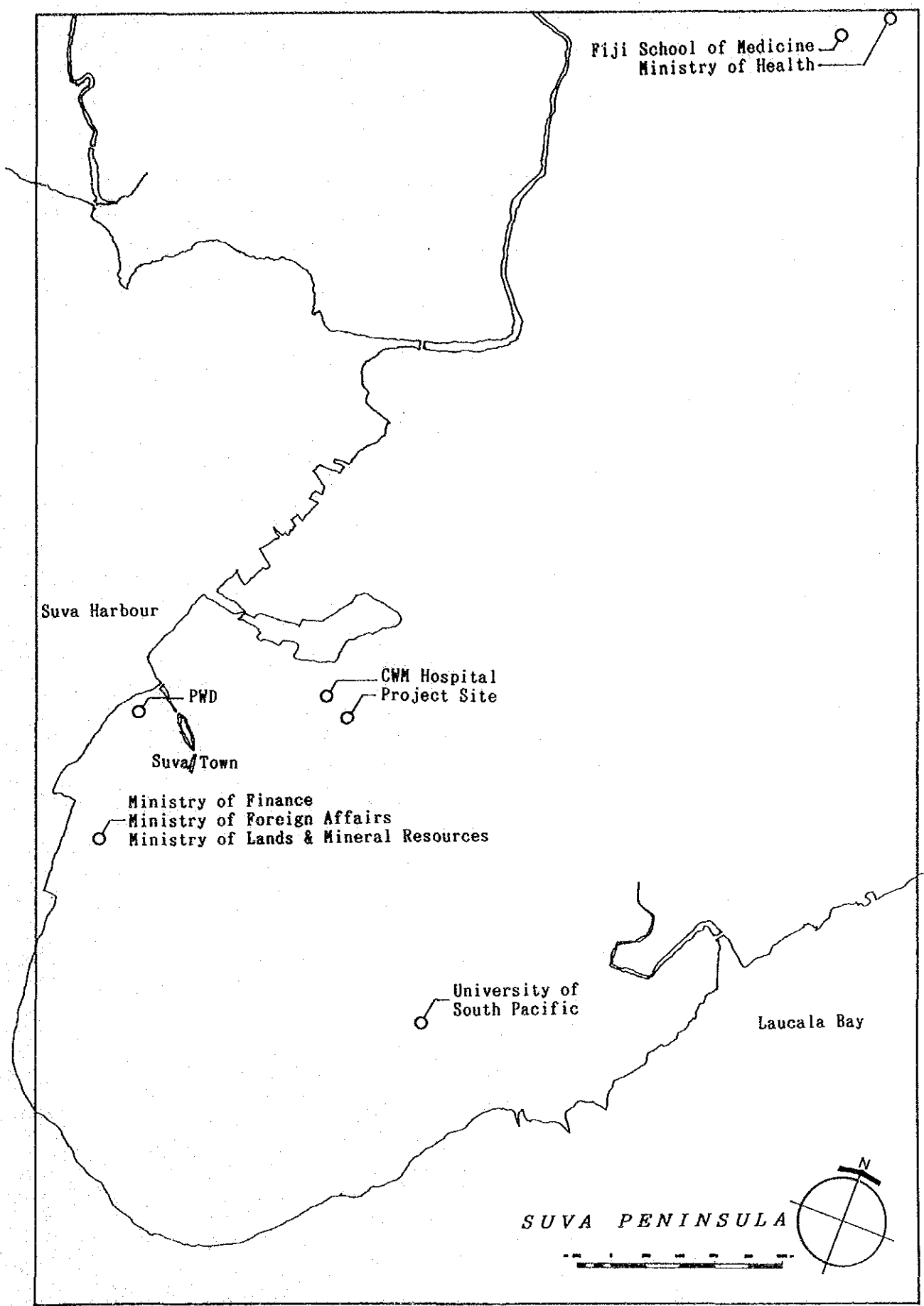


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PROJECT SITE

belongs to Ministry of Health





Fiji School of Medicine
Ministry of Health

Suva Harbour

PWD

CWM Hospital
Project Site

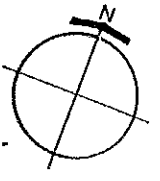
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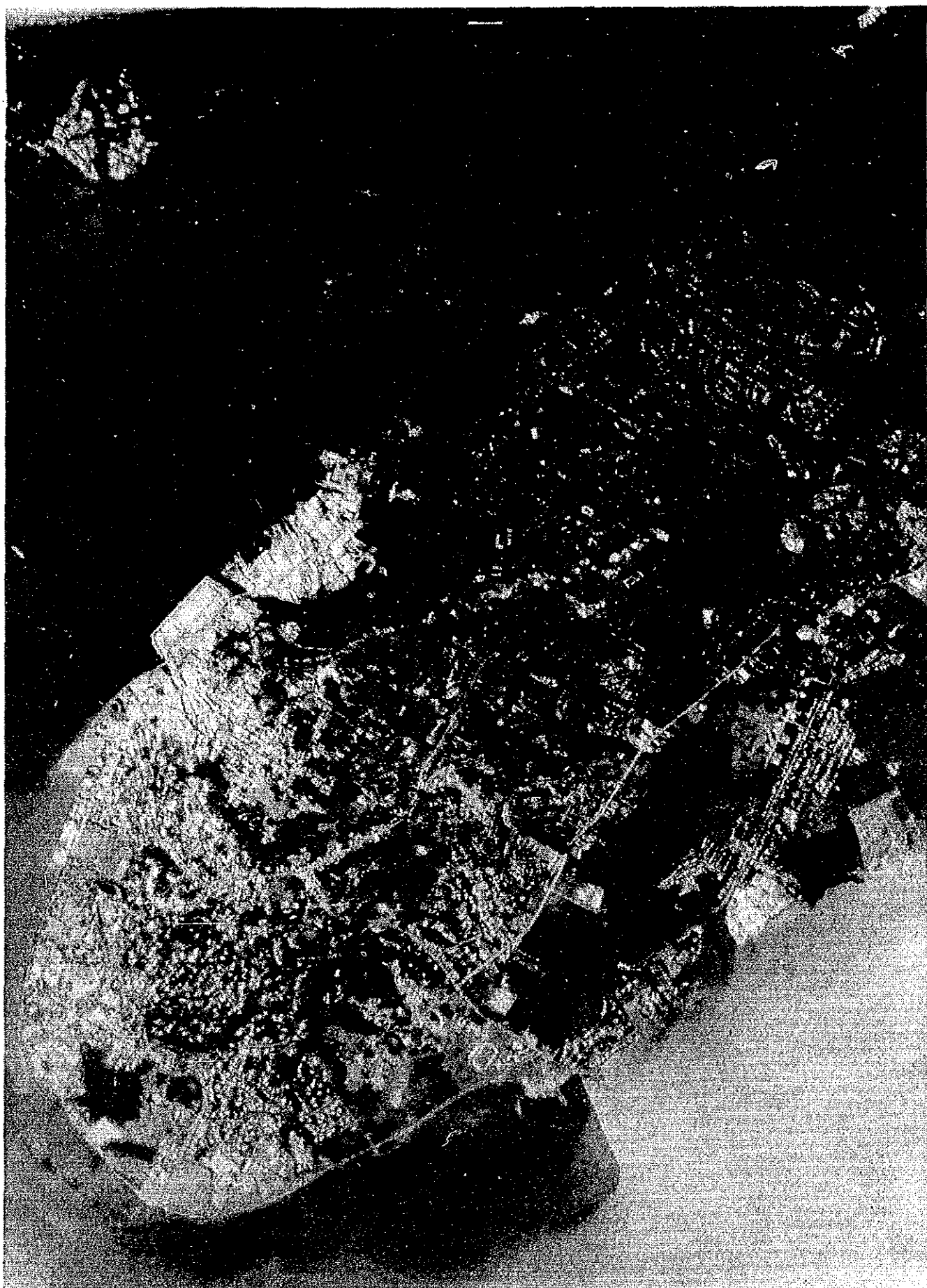
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Ministry of Lands & Mineral Resources

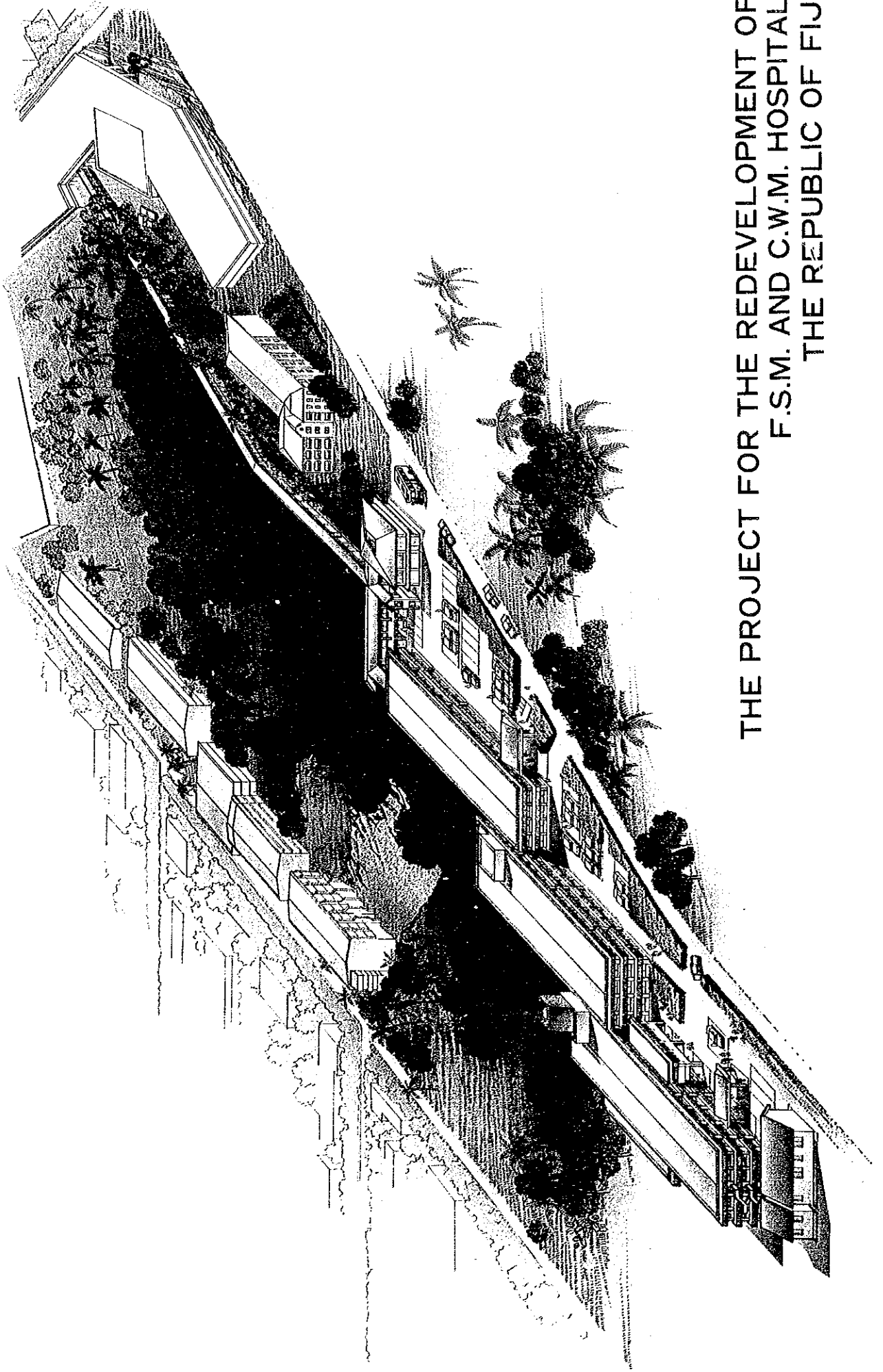
University of
South Pacific

Laucala Bay

SUVA PENINSULA







THE PROJECT FOR THE REDEVELOPMENT OF
F.S.M. AND C.W.M. HOSPITAL
THE REPUBLIC OF FIJI

SUMMARY

SUMMARY

The Republic of Fiji is located in the central part of the Southwest Pacific Region between south latitude 15° to 22° and east longitude 174° to west longitude 177°. It is about 3,200 km northeast of Sydney and about 2,100 km north of Auckland, situated on the eastern end of Melanesia, it has prospered from olden time as a crossroad of the South Pacific and even today, it serves as an intermediate point of the air traffic between America and Australia.

The climate is a tropical type climate, but in the case of Viti Levu island, the weather of the southeast part of the island is quite different from the northwest part. Suva, located on the southeast part of the island, receives the influence of the trade wind and is highly humid with an annual rainfall of 3,000 mm, while on the other hand, Nandi lying on the northwest part of the island where the international airport is located is quite dry with many sunny days and the annual rainfall is 1,900 mm or less.

The economy depends on agriculture and tourist industries which constitute nearly one half of the national income. The Government of Fiji in its 9th National Development Plan (DP-9: 1896-1990) set the following items as its main objectives:

- ① to achieve economic growth in real terms (including per capita growth in real terms);
- ② to generate employment opportunities;
- ③ to distribute benefit fairly, to improve social services (especially in rural district), and to promote rural development;
- ④ to stabilize finance through enlarging export and activating private sector;
- ⑤ to emphasize educational system, information agency and religious organization to establish its national identity.

In 1986 both sugar and tourist industry sectors developed favorably, but after the coup d'etat in 1987, production of both sectors declined affecting the entire economy including production, employment, and revenue. The GDP also fell into a negative growth, but now as the shock of coup d'etat faded and political condition stabilized, the economic condition gradually started to recover.

According to the population census in 1986, the total population of Fiji is 715,375. The natural growth rate of population is about 2% annually, which is a high growth similar to that of developing countries although per capita GDP of Fiji is F\$1,792 (1987) which is higher than average GDP of LDCs'. The population of Suva including neighboring area is about 150,000 which is about 20% of the total population and about 80% of the population of Viti Levu island and is growing year by year. The government, in order to hold population growth to less than 2%, is now encouraging family planning.

The medical service of Fiji, with the establishment of health centre and nurse station, is now at a higher level. This can be seen from the decrease of many infectious disease and comparatively high average life expectancy of 68 years. However, it is now important to address that there are increasing needs of medical care for geriatric disease such as cancer, diabetes, high blood pressure and heart disease as well as the venereal disease among young people.

In view of such medical needs, the Ministry of Health set up the following medical health objectives in "The 9th 5 Year National Development Plan" in accordance with WHO declaration of "HEALTH FOR ALL 2000".

- ① to provide effective medical service to low income people and to remote districts;
- ② to provide preventive medicine, first aid medical service, examination and rehabilitation facility with qualified medical personnel to satisfy national needs;
- ③ to control population growth in order to improve living standard;
and

- ④ to improve and maintain high medical quality throughout the country.

The Ministry of Health in order to conduct medical administration, divided the country into 3 divisions (west, central & east, north) and established a medical health service network in each division. The divisions are further divided into 19 subdivisions which consist of 71 medical regions. A divisional hospital is set up in each division as a referral hospital to provide high level medical service, and a subdivisional hospital is set up in subdivisions, while health centres and numerous nurse stations are set up in medical regions.

Today, all medical facilities are under the administration of Ministry of Health and consists of 18 general hospitals, 3 special hospitals (a mental hospital, a tuberculosis hospital and a leper hospital), 24 health centres and 95 nurse stations in the national sector; and 2 hospitals and number of clinics operated by religious organizations in the private sector. The total number of beds in those facilities was 1,805 beds in 1989 and it indicated 2.43 beds per 1,000 persons. However, no expansion of beds nor medical facilities have been made since 1987 with higher population growth rate of more or less 2%.

On the other hand, there are only 2 medical educational facilities, one is in Fiji and another is in Papua New Guinea, for training doctors and paramedics in the south pacific countries. The other island countries due to its small population and limited national budget find it difficult to maintain their own training facilities.

The Fiji School of Medicine (FSM), ever since its establishment in 1885, has been receiving students not only from Fiji but from other south pacific countries as well and has been contributing toward the training of medical personnels in this region. FSM consists of the Tamavua campus where basic medical knowledge and paramedical education are provided and the Hoodless House campus where administration office, student dormitory, library, laboratory and lecture rooms are located. The general cultural course is conducted at the University of South Pacific and the clinical training is conducted at the CWM Hospital located next to the Hoodless House. The CWM

Hospital established in 1923 and having 402 beds is the largest general hospital in Fiji. However, now the facilities, and equipment of the hospital are so old and worn that CWM Hospital cannot fulfill the function as a training hospital nor satisfy the medical needs of the region.

In view of such condition, the Government of Fiji drew up a master plan for the redevelopment of the FSM and the CWM Hospital in 3 phases under the assistance of WHO. This project is the first phase of this master plan, and is planned as the highest priority project for strengthening the function of FSM as the main medical training facility in the South Pacific Region and improving the medical services of Fiji. In order to implement this first phase, the Government of Fiji requested the Government of Japan for grant aid to redevelop the facility of the CWM Hospital.

In response to this request, the Government of Japan conducted a preliminary study of the facility redevelopment plan of the CWM Hospital (medical training hospital construction plan) and acknowledged that this project is worthy of grant aid because it improves the medical health service of Fiji and also because it provides large benefit for neighboring countries by upgrading the skill and standards of medical personnels such as doctors and paramedics. Furthermore, technical assistance from other countries can be expected through the coordination of WHO.

The Government of Japan, based on the result of the preliminary study, decided to conduct a basic design study of this project and the Japan International Cooperation Agency (JICA) sent a basic design study team to Fiji from April 9 to May 8, 1990. The basic design study team confirmed the background of the request, content of the project, condition of construction site through actual survey. The team also explained the Japan's grant aid system and formality to the officials concerned of the Government of Fiji and confirmed the financial contribution to be borne by the respective government when this project is implemented by grant aid from Japan.

Based on the result of the basic design study, JICA continued the study within Japan on the content, size, construction schedule, construction cost and construction plan of the project. The result of the study is summarized

in the Draft Final Report, and the Draft Final Report Explanation Team was sent to Fiji from July 2 to July 11, 1990, to explain the contents of the Report.

The objective of this project is to implement phase 1 of the master plan prepared by the Government of Fiji under the assistance of WHO. This consists of redeveloping the CWM Hospital as a clinical training hospital of FSM as well as a divisional hospital of the central & east division and as a top level referral hospital of Fiji by improving casualty and acute care clinics by providing necessary medical equipment and facility.

Outline of the project is described below.

1. Executing agency	Republic of Fiji, Ministry of Health	
2. Construction site	Within the CWM Hospital complex, Suva City	
3. Facility	New facility construction 8,320 m ² (including covered way)	
	o North Wing	
	Ground floor	.Administration department (Office, medical record room, seminar room) .Pharmacy (medical drug preparation, medical drug production, clean room, washing & sterilizing room, medical drug store)
	First floor	.Clinical examination department (blood bank, blood examination room, biochemical examination room, bacterial examination room, washing & sterilizing room, seminar room)
	o Central Wing	
	Ground floor	.Outpatient examination department (general outpatient, orthopaedic, gynaecology, seminar room)
	First floor	.Outpatient examination department (special outpatient, paediatric, gynaecology, phsyology examination room, seminar room)
	Second floor	.Wards (general 42 beds, paediatric 4 beds), Nurse station, treatment room, seminar room

-
- o South Wing
 - General floor .Organ imaging department (general photograph 2 rooms, X ray TV room, CT scanner room, dark room, image reading room (film store, seminar room)
 - .Casualty department (examination room treatment room, minor operation room, care room, nurse station, seminar room)
 - First floor .Operation theatre (operation room 4 recovering room, conference, locker room, anaesthetic room, seminar room)
 - .Central supply & sterilizing room (sterilizing room, storage)
 - Second floor .Ward (10 beds including 2 ICU incubator, 4 beds for burns, 14 general beds, nurse station, seminar room)
 - o Auditorium Lecture theater of 180 person capacity
 - o Morgue Morgue
 - o Utility building .Electrical and mechanical equipment room

Remodelling 360 m²

- o Existing organ imaging department will be remodelled into a central library.

Outdoor facility and utility within site

- o Outdoor facility
 - .Covered way connecting existing hospital, road within site, parking lot, incinerator)
- o Utility within site
 - .Water supply and sewer discharge network, power distribution network, street lights

4. Medical equipment and material

Outpatient department

- o General clinic, special clinic (equipment and material for examination and treatment)
- o Casualty (equipment and material for examination, treatment, and operation)
- o Pharmacy (equipment and material for pharmacy)

Central supply and sterilizing unit

- o Organ imaging department (CT, TV, general (2), developing equipment and material)
 - o Clinical examination department (examination equipment and material including blood bank)
-

-
- o Operation theatre (equipment and material for operation) also central supply and sterilizing unit (sterilizing equipment and material)
 - o Physiology examination (ECG/EEG)
 - o Morgue (corpse storage)

Wards

- o General wards (equipment and material for paediatric and general ward)
 - o ICU (equipment and material for ICU ward)
 - o Burns ward (equipment and material for burns ward)
-

In order to implement this project, it is estimated that the financial contribution to be borne by the Government of Fiji is F\$265,650 (¥26,565,000) and the necessary construction period is about 24 months. In view of the large amount of work, it should be divided into 2 phases.

The first phase is the period of the construction of new facilities which is expected to take 12 months after concluding the completion of the construction contract.

The second phase following a similar procedure as the first phase is expected to take 12 months for completion.

The execution agency of this project is the Ministry of Health, the Government of Fiji and after the project is completed, the CWM Hospital shall be responsible for the hospital management and operation.

Since this project will contribute widely to the improvement of the medical health of the population, as well as to the training of medical personnels for south pacific countries, it is considered that this project is suitable for executing under grant aid. Furthermore, no problem is foreseen with regard to the personal and financial arrangement for effective management and operation in Fiji side.

However, in order to improve the function and activity of the hospital, it is necessary to upgrade the operation of the hospital, and for this purpose, the hospital, the hospital staff must endeavor to achieve the following points.

- ① to become fully acquainted with procured equipment and material;
- ② to effectively utilize constructed facility, equipment and material;
- ③ to provide suitable maintenance, management and budget of constructed facility, equipment and material; and
- ④ to establish a maintenance and management system, also strengthen the cleaning department.

It is necessary for the Ministry of Health which is the agency administering the CWM Hospital to provide assistance in all matters for the smooth operation of the hospital, as well as for implementation.

Phase 2 and phase 3 of the master plan for the redevelopment of the CWM Hospital and FSM should be reviewed and implemented.

LIST OF ABBREVIATION

MOH:	Ministry of Health, Fiji
CWM Hospital:	Colonial War Memorial Hospital
FSM:	Fiji School of Medicine
USP:	University of South Pacific
FSN:	Fiji School of Nursing
PWD:	Public Works Department
FEA:	Fiji Electrical Authority
P&T:	Post and Telecommunications Department

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BIRD'S-EYE VIEW

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- 2-1 Itinerary of Basic Design Study
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CHAPTER 1 INTRODUCTION

CHAPTER 1 INTRODUCTION

The medical services in the south pacific countries including the Republic of Fiji is still blow the level of the best in the world, and the shortage of doctors and para-medics is especially quite serious. On the other hand, medical education institute which is qualified to train doctors and para-medics exist in only Fiji and Papua New Guinea, and the other island countries with only small population and limited national budget can hardly afford to have their own educational facilities.

The Fiji School of Medicine (FSM), eversince its establishment in 1885, has been contributing to the training of medical personnels in the south pacific countries by receiving students from these countries. Basic medical education and para-medical training are conducted at the Tamavua campus of FSM while the administration department, student dormitory, library, laboratory and clinical training are located at the Hoodless House. The Colonial War Memorial Hospital (CWM Hospital), opened in 1923, is the largest general hospital in Fiji, and has been providing medical services to the people as well as serving as a clinical training hospital for doctors. However, the facilities including equipment are now so worn and old that it cannot function properly to satisfy the medical needs of the region.

In view of such condition, the Government of Fiji prepared a master plan for the redevelopment of the FSM and CWM Hospital in 3 phases with the assistance of WHO.

This project forms the first phase of the master plan and aims at strengthening the educational functions of FSM for the South Pacific Region. It is a top priority project for improving medical services in Fiji and the Government of Fiji requested a grant aid for this project to the Government of Japan.

In response to the request of the Government of Fiji, the Government of Japan decided to conduct a preliminary study of the redevelopment project of the CWM Hospital, and the Japan International Cooperation Agency (JICA)

dispatched a preliminary study team headed by Mr. Michio KANDA, Grant Aid Division, Ministry of Foreign Affairs from November 26 to December 4, 1989. As a result of the study, it was determined that this project not only contributes to the improvement of medical health services in Fiji, but will greatly benefit south pacific countries by providing training to medical personnels such as doctors and paramedics, while improving the medical service level. Since assistance from developed countries can also be expected under the coordination of WHO, it was confirmed that this project is a significant project worthy of grant aid.

Following up this study, the Government of Japan decided to conduct a Basic Design Study for this project and JICA sent a Basic Design Study Team headed by Dr. Atsuaki GUNJI, Director of the Department of Public Health Administration, Institute of Public Health, Ministry of Health and Welfare from April 9 to May 8, 1990.

The Basic Design Study Team conducted on-site survey and study on the background and content of the project as well as construction site condition and construction environment, also the implementation organization for the project was verified. During this study, the grant aid system of Japan and related formalities were explained to the concerned officials of Fiji, also the undertakings of both governments under the grant aid program were agreed upon between the Team and Officials of Fiji.

Based on this study, JICA reviewed the content, size, schedule, and budget of the project and summarized the study in the Draft Final Report. The report explanation team headed again by Dr. Atsuaki GUNJI, Director of the Department of Public Health Administration, Institute of Public Health, Ministry of Health and Welfare was sent from July 2 - July 11, 1990 to submit and explain this Draft Final Report to the officials of the Government of Fiji. A basic agreement on this report was reached and a Minutes was signed by representatives of both parties on July 9, 1990.

This report summarizes the basic design study and a copy of the Minutes of Discussion, Organization of Study Team, Itinerary of Study Team and List of Interviewees are included in the Appendix.

CHAPTER 2 BACKGROUND OF THE PROJECT

CHAPTER 2 BACKGROUND OF THE PROJECT

2.1 General Condition in Fiji

2.1.1 Geography and Topography

Fiji is located in the centre of the South Pacific region between south latitude 15° to 22° and east longitude 174° to west 177°. It is roughly 3,200 kilometers northeast of Sydney and about 2,100 kilometers north of Auckland, and being situated on the eastern fringe of Melanesia, it has prospered as the crossroad of the South Pacific region. Even today, it serves as an important intermediate point of the air transportation between America and Australia.

Fiji is an island country consisting of about 300 islands around the two main islands of Viti Levu (10,430 km²), where the capital Suva is located, and Vanua Levu (5,560 km²). The total area of Fiji is 18,300 km², so the two main islands of Viti Levu and Vanua Levu constitutes about 87% of the national area, and the majority of the population is concentrated in these two islands.

With the exception of several coral reef islands, most of the islands are formed by volcanic activities. The largest Viti Levu island is one such island, and a mountain range exceeding 1,000 meter high runs through the island, and the highest peak, Victoria Mountain, Lomaniivi in Fiji language, is 1,323 meters high.

The other islands are much smaller than either Viti Levu or Vanua Levu and some of the main islands are Taveuni, Kadavu, Lau, Lomaviti, Yasawa and Rotuma.

2.1.2 Climate

The climate of Fiji is a tropical climate, but in Viti Levu island there is quite a difference between the southeast area and the northwest area. Due to the trade winds, the southeast area, where the capital Suva is located, has an annual precipitation of 3,000 millimeters and humidity is very high. However, the western area in the neighborhood of Nandi where the international airport is located, the annual precipitation is below 1,900 millimeters and it is quite dry with many sunny days.

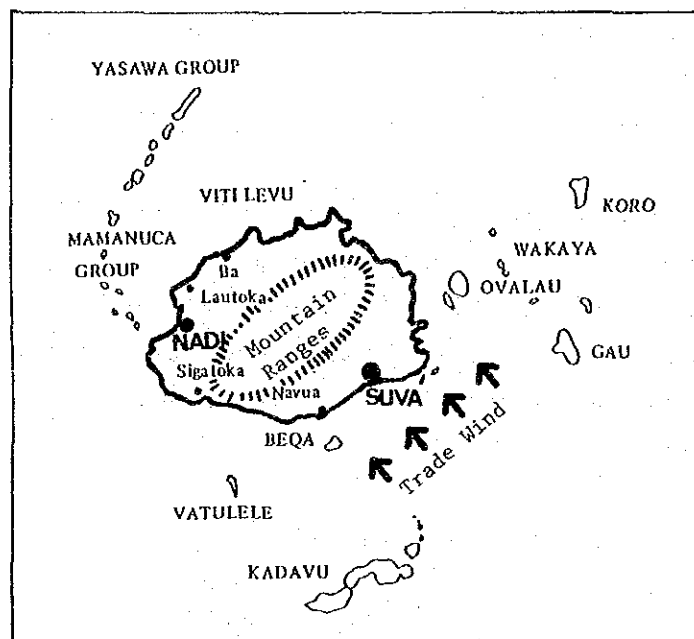


Fig. 2-1 Trade Winds

The temperature in the Suva area reaches a maximum of 34°C and a minimum of about 12°C. Humidity is especially high during the summer months from December to March when there is continuous hot, humid days. Precipitation is quite high during the months from November to April and at times cyclones will hit the island during this period.

Table 2-1 Annual Monthly Climate in Suva Area

Month		Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Annual average
(1) Temperature (°C)	Ave. max.	30.2	30.4	30.2	29.3	28.0	27.2	26.2	26.3	26.7	27.5	28.4	29.5	28.3
	Ave. min.	23.6	23.7	23.5	23.0	21.9	21.3	20.4	20.4	20.9	21.7	21.4	23.2	22.2
	Average	26.9	27.1	26.8	26.2	25.0	24.3	23.3	23.4	23.8	24.6	25.4	26.3	25.3
(2) Ave. humidity (%)		85	85	86	85	83	83	81	81	82	82	82	83	81%
(3) Ave. rainfall (mm/month)		330	308	380	386	248	170	142	144	194	206	264	266	3,038 mm/year
(4) No. of rainy days		23	22	24	22	20	17	17	18	16	19	18	22	240 day/yr.

- (1) 1942-1987 Average temperature
 (2) 1943-1970 Average humidity
 (3) 1942-1987 Average rainfall
 (4) 1971-1987 Average number of rainy days with 0.1 mm or more rain

Source: FIJI Meteorological Service

2.1.3 Population

According to the population census in 1986, the total population of Fiji is 715,375, and the natural growth rate of population is about 2% annually, which is a high growth similar to that of developing countries. The population of Suva including neighbouring area is about 150,000 which is about 20% of the total population and about 80% of the population of Viti Levu island and concentration of population in the metropolitan area is progressing year by year.

The Government of Fiji, in order to hold population growth to less than 2%, is promoting family planning. The people of Fiji is mainly the indigeneous Melanesians and the Indian race who came from India during the English colonial period. 46.0% or 329,305 people are Melanesians, 48.7% or 348,704 people are Indians, and the remainder are Europeans and Chinese.

The percentage of population as of 1985 was 36.4% for minor age (0-14), 59.8% for productive age (15-64) and 3.8% for senior age (over 64). The population pyramid is a parabola curve similar to that of developing countries with a large number of young people.

Table 2-2 Population

Year	Population	Central & east	Suva City
1982	663,485	281,757	70,951
1983	677,481	286,240	72,203
1984	690,681	294,501	73,128
1985	701,705	305,453	73,928
1986	715,375	312,443	74,532

Source: MOH

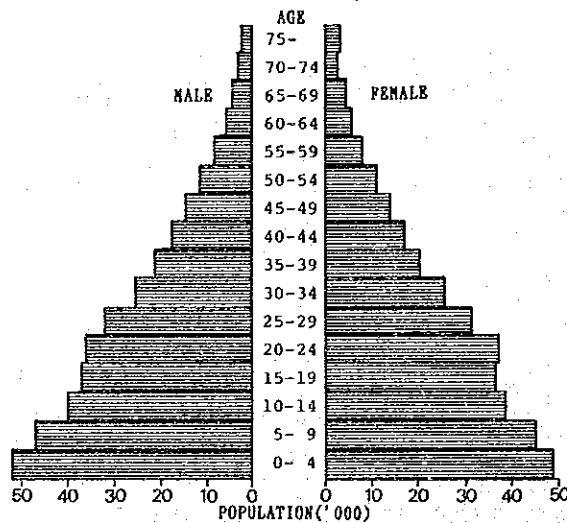
Table 2-3 Racial Percentage of Population

	Fiji (1,000) (%)		Indian (1,000) (%)		Others (1,000) (%)		Total (1,000)	Population growth (%)
1978	272	44	307	50	33	6	612	1.8
1979	279	45	314	50	34	5	627	2.1
1980	284	44	321	50	34	6	639	1.9
1981	290	44	326	50	34	6	650	1.7
1982	297	45	333	50	33	5	663	2.0
1983	304	45	339	50	34	5	677	2.1
1984	312	45	345	50	34	5	691	2.0
1985	319	45	349	50	34	5	702	1.6(a)
1986	331	46	349	49	37	5	717	2.1
1987	339	47	342	48	34	5	715	Δ0.3(b)

(a) Temporary increase and register of new born baby

(b) Flowout due to coupd'etat

Source: CURRENT Economic Statistics (Oct. 1989)



Source: MOH

Fig. 2-2 Pyramid of Population (1986)

2.1.4 Religion and Language

Approximately 100% of the Melanesians are Christians while 40% of the Indians are Hindus and 9% are Moslems and the remaining is other religions.

The official and common language among different races is English, but Melanesians (Fijians) speak Fiji, influenced by Polynesian language, while the Indians who are Hindus speak Hindu and Moslems speak Urdu.

2.1.5 Transportation and Communication

The international airport is located at Nandi in Viti Levu Island which is a principal airport in the South Pacific Region, and the Nausori airport, a local airport, is located at the capital Suva. Transportation within the island is by bus, automobile and taxi, but transportation between islands is conducted either by small planes or non-scheduled ships.

Communication including telephone, telex, facsimile and mail is well operated and hotels in Suva usually have telexes as well as copy machines. Broadcast is only by radio and there are 3 stations, 1 FM and 2 AM stations.

2.1.6 Government and Administration

In the South Pacific region, Fiji was one of the most earliest populated island as evidenced by potteries dated found in old ruins 3000 years ago. Europeans arrived here in February, 1643 and the first British Counsel arrived in Levuka in 1857. In 1874 Fiji became a British colony, but became independent on 10 October, 1970 and joined the United Nations 3 days later on 13 October, 1970.

Eversince Fiji gained independence from England Rt. Hon. Ratu Sir Kamisese Mara of the Alliance Party (AP) became prime minister based on a policy of maintaining national harmony, but in April 1987, Mr. T. Vavandura, party chief of FLP led the union of the opposition (FLP and NEP mainly

supported by Indians) to a victory ending the 17 years of the government of AP and set up a new government. However in May of the same year Lieutenant Colonel S. Rabuka led a coup d'etat which revived the dormant confrontation between Fijian and Indian.

Later in September of the same year, a bloodless coup d'etat arose and a republic government was formed also the government withdrew from the British commonwealth on 7 October of the same year. In December, a civilian government was restored and after the military withdrew from the Government in January 1990 a new Fiji was borne.

However, the two coup d'etat resulted in the outflow of Indians especially technocrats and Indian capital which played a principal role in the economy.

2.1.7 Economy

The economy is sustained by tourism and agriculture, based on sugar, which constitute about half of the ordinary revenue. Economic growth rate owing to its high mono-cultural sugar economy is quite highly influenced by the fluctuation of international sugar production and price.

In the past, the economy experienced many difficulties such as trade deficit, inflation (11.9%), increase of unemployment and the economic stagnation following the coup d'etat in 1987. But recently the economy is showing a slow but steady growth which is better than most of the South Pacific Island countries.

Aside from agriculture, fishery and forestry are also thriving and the fishery conducted by corporations including the national fishery corporation (IKA) has developed into the third largest export industry following sugar and gold.

In the ninth development plan (DP-9: 1986-1990), the government set up the following objectives:

- ① to achieve real economic growth including real per capita growth,
- ② to create employment opportunities,
- ③ to provide fair profit distribution, improvement of social condition (especially in rural districts) and development of outer regions,
- ④ to expand export and promote private sector activity to stabilize financial condition, and
- ⑤ to strengthen education system, press agency and religious organization to create a national identity.

A steady progress was achieved in 1986 together with the favourable sugar and tourist industry sectors, but the coup d'etat in 1987 stagnated the economy of the sugar and tourist industries sectors which badly affected production, revenue and employment reducing the GNP to a negative growth.

However, as the shock of the coup d'etat diminished, and political situation stabilized, the economic condition gradually recovered, and the international fiscal balance showed a positive balance in 1988, with the favorable international sugar market and increase of export resulting from the devaluation of the Fiji dollar and resumption of economic assistance from foreign countries. Recently, the growing trend of the tourist industry sector is also attracting much attention.

2.1.8 Education

The education system is based on the system in Great Britain and is comprised from primary education, junior secondary education, vocational education (teacher training, technician training, etc.), secondary school and high level education.

The University of South Pacific (USP) and the Fiji School of Medicine (FSM) play a prominent role in the high level education of the South Pacific Region.

Although there is no compulsory education system, the primary school requires no tuition fee and the percentage of school attendance shows a high rate of nearly 100%. A diagram of the education system in Fiji is shown below.

24		High Level Education		
23		University of South Pacific (USP)		
22		Fiji School of Medicine (FSM)		
21		Agriculture School (AS)		
20		Fiji Institute of Technology (FIT)		Fiji National Training Center (FNTC)
19		Teachers' College (TC)		Military Vocational Training Center (MIVT)
18	VII	Secondary School		
17	VI			
16	V			
15	IV	Junior Secondary School	Vocational Course	Hand-craft Center Vocational Training School
14	III			
13	8 II			
12	7 I	Primary School (Formal School System)		
11	6			
10	5			
9	4			
8	3			
7	2			
6	1			
		(Non-formal Educational Program)		
Age	School years	From last June, school education was given to children from 5 years of age.		

Fig. 2-3 Diagram of the Education System in Fiji

2.2 Medical Health in Fiji

2.2.1 Medical Service Condition

(1) Medical service system

The Ministry of Health has set up a medical health service network in Fiji by dividing the country into 3 divisions which are western division, northern division and central & eastern divisions. A divisional hospital is located in each division to serve as the medical service centre in each division. This division is further divided into 19 sub-division which consist of 71 medical regions.

Each division has a referral hospital for providing high level medical services. In the sub-division, there is a sub-divisional hospital and in the medical region, there are health centres and nurse stations to provide primary health care, also in the remote islands, there are regional hospitals to look after the persons living there.

Today, there are the following public medical facilities in the country. Namely, 18 general hospitals; 3 special hospitals, 1 psychiatry hospital, 1 tuberculosis hospital and 1 leprosy hospital; 54 health centres and 96 nurse stations. Also there are 2 private hospitals and a number of clinics operated by religious organizations. All these medical facilities are under the supervision of the Ministry of Health. The CWM Hospital is the divisional hospital of the central & eastern division, and it also serves as the referral hospital for the entire country.

The medical health system is organized in different levels for each division starting from nurse station, health centre, area hospital, sub divisional hospital up to divisional hospital. The divisional hospital is administered by the Director of Hospital Services of the Ministry of Health, and the other facilities are administered by the Director of Preventive and Primary Health Services, but personal and budgetary matters are controlled by the Ministry of Health.

There are 27 medical health facilities with beds throughout the country, and all facilities including the 2 private hospitals, are supervised by the Ministry of Health. The total number of beds were 1,805 beds in 1989 which was 2.43 beds for 1,000 persons. Although the population of the nation is growing at a rate of about 2% annually, medical health facilities including the number of beds have not been increased since 1987 except the nurse stations.

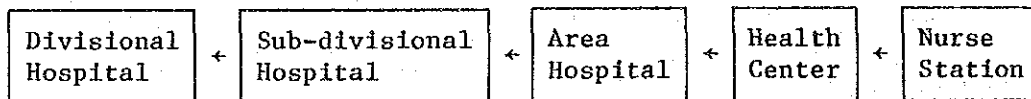
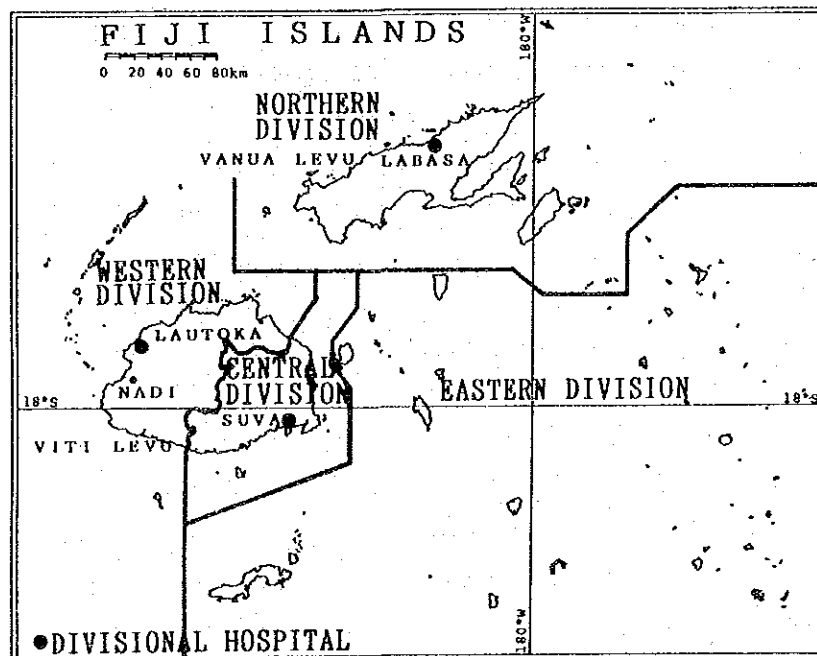


Fig. 2-4 Medical Health Service Facilities

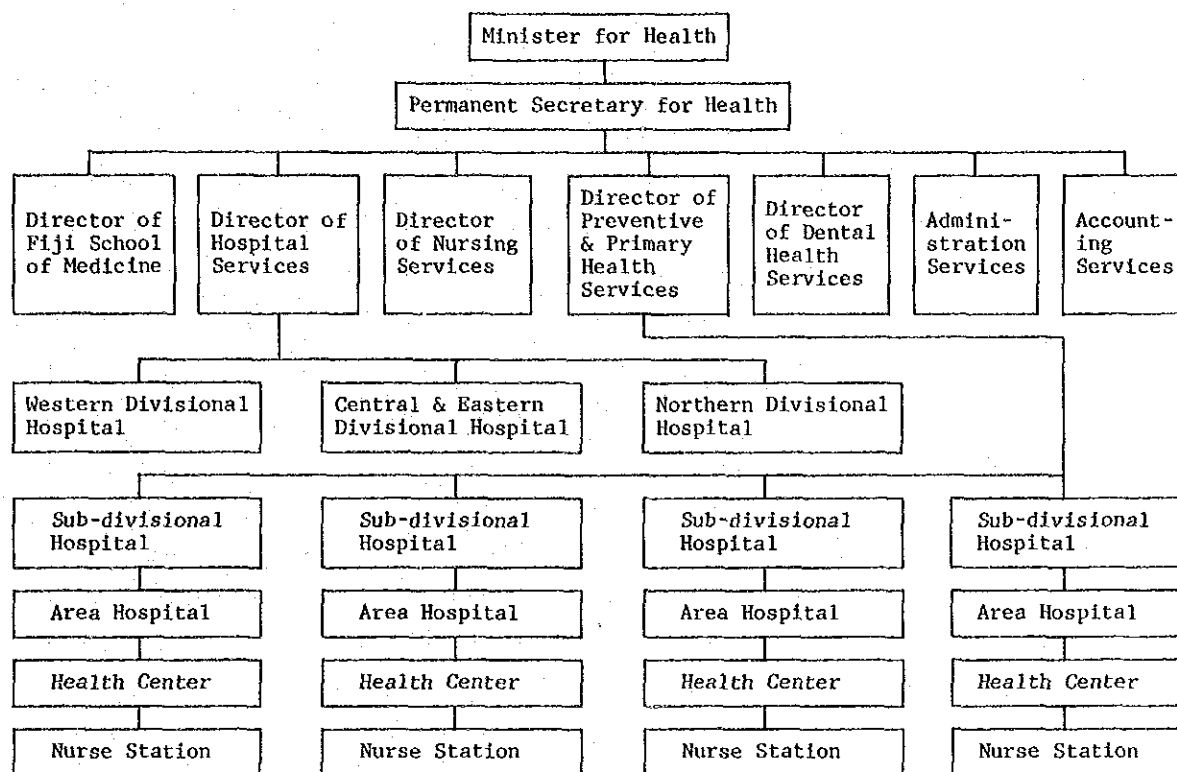


Fig. 2-5 Organization of Medical Health Service

Table 2-4 Medical Facilities

Number of Hospital & Beds	1984	1985	1986	1987	1988	1989
3 divisional hospital	865	829	865	855	855	855
15 sub-divisional hospital	372	372	372	404	404	404
4 area hospital	60	60	60	60	60	60
3 special hospital	437	450	547	428	428	428
2 private hospital	58	58	58	58	58	58
Total	1,792(2.6)	1,769(2.48)	1,792(2.5)	1,805(2.43)	1,805(2.43)	1,805(2.43)
Nurse station	91	80	92	92	92	96
Health centre	52	54	55	55	55	54

Note: Figures inside parenthesis indicate the number of beds for 1,000 persons.
Source: Ministry of Health

(2) Present medical health condition

The primary health care of Fiji has reached an acceptable level with the establishment of health centres and nurse stations. This can be seen from the control of many infectious disease and the average life expectancy of 68 years which is a high level among the developing countries. However, recently geriatric disease such as cancer, diabetes, high blood pressure and heart disease is on the increase together with the increase of venereal disease among young generation. Therefore, medical services to address these important problems must be addressed.

Medical health services provided by medical facilities administrated by the Ministry of Health is available to all people of Fiji, but the medical health services of private medical facilities are of course only available to persons who are able to pay for the provided services. Examination provided by public medical facilities is free of charge, but inspection and medicines are in principle borne by the individual. However, persons who are deemed unable to bear medical expenses, children under 15 years of age, women before and after childbirth and government officials do not need to bear the charges.

Since free medical services are provided over a wide range, fees received for these medical services are only 5 percent of the expenditure with the majority of medical services being subsidized by the government which places a heavy burden on the government budget. The Government of Fiji is now reviewing the scope of free medical services and studying to establish a social health system in order to establish a sound financial condition.

Table 2-5 Medical Facilities and Their Functions

Medical facilities	Functions
Divisional hospitals (3)	A general hospital which provides the high level medical services of the district. The CWM and Lautoka hospitals also have medical training functions for training medical personnels.
Sub-divisional hospital (15)	Functions as a general hospital and supervises the primary health care services in respective divisions, but among these hospitals, 4 hospitals have only maternity beds.
Special hospitals (3)	A special hospital which provides special treatment such as for tuberculosis, psychiatric cases and leprosy.
Health centres (54)	A health centre is located for each 700-1600 population, and is operated by a doctor or assistant doctor and 2 nurses. A medical facility which provides a limited scope of medical services.
Nursing stations (96)	A nurse station is located in rural area for each 200-300 population, and in urban area, one is located for each 6000 population. Nurse station is operated by nurses to provide consultation on family planning, and maternity health, and to provide protective injection and simple treatment. It serves as the front line for primary care.

(3) International comparison of medical services

In order to make an objective international comparison of medical services in Fiji, the number of beds, doctors and nurses are compared. In developed industrial countries, the number of beds, doctors and nurses for 100,000 persons are respectively 697-1,522 beds, 150-229 doctors, and 575-1,238 nurses, whereas in Fiji they are respectively 241 beds, 48 doctors and 198 nurses. This is a rather low medical level which is similar to developing countries.

Table 2-6-1 International Comparison of Number of Beds and Medical Personnels

Region	Country	Population (1,000 people)	Beds	Doctors	Nurses	Surveyed year
			(Number for 100,000 people)			
South Pacific	Australia	15,974	175,017	36,610	139,434	1986
			1,095	229	872	
	New Zealand	3,307	23,052	5,747	40,950	1986
			697	173	1,238	
	Fiji	717	1,729	325	1,370	1986
			241	48	198	
	Papua New Guinea	3,343	4,778	269	1,118	1986
			143	8	33	
	Kiribati	66	133	15	145	1986
			201	24	219	
Southeast Asia	Thai	52,094	71,718	8,058	28,339	1986
			152	16	54	
	Philippines	55,576	93,474	8,132	9,604	1986
			193	15	17	
	Sri Lanka	16,117	44,029	1,914	7,040	1986
			273	12	44	
	Japan	120,946	1,860,351	183,129	694,999	1986
			1,522	150	575	

Table 2-6-2 International Comparison of Number of Beds and Medical Personnels

Region	Country	Population (1,000 people)	Beds	Doctors	Nurses	Surveyed year
			(Number for 100,000 people)			
Latin America	Honduras	4,370	4,063	1,141	5,126	1986
			93	32	117	
	Paraguay	3,280	1,475	803	77	1986
			45	25	2	
	Bolivia	6,250	12,451	2,836	4,286	1986
			199	45	69	

Source: MOH, World Health Statistics 1988 (WHO)

Table 2-7 Number of Doctors and Population in South Pacific Countries

South Pacific Countries	(1) Present number of doctors	(Year)	(2) Population	Average growth(%)	Number of doctors for 100,000 people
Fiji	325	(1982)	717,000	1.9	48
Cook Islands	15	(1985)	19,000	1.7	79
Kiribati	15	(1985)	63,000	1.6	24
Samoa	44	(1986)	164,000	1.0	26
Solomon Islands	38	(1986)	279,000	3.6	14
Tonga	41	(1982)	110,000	2.4	37
Tuvalu	3	(1986)	8,000	1.6	38
Vanuatu	27	(1986)	141,000	3.9	19

Notes: (1) 1988 WHO/WPRO "Social Economy and Health Index"
 (2) 1985 UN "World Population Forecast"

2.2.2 Sickness Structure

The most frequent sickness is respiratory disease followed by circulatory disease, external wounds and toxic disease, urinary and reproductive disease, and parasitic disease. Death rate is highest for circulatory disease followed by neoplasm disease, infectious and parasitic disease, respiratory disease, internal secretion and nutritional metabolic disease (Table 2-8).

Table 2-8 Morbidity and Mortality

	Morbidity		Mortality	
1982	1	Respiratory disease 8.0%	1	Circulatory disease 31.6%
	2	Circulatory disease 7.2%	2	Respiratory disease 12.9%
	3	Reproduction, urology disease 6.9%	3	Tumor 12.1%
	4	Accident 6.2%	4	Infectious disease, parasite disease 8.3%
	5	Infectious disease, parasite disease 5.5%	5	Digestive/perinatal disease 6.2%
1983	1	Respiratory disease 7.0%	1	Circulatory disease 32.1%
	2	Circulatory disease 6.6%	2	Tumor 12.6%
	3	Injury/poisoning 6.5%	3	Respiratory disease 9.9%
	4	Reproduction, urology disease 5.9%	4	Infectious disease, parasite disease 9.5%
	5	Infectious disease, parasite disease 5.4%	5	Digestive disease 6.6%
1984	1	Respiratory disease 8.5%	1	Circulatory disease 34.3%
	2	Injury/poisoning 6.6%	2	Tumor 12.3%
	3	Circulatory disease 6.3%	3	Infectious disease, parasite disease 9.7%
	4	Infectious disease, parasite disease 5.9%	4	Respiratory disease 8.5%
	5	Reproduction, urology disease 5.4%	5	Injury/poisoning 8.1%
1985	1	Respiratory disease 8.5%	1	Circulatory disease 35.5%
	2	Injury/poisoning 7.2%	2	Tumor 11.7%
	3	Circulatory disease 7.0%	3	Infectious disease, parasite disease 9.0%
	4	Reproduction, urology disease 5.9%	4	Respiratory disease 7.1%
	5	Infectious disease, parasite disease 5.3%	5	Internal secretion, nutrition, metabolism 5.4%
1986	1	Respiratory disease 8.5%	1	Circulatory disease 34.0%
	2	Circulatory disease 6.8%	2	Tumor 13.1%
	3	Injury/poisoning 6.6%	3	Infectious disease, parasite disease 8.8%
	4	Reproduction, urology disease 5.6%	4	Respiratory disease 8.6%
	5	Infectious disease, parasite disease 5.1%	5	Internal secretion, nutrition, metabolism 7.6%

Numerous intestine infectious sickness due to infectious and parasitic disease is observed, but tropical infectious disease such as tuberculosis and leprosy has decreased while diabetes is the most frequent internal secretion and nutritional metabolic disease.

Respiratory disease is mostly bacterial inflammation such as pneumonia, also urinary and reproductive sickness and neurologic sickness are to a high degree infectious type disease. It is therefore clear that infectious disease is one of the most serious problems.

Among circulatory disease, rheumatism fever and streptococcus hemolyticus are observed, while vascular disease of heart and brain is observed to be the cause of many deaths (Table 2-9). External wounds due to traffic accidents caused by the recent increase of vehicles are becoming a serious problem.

Table 2-9 Disease Classification by WHO Code (1986)

				(Persons)
Disease	Male	Female	Total	Mortality
1 Infectious disease by parasite	1,787	1,376	3,163	76
2 Tumor	367	863	1,230	113
3 Disease by internal secretion, nutrition, metabolism & immunological deficiency	689	883	1,572	66
4 Blood disease	268	275	543	6
5 Mental disease	141	211	352	2
6 Psychiatric & sense organ disease	902	658	1,560	32
7 Circulatory disease	2,649	1,602	4,251	294
8 Respiratory disease	3,110	2,245	5,355	74
9 Digestive disease	1,787	912	2,699	36
10 Reproduction, urology disease	877	2,651	3,528	41
11 Abnormal pregnancy/delivery/ puerperium	--	25,602	25,602	--
12 Cutaneous & subcutaneous disease	1,111	745	1,856	3
13 Muscular tissue disease	631	385	1,016	3
14 Hereditary abnormality	165	109	274	13
15 Perinatal disease	239	242	481	9
16 Others	1,114	841	1,955	41
17 Injury/poisoning	2,831	1,317	4,148	58
Supplementary classified disease	602	2,816	3,418	6
	19,270	43,733	63,003	876

Source: Ministry of Health

2.2.3 Present Medical Administration

(1) Medical health policy

The Government of Fiji has set up the following targets in its 9th National Development Five Year Plan (DP-9, 1986-1990) in accordance with the WHO slogan "HEALTH FOR ALL 2000".

- (a) to provide effective medical service to poor people and to remote districts,
- (b) to provide preventive, first aid medical service, examination and rehabilitation facilities, with qualified medical personnels to satisfy national needs,
- (c) to control population growth to improve living standard, and
- (d) to improve and maintain high medical quality throughout the country.

In order to achieve these targets, the following items are being pursued.

- (a) Family planning and population control program
- (b) Primary health care (PHC) program
- (c) Human resource development program (medical school and nursing school)
- (d) Urban and rural medical service program
- (e) Dental service program
- (f) National medical drug procurement and distribution program

For item (c), the FSM is designated to "train medical staff with professional knowledge and qualification to satisfy the needs of the region which means the south pacific countries".

For item (d), the function of CWM Hospital is to be developed and extended to serve as a training hospital as well as a high level medical facility and divisional hospital. For nurse training, the Fiji School of Nursing established in 1987 with grant aid from Japan is contributing to nurse training.

(2) Organization of Ministry of Health

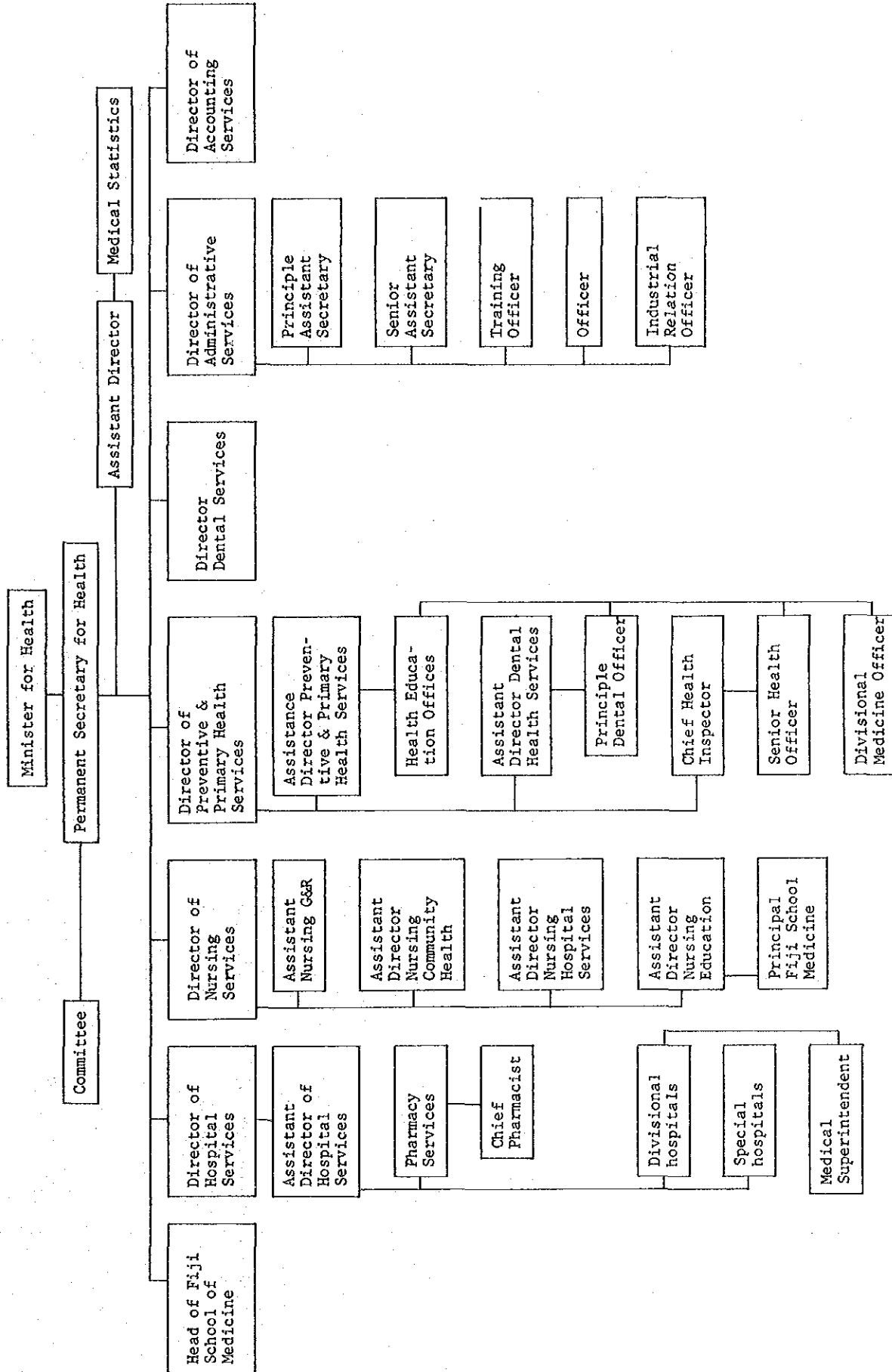


Fig. 2-6 Organization of Ministry of Health

(3) Budget of the Ministry of Health

The transition of national budget and budget of the Ministry of Health together with the operating expenditure of the Ministry of Health are shown in the following tables.

Table 2-10 National and Ministry of Health Budget (x F\$1,000)

Year	National budget	Growth rate (%)	Ministry of Health	Growth rate (%)	MOH/National budget (%)
1986	437,000.0		35,004.7		8.0
1987	437,000.0	0	35,082.7	0.2	8.0
1988	498,100.3	13.4	29,447.0	Δ16.1	5.9
1989	539,855.7	8.4	29,317.5	Δ0.4	5.4
1990	538,117.3	Δ0.3	34,617.1	18.1	6.4

Source: Ministry of Health

Table 2-11 Operating Expenditure of Ministry of Health (x F\$1,000)

Year	MOH budget*	Personnel expense	Transportation and communication	Maintenance and Administration	Medical procurement expense	Subsidy	Special expense	Number of personnel
1986	33,761 100%	27,195.3 80.6	671.0 2.0	314.4 0.9	5,074.3 15.0	362.9 1.1	143.1 0.4	3,795
1987	33,516 100%	27,248.9 81.3	513.9 1.5	264.1 0.8	4,965.1 14.8	360.6 1.1	163.4 0.5	3,805
1988	29,214 100%	22,492.0 77.0	526.6 1.8	330.6 1.1	5,438.6 18.6	341.5 1.2	85.1 0.3	3,806
1989	29,170 100%	23,596.0 80.9	435.0 1.5	202.6 0.7	4,570.4 15.6	356.2 1.2	10.3 0.1	3,836
1990	33,427 100%	25,305.4 85.7	550.0 1.6	335.6 1.0	6,576.6 19.7	498.2 1.5	161.3 0.5	3,834

Note: * Excludes budget for construction and procurement.

Source: Ministry of Health

2.2.4 Assistance from Foreign Countries and Organizations

(1) WHO

The WHO Suva office for the South Pacific Region is providing continuous advice and cooperation to the Government of Fiji on medical health matters, and especially, WHO has organized a Committee on FSM and is providing advice.

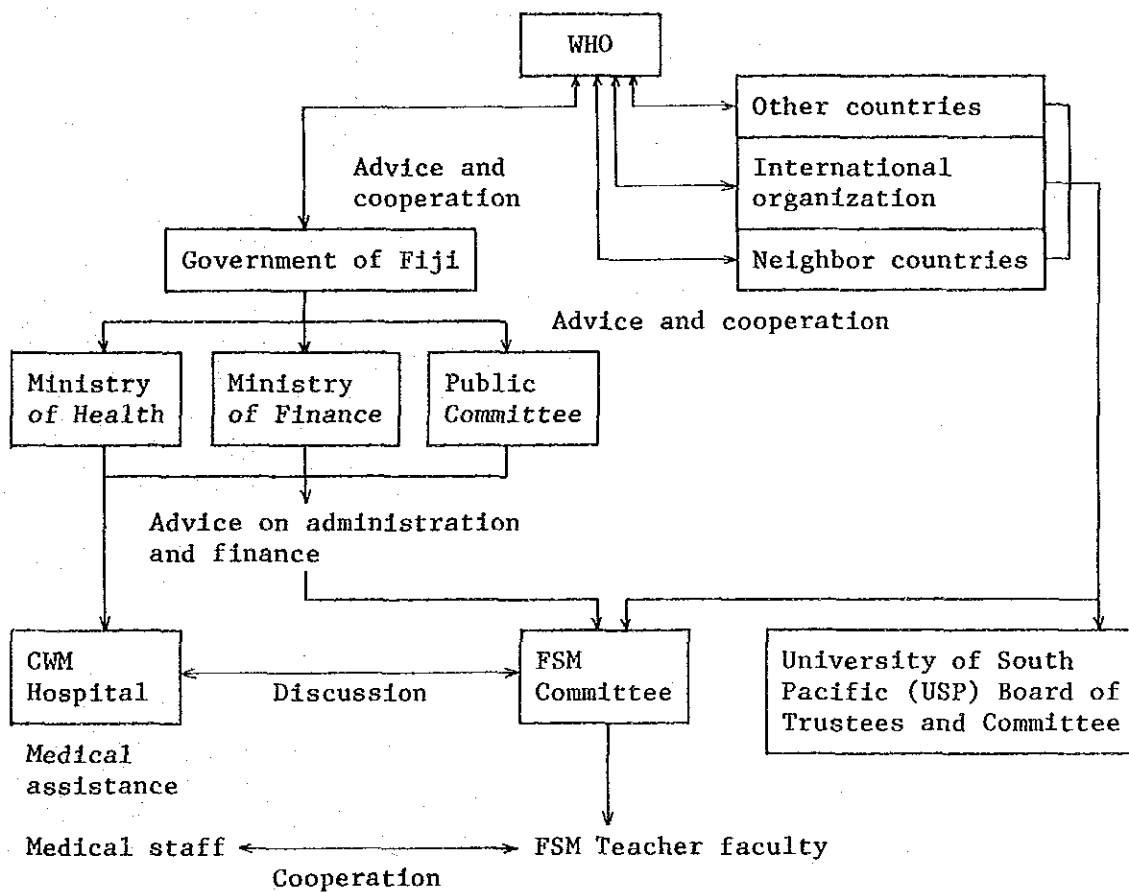


Fig. 2-7 Role of WHO and Other Organization

(2) Government of Australia

The Government provides 3 teachers to the teacher staff of the medical school and 2 medical equipment experts (maintenance) to the CWM Hospital. The contract period is 2 years and the salary is provided as technical assistance by the Government of Australia.

(3) Government of New Zealand

The Government provides financial assistance to the Ministry of Health and 2 teachers to the FSM. The terms and conditions are similar to Australia.

(4) Government of UK

The Government provides 5 doctors and 4 special doctors (consulting doctors) to the FSM. The terms and conditions are similar to Australia.

(5) Government of Canada

The Government provides 1 surgeon to the FSM. The terms and conditions are similar to Australia.

(6) Others

The Government of Nigeria and the Government of Philippine also provide teachers to the FSM. Doctors from China and Myanmar are sent to different hospitals in the country. Furthermore, China sent 4 doctors, X ray technician, pharmacist, and inspection technicians from June, 1990 in accordance with the China-Fiji Government Cooperation Program. The period is for 2 years with the expense borne by the Government of Fiji.

2.3 Medical Education in Fiji

The medical education in Fiji is conducted at the FSM for doctors and paramedics and the Fiji School of Nursing for nurses, and are both under the administration of the Ministry of Health. Both schools are accepting students from neighboring countries and are serving as a centre for medical education not only for Fiji, but for the south pacific island countries as well.

The FSM was first established in 1885 as a school for dentists, and in 1924, the school started accepting students from south pacific countries. In 1951, a medical course was established and in 1981, cooperation with the University of South Pacific was established and a medical course of a bachelor degree (MBBS, Bachelor of Medicine, Bachelor of Surgery) was set up. With the establishment of the MBBS course, the classrooms of the University of South Pacific were made available mainly for general cultural course.

The number of graduates of the medical course from 1888 to 1989 was 852 students and those from the south pacific countries was 325 students representing 38.1% of the total students. There are 322 students in 1990, and among them 65 students representing 20.2% are from south pacific countries. As can be seen from these figures the FSM is the main school for medical students in the south pacific countries.

In the south pacific countries there are 2 schools providing medical education; the FSM and the Medical Department of the University of Papua New Guinea. There is another medical education facility at Ponape, Caroline Island in the Federation of Micronesia which is assisted by the University of Hawaii, but it is very small. This facility was set up to train intermediate medical personnels to meet the needs of the former trust territories of USA, under assistance of the Government of USA, but for clinical training they are presently considering the utilization of the facilities at FSM and the University of Papua New Guinea.

The FSM provides training for general medicine including geriatric disease, while the Medical Department of the University of Papua New Guinea is emphasizing tropical disease. Therefore, the 2 schools are in a position of complementing each other to satisfy the medical needs of the south pacific countries.

Table 2-12 Medical Graduates of the FSM (1888-1989)

													(Persons)
Year	Fiji	Kiribati	Tonga	Cook	Tuval	Vanuatu	Solomon	West Samoa	Samoa	PNG	Others	Total	
1888-1897	26	-	-	-	-	-	-	-	-	-	-	26	
1898-1907	25	-	-	-	-	-	-	-	-	-	-	25	
1908-1917	30	-	-	-	-	-	-	-	-	-	1	31	
1918-1927	37	-	-	-	-	-	-	-	-	-	-	37	
1928-1937	43	7	6	3	3	-	4	9	-	-	-	74	
1938-1947	40	4	10	4	5	5	7	14	4	-	5	98	
1948-1957	57	4	9	10	3	4	7	22	8	5	23	152	
1958-1967	44	4	2	2	4	-	4	6	3	11	16	96	
1968-1977	78	6	17	7	3	-	5	6	3	-	9	134	
1978-1987	115	4	9	-	-	3	5	1	-	-	2	139	
1988	12	1	1	-	-	-	1	-	-	-	-	14	
1989	20	1	2	-	-	-	-	-	-	-	1	25	
Total	527	30	56	26	17	12	33	59	19	16	57	852	
		325											
	61.9%	38.1%										100%	

Table 2-13-1 Medical Graduates of the FSM (1985-1989)

Year	(Persons)										Total	
	Fiji	Kiribati	Tonga	Cook	Tuval	Vanuatu	Solomon	West Samoa	Samoa	PNG		Others
1985	26					9						35
1986												
Dental treatment	1	2	-	-	-	-	-	-	1	-	-	32
Dental assistant	4	-	-	-	-	-	-	-	-	-	-	4
X ray technician	1	1	-	-	-	2	1	1	-	-	-	4
Inspection technician	1	-	1	-	-	1	1	-	-	-	-	5
Health inspection	6	-	-	1	-	-	-	-	-	-	-	8
Inspection/X ray technician	5	-	-	-	-	-	-	-	-	-	-	5
Public health	-	-	-	-	-	1	1	-	-	-	-	2
1987												
Dental assistance	2	-	-	-	-	-	-	-	-	-	-	25
Dental technician	2	1	-	-	-	1	1	-	-	-	-	2
Dental treatment	3	-	-	1	1	2	-	-	-	-	-	4
Physical therapy	2	-	-	1	1	-	-	-	-	-	-	7
X ray technician	1	-	-	-	-	1	1	-	-	-	-	4
Pharmacist	2	-	-	-	-	-	-	-	-	-	-	2
Inspection technician	4	-	-	-	-	1	1	-	-	-	-	2
Inspection/X ray technician	1	-	-	-	-	-	-	-	-	-	-	5
Health inspection	3	-	-	2	-	3	-	-	-	-	-	1
Environmental health	-	-	-	-	-	-	-	1	-	-	-	8
												1

Table 2-13-2 Medical Graduates of the FSM (1985-1989)

Year	(Persons)										Total	
	Fiji	Kiribati	Tonga	Cook	Tuval	Vanuatu	Solomon	West Samoa	Samoa	PNG		Others
1988												
Dental treatment	3	-	-	-	-	1	1	-	-	-	-	33
Physical therapy	2	-	-	-	-	-	2	-	-	-	-	5
X ray technician	3	-	-	-	1	-	-	1	-	-	-	4
Inspection technician	5	1	-	-	1	-	-	-	-	-	-	5
Health Inspection	2	-	-	-	-	1	1	-	-	-	-	4
Environmental health	5	-	-	-	-	-	-	-	1	-	-	6
Nutritionist	2	-	-	-	-	-	-	-	-	-	-	2
1989												
Dental treatment	-	-	-	-	1	1	-	-	-	-	-	38
Dental treatment (degree)	1	-	-	-	-	2	-	-	-	-	-	2
X ray technician	5	-	1	-	1	-	1	-	-	-	-	3
Inspection technician	4	-	1	-	-	-	-	-	-	-	-	8
Dental assistant	1	-	-	-	1	-	-	-	-	-	-	6
Health inspection	5	-	-	-	-	-	-	-	-	-	-	1
Health inspection (degree)	2	-	-	2	-	4	-	-	-	2	-	13
Pharmacist	2	-	1	-	-	-	-	-	-	2	-	3
Total	106	-	-	-	-	68	-	-	-	-	-	174
	60.9%					39.1%						100%

2.4 Outline of Redevelopment Plan

2.4.1 Master Plan

At the 39th WHO South Pacific Region Committee held in Manila in 1988, a resolution stressing the importance of training medical personnels in the South Pacific Region and requesting the assistance of WHO was adopted. As a result, a request for preparing a master plan to redevelop the facilities at the FSM and CWM Hospital was requested of WHO.

In order to strengthen medical education and service of FSM, WHO prepared the "Plan of Action for the Development of the FSM as a Centre for Education of Health Personnel in the Pacific - May 1989" in May 1989 based on the review of the Hardy Report, July 1983 and Enthwhistle Report 1983.

This master plan is made up of the following 4 items.

(1) Reorganization of curriculum

The FSM course is organized in 2 stages to provide training for medical technicians which meets the requirement of doctor and division. A new curriculum shall be prepared by FSM in June, 1990.

(2) Strengthen departments

Technical assistance shall be requested to different countries and WHO to strengthen teaching staff to achieve a teacher/student ratio of 1:6 for the full quota of students.

(3) Improvement of operation

FSM shall be set up with a separate budget from the Ministry of Health budget to serve as a training facility for medical personnels not only for Fiji but for the south pacific countries as well. Furthermore, the relation with the University of South Pacific shall be reviewed, and representatives from the South Pacific Region shall be invited.

(4) Extension and reorganization of facilities

The existing facilities shall be reconstructed in accordance with its priority to upgrade their level. For this purpose, the educational facilities and training facilities shall be reorganized (Tamavua campus, Hoodless House, CWM Hospital).

In the extension and reorganization listed in item (4), emphasis is placed on the CWM Hospital and FSM including the following items.

- (1) The education and training functions separately located at the Tamavua campus, Hoodless House and CWM Hospital shall be reorganized. Within 2 years all medical educational activities shall be moved to the CWM Hospital and the Hoodless House.
- (2) The hospital facilities and educational facilities at the CWM Hospital complex shall be extended and reconstructed.
- (3) The central library shall be extended and consolidated.
- (4) A suitable data processing system shall be introduced for education and study purposes.

2.4.2 Redevelopment of Facilities

The medical education for the south pacific countries is performed by the FSM and the medical department of the Papua, New Guinea University. Aside from the above 2 schools, a small medical education institute exists in Ponape of the Caroline Islands. The FSM emphasizes general medical education including adult disease while the medical department of the Papua New Guinea University emphasizes tropical disease. The 2 educational institute complement each other to satisfy the medical needs of the south pacific countries.

The infrastructure system of FSM which is most necessary for improving medical education system in the south pacific countries shall be constructed and the CWM Hospital which is the largest general hospital in Fiji shall be improved to provide upgraded medical service not only for Fiji and Tuval islands but for all South Pacific Region.

The very worn and old facilities at the FSM and CWM Hospital shall be redeveloped to improve and upgrade FSM medical education function and to improve and extend medical service of CWM Hospital.

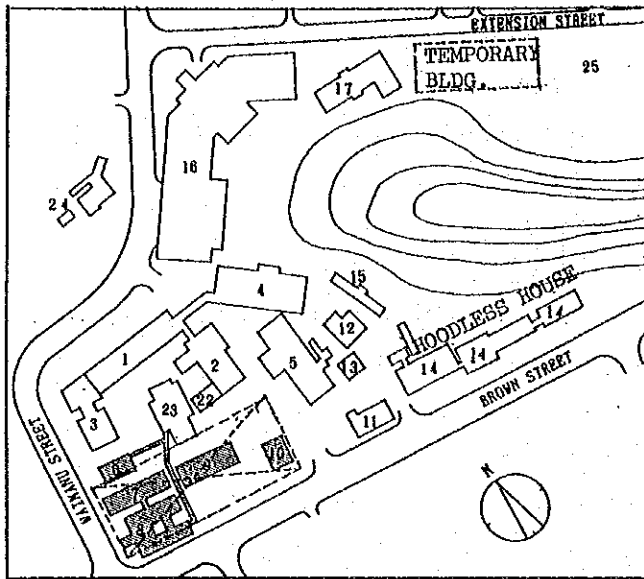
This redevelopment shall be implemented in 3 phases.

Phase 1: The present scientific treatment lecture room, dental ward, pathological laboratory, dormitory, and family planning room shall be removed and examination and treatment department including a 100 bed surgery ward, operation theatre and a 20 bed ICU together with education department including lecture room and training room shall be constructed.

Phase 2: Internal medicine and gynaecology ward shall be removed and a 200 bed internal medical ward, medical laboratory and otorhinolaryngology shall be constructed.

Phase 3: The department moved to the newly constructed building from the existing building shall be remodelled to include a 100 bed ward and an administration office. The total number of beds shall be 600.

The pathological laboratory, dental department and family planning consultation room building demolished in phase 1 shall be set up by the Fiji side in the open space neighboring the sister's quarter.



Phase 1 Plan

Buildings to be demolished in Phase 1.

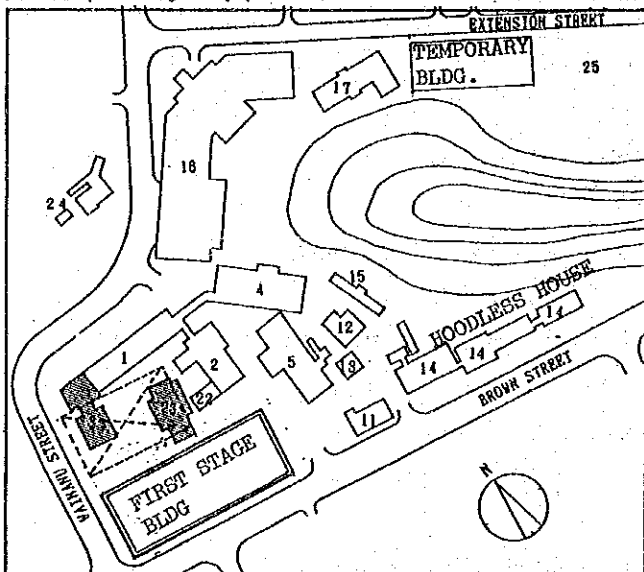
- (6) Scientific treatment lecture room
- (7) Dental department
- (8) Pathology laboratory
- (9) Dormitory
- (10) Family planning consultation room

New building

Basic medics; clinical medics lecture; training room medical library, pathology, dental diagnosis department scientific treatment department, blood storage, pharmacy, carte storage room, mortuary, operation room, ICU (20 beds), surgery ward (100 beds), etc.

Hoodless house

Physiology and anatomy education facility.



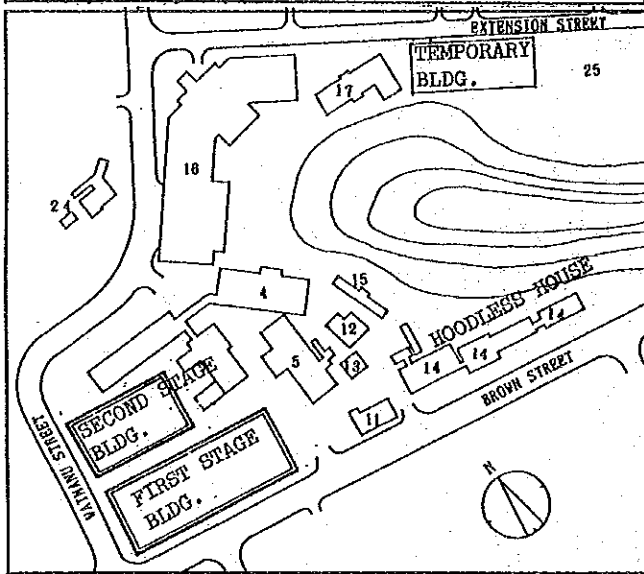
Phase 2 Plan

Buildings to be demolished in Phase 2

- (3) Internal medicine ward, gynecology ward
- (23) X ray department

New buildings

Internal medicine ward (200 beds), medical laboratory, otorhinolaryngology room, lodging facilities, large lecture room, catering facilities, etc.



Phase 3 Plan

The departments moved to the new buildings are remodelled to build ward (100 beds) and administration office.

Fig. 2-8 Redevelopment Plan of Facilities

2.5 Present Condition of CWM Hospital and FSM

2.5.1 Present Condition of CWM Hospital

(1) Position and role

The CWM Hospital provided medical care to the people of Fiji as the largest general hospital in Fiji ever since its establishment in 1923. It also provided clinical training for the FSM, the only medical education facility in Fiji, and trained many doctors and paramedics.

The CWM Hospital provides medical services to about 400,000 people of the central and eastern division covering Suva city and the eastern side of Viti Levu island. It also provides medical services to special patients from all over the country and is the only medical facilities in Fiji providing high level medical service.

However, the facilities, equipment and material are worn and old, also demand of patients is now exceeding the existing number of beds. Therefore, it is now in a condition where it cannot function as a training hospital nor as the leading hospital in Fiji.

As a result of the coup d'etat in 1987, the budget of Ministry of Health was reduced and the drain of doctors have decreased hospital function, but recently with the increase of budget and introduction of new doctors, the hospital function (refer to transition of number of patients) are being restored.

(2) The relation between CWM Hospital and FSM

Both the CWM Hospital and FSM are administered by the Ministry of Health and the CWM Hospital is supervised by the Director of Hospital Services while the FSM is supervised by the Director of Preventive and Primary Health Services. The organization of CWM and FSM are independent, but their relation on education and training is very close. The doctors of CWM Hospital teaches at FSM and also CWM

provides the clinical training. Doctors of CWM who teach at FSM now numbers 36 doctors. A breakdown of these doctors is shown in the following table.

Table 2-14 Number of Teachers (1990)

	Total number of teachers	Doctors of CWM teaching of FSM
Administrative	24	-
Council board	17	1
Faculty board	16	4
Paramedical board	20	3
Teaching staff	40	28
Others	25	-
Total	142	36

(3) Number of beds

The CWM Hospital was established in 1923 with 129 beds in memorial of soldiers who died in the first world war. The number of beds increased yearly and in 1981 was 376 beds, in 1982 with the opening of the maternity beds the total number of beds increased to 402 beds.

Table 2-15 Registered Number of Beds in CWM Hospital (1990)

	Medicine	Paediatrics	Surgery	Maternity	Gynaecology	Otorhino- laryngology	Recovery	Pay bed	Total
Number of beds	67	31	100	99	25	13	7	60	402

(4) Medical services

The medical services are composed of general medical treatment, internal medicine, surgery, paediatrics, gynaecology, otorhinolaryngology and dental services. The number of outpatients and inpatients are shown in the following tables.

Table 2-16 Yearly Number of Outpatients (1989)

	General medical treatment	Internal medicine	Surgery	Gynaecology	Paediatrics	Dermatology	Psychiatry
Number of outpatients	176,099	11,909	10,424	30,982	1,952	1,917	535

	Neo psychiatry	Physical therapy	Otorhino-laryngology	Total
Number of outpatients	144	6,856	22,164	262,982

Table 2-17 Yearly Number of Inpatients (1989)

	Internal medicine	Paediatrics	Surgery	Maternity	Gynaecology	Otorhino-laryngology	Recovery	Pay bed	Total
Number of inpatients	2,132	1,885	2,382	5,859	1,297	289	113	1,053	15,011

Table 2-18 Number of Operation and X Ray

	1987	1988	1989
Yearly number of operation	6,147	5,648	5,657
Yearly number of X ray	50,925	52,003	56,580

Table 2-19 Transition of Number of Outpatients

	1982	1983	1984	1985	1986	1987	1988	1989
Number of outpatients	345,725	312,394	331,122	324,090	318,669	319,020	298,325	262,982

Table 2-20 Transition of Number of Inpatients

	1982	1983	1984	1985	1986	1987	1988	1989
Number of inpatients	18,883	18,046	18,669	18,456	18,345	15,885	19,350	15,011
Number of beds	376	376	376	376	402	402	402	402
Average bed usage rate (%)	112	116	113	109	99	88	92	81
Average hospitalized days	8.8	8.9	8.3	8.1	7.9	8.1	8.8	8.8

(5) Medical staff

Number of medical staff at CWM Hospital is shown in the following table.

Table 2-21 Number of Doctors (1990)

Doctor	Consultant	Registered	Total
Anaesthetic doctor	2	5	7
Casualty doctor	-	12	12
Dentist	-	6	6
Diabetic doctor	1	1	2
Eye doctor	1	6	7
Inspection doctor	1	2	3
Internal medicine doctor	4	11	15
Internal medicine intern	-	10	10
Maternity and Gynaecology doctor	2	8	10
Family planning consultant doctor	-	2	2
Paediatric doctor	2	5	7
Surgery doctor	3	9	12
Organ imaging doctor	1	4	5
Total	17	81	98

After the coup d'etat, some doctors left, but the number of doctors is gradually increasing at the CWM Hospital, namely, 1988; 78 doctors 1989; 86 doctors and 1990; 98 doctors.

Table 2-22 Number of Paramedics (1990)

Department	Paramedics		Number
Organ imaging	Organ imaging technician		21
Dentist	Dental treating technician	10	
	Dental technician	3	24
	Dental assistant	11	
Inspection	Inspection technician	26	
	Inspection assistance	4	30
Physiotherapy	Physical therapy specialist		8
Nutrition	Nutritionist		5
Pharmacy	Pharmacist	6	
	Pharmacist assistant	4	10
			98

Table 2-23 Number of Nurses of CWM Hospital (1990)

Nurse	Number
Senior matron	1
Matron administration	1
Matron interschool training	1
Matron maternity	1
Senior sisters	9
Sisters	34
Staff nurses	276
Total	323

(6) Budget

The budget of CWM Hospital is shown in the following table.

Table 2-24 Budget of CWM Hospital (F\$)

Year	Ministry of Health	CWM Hospital Budget	CWM/MOF percentage	Personnel Expense	Maintenance & Administration Expense
1989	29,170,000	7,065,065	24.3%	5,606,237	1,459,728
1990	33,427,000	7,273,263	21.8%	6,263,981	1,009,282

(7) Organization chart

The organization chart of CWM Hospital is shown in the following chart.

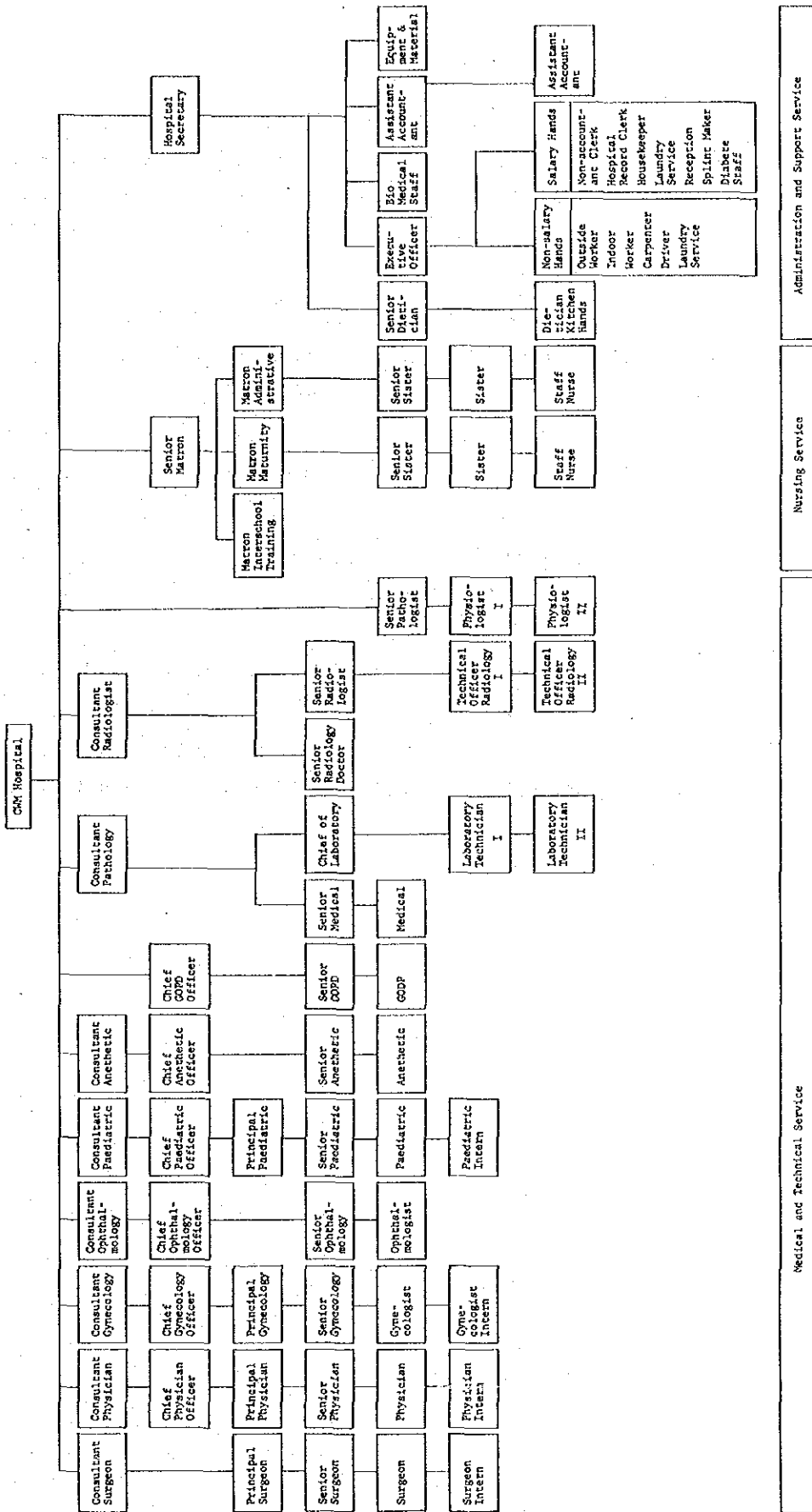


Fig. 2-9 Organization Chart of CWM Hospital

(8) Outline of the facility

The CWM Hospital, after being established in 1923, was enlarged from time to time. The total site area is about 88,200 m² with a reserve land of about 8 acre (about 32,400 m²) on the other side of the eastern side road.

There are now about 29 buildings within the site with clinics arranged throughout these buildings. The total floor area is CWM Hospital 18,772 m² and FSM 2,613 m².

The main buildings consist of 9 one story buildings 4 two story buildings and 4 three story buildings. The column, beam and slab of the buildings are reinforced concrete rigid structure with masonry walls and partitions and concrete floor.

The newest building is the maternity building completed in 1978. The oldest administration/ward/kitchen building was constructed in 1923. The building is quite old, but as it is well maintained, most of the buildings are still functioning as building (refer to layout plan of present CWM Hospital).

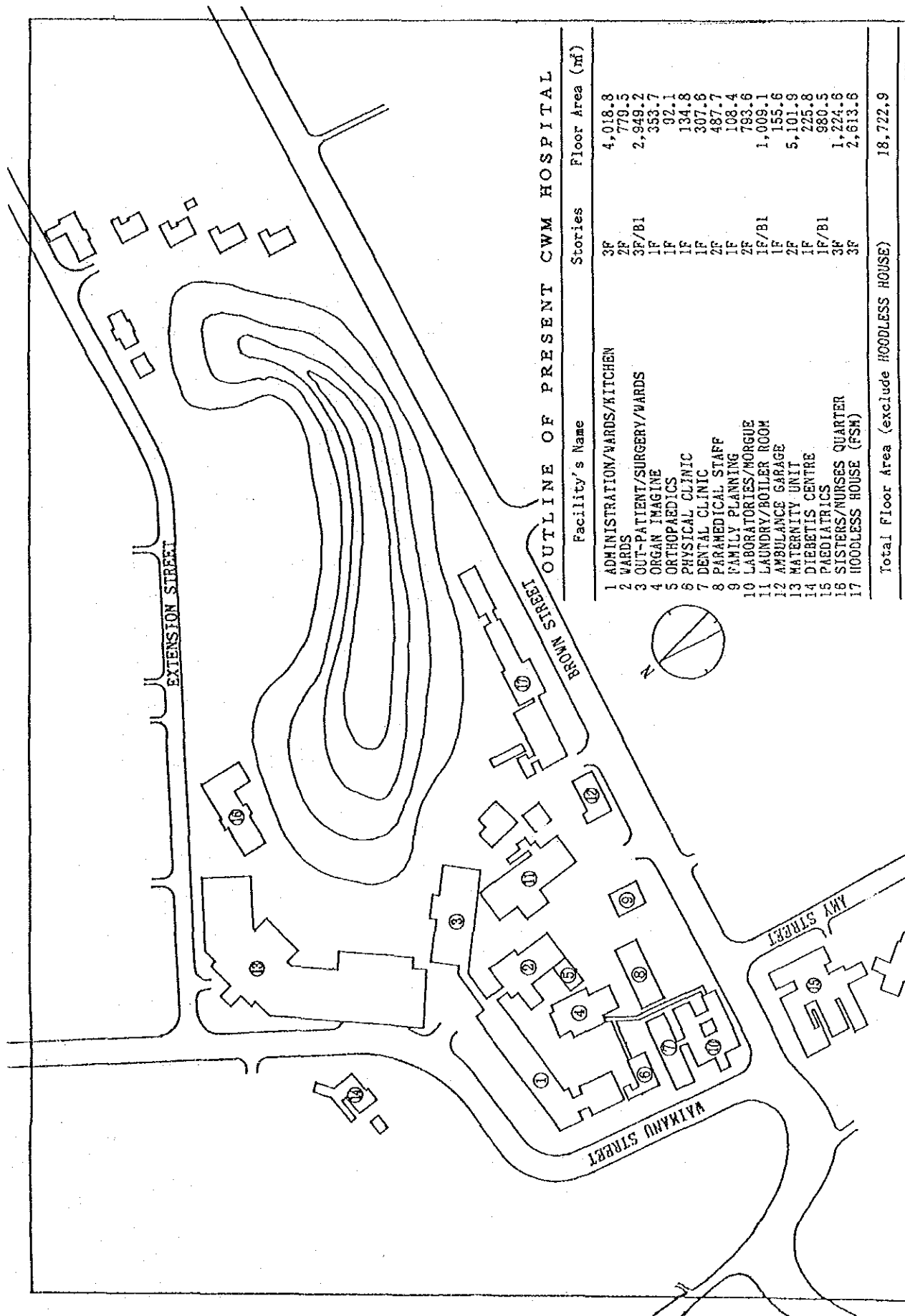


Fig. 2-10 Outline of CWM Hospital

2.5.2 Present Condition of FSM

(1) Facilities

The FSM consists of facilities located at 3 different locations, namely, Tamavua campus (5 km north of CWM Hospital), Hoodless House in CWM Hospital complex, and Univeristy of South Pacific (about 3 km southeast of CWM Hospital), therefore it is difficult to conduct a well coordinated education and training. The transportation of students is conducted by one micro-bus owned by the school.

The Tamavua campus was opened in 1953 at the Tamavua Hospital (tuberculosis and leper patients) with the intention of converting the Tamavua Hospital into an education and training hospital, however owing to its geographical condition, the Tamavua Hospital was not developed to a general hospital and the CWM Hospital became the central hospital. Today, the basic medical education facility, library and students' dormitory are located in this campus.

(2) Training course

The present training course consists of a 1-3 year paramedical course for X ray, clinical inspection, nutritionist, and dental technician, beside the 6 year doctor course (MBBS). Since doctor course for dentist is being conducted overseas, this training has been terminated. The following table shows the medical training courses and the 3 campuses where they are conducted.

Table 2-25 Medical Course

Year	Training	Campus	Test/Qualification
1	General culture course	University of South Pacific (USP)	
2	Basic science course	Tamavua	
3	Medical culture course	Hoodless House	
4	Basic medical course	Hoodless House/ CWM Hospital	
5	Basic medical course	Hoodless House/ CWM Hospital	(MBBS test after 5 years)
6	Medical clinic course	Hoodless House/ CWM Hospital	Trainee in Student Internship (Final MBBS test after 6 years)

The students are required to obtain actual training as a medical officer internship under supervision of specialists for 1 year at the CWM Hospital or the Lautoka Hospital (Divisional hospital of western division established in 1978 by grant aid from the Government of UK, 305 beds), and after completion they become fully registered doctors.

The government provides all expense including accommodation and food to students of the FSM, furthermore, they are provided allowances of F\$1,470 a year a person in case of 6 year grade. However, they must serve 6 years after graduation at a government medical facility.

(3) Curriculum

The curriculum for medical course are as shown in the following figure.

Year	General culture/ Basic science	Basic/medical/Clinical medical		Public health/ Preventive health
6		Intern at CWM Hospital & selective course		
5		Gynaecology, psychiatric disease		Public medicine
4		Internal medicine, surgery, paediatric		
3		Pathology, bacteria, pharmacy	Clinical medic, behavior science	Preventive public medicine
2		Human body system & function (anatomy, physiology biochemistry)		Infectious disease and preventive health
1		Chemistry, biology, physics	Development of man	
		Psychology	Statistics	

Fig. 2-11 Curriculum for Medical Course

(4) Number of students

Table 2-26-1 Number of Students at FSM (1990)

Department	Year	Fiji			Neighboring island countries			Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Medical course	I	10	8	18	6	-	6	16	8	24
	II	16	14	30	2	2	4	18	16	34
	III	10	1	11	2	4	6	12	5	17
	IV	10	5	15	4	1	5	14	6	20
	V	11	6	17	3	1	4	14	7	21
	VI	12	6	18	1	1	2	13	7	20
	Total		69	40	109 (80.1%)	18	9	27 (19.9%)	87	49
Dental treatment course	I	4	3	7	-	1	1	4	4	8
	II	-	3	3	1	2	3	1	5	6
	III	1	-	1	1	2	3	2	2	4
	Total	5	6	11 (61.1%)	2	5	7 (38.9%)	7	11	8 (100%)
Dental technician course	I	1	2	3	-	-	-	1	2	3
	II	1	1	2	-	-	-	1	1	2
	Total	2	3	5 (100%)	-	-	-	2	3	5 (100%)
Physical therapy course	I	1	5	6	-	-	-	1	5	6
	II	1	-	1	1	1	2	2	1	3
	Total	2	5	7 (77.8%)	1	1	2 (22.2%)	3	6	9 (100%)
X ray technician course	I	4	2	6	1	1	2	5	3	8
	II	3	2	5	1	2	3	4	4	8
	Total	7	4	11 (68.8%)	2	3	5 (31.2%)	9	7	16 (100%)
Pharmacist course	I	2	3	5	1	-	1	3	3	6
	II	1	4	5	2	-	2	3	4	7
	III	2	2	4	-	-	-	2	2	4
	Total	5	9	14 (82.4%)	3	-	3 (17.6%)	8	9	17 (100%)
Inspection technician course	I	11	9	20	4	1	5	15	10	25
	II	7	6	13	1	1	2	8	7	15
	III	4	1	5	-	-	-	4	1	5
	Total	22	16	38 (84.4%)	5	2	7 (15.6%)	27	18	45 (100%)

Table 2-26-2 Number of Students at FSM (1990)

Department	Year	Fiji			Neighboring island countries			Total		
		Male	Female	Total	Male	Female	Total	Male	Female	Total
Environment health course (degree)	I	11	2	13	3	2	5	14	4	18
	II	10	3	13	3	-	3	13	3	16
	III	5	-	5	2	1	3	7	1	8
	Total	26	5	31 (73.8%)	8	3	11 (26.2%)	34	8	42 (100%)
Environment health course (bridge)	I	2	-	2	-	-	-	2	-	2
	Total	2	-	2 (100%)	-	-	- (0%)	2	-	2 (100%)
Health inspection course	I	1	-	1	-	-	-	1	-	1
	Total	1	-	1 (100%)	-	-	- (0%)	1	-	1 (100%)
Nutritionist course	I	-	4	4	-	-	-	-	4	4
	II	-	4	4	-	1	1	-	5	5
	III	-	2	2	-	-	-	-	2	2
	Total	-	10	10 (99.9%)	-	1	1 (9.1%)	-	11	11 (100%)
Inspection/X ray assistant course	I	3	9	12	-	-	-	3	9	12
	II	2	4	6	-	1	1	2	5	7
	Total	5	13	18 (94.7%)	-	1	1 (5.3%)	5	14	19 (100%)
Paramedical course total			148 (79.6%)			38 (20.4%)			186 (100%)	
FSM total			257 (79.8%)			65 (20.2%)			322 (100%)	

(5) Teaching staff

The transition of teaching staff is shown in the following table.

Table 2-27 Teaching Staff

	1986	1987	1988	1989	1990
Administrative staff	22	22	23	23	24
Councillor staff	16	16	17	17	17
Faculty staff	16	16	16	16	16
Paramedical staff	20	20	20	20	20
Teaching staff	27	27	27	40	40
Others	24	24	24	25	25
Total	125	125	127	141	142

(6) Budget

The budget of the school is shown in the following table.

Table 2-28 Budget of FSM (F\$)

Year	Ministry of Health budget	FSM budget	FSM/MOH (percentage)	Personnel expense	Operation and administration expense
1989	29,170,000	794,086	2.7%	607,440	186,646
1990	33,427,000	937,711	2.8%	748,207	189,504

(7) Organization

The organization of the FSM is shown in the following figure.

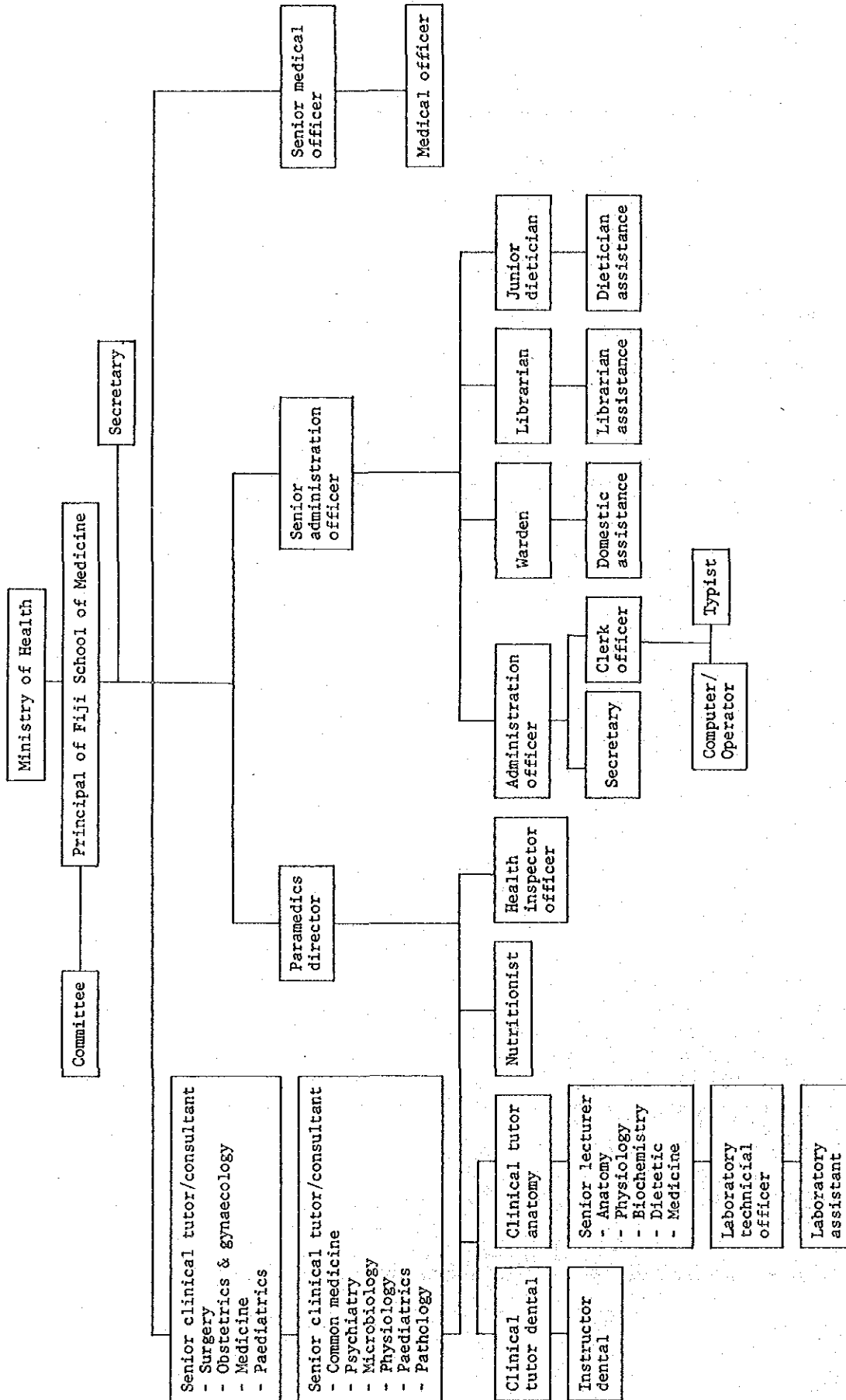


Fig. 2-12 Organization Chart of FSM

2.5.3 Condition of Equipment and Material

When considering that CWM Hospital is a central hospital providing secondary and thirdly medical care service and also serving as a training hospital for medical personnels, the present equipment and material condition is clearly unsatisfactory. This is especially observed in outpatient clinic as well as wards, and the chronic shortage and old, worn equipment and material are one main cause for the deterioration of medical service. Equipment and material must be regularly maintained and replaced, and the main reason for their present condition is because this maintenance is not carried out smoothly.

Only the dental unit in outpatient department, physical therapy, operation theater and clinical inspection in central treatment department and maternity wards are now greatly improved with assistance from Australia, United States and Europe, but it is not sufficient to solve the problem of the entire hospital. Aside from the maternity department, improvement by introduction of new equipment is restricted owing to limitation of building and facility.

Generally, shortage or poorly maintained equipment and material places a heavy burden on doctors, nurses and medical personnels, also it often leads to decrease of working and researching volition.

Therefore, upgrading the medical environment surrounding equipment and material will raise medical service as well as the quality of medical personnels. This condition is the same for FSM, a good basic education is absolutely necessary for clinical technology and an early action on this matter is desired.

The condition of equipment and material for each department and their problem is described in the following table, and the letters A, B, C show the condition of respective equipment and material.

- A: Shows that equipment and material are effectively utilized also maintenance and supervision are well performed.
- B: Shows that equipment and material are insufficiently maintained, but is still usable for daily purposes.
- C: Shows that equipment and material are worn and old, furthermore shortage is quite excessive and must be improved.

Table 2-29-1 Condition and Problem of Equipment and Material

CWM Hospital

	Clinic	Condition	Problem/main existing equipment
Outpatient Department	General clinic	C	Basic examination equipment is lacking, furthermore the rooms are small and poorly maintained. Therefore, together with other outpatient clinic, equipment and facility must be extended and enlarged.
			Examination desk, examination table, film illuminator
	Special clinic	B/C	Aside from dental and ophtalmology clinic, there are no equipment for special examination or treatment, so examination is mainly performed by consultation and treatment.
			Examination desk, examination table, film illuminator
Casualty	C	There is no operation equipment, and there is only equipment for simple treatment and recovery only.	
		ECG (2), venticular defilibration, aspirator, boiling sterilizer, stretcher, ambulance (3)	
Pharmacy	B	There are 3 window dispensing outlets; general outpatient, special outpatient and inpatient, but since drug storage facility is insufficient, an efficient work is impossible. There is no consideration to maintain a clean pharmacy and drug preparation room.	
		Drug cabinet, refrigerator, distiller, mixer, hot plate, balance	

Table 2-29-2 Condition and Problem of Equipment and Material

CWM Hospital (continued)

	Clinic	Condition	Problem/main existing equipment
Central Examination Department	Organ imaging	B/C	Aside from most frequently used general imaging equipment (2), all equipment are excessively worn and old. Also since the 2 general imaging equipment use only 1 generator, it can only function as 1 equipment and processing function is insufficient. Furthermore, since X ray insulation is insufficient, the health of technician is of grave concern.
			General imaging (1985), X ray TV (1979), fluoroscopy (1959), angyography (1963), ultrasonic diagnosis equipment (1982)
	Endoscope examination	C	Fiberoptic bronchoscope and panendoscope are provided, but since there is no special room, examination is performed in the operation theatre.
	Clinical laboratories	B	Cardiograph and electroencephalogiam are the main examination but now since the electroencephalograph is broken down, the examination is temporary stopped.
			1-ch cardiograph, examination table
	Clinical examination	A/C	For blood, immunity, biochemical, bacteria and pathology examination, old and new equipment exist together, but all necessary equipment is provided and over 13,000 examinations are carried out in 1 month. The present problem is to improve working environment by washing and sterilizing and by utilizing new equipment to raise working efficiency.
Automatic blood counter, urine analyzer, glucose analyzer, blood storage, automatic packing equipment			
Blood bank	B	Part of the examination is conducted at the clinical examination unit, and its own equipment for blood collection, examination and storage is provided.	
		Cooling type centrifuge, blood collection bed, blood storage	
Operation unit	B	Aside from the equipment in the attached small sterilizing room, there are only small problems and on the whole, equipment is well maintained. The future problem is to maintain and strengthen washing, sterilizing and operation and related equipment.	
		Operation table (3), anesthetic equipment (3), ventricular defibrillation (3), oxygen monitor, ECG monitor, electric cautery, ICU bed (6), artificial respirator (2), infant respirator (1), blood gas analyzer	
Physical therapy	B	Although space is not sufficient, new equipment is introduced recently for electrical therapy, and since the equipment is well maintained 6,856 people are treated yearly. This clinic belongs to the special outpatient clinic.	
		Ultra short wave treatment equipment, infra red lamp, low frequency treatment equipment, modulated frequency treatment equipment, hot pack	

Table 2-29-3 Condition and Problem of Equipment and Material

CWM Hospital (continued)

	Clinic	Condition	Problem/main existing equipment
Central Examination Department	Central supply sterilizing department	B/C	Capacity is insufficient to cover the entire hospital complex and its sub-organizations, furthermore owing to excessive usage, its processing function decreased quite a bit. Preparation of surgical equipment and storage facility are insufficient, also consideration for cleanness is lacking.
			Autoclave (3), glove dryer, glove duster, dry heat sterilizer
	Anatomy/mortuary	B	Since transportation of corpse to other islands is not always smooth, storage of corpse may become long, therefore the capacity of corpse storage is insufficient.
			Corpse storage (18), dissecting table scale
Ward	Pediatric Medicine (male) Medicine (female) Surgery (male) Surgery (female) New surgery Paying ward Maternity	C C C C B B A	Condition of all wards is similar, but wear and tear is most excessive for ward equipment. This can be seen through the difference between nominal number of beds and actually used number of beds. Working environment of nurse station and utility room improvement is also a problem.
Service	Kitchen	B	Located on the 2nd floor, so location, space and facility should be improved.
	Washing room	B	Renewing the 2 or 3 worn equipment is the present problem.

Table 2-29-4 Condition and Problem of Equipment and Material

FSM

	Clinic	Condition	Problem/main existing equipment
Hoodless House	Physiology laboratory Otorhinolaryngology room	B B	In this block, capacity, facility, and education equipment shortage is the main common problem in this block.
Tamavua campus	Biochemistry laboratory Physiology laboratory Anatomy laboratory Environmental health laboratory	C B C C	Owing to the shortage, breakdown, worn and obsolete equipment, an effective training cannot be expected even though such equipment is necessary for basic training of medical students.

Note: Figures in parentheses show the number of equipment.

2.6 Background and Content of the Request

2.6.1 Background of Request

Eversince its establishment, the FSM has contributed to the training of Fiji and south pacific countries. Here, there are three campuses, the Tamavua campus where basic medical knowledge and paramedical education are conducted, the Hoodless House campus where clinical education is conducted, and the University of South Pacific where cultural course is conducted. Clinical training is conducted at the CWM Hospital, neighboring the Hoodless House, and it is the largest general hospital in Fiji providing medical services to the people for many years as well as providing clinical training for medical personnels.

Under such condition, the Government of Fiji planned to redevelop the facilities of FSM and CWM Hospital and set up a master plan for redevelopment consisting of 3 phases under the assistance of WHO.

This project is phase 1 of this master plan and is the first priority project for upgrading the medical service in Fiji thus strengthening the central medical educational facility of the South Pacific Region. For this purpose, the Government of Fiji requested the grant aid of Japan.

In response to this request, the Government of Japan sent a preliminary survey team to confirm the requested contents, and the team confirmed that this project is suitable for positive consideration as a grant aid project. The Government of Japan decided to conduct a basic design study on the requested content, background, effect, suitability as a grant aid, content and size of cooperation, and a basic design study team was sent.

2.6.2 Study on the Content of the Request

This project aims to improve the medical education quality of FSM and upgrade and extend the medical service of CWM Hospital by redeveloping the old, worn and insufficient facilities of FSM and CWM Hospital. The contents of the Government of Fiji request verified in the preliminary study are as described in the following paragraphs.

[Facilities]

The building is a structure of 1 story underground and 4 stories above ground and the size of the basement and the ground floor are 90 m x 30 m, and from the first floor up the size is 90 m x 20 m with a total floor area of 10,800 m².

[Equipment and material]

Many types of equipment and material are requested for organ imaging clinic, operating theater, pharmacy, physical therapy clinic and dental clinic.

The contents of the request was discussed with the Fiji side during this survey and the Fiji side requested the following contents.

(1) Selection of construction site

The open space along Extension St. presently known as the heliport was selected for the construction site. This space is a flat wide area along Extension St., including the site, is owned by the Ministry of Health and it is possible to move the entire CWM Hospital in future.

The original proposed site, which required the demolition of existing facilities, was rejected owing to the following reasons.

- (a) The construction of temporary facilities during demolition work and construction work as well as the temporarily movement of functions to the temporary facility will place a very high

financial burden to the Fiji side, also when the adverse effect such as noise, vibration and dust on existing facilities during construction is considered, it was concluded that a construction of a new facility at a new site would be much more effective.

- (b) Although the existing structure may be old and worn, it is a very sturdy structure which can be converted for purposes that does not require installation of heavy equipment and material or precise, high quality environmental condition.

(2) Requested contents

Among the requested contents, function of FSM such as lectures of basic medical knowledge and clinical medical knowledge, together with training rooms are included. However, there is a difference between basic medical education and clinical training, since they are different disciplines of medical education, therefore basic medical knowledge should not be conducted in a hospital. In order to avoid clinical training and basic education functions from being mixed in one facility, the functions of the CWM Hospital were planned to be upgraded as a clinical training hospital in this project. Priority is given to provide actual clinical training to students, doctors and medical personnels who can immediately perform medical activities for the South Pacific Region where such personnels are lacking.

On the other hand, the FSM with a campus at the Hoodless House neighboring the CWM Hospital and at Tamavua is also much in need of redevelopment of its old and worn facilities. Based on the report of WHO, a new curriculum is to be implemented at FSM in 1992. This curriculum envisions FSM as becoming a medical education centre of the neighboring island countries with the new name of the South Pacific School of Medicine. For this purpose, classrooms, laboratories, libraries and student dormitories must be extended and strengthened. However, since the school itself is an independent institute and should not be confused with the function of CWM Hospital, the redevelopment of FSM should be organized as an independent project.

The Ministry of Health which administers the FSM has selected the following facilities shown in paragraph "2.6.3" to be constructed in this project. At this time, a temporary school building and dormitory will be constructed and the campus plan of FSM shall be planned as a separate facility under Phase 2 of the master plan.

2.6.3 Requested Contents

The functions of the facilities which are to be constructed are the main high priority functions which the CWM Hospital should have. These functions will complement the function of a clinical training hospital, but the ophthalmology, which was considered as a component of the Project in the basic design study, was excluded from the Project as it was agreed during the draft explanation meeting that ophthalmology could be treated independently. Furthermore, a separate room is provided for endoscope examination which is being conducted in the operation room, thus reducing the usage of the operation room as well as maintaining its cleanness.

The contents are as follows:

- ① General outpatient
- ② Special outpatient - internal medicine, surgery, orthopedic, paediatric, gynaecology, otorhinolaryngology, dermatology, urology
- ③ Emergency outpatient
- ④ Diagnosis clinic - X ray, examination, physiology examination
- ⑤ Operating theater
- ⑥ Pharmacy
- ⑦ Blood bank
- ⑧ ICU
- ⑨ Acute care ward
- ⑩ Central supply and sterilizing unit
- ⑪ Central library (existing organ imaging building will be remodeled)
- ⑫ Auditorium and seminar rooms attached to the above diagnosis clinics

CHAPTER 3 DESCRIPTION OF THE PLAN

CHAPTER 3 DESCRIPTION OF THE PLAN

3.1 Objective

The Government of Fiji with the assistance of WHO prepared a master plan for the redevelopment of the CWM Hospital and FSM which services have become greatly reduced owing to their old worn and insufficient facilities, medical equipment and educational equipment. This plan, which is phase 1 of the master plan, intends to redevelop the CWM Hospital as a clinical education hospital of FSM also to redevelop and complete its function to serve as the district hospital of the central district as well as a referral hospital for all hospitals in Fiji. For this purpose, facilities and medical equipment of departments for emergency, acute care patients and outpatients are provided.

3.2 Study of the Requested Content

3.2.1 Suitability and Necessity of the Project

Eversince its establishment in 1923, the CWM Hospital was the largest general hospital in Fiji and provided medical services to the people of Fiji, as well as serving as a clinical training hospital of FSM and contributed greatly toward training doctors and para-medics in Fiji as well as neighboring countries. However, even though it was extended and remodelled many times since its establishment, it has not kept up with the increasing outpatient and inpatient necessities. Today, it is not only crowded, but its facilities and equipment are old and worn and the function of CWM Hospital as a clinical training hospital has been reduced to such a condition that it cannot fulfill its responsibility as the leading hospital of medical service network of Fiji.

In order to improve such condition, it is essential that its original functions should be restored, operation efficiency improved, medical services upgraded and educational functions upraised. By the implementation of this project, the following direct and extended effects are expected.

- (1) By improving and extending clinical training, medical personnels of Fiji and South Pacific countries can be educated in Fiji instead of going abroad to countries such as Australia and New Zealand. This should contribute highly toward improving future medical condition in the South Pacific Region.
- (2) By upgrading the medical services, the medical health condition of the central district will be improved together with establishing its function as a referral hospital in Fiji. The neighboring south pacific countries which have been sending patients, who cannot be treated locally, to Australia and New Zealand may now be treated in Fiji.

Furthermore, together with the implementation of reorganization of curriculum, extension of teachers, improvement of operation and other changes, the effect of this project is expected to be much higher.

As described above, the implementation of this project will not only improve the medical condition of Fiji, but will serve the important role of providing medical personnels for south pacific countries. The provision of such necessary functions makes this project a significant and suitable grant aid project.

3.2.2 Operation and Administration Plan

The operation and administration of this project shall be carried out by the present CWM Hospital staff. The assignment of professional staff as of April 1990 was as shown in the following tables.

Table 3-1 Number of Doctors

Department	1984	1985	1986	1987	1988	1989	1990
	C R T	C R T	C R T	C R T	C R T	C R T	C R T
Anesthetic	1 6 7	1 6 7	2 5 7	1 6 7	1 4 5	2 4 6	2 5 7
Emergency	- 10 10	0 14 14	- 14 14	- 14 14	- 12 12	- 12 12	- 12 12
Dentist	- 5 5	- 5 5	- 6 6	- 6 6	- 6 6	- 6 6	- 6 6
Diabetes	1 1 2	1 1 2	1 1 2	1 1 2	1 1 2	1 1 2	1 1 2
Ophthalmology	1 4 5	1 6 7	1 6 7	1 5 6	1 5 6	1 5 6	1 6 7
Clinical examination	2 2 4	1 2 3	2 2 4	2 2 4	1 2 3	1 3 4	1 2 3
Internal medicine	3 8 11	3 10 13	2 14 16	2 14 16	3 13 16	3 10 13	4 11 15
Internal medicine intern	- 10 10	- 7 7	- 9 9	- 8 8	- 9 9	- 9 9	- 10 10
Gynaecology	2 8 10	2 8 10	2 8 10	2 7 9	2 7 9	3 8 11	2 8 10
Family planning consultation	- 2 2	- 2 2	- 2 2	- 2 2	- 2 2	- 2 2	- 2 2
Paediatrics	1 6 7	2 6 8	2 6 8	1 8 9	2 7 9	3 6 9	2 5 7
Surgery	3 6 9	3 6 9	3 8 11	3 9 12	3 8 11	2 8 10	3 9 12
Organ imaging	1 2 3	1 2 3	1 2 3	1 2 3	1 2 3	1 4 5	1 4 5
Total	15 70 85	15 75 90	16 83 99	14 84 98	15 78 93	17 78 95	17 81 98

Note: C: Consultant, R: Registered, T: Total

Table 3-2 Number of Para-medics

Department	Qualification	1984	1985	1986	1987	1988	1989	1990
Organ imaging	Organ imaging technicians	30	31	25	25	24	18	21
Dentist	Dental treatment technicians	11	9	15	13	11	9	10
	Dental technician	3	3	6	8	8	3	3
	Dental assistance	10	11	6	8	5	9	11
Clinical examination	Examination technician	40	37	39	39	27	28	26
	Examination assistance	-	-	-	-	-	-	4
Physical therapy	Physical therapy technician	8	10	10	10	11	10	8
Food preparation	Nutritionists	4	5	7	7	7	5	5
Pharmacy	Pharmacists	6	6	5	5	7	5	6
	Assistant pharmacists	4	4	5	5	5	4	4
Total		116	116	118	120	105	91	98

Table 3-3 Number of Nurses

Qualification	1984	1985	1986	1987	1988	1989	1990
Senior matron			1	1	1	1	1
Matron administration			1	1	-	1	1
Matron interschool training			1	1	1	-	1
Matron maternity			-	-	1	1	1
Senior sisters			13	14	9	13	12
Sisters			33	35	33	33	29
Staff nurses			274	287	276	274	289
Total			323	339	321	323	324

Personnels which must be increased owing to the implementation of this project are nurses in accordance with the increase of beds and several administration clerks, also personnels must be increased to cover departments with vacancies such as orthopaedics. Since nurses are constantly graduating from the Fiji School of Nursing, it is not difficult to fill vacancies. A large increase in labor expense is not desirable in view of budgetary limitation since administration expense is expected to increase. The facilities should be planned to be managed mainly with the present number of staff employees.

3.2.3 Assistance of WHO and Other Countries

The South Pacific Regional Office of WHO is located in Fiji, and a structure to provide assistance under cooperation of main assisting countries under the long range planning of WHO for Fiji and the neighboring countries is now being established. At the "39th West Pacific Regional Committee", the training of medical personnels was recognized to be most important as a first step of this plan. It is most important for Japan as a main assisting country, which successfully completed the Project of the Fiji School of Nursing under grant aid, to provide grant aid for facility construction together with medical and educational equipment supply.

3.2.4 Study of the Requisites for This Project

The main objective of the first phase of this project is to construct facilities and to provide medical equipment for redeveloping and extending the functions of the CWM Hospital, especially to improve departments as a clinical training hospital of FSM, which will contribute toward the training of medical personnels.

As a result of the discussions and studies conducted during the site survey study, it was decided to give priority to the highly essential functions of CWM Hospital and consequently the following departments were included in the scope of this project.

Main Items of This Project

Removed facilities: General outpatients, special outpatients, emergency outpatients, diagnosis (organ imaging, examination, physiological examination, etc.), operation, pharmacy, blood bank, ICU, central supply and sterilizing unit, acute care ward, and related facilities.

New facilities: Central library (remodelled facilities)

These removed facilities are closely related with each other and it is practically impossible from a medical viewpoint to separate them and leave a part of the facilities at the present location. However, since many existing facilities will remain, the removal of central supply and sterilizing unit will only be for the proportion to cover the needs of the removed facilities. Also the forensic inspection and AIDs inspection of the inspection departments which are not directly related shall be left at the present location, and although it is desirable to leave a part of the pharmacy for the ordinary wards, the entire pharmacy will be removed owing to the shortage of personnels. Since the type and amount of medicines required at the ordinary wards can be foreseen, it was considered that they could be transported although the distance will be longer.

Since a central library is not provided at the present CWM Hospital although it is necessary for a clinical training hospital and a referral hospital in Fiji. This library is necessary for all medical personnels at the CWM Hospital. Although the Fiji side requested a new facility for the library, after discussion on the utilization of the site after main facilities are moved, it was decided to use a part of the present organ imaging department which is located in approximately the centre of the hospital complex and is an independent building.

3.2.5 Study of Requested Facilities, Equipment and Material

(1) Facilities

This project is based in principle to operate with the present number of doctors and to increase only hospital staff such as nurses. Therefore, the size of the facility is limited to a partial increase of functional capacity. Under such premises, the content of requested facilities was studied as described below.

① General Outpatient Clinic

The changes in number of outpatients are shown in Table 3-4. The decrease of patients from 1987 is due to the temporary reduction of the number of medical personnels, but the reason that the number of patients are not increasing even though the number of medical personnels have been recovering is obviously due to the decrease of facilities, equipment and material performance. Furthermore, among the total outpatients, the percentage of general outpatients is about 65 percent as seen in the case of 1989 (total outpatients 262,982, including general outpatients 170,142), which means that at least an average of 550 outpatients arrive daily ($170,142 \div 310$ days = 548.8 patients daily, outpatients during Sundays and holidays are treated at emergency clinic).

At present, the clinic is very crowded, since there is only 6 booths (including special booths for government officials) for simple diagnosis and consultation, also the waiting room is small with only about 50 seats including patients waiting for drug dispensary. Furthermore, the conflicting flow between patient and examination system is further aggravating this congestion.

It is quite obvious that the size of the present facility is insufficient when considering the present potential demand arising from increase of population. Since the consultation and examination of general outpatients is the first step in clinical training, this facility must be satisfied first.

② Special Outpatient Clinic

Special outpatient clinic is for general outpatients who were found to need special diagnosis as a result of consulting and for those coming again for special treatment. Since many patients will be coming and going, also since supervision is based on patient's medical records, it is desirable to have the special outpatient clinic located close to the general outpatient clinic. As the present special outpatient clinic is scattered throughout the hospital complex and each clinic, including waiting room, is small, also as equipment and material are old, worn or insufficient, the following clinics cannot completely fulfill their functions. Needless to say, they have no space for clinical training.

a. Orthopaedic clinic

- o It is even called the fracture clinic, owing to the increasing fracture cases caused by traffic accident and sports accident. Here, patients who were mainly emergency cases are coming for treatment. It is located in the far end of the hospital and is only accessible through the service entrance or through the internal medicine ward.

- o It should be planned to function as an independent diagnosis unit.
- b. Paediatrics clinic
- o It is presently separated from the CWM Hospital complex and is isolated on the other side of Brown Street. Therefore in order to reach related functions such as X ray, examination, and pharmacy, Brown Street, which is a main city street of Suva, must be crossed.
 - o At least, the outpatient clinic should be incorporated to function as an independent unit in this plan.
- c. Gynaecology clinic
- o Although it should be set up as an independent clinic, at present there is only a maternity clinic and no clinic for gynaecological outpatients. A gynaecological outpatient clinic should be incorporated as a special clinic in this plan.
- d. Dermatology, otorhinolaryngology, mental clinic
- o The 2 units are jointly using the same clinic on separate days.
 - o It is located within the administration block far from the pharmacy and other related clinics.
 - o Waiting room is small and patients are overflowing into the corridor obstructing other functions.
 - o Since examination time is limited, it should be incorporated as a common outpatient clinic in this plan.
- e. Internal medicine, surgery, urology clinic
- o The 3 clinical units share 4 diagnosis rooms, but urology diagnosis is conducted only on certain days.

- o Waiting room is small, furthermore since it is shared with the pharmacy, it is in a crowded, confused condition.
- o It would be most efficient to incorporate these units together with the aforementioned dermatology and urology units into a common outpatient clinic.

Table 3-4 Yearly Number of Outpatients

Clinical units	1987	1988	1989
General outpatients	219,290	202,858	170,142
Special outpatients			
Orthopaedics	3,651	3,007	4,220
Paediatrics	1,724	1,307	1,952
Gynaecology	2,758	2,167	2,491
Permatology	3,599	2,826	1,917
Urology	762	1,010	961
Internal medicine	18,069	13,842	12,351
Otorhinolaryngology	(incl. internal medicine)		
Surgery	5,608	6,472	6,204
EEG, ECG	2,738	2,421	3,018
Others	3,141	2,683	2,215
Ophthamology	21,986	23,807	22,164
(Olistitrics)	29,818	29,744	28,491
(Physical therapy)	5,876	6,181	6,856
Total	319,020	298,325	262,982

③ Casualty

Data for emergency outpatients are lacking, because for cases where treatment and examination are completed in a short time and hospitalization or repeated treatment are unnecessary, records are not kept. But during the basic design study, it was observed that space was small and facilities were insufficient which caused confusion and overlapping in all treatment.

There is a recovery and observation room after treatment, but owing to the open inlet/outlet it is very crowded.

Furthermore, there is no emergency operation room, so when operation is necessary, patient is transported past the veranda of outpatient ward, but in bad weather the patient must be transported through the general outpatient clinic.

This clinic should be extended as a part of the hospital function.

④ Organ Imaging

This clinic should be moved and newly constructed to the same size as the present clinic, because this clinic is closely related with general outpatient and casualty also the present equipment and material are old and radiation protection facility is insufficient.

⑤ Clinical Laboratories

Since this department is closely related to outpatient similar to organ imaging, it is necessary to move and newly construct it. However, functions which are not directly necessary for diagnosis such as forensic investigation and AIDS investigation shall be left at the existing location.

⑥ Operation Theatre, Central Supply and Sterilizing Unit

The present operation theatre is observed to be under overloaded condition, because operation of emergency outpatient is also performed here and only 3 operation rooms are clearly insufficient to perform 5,657 operations a year (1989). At least one operation room should be provided in the emergency outpatient clinic and operation room should be increased to limit the number of operation in one room to 3 operations to keep the operation rooms well maintained.

Central supply and sterilizing unit should be moved or newly constructed only as required. Since the central supply and sterilizing unit in the CWM Hospital supplies the health unit in the district as well as the main hospital wards, it is necessary to keep the present function.

⑦ Central Library

It is most important that medical personnels and students have access to medical literatures as well as all kinds of medical information. At present, there are 6,000 literatures at the Hoodless House and 6,000 literatures at the Tamavua campus of the FSM, but the contents are quite inadequate. A good collection of medical information and reference materials is a keypoint for the CWM Hospital to function as a clinical training hospital as well as a referral hospital in Fiji. A collection of at least 30,000 literatures should be considered for a medical library (source: *Book Collection and Seating Standard of 4 Year National and Public Universities, Natural Science Library, Japan*).

⑧ Acute Care Ward

At present, ICU and operation recovery room are in one room. Since the recovery room is located in the operation theatre which is cleaner than other units, ICU is located here. For the CWM Hospital to function as the leading medical organization in Fiji,

it must be the central medical examination organization as well as the medical information centre. It should have the function to treat patients requiring acute care who cannot be treated at the 2 divisional hospitals at Labasa and Lautoka. CWM Hospital should be able to provide better proper treatment for acute condition patients and not necessarily special or sophisticated treatment. For this purpose, a construction of an acute care ward would be especially ideal also since there are many tropical disease patients, it is necessary to include tropical disease patient in this ward.

(2) Equipment and material

It is necessary to study the requested content of equipment and material from various angles since it is for existing facilities with modification and extension while on the other hand it must fulfill requirement for utilizing existing equipment, while retaining and strengthening the existing functions.

In this project, equipment and material are mainly provided for new facilities and remodelled facilities and those for existing facilities were excluded, since it was considered that owing to the worn and under-maintained facilities, improvement by equipment only would be quite limited. However, when consolidation of present facilities or related facilities according to this project plan, are expected to create problems consideration on equipment and material will be made from an overall standpoint.

Special vehicles are necessary for the following purposes.

1) Vehicle for inpatient transportation (1 vehicle)

New building	Organ imaging department	↔	Existing ward
New building	Acute care ward	↔	Existing ward
New building	Morgue	↔	Dissecting room

2) Vehicle for linen transportation (1 vehicle)

New building	Operation unit	↔	Existing laundry
New building	Central supply and sterilizing unit	↔	Existing ward

The utilization of existing equipment should be well studied, but when considering that the building will be completed several years later, it is difficult to provide a single solution, and the respective equipment shall be studied on its own merit. However, equipment recently provided from Australia shall be fully incorporated in this plan.

The equipment classified according to its maintenance condition in 2.5.3, "Present Condition of Equipment and Material" is grouped into the following 3 groups and described.

Excluded items: Items excluded from this plan (exclude)

New items: Department of newly constructed equipment (newly installed)

Parallel items: Department of existing equipment and newly constructed equipment (parallelly installed)

(Refer to 2.5.3.)

Table 3-5-1 Content of Equipment and Material Plan

CWM Hospital

	Department	Main-tenance	Ex-cluded	Newly installed	Parallelly installed	Plan
Outpatient clinic	General outpatient	C		*		Emphasize examination environment
	Special outpatient	B/C		*		Physical therapy, dental equipment and ophthalmology are excluded.
	Casualty	C		*		Minor operation equipment is installed.
	Pharmacy	B		*		Emphasize environment of pharmacy and medicine production.
General clinic	Organ imaging	B/C		*		Request for remodelling 4 old equipment, 2 new equipment and a CT scanner shall be mainly studied.
	Physiological inspection	B/C		*		Renew old equipment only
	Endoscope examination				*	The present endoscope will be used and only related equipment will be added.
	Clinical laboratories	A/C			*	Mainly improve present equipment for examination being conducted now. Equipment for forensic science and public health is performed by existing equipment therefore it is excluded. All equipment for biochemistry shall be transferred here.
	Blood bank	B		*		Renew old equipment only
	Operation theatre	B			*	4 new operation rooms and recovery rooms similar to existing ones shall be provided. Transfer of some usable equipment and material shall be considered. Storage for surgical equipment shall be extended.
	Central supply and sterilizing unit	B/C		*		Size shall be similar to present facility and working and storage environment shall be improved.
Pathological laboratory and morgue	B				Dissection for forensic science and pathology shall be performed at existing facility and only morgue will be studied.	