

No. 01

JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)

MINISTRY OF HEALTH,

WESTERN SAMOA

**BASIC DESIGN STUDY REPORT**  
**ON**  
**THE PROJECT FOR REBUILDING OF TUASIVI HOSPITAL**  
**IN**  
**WESTERN SAMOA**

**MARCH 1993**

**K. ITO ARCHITECTS & ENGINEERS**

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## PREFACE

In response to a request from the Government of Western Samoa, the Government of Japan decided to conduct a basic design study on the Project for Rebuilding of Tuasivi Hospital and entrusted the study to Japan International Cooperation Agency (JICA).

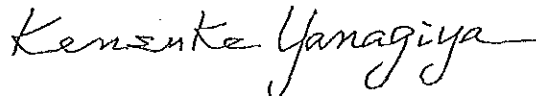
JICA sent to Western Samoa a study team headed by Dr. Ryosuke Shoda, Department of International Cooperation, National Medical Center, Ministry of Health and Welfare and constituted by members of K. Ito Architects & Engineers from 7 October to 4 November, 1992.

The team held discussions with the officials concerned of the Government of Western Samoa and conducted a field survey at the study area. After the team returned to Japan, further studies were made. Then, a mission was sent to Western Samoa, headed by Dr. Atsuko Aoyama in order to explain and discuss a draft report and the present report was prepared.

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

I wish to express my sincere appreciation to the officials concerned of the Government of the Independent State of Western Samoa for their close cooperation extended to the team.

March, 1993



Kensuke Yanagiya  
President

Japan International Cooperation Agency





March, 1993

Mr. Kensuke Yanagiya  
President  
Japan International Cooperation Agency  
Tokyo, Japan

Letter of Transmittal

We are pleased to submit to you the basic design study report on the Project for Rebuilding of Tuasivi Hospital in Western Samoa.

This study was made by K. Ito Architects & Engineers, under contract from JICA, during the period 28 September 1992 to 31 March 1993. In conducting the study, it was necessary to consider the present situation in Western Samoa, thoroughly in order to design the most appropriate project for Japan's grant aid scheme.

We wish to take this opportunity to express our sincere gratitude to the officials concerned of JICA, the Ministry of Foreign Affairs, and the Ministry of Health and Welfare. We would also like to express our gratitude to the officials concerned of the Department of Health, the JICA Western Samoa Office, and the Embassy of Japan in New Zealand for their cooperation and assistance throughout our study.

Finally, we hope that this report will contribute to the better implementation of the project.

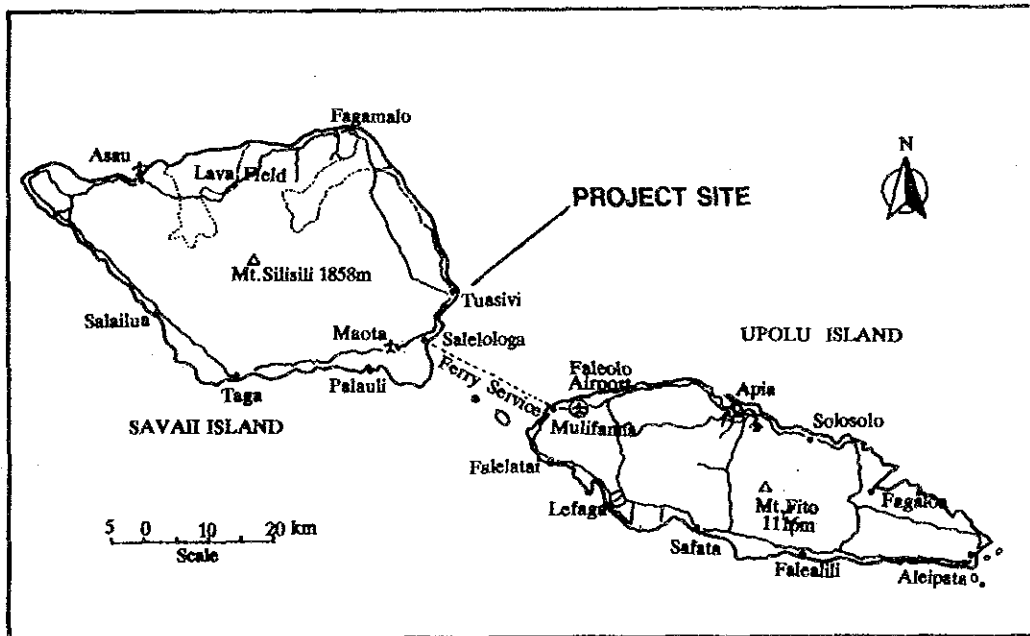
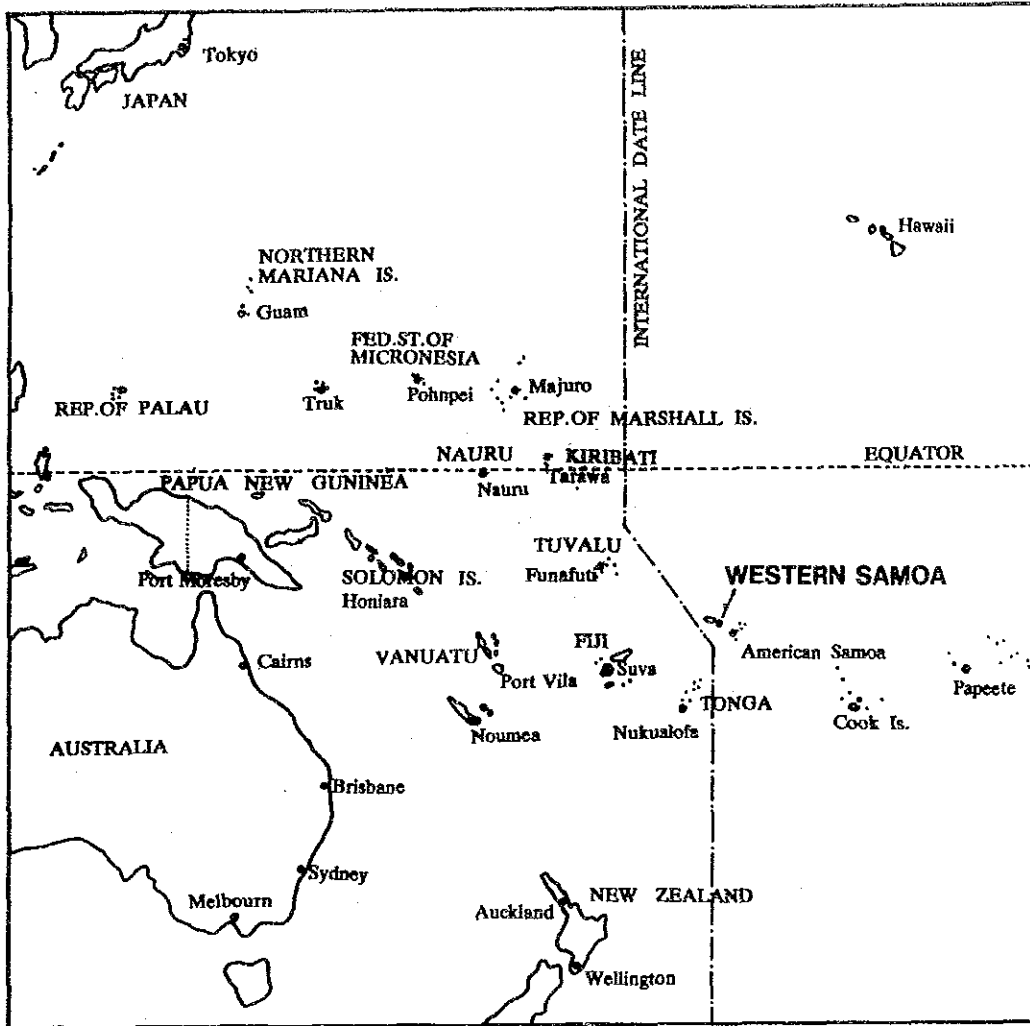
Very truly yours,



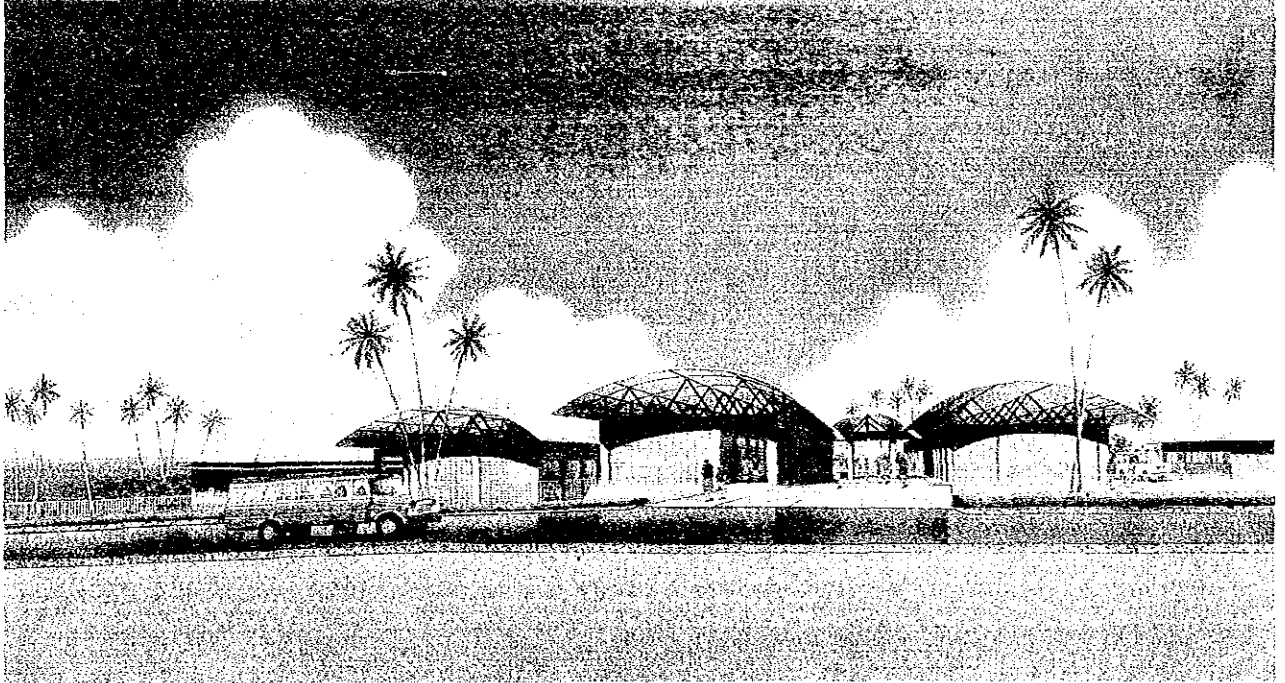
Masao Okui, Project Manager  
Basic design study team on  
the Project for Rebuilding of  
Tuasivi Hospital in Western Samoa  
K. Ito Architects & Engineers



LOCATION MAP OF PROJECT SITE







**PERSPECTIVE**



## SUMMARY

Western Samoa is a country of islands on the western edge of Polynesia between 171-173 degrees west longitude and 13-14 degrees south latitude. The country is comprised of two main islands, Upolu Island where the capital city Apia is located and Savaii Island where Tuasivi Hospital is located as well as some smaller islands. All the islands are volcanic and their total land area is approximately 2,920 km<sup>2</sup>. The population is about 160,000. Western Samoa has a tropical marine climate. The rainy season is from November to March and the dry season is from April to October. The original official language of Western Samoa is Samoan, but English is now recognized as an official language. The country is overwhelmingly Christian.

The economy is based on primary industries, especially agriculture, and the major products are cocoa and taro. The gross national product per person in 1990 was US\$ 730 (World Bank). Japan, Australia, and New Zealand are the major donors to Western Samoa.

In February 1990 and December 1991, Western Samoa was struck by two very powerful cyclones. The cyclones caused extensive damage to the infrastructure and economy, and at this time, recovery from them is one of the principal issues in the country. With the assistance provided by various countries and international organizations, measures to rehabilitate the country are advancing.

Among developing countries, Western Samoa has a relatively low infant mortality rate of 25/1000 births and a high average life expectancy of 64 years. In the country, rates of infectious diseases and diseases caused by poor nutrition, which are usually high in developing countries, are also low: the health of Western Samoans is relatively good. On the contrary, due to obesity from excessive calorie intake, rates of hypertensive diseases and diabetes are high. Rates of mortality caused by heart disease, cerebrovascular disease, and malignant neoplasms are also high, so both morbidity and mortality patterns are similar to those of a developed countries.

Medical services in Western Samoa are provided through a hierarchical system. The National Hospital in Apia is at the apex of this system. District hospitals, health centres, and subcentres are at lower levels in the system and provide both medical and health services. Tuasivi Hospital is a district hospital positioned as the referral hospital for other district hospitals and health centres on Savaii Island. The role of Tuasivi hospital is to provide secondary medical care for all people on Savaii Island and primary medical care for people in the vicinity. But its facilities are run-down and medical equipment is insufficient.

There are large disparities in medical services, both in terms of personnel and facilities, between Savaii Island and Upolu Island where the National Hospital is located. As a result, Tuasivi Hospital cannot adequately provide the medical services that should be provided on Savaii Island and it relies on the National Hospital to provide some of these services. Further, people on Savaii Island often voluntarily by-pass Tuasivi Hospital to receive medical care at the National Hospital. The concentration of patients at the National Hospital lowers the rate of use of district medical facilities and the efficiency of the entire medical system. The Department of Health is required to spend additional money for the transport of transfer patients to the National Hospital, and by-pass patients must pay their own transport expenses and spend a lot of time to receive medical care. This had been the situation for quite a long time and was the reason the Government of Western Samoa had prepared a plan to rebuild Tuasivi Hospital as the country's second national hospital and incorporated it in the Sixth Development Plan (1988-1990) as a project with high priority.

Before the plan could be implemented, however, the two cyclones mentioned above seriously damaged the hospital. Repair teams were dispatched from Britain, Australia, and New Zealand, and most facilities were temporarily repaired each time. But damaged items of equipment were left unrepaired and some of the main hospital buildings were not repaired. At present, Tuasivi Hospital is far from fully operational as a referral hospital and cannot adequately provide even basic medical services for residents of the area.



To rectify this situation, the Government of Western Samoa decided to urgently implement a project which incorporates the plan to rebuild Tuasivi Hospital described above with a plan to reorganize the district medical service system which was not functioning as designed. The goal of this project is to concentrate medical services for Savaii Island at Tuasivi Hospital and to use human resources more effectively. In April 1992 it made a request to the Government of Japan for grant aid for the project.

In response to the request from the Government of Western Samoa, the Government of Japan decided to conduct a preliminary study for the project. In June 1991, the Japan International Cooperation Agency sent a preliminary study team to Western Samoa. The team conducted a field survey of the project area, held discussions with the Government of Western Samoa, and confirmed the contents of the project. As a result of the survey and discussions, the need to rebuild Tuasivi Hospital and the appropriateness of the project as a Japanese grant aid project were confirmed. The Japan International Cooperation Agency then decided to carry out a basic design study and sent a basic design study team in October 1992. Based on the preliminary study results, the basic design study team held discussions with officials of the Government of Western Samoa, conducted a detailed field survey of the project site and the present circumstances of Tuasivi Hospital, and collected supplementary data. When they returned to Japan, the basic design study team analyzed the data and information, examined the project plan, and prepared a draft final report. After explaining the draft final report to the Government of Western Samoa in February and March 1993, the study team compiled this final report.

Studies have shown that, prior to the cyclones, Tuasivi Hospital was functioning as the base hospital on Savaii Island. Given this, if the facilities and equipment of the hospital are upgraded to pre-cyclone levels, it should be able to fulfill its role as a base hospital. Therefore, the following conclusions are drawn: although the request asks for the hospital to be completely rebuilt as the second national hospital, given the present circumstances of health and medical services in Western Samoa, this is not necessary; if the hospital were rebuilt as the second national hospital, it would be impossible to properly operate. In addition, to meet the goal of operating the hospital as a base hospital,

the following is confirmed to be sufficient: to rebuild, incorporating cyclone protection measures, the main diagnosis and treatment facilities, excluding the wards; to renovate the wards and staff housing; to furnish facilities with basic diagnosis and treatment equipment appropriate for the functions required of the hospital.

The medical services provided by the hospital remain unchanged and are as follows: general outpatient care; antenatal care/family planning counseling; dental care; inpatient care; clinical laboratory testing; X-ray inspections; infant deliveries; emergency surgical operations such as suturing lacerations, appendectomies, and cesarean sections; external medical services by doctors to health and medical facilities without resident doctors. The hospital is also to function as a drug supply centre for other health and medical facilities on Savaii Island, and as a local agency of the Department of Health, to administer and manage health services on the whole island.

The facility and equipment plans which are proposed based on the activities of the hospital, are as follows:

1) Facility Plan

a) Buildings to be rebuilt

1/ Hospital buildings

Outpatient and Administration Building	870 m <sup>2</sup>
Central Diagnosis and Treatment Building	585 m <sup>2</sup>
Subtotal	1,455 m <sup>2</sup>

2/ Ancillary buildings

Garage and generator building	144 m <sup>2</sup>
Connecting corridor	60 m <sup>2</sup>
Total	1,659 m <sup>2</sup>

b) Buildings to be renovated

1/ Wards	640 m <sup>2</sup>
2/ Housing for staff (rebuild) two buildings	232 m <sup>2</sup>
(renovate) six buildings	819 m <sup>2</sup>
3/ Ancillary buildings two buildings	154 m <sup>2</sup>
Total	1,845 m <sup>2</sup>

c) On-site facilities to be renewed

1/ Power supply facilities:

A transformer with a capacity of over 77 KVA and power supply wiring to the receiving panel (to be renewed by Western Samoa), an emergency generator of 50 KVA (the existing one to be used), and on-site supply wiring

2/ Water supply facilities:

A water receiving tank with a capacity of 24 m<sup>3</sup>, an elevated water tank of 3 m<sup>3</sup> and 8 m high, and water supply pipe network

3/ Drainage facilities:

A soil water and wastewater combined type water treatment facility with a 350 capacity, and drainage pipe network

4/ Waste treatment facility:

An incinerator with a burning capacity of 10 kg/hr

5/ Safeguard facilities:

Gates and 370 m fencing (to be built by Western Samoa), and 340 m stone-paved road

2) Equipment

a) Outpatient Department

Basic equipment needed to provide primary medical care such as a consulting desk and chair, examining tables, a medical table, suction units, a 1-channel electrocardiograph, an ultrasound scanner, and a dental apparatus

b) Central Diagnosis and Treatment Department

1/ Equipment for clinical laboratory testing such as a binocular microscope, a centrifuge, and spectrophotometer

2/ Equipment for X-ray inspections such as a general X-ray unit, a manual development tank, and film keeping shelves

3/ Equipment for surgical operations and deliveries such as an operating table, an operating light, an anesthesia apparatus, and a delivery bed

4/ Equipment for the central sterilized supply system such as a small high-pressure steam sterilizer and an instrument boiling sterilizer

c) Administration Department

1/ Equipment for general administration activities such as a copy machine and a typewriter

- 2/ Equipment for education/training such as a slide projector and a video set
  - 3/ A car for doctors providing external services and a truck for the distribution of drugs
- d) Wards
- Equipment for the nurses' station such as a suction unit and a bedpan sterilizer, and mattresses for patients' beds

The estimated construction period is 12 months and the estimated equipment procurement period is 8 months, therefore, the project can be completed within one fiscal year. The amount to be borne by the Government of Western Samoa for its undertakings to implement the Project is approximately WS\$ 163,500.

The project implementing organization is the Department of Health, and the operations of Tuasivi Hospital are administered by the Regional Medical Officer on Savaii Island in the Public Health Division of the Department of Health. For hospital operations, 76 staff members are needed, including 3 doctors, 1 dentist, and 29 nurses, which is 18 more than the present staff. The additional staff includes 10 nurses and 8 support staff members such as drivers and CSSD staff members. The required number of nurses can be obtained by transferring nurses from other facilities; support staff can easily be obtained as the country has sufficiently human resources of this kind. The number of doctors and dentists in the country is limited so it is difficult to secure their services. But as funds for staff have already been allocated in the budget, the present insufficiency of key staff can be overcome by transferring staff from the National Hospital.

Operation and maintenance costs of the facilities and equipment provided by the project are estimated to be WS\$ 104,100 (about ¥ 5.2 million). The overall increase in hospital operation costs, including expenditures for staff and other expenses, is estimated to be WS\$ 162,000 (about ¥8.1 million). This increase amounts to 1.45% of the 1992/1993 budget of the Department of Health. Given that the national economy is presently experiencing negative growth as a result of the damage inflicted by the cyclones, it is difficult for the Government of Western Samoa to increase the budget of the Department of Health. However, it may be possible to

secure the funds needed for the following reasons: by 1994/1995, when the project is scheduled to be completed, it is expected that the country's economy will have recovered; the current national budget for 1992/1993 is in the black and has a surplus of WS\$ 3,258,000 (about ¥163 million); cost-cutting measures of the Department of Health may make some funds available.

When the project is implemented and needed staff and operating funds are secured, it can be expected that health and medical services on Savaii Island will improve as follows:

- 1) Capacity to provide care for outpatients will increase to 21,000 patients per year, an increase of 75%.
- 2) As the referral hospital on Savaii Island, capacity to admit inpatients will increase to 6,400 patient-days per year, an increase of 42%.
- 3) Capacity of doctors to provide care for patients at external facilities such as district hospitals, will increase to 13,000 patients.
- 4) X-ray inspections, which presently cannot be done, will be able to be done.
- 5) Emergency surgical operations, which at present are virtually not done, will be able to be done.
- 6) Given the above, it is expected that residents of Savaii Island will be provided with basic medical care on the island, thus the by-pass rate to the National Hospital will greatly decrease.

The project will benefit all of the approximately 42,700 residents of Savaii Island in terms of health and medical services. It should, therefore, be appropriate to implement the project under the Grant Aid Scheme of Japan. However, there are some unknown factors for the probabilities of securing needed staff and operating funds: if these problems are not resolved, it will be impossible to properly operate the Project facilities, thus the benefits outlined above cannot be expected. Therefore, the Government of Western Samoa should make further efforts to provide Tuasivi Hospital with 3 doctors and a dentist through transfers from the National Hospital and to provide necessary operating funds by allocating surplus funds in the budget and by implementing cost-cutting measures in the Department of Health.

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## **CHAPTER 1 INTRODUCTION**



## CHAPTER 1 INTRODUCTION

In Western Samoa, which has a population of approximately 160,000, health and medical services are provided by a hierarchical system. The National Referral Hospital in the capital city of Apia is at the apex of this system. Tuasivi Hospital is the base hospital for Savaii Island in the system. In recent years, it had become obvious that the facilities and equipment of Tuasivi Hospital were obsolete and worn-out. Given this, the Government of Western Samoa (hereinafter referred to as "the Government") had been planning to rebuild the hospital's facilities and furnish them with modern equipment using foreign aid funds.

In February 1990 and December 1991, large cyclones struck Western Samoa and many groups from foreign governments, international aid agencies, as well as NGOs rapidly reponded to emergency relief needs in various fields and sectors. Tuasivi Hospital also sustained serious damage but teams from Britain, Australia, and New Zealand temporarily repaired most facilities at Tuasivi Hospital. Some damaged items of equipment and parts of the main hospital buildings, however, were not repaired or replaced. At present, Tuasivi Hospital is far from fully operational as a referral hospital and cannot adequately provide even basic health and medical services for residents of the area. To rectify this situation, the Government decided to implement the plan described above to rebuild Tuasivi Hospital and upgrade its medical equipment. In April 1992 it made a request to the Government of Japan for grant aid.

In response to the request of the Government, the Government of Japan decided to conduct a preliminary study on the project for the rebuilding of Tuasivi Hospital (hereinafter referred to as the "Project"). In June 1991, the Japan International Cooperation Agency (hereinafter referred to as "JICA") sent to Western Samoa a preliminary study team headed by Mr. Shoji Shimbo, Manager of the Grant Aid Planning and Survey Department, JICA. The team conducted a field survey of the Project area and held discussions with representatives of the Government. As a result of the survey and discussions, the necessity of rebuilding Tuasivi Hospital and the appropriateness of the Project as a Japanese grant aid project were confirmed. JICA then decided to carry out a basic design study and sent

to Western Samoa a basic design study team (hereinafter referred to as the "Study Team") headed by Dr. Ryosuke Shoda, Department of International Cooperation, National Medical Centre, Ministry of Health and Welfare. From 7 to 30 October 1992, the Study Team conducted a field survey in the country with the following objectives:

- 1) To explain the results of the preliminary study
- 2) To understand the circumstances of health and medical services in Western Samoa and the background of the Project
- 3) To understand operations at Tuasivi Hospital
- 4) To understand the present circumstances of the Project site, including the infrastructure and the existing facilities and equipment of Tuasivi Hospital
- 5) To study the Project plan; the operation and maintenance plan, the facilities construction plan, and the equipment procurement plan, as well as to discuss these plans with the government
- 6) To explain the Japanese grant aid system
- 7) To discuss the scope of Western Samoa's undertakings
- 8) To collect information on construction conditions and medical equipment procurement

Matters discussed by the Study Team and the officials of the Government were summarized in the Minutes of the Discussions and signed by Dr. Ryosuke Shoda, head of the Study Team, and Hon. Vaimili II, Minister of Health of Western Samoa. A copy of the Minutes of the Discussions are contained in Appendix 4 of this Report.

After returning to Japan, the Study Team carefully analyzed the information and data collected during the field survey, determined the contents of the Project, and prepared the basic design of the facilities and the medical equipment needed. Then JICA sent a team headed by Dr. Atsuko Aoyama, Department of International Cooperation, National Medical Center, to Western Samoa with a draft report of the Project. The team stayed in Western Samoa from February to March 1993 to explain the contents of the Project and the basic design to officials of the Government, and to discuss the Project once again with them.

This report describes the results of the Basic Design Study.

## **CHAPTER 2 PROJECT BACKGROUND**



## CHAPTER 2 PROJECT BACKGROUND

### 2-1 GENERAL CIRCUMSTANCES OF WESTERN SAMOA

#### 2-1-1 GENERAL INFORMATION OF THE COUNTRY

##### (1) Geography

###### 1) Location and Land Area

As the opening map illustrates, Western Samoa is located on the western edge of Polynesia between 171-173 degrees west longitude and 13-14 degrees south latitude. The country consists of two major islands, Savaii and Upolu, and some smaller islands. The total land area is approximately 2,920 sq. km. Savaii, the largest island, is approximately 1,820 sq. km and Upolu, on which the capital city of Apia is situated, is approximately 1,100 sq. km. Tuasivi Hospital, the object of the Project, is on Savaii Island.

###### 2) Topography

All of the islands in Western Samoa are of volcanic origin. The highest mountains on Savaii and Upolu are approximately 2,000 m and 1,200 m respectively. Both Savaii and Upolu are part of a chain of volcanoes running west-north-west to east-north-east through the country. However, no volcanic eruptions have been recorded in Western Samoa since the beginning of the 20th century. All islands in the country are covered with forest, and except for along the south coast of Savaii Island, are surrounded by coral reefs.

###### 3) Climate

Western Samoa has a tropical marine climate. The rainy season is from November to March and the dry season, during which considerable rain does fall, is from April to October. Generally speaking, the country receives a great deal of rain, which is typical of islands in the South Pacific. The average annual rainfall in the capital city of Apia is approximately 2,500 mm annually. Temperature and humidity averages fluctuate very little throughout the year. The average monthly temperature is 26-27 degrees.

## (2) Race, Language, and Religion

### 1) Race

Of the country's 160,000 people, approximately 88% are Samoans of Polynesian ancestry. Others include a Samoan/Caucasian mixed race (approximately 10%), Caucasians, and Melanesians.

### 2) Language

The official languages are Samoan and English.

### 3) Religion

At the beginning of the 19th century, a British missionary arrived in the islands and Christianity established its foothold. Over the years, a wide variety of Christian sects flourished and today the country is overwhelmingly Christian.

## (3) History and Culture

### 1) Basic History

The Samoan Islands, which includes the American trust territory of American Samoa, are thought to be the first home of the Polynesian people. In time, however, the Samoans were conquered and ruled by the Tongans. The first contact with Westerners was in 1722 when Dutch sailors arrived in the islands. A British missionary established Christianity in the islands about 80 years later. As the hunting of whales and seals spread across the seas, European and American ships began anchoring in the islands' bays and the effects of western culture increased. Following this, the Samoan Islands became a prize for colonial powers seeking to expand their spheres of influence, and in 1899, the Samoan Islands were divided into eastern and western Samoa and made American and German colonies, respectively. After World War I, Western Samoa became a mandated territory of New Zealand, and after World War II a trust territory recognized by the United Nations. In 1962, Western Samoa became the first independent Polynesian state. Major events in Western Samoa since World War II are listed below:

1947 Establishment of parliamentary government

1959 Establishment of an independence committee, establishment of a cabinet for self-government

1960 Adoption of the constitution of Western Samoa

1962 Proclamation of independence



1976 Acceptance into the United Nations

1991 Enactment of new election law, implementation of universal suffrage, and election of the present government

2) Social Systems

The lifestyles and moral values of villagers are based on traditional practices and ideas, and much political and economic power in the villages is still vested in the chiefs (*matai*) of extended families (*aiga*). *Matai* make many important decisions and solve many problems at their meetings (*fono*).

3) Traditional Lifestyles

Most villagers wear shirts and traditional wrap-around skirts (*lava-lava*). The staple foods are taros and bananas, which are usually steamed on hot stones together with pork or fish. Village houses (*fale*) are distinctive: the structure consists only of wooden posts and a roof under which people store their belongings and hang mosquito nets for sleeping. As the concept of privacy is not important in the traditional Samoan life-style, walls or screens that divide space are not required.

4) Education

The literacy rate is a very high 97% and the education system is patterned after New Zealand's. Elementary school, which has eight grades and begins at age five, will soon be compulsory for all children. After elementary school children have the option of attending a three-year junior secondary school or a five-year senior secondary school. The three-year junior secondary schools are for children who plan to work or attend a technical training school after completing their studies. Ninety percent of public secondary schools are junior secondary schools. The five-year senior secondary schools are for children who plan to continue their studies at institutions of higher education after completing their school courses. Children can take university qualification examinations for the National University of Western Samoa in their third year of secondary school; children who pass these examinations take subjects for general education of the National University in their fifth year.

There is another institution for higher education in Apia, the Faculty of Agriculture of the South Pacific University established by 11 South Pacific countries. There are vocational training schools in Western

Samoa such as a polytechnic, a teacher training school, a tropical agriculture school, a nursing school, and a dental nurse school, etc.

(4) Political System

1) Head of State

The head of state is selected by members of the legislative assembly and is a lifelong appointment. His Highness Malietoa Tanumafili II is the Head of State.

2) Legislative Assembly

Western Samoa has a single chamber system comprised of 47 seats, 45 of which are designated for chiefs (*matai*). In April 1991, the legislative assembly enacted a new law granting voting rights to all adults over 21 for election of members of this chamber.

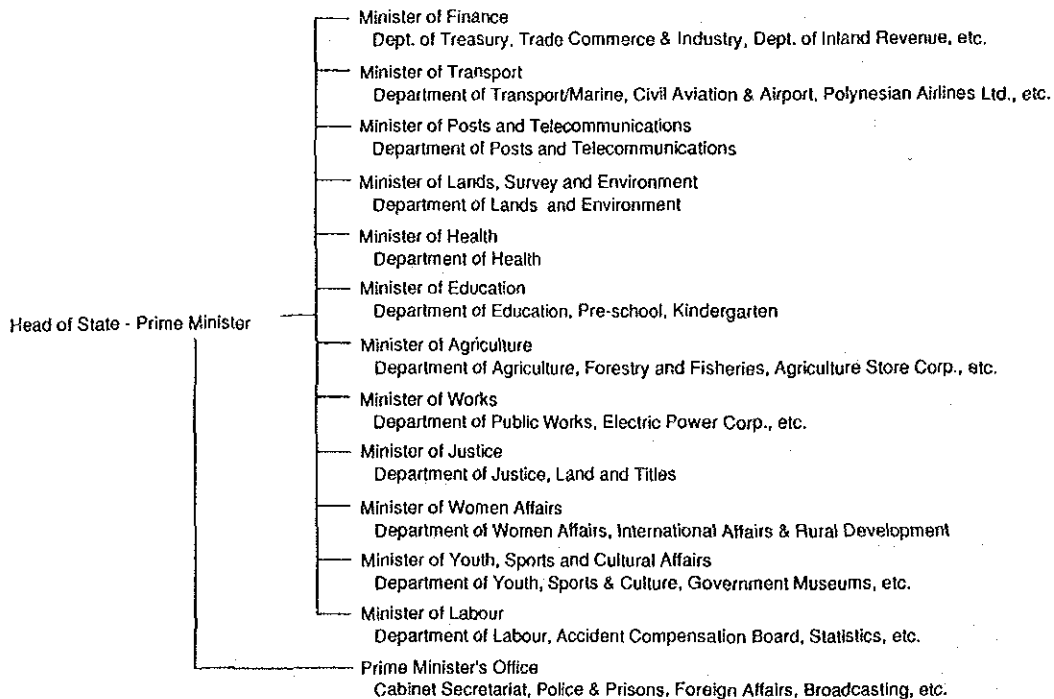
3) Responsible Cabinet System

The country has a responsible cabinet system. The present cabinet has 12 Ministers appointed by Prime Minister Tofilau Eti Alesana.

4) Administrative Bodies

The Government has the following 12 Ministers: Finance; Transport; Posts and Telecommunications; Lands and Environment; Health; Education; Agriculture; Works; Justice; Women Affairs; Youth, Sports and Cultural Affairs; Labour.

Figure 2-1 Organization of the Government of Western Samoa



Education; Agriculture; Public Works; Justice; Women's Affairs; Youth, Sport, and Cultural Affairs; Labour. The Department of Trade, Commerce, and Industry is within the jurisdiction of the Minister of Finance. The Department of Foreign Affairs is in the Prime Minister's Office, thus foreign affairs are the responsibility of the Prime Minister.

#### (5) Currency and Fiscal Year

##### 1) Currency and Foreign Exchange

The Western Samoan unit of currency is the tala, abbreviated to WS\$. It is comprised of 100 sene. Average exchange rates in the six months prior to October 1992 were as follows: US\$ 1 = WS\$ 2.48, US\$ 1 = ¥ 126, WS\$ 1 = ¥ 51.

##### 2) Fiscal year

Up to 1990, the fiscal year was from 1 January to 31 December. However, in 1991 the fiscal year was changed and it now runs from 1 July to 30 June.

### 2-1-2 POPULATION

#### (1) Static Population

##### 1) Total Population and its Distribution

Table 2-1 Estimated Population in 1990 and its Distribution

Area		Population	Percentage
Upolu Island	Urban areas in the vicinity of Apia	46,520	29.2%
	Rural Upolu	70,099	44.0%
	Subtotal	116,619	73.2%
Savaii Island		42,699	26.8%
Total		159,318	100.0%

(Source: Annual Report 1988-1990, Department of Health)

##### 2) Changes in the Population and Rates of Increase

The changes in the population and the rates of increase according to the previous censuses are listed below.

Table 2-2 Changes in the Population and Rates of Increase

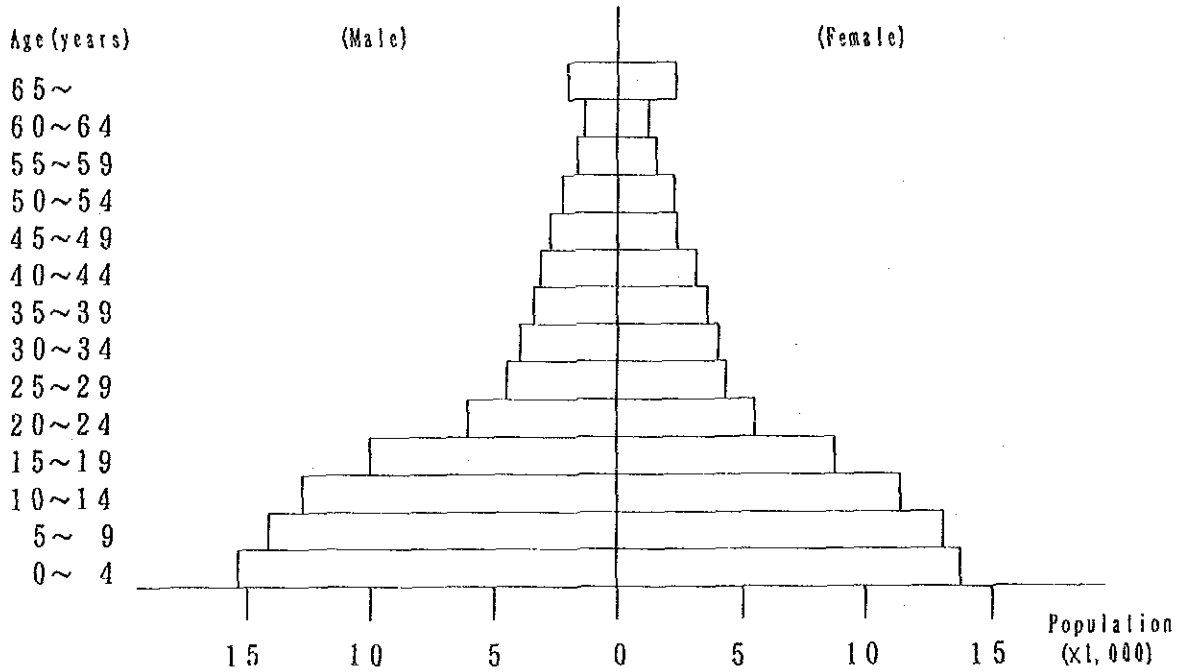
Year	Population	Rates of Increase	Year	Population	Rates of Increase
1961	114,427	—	1981	156,349	0.6%
1966	131,377	2.8%	1986	157,158	0.1%
1971	146,527	2.2%	1991	159,862	0.3%
1976	151,983	0.7%			

(Source: The Seventh Development Plan (The 1991 figure is tentative.))

3) Population Breakdown by Age and Sex

Figure 2-2 shows the population breakdown by age and sex in 1991. (Figures are tentative.)

Figure 2-2 Population Breakdown 1991



(2) Dynamic Population Movement

Dynamic population estimates, based on 1990 dynamic population indexes released by the Department of Statistics, are listed below:

Table 2-3 Dynamic Population Statistics 1990

Population movement	Factor	Ratio (per 1000)	Base population	Estimated number
Natural movement	Births	28.7		4,570
	Deaths	4.3	159,318	680
	Natural growth	24.4		3,890
Social movement	Immigration	18.6		2,960
	Emigration	41.2	159,318	6,560
	Population growth	-22.6		-3,600

## 2-1-3 NATIONAL ECONOMY

### (1) Primary Economic Indexes

Table 2-4 lists recent changes in the primary economic indexes which show the economic conditions of Western Samoa are listed below.

Table 2-4 Recent Changes in the Primary Economic Indexes

Index	1988	1989	1990	1991
Gross domestic product (GDP) (WS\$ 1 million) *1	204.3	248.4	266.0	286.9
Gross national product (GNP) (US\$) *2	640	700	730	—
Actual growth rate of GDP (%) *3	-1.9	1.0	—	—
Rate of increase in consumer prices (%) *3	8.5	6.4	15.3	—
Foreign debt (US\$ 1 million) *3	75.9	74.0	—	—
Foreign currency reserves (US\$ 1 million) *4	49.2	55.1	69.1	—
International balance of payments (WS\$ 1 million) *5	31.8	32.3	37.7	3.4

Source: \*1 Figures for 1988 and 1989 are from World Tables 1991, World Bank; figures for 1990 and 1991 are from The Seventh Development Plan (DP7), National Planning Office.

\*2 Figures are from the World Development Report 1990-1992, World Bank.

\*3 Figures are from Country Report—Pacific Islands: Western Samoa No. 4 1991, EIU.

\*4 Figures are from International Financial Statistics 1992, 2 IMF.

\*5 Figures are from DP7, National Planning Office.

### (2) Major Industries

#### 1) Agriculture and Forestry

The economy of Western Samoa is based on primary industries, especially agriculture, and 60% of the work force is employed in this sector. The major products are copra, cocoa, taro, and lumber. Copra and cocoa account for 80% of the country's exports.

#### 2) Fisheries

As Western Samoa is surrounded by the sea, it is considered rich in marine resources. However, fisheries technology in the country remains at a low level so the industry has yet to make a major contribution to the economy.

#### 3) Manufacturing

The manufacturing sector accounts for only 7% of Western Samoa's GDP and to date it has not played a major role in the country's economy.

The Government has made efforts to foster development of light industry such as food processing and the manufacture of soap, clothing, matches, and electric wire.

#### 4) Tourism

The future of the tourist industry is bright and the Government has made efforts to promote it. At this time, however, it accounts for only 3% of the country's GDP.

### (3) Trends in International Balance of Payments

#### 1) Trading

The primary destinations of the country's exports are Germany, New Zealand, Australia, and American Samoa. The primary sources of its imports are New Zealand, Australia, Japan, and Great Britain. The major products for export and the annual changes in the value of exports and imports are listed below:

Table 2-5 Major Products for Export and the Annual Changes in the Value of Exports and Imports (unit: WS\$ 1 million)

	1985	1986	1987	1988
Exports (FOB)	36.2	23.5	25.0	31.4
Reexports	3.8	1.2	1.8	1.7
Copra	1.0	1.0	0.1	2.0
Coconut oil	15.6	6.5	8.7	11.7
Cocoa	2.4	3.2	2.6	1.3
Taro	5.1	4.3	5.1	5.2
Miscellanea	8.3	7.3	6.7	9.5
Imports (CIF)	115.1	105.4	131.0	159.1
Trade Balance	-78.9	-81.9	-106.0	-127.7

(Source: Annual Report, Central Bank of Western Samoa)

#### 2) International Balance of Payments

The trade balance has long been in the red, but the international balance of payments has been consistently in the black because of the large inflow of international aid funds and prudent management of the foreign currency reserve. In 1991, however, the trade deficit increased and the surplus in the international balance of payments was reduced. For 1992, it is predicted that this decline will continue and the international balance of payments will move into the red. In 1993 and 1994 imports will be restricted to minimize this decline.

Changes in the international balance of payments are listed below:

Table 2-6 Changes in the International Balance of Payments (unit: WS\$ 1 million)

Items	1988	1989	1990	1991
Ordinary balance	-9.9	-8.3	-25.1	-98.6
Trade balance	-127.7	-145.4	172.9	-214.1
Invisible balance of trade	39.7	48.8	43.8	31.0
Transfers	78.1	88.3	104.0	84.5
Capital accounts balance	41.7	40.6	62.8	102.0
Government transfers	41.1	37.8	36.1	33.3
Nonmonetary capital	1.2	2.1	21.5	43.2
Errors and omissions *	-0.6	0.7	5.2	25.5
Overall balance	31.8	32.3	37.7	3.4

(Source: DP7, National Planning Office (\* This item includes private capital balance.))

#### 2-1-4 TRENDS IN FOREIGN AID

##### (1) Outline

The total amount of assistance given to Western Samoa in 1990 by DAC member nations and international organizations was US\$ 50.7 million. Bilateral assistance amounted to US\$ 27.7, which was 55% of the total. In terms of the form of assistance, grant assistance accounted for 62% and technical cooperation for 38%. US\$ 3.1 million was provided as loans and credits through international organizations in 1990; only the People's Republic of China is providing a bilateral loan for the project for the construction of a new government building in Apia.

Historically, New Zealand, which previously held Western Samoa as a trust territory, provided the largest amount of assistance. At present, however, assistance from Japan and Australia exceeds that from New Zealand, which is now the third largest donor. In 1990, assistance from international organizations amounted to US\$ 22.8 million (after payment of debts to Arab nations). Among these organizations, the major contributors are as follows: Asian Development Bank (ADB) US\$ 11.6 million, International Development Association (IDA) US\$ 4.0 million, and European Development Fund (EDF) US\$ 2.7 million. Changes in official development assistance provided by major countries and international organizations are listed below:

Table 2-7 Official Development Assistance from Major Countries and International Organizations (unit: 1 million US\$)

Major countries and international organizations providing aid	1986	1987	1988	1989	1990	
					Amount	Share
DAC member nations	18.0	21.8	22.0	20.5	27.7	100%
Japan	9.2	6.9	7.7	6.0	9.2	32.2
Australia	3.4	6.0	7.3	7.6	8.9	32.2
New Zealand	3.4	3.9	4.0	3.5	5.8	20.9
Former West Germany	1.9	2.7	2.8	2.2	2.0	7.2
Others	0.1	2.3	0.2	1.0	1.8	6.5
International organizations	4.5	11.3	8.2	10.0	22.8	100%
ADB	0.7	1.5	1.7	3.7	11.6	50.9
IDA	0.8	1.4	1.0	1.0	4.0	17.5
EC	1.5	6.7	3.6	2.7	2.7	11.8
UNDP	1.0	1.4	2.0	2.0	1.9	8.3
Others	0.5	0.3	-0.1	0.6	2.6	11.5
Debt payments to Arab countries	-0.7	-2.1	-0.5	-0.9	-0.2	
Official development assistance funds	23.3	35.2	30.7	31.3	50.7	

(Source: Geographical Distribution of Financial Flows to Developing Countries 1992, OECD)

## (2) Trends in Major Developed Countries

### 1) New Zealand

New Zealand, the former suzerian of Western Samoa, provided the largest amount of assistance to the country until 1984. At present, NZ is the 3rd largest donor after Japan and Australia, but it remains a major contributor providing US\$ 5.8 million in assistance in 1990. New Zealand's technical cooperation has primarily been in agriculture, forestry, fisheries, and human resource development. New Zealand's grant aid has mostly been provided to public works and public utilities projects.

### 2) Australia

In 1990, the Australian International Development Assistance Bureau (AIDAB) provided Western Samoa with US\$ 7.6 million. After Japan, Australia provides the second largest amount of bilateral aid to the country. Australia's assistance is basically under two broad streams: technical cooperation for human resource development and the planning and administration fields, and grant aid projects for the public works



and public utilities fields. The grant element of Australia's assistance is 100%.

3) Germany

In 1990, the former West Germany provided Western Samoa with US\$ 2.0 million. Germany now provides Western Samoa with the fourth largest amount of bilateral aid. The grant element of German assistance is 100% and the funds are primarily used in the agriculture, forestry, education, and culture fields.

4) Japan

Japan is now the largest provider of assistance to Western Samoa. In 1990, Japanese assistance, which basically consists of grant aid and technical cooperation amounted to \$9.2 million. The grant aid component is about 70% of all assistance and has been primarily distributed to the transportation, fishery, education, and health and medical fields. Technical cooperation is provided mainly through the Japan Overseas Cooperation Volunteers (JOCV), which usually has 20 to 30 people in Western Samoa working in various fields.

(3) Trends with international organizations

1) EC

At The Lome Convention, the EC agreed to provide Western Samoa with US\$ 2.87 million in assistance, which accounts for almost one-third of all aid donated by international organizations. Funds were provided by the European Development Fund (EDF) and the European Investment Bank (EIB). The Lome Convention was attended by EC member nations and 69 nations that were formerly their colonies in Africa, the Caribbean, and the Pacific. Countries from the South Pacific in attendance were as follows: Western Samoa, Fiji, Kiribati, Papua New Guinea, Solomon Islands, Tonga, Vanuatu, and Tuvalu.

2) Asian Development Bank (ADB)

The assistance provided by the ADB to South Pacific nations, including Western Samoa, is designed to strengthen the channels through which foreign aid can be effectively distributed to stimulate economic growth. The goal is to diversify and increase agricultural production by developing infrastructure, using natural energy resources, and developing alternative products for export and as substitutes for imports. To achieve this goal, the ADB is promoting economic activity

in the private sector by providing funds for the production of substitutes for imported goods through financial institutions. It is also providing funds for human resource development by improving training programmes and upgrading facilities.

3) United Nations Development Programme (UNDP)

To date, UNDP projects have concentrated in the following fields: the primary industries of agriculture, forestry, and fisheries; policy and planning for integrated development; transportation and telecommunications; natural resources.

## 2-2 DAMAGE CAUSED BY THE CYCLONES AND THE PLANS FOR REHABILITATION

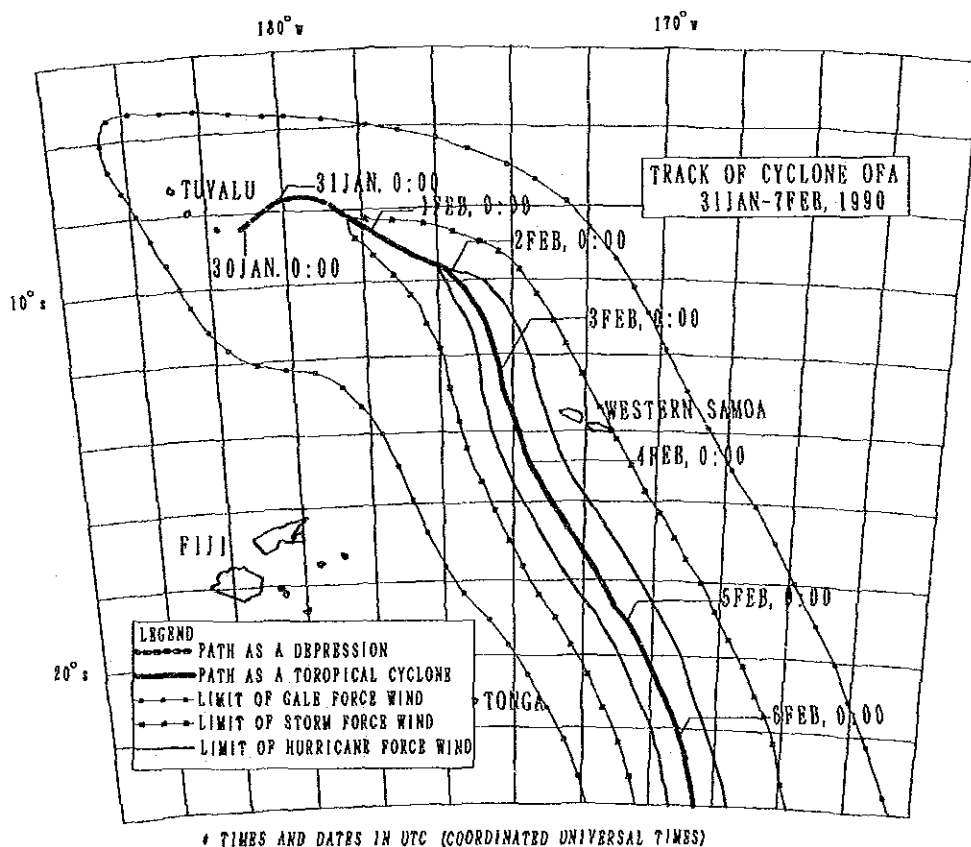
### 2-2-1 TWO CYCLONES

In February 1990 and December 1991, Western Samoa was struck by the two largest tropical cyclones in the history of the country called Ofa and Val, respectively. These two cyclones caused extensive damage throughout the country and have seriously set back its economic development.

#### (1) Cyclone Ofa

On 31 January 1990, a tropical depression formed in the South Pacific about 1000 km north-west of Western Samoa. That night, the depression deepened rapidly and turned into a tropical cyclone named Ofa. The cyclone headed east-south-east and then veered south-south-east.

Figure 2-3 Track of Cyclone Ofa (Source: Fiji Meteorological Service)



Ofa struck Western Samoa on 2 February. On 4 February, it reached its maximum intensity on the ocean approximately 100 km west of Savaii Island, which was as close as the center got to Western Samoa. After Ofa reached its maximum intensity, it moved south-east and caused serious damage to Western Samoa. Until its departure from the area on 9 February, wind speeds of over 15 m/s were sustained.

According to measurements taken at the meteorological office in Apia, on 2 February, the day Ofa arrived in Western Samoa, wind speeds averaged over 17 m/s. On 3 February at 6:00 p. m., the average wind speed was 28 m/s. Although data is insufficient to confirm wind speeds at the center of Ofa, according to the Fiji Meteorological Service, the maximum average wind speed over a 10 minute period at the center was about 50 m/s on 4 February, and the maximum gust was 70 m/s.

Storm surge from Ofa seriously damaged infrastructure on the north coasts of both Savaii and Upolu Islands. In the agricultural sector, the greatest damage was to cocoa production. In the first 9 months of 1990, the average cocoa harvest was only 30 tons, which is 5% that of a normal year. Passion fruit production was down 80%, copra production was down 65%, and banana production was down 55%. The forestry sector was badly hit by Ofa before it had recovered from the fire in 1983; Ofa destroyed 1,700 ha of plantation trees nearing maturity and timber production fell by 30% in 1990.

Secondary industry, which includes manufacturing, dropped 7% in 1990 from the previous year. The service industry dropped about 20%. In terms of the cyclone's overall effect on the economy, it is estimated that the GDP dropped about 5%.

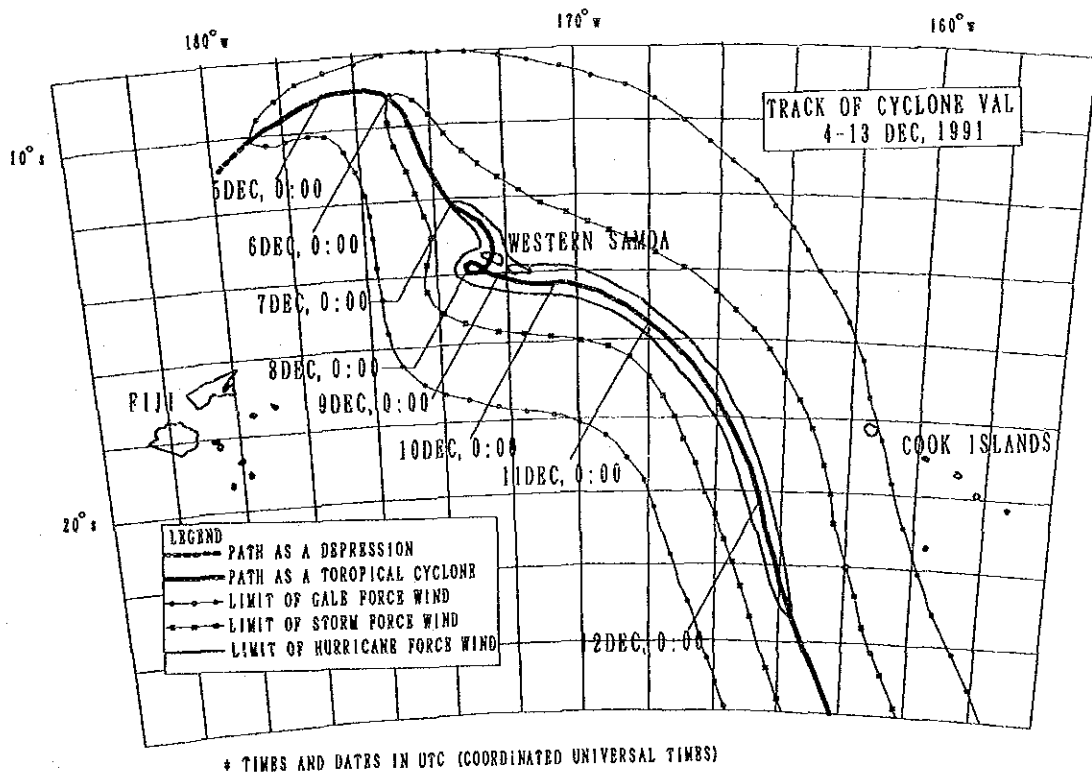
## (2) Cyclone Val

On 4 December 1991, a tropical depression formed south-east of Tuvalu and another north of the Cook Islands. On the following day, both of them turned into cyclones, one named Val and the other Wasa. Over the next two days, Val moved north-east and then east. Gradually it veered east-south-east and then south-east. When it reached a point 500 km north-north-west of Savaii Island, it started heading south-south-east directly for Savaii Island. Wasa was 1,000 km east of Western Samoa, and as it headed south it never directly affected the country. The track of Wasa, however, made it difficult to predict the track of Val. On the morning of 6 December,

a cyclone warning was announced throughout Western Samoa. At the time, the cyclone was heading south at 15 km/hr from a point 250 km north-west of Savaii Island.

On 7 December, the center of Val struck Savaii Island and moved across the island at about 10 km/hr. At this time, it was estimated that the average wind speed was about 45 m/s, with gusts of about 65 m/s. After passing over Savaii Island, Val rotated clockwise for 18 hours south of the island. It then moved off in an east-south-easterly direction. On 8 December, 50 km south of Savaii and Upolu Islands, Val was moving very slowly (less than 10 km/hr) east-south-east. Gradually, Val began moving due east and by around noon on 9 December it was closing about 40 km off the south coast of Upolu Island. Until this time, both Upolu and Savaii Islands had experienced extremely strong winds from the west to south-west. Val then moved east at a faster pace and in the afternoon of 10 December, Western Samoa was no longer directly subject to its destructive forces. The cyclone warning was subsequently lifted.

Figure 2-4 Track of Cyclone Val (Source: Fiji Meteorological Service)



According to measurements taken at the meteorological office in Apia, on 9 December Val reached its lowest pressure of 962 hectopascals (millibars). It is estimated that the maximum average wind speed at the center was 50 m/s, and the maximum gust was 65 m/s. According to the records of the New Zealand Meteorological Agency, from the morning of 6 December to the afternoon of 10 December, winds over 30 m/s continued to blow in Western Samoa. Exceptionally heavy rain accompanied the strong winds, but unfortunately, rainfall data from the observatory is not available as the rainfall recording equipment was inundated by waves during the cyclone.

Val was the most destructive cyclone to strike Western Samoa in 100 years. The damage was severe, especially to structures. This was due to the great intensity and long duration of the winds. The winds toppled trees and hurtled objects into the air, thus a lot of structural damage was caused by falling trees and airborne debris. The fierce winds were accompanied by torrential rains causing rivers and drainage channels to flood and soils around structures and trees to wash out. This greatly destabilized structures and trees, and brought many of them down. The debris flow of flooded rivers and water channels was extremely heavy and damaged many roads and water intakes.

Val caused extensive damage to Western Samoa's natural resources, agriculture, forestry, infrastructure, health and education facilities, all types of public and private buildings, livestock, and killed citizens and created havoc with the lives of countless others. Val completely erased all efforts to rehabilitate the country from the damage caused by Ofa two years prior and left the country reeling from the combined destruction of two major cyclones. Officials have said that because of the turmoil caused by the cyclone in the last three weeks of 1991, the GDP for that year dropped by 2%. Its effect on the economy for 1992 is likely to result in a drop of 10-12% in the GDP.

After Val subsided, international organizations, major donor countries, church groups, non-government organizations (NGO), and individuals rapidly provided disaster relief. Initial supplies of tents, tarpaulins, and medical supplies arrived within a day of the removal of the cyclone warning. Following this, food supplies for up six months were delivered, after which it was thought that adequate amounts of locally grown food would be available.

The Government benefited from the lessons of Cyclone Ofa and the National Disaster Council (NDC) delivered emergency supplies quickly and efficiently. The Government took urgent measures such as drastically dropping the tariffs on emergency supplies. It also carefully considered priorities in distributing relief supplies: the initial shipments of construction materials for repairs were distributed to public facilities such as hospitals and the library, with subsequent shipments allocated to schools and government buildings. The responses of foreign governments and international organizations are outlined below.

Country and Organization	Assistance provided
New Zealand	New Zealand provided construction materials, equipment and materials for restoring electric power, and telecommunications equipment. It also dispatched crews to restore the power distribution network, the telephone system, and schools.
Australia	Australia provided A\$ 3 million, including A\$ 1 million in food aid.
World Health Organization (WHO)	WHO conducted surveys on the damage to health and medical facilities and prepared estimates for their repair.
United Nations Development Programme (UNDP)	UNDP conducted surveys on damage to public and private facilities and made recommendations on how the quality of housing could be upgraded.
World Bank	The World Bank conducted surveys on damage to the economic infrastructure and agriculture and education facilities, and made recommendations on how these could best be rehabilitated.
Asian Development Bank (ADB)	The ADB conducted damage surveys and raised vital issues.
International Funds for Agricultural Development (IFAD)	IFAD analyzed reports on damage to the agricultural sector and selected projects to receive financing.

## 2-2-2 DAMAGE CAUSED BY CYCLONE VAL AND THE PLANS FOR REHABILITATION

### (1) Official Damage Estimates

According to the Final Damage Assessment Report for Cyclone Val prepared by the NDC, the total estimated damage is WS\$ 713 million (US\$ 300 million) as listed below. Of this total, 50% is damage to infrastructure and structures such as buildings and 40% is damage to primary industries and natural resources.

Table 2-8 Cyclone Val Damage Cost Estimates—Sectoral Summary

Sector	Estimated amount (WS\$ 1 million)
Roads, bridges, and embankments	40
Water supply and electricity	16
Transportation and communications	26
Housings and buildings	330
Primary industries (agriculture, forestry, and fisheries)	13
Education	13
Health and medical services	20
Fire services	2
Environment, parks, and reserves	65
Total	713

(Source: Final Damage Assessment Report, National Disaster Council)

The figures above are estimates for replacement of damaged infrastructure with new facilities rather than the value of the asset destroyed by the cyclone.

## (2) Infrastructure Rehabilitation Plans

The World Bank conducted surveys in cooperation with the ADB and the AIDAB on damage to infrastructure, agriculture, and education facilities, analyzed survey results, and reported its findings to the Government in June 1992. An outline of the report is described below:

### 1) Analysis of the Economic Impact

#### a) Economic Recovery

The economy of Western Samoa is presently experiencing negative growth because of the combined effects of Cyclones Ofa and Val, and the gap between the general levels of output and income is creating a serious economic problem for the country. To alleviate this problem, a broadly based conservatively-dimensioned plan must be immediately implemented to restore the economy. The foundation of this plan must be the rehabilitation of the country's infrastructure.

#### b) Economic Impact on the Development Plan

The damage caused by the cyclones to the country's economy is jeopardizing the Government's Public Sector Investment Programme associated with the Seventh Development Plan 1992-1994 (DP7). The decrease in the GDP has reduced tax revenues for FY 1992/1993 by



over WS\$ 20 million. The difficulty in implementing the Public Sector Investment Programme makes it imperative that the Government find additional sources of income.

## 2) Infrastructure Rehabilitation

The World Bank has prioritized major infrastructure rehabilitation projects and estimated the costs of urgent and nearly urgent projects to be US\$ 53.4 million (WS\$ 127 million). The contents and cost of each of these projects are listed below:

### a) Power

Restoration of the power distribution system, completion of the Afulilo Hydroelectric Power Plant, and reorganization of the Electric Power Corporation (EPC) US\$ 15.4 million

### b) Roads and Coastal Embankments

Repair of roads and coastal embankments damaged by the cyclones US\$ 26.2 million

### c) Telecommunications

Repair of international telecommunications facilities and restoration of the domestic telephone system US\$ 5.6 million

### d) Water Supply

Restoration of the water supply system and reorganization of water supply services US\$ 6.2 million

## (3) Damage to Health and Medical Facilities and Rehabilitation Plans

### 1) Department of Health Surveys on Damage to Health and Medical Facilities

Soon after Cyclone Val was over, the Department of Health conducted surveys throughout the country on damage to health and medical facilities and their equipment. The department reported its findings to the NDC on 1 January 1992. According to the report, almost all health and medical facilities were damaged by the cyclone. In particular, the strong winds caused extensive damage to the doors, windows, and roofs of facilities which allowed heavy rains to enter and cause secondary damage to ceilings, floors, walls, and medical and other types of equipment. As listed in Table 2-9, the total estimated cost for rehabilitation is about WS\$ 20 million, which is equivalent to 2.8% of the total damage estimated by the NDC. About 65% of the damage to health and medical facilities in the country was to the

district hospital, health centres, and health subcentres on Savaii Island.

Table 2-9 Damage by Cyclone Val to Facilities and Equipment

Type	Item	Estimated cost (WS\$)
Facilities	Headquarters of the Department of Health	717,000
	Nursing administration and nursing schools	330,000
	National Referral Hospital	2,591,000
	Health facilities - Upolu	2,300,000
	Health facilities - Savaii	12,685,000
	Subtotal	18,596,000
Equipment	Air conditioners, generators, autoclaves, portable X-ray machines, other medical equipment, refrigerators, computers, vehicles	700,000
Medical supplies	Medicine and vaccines, medical instruments	800,000
Total		20,096,000

(Source: Report on Damage by Cyclone Val to Facilities and Equipment, Department of Health)

## 2) WHO Surveys and Proposals for Rehabilitation

WHO analyzed the above report by the Department of Health, and with the cooperation of the department and the Department of Public Works conducted its own surveys throughout the country on the damage to health and medical facilities. WHO then made recommendations on the means of repairing these facilities and estimated their costs. An outline of this report is described below:

### a) Objectives of the Survey

To assess the physical damage to all rural health facilities; to recommend whether new facilities should be replaced or expanded to meet future demands; to estimate financial resources required to adequately replace health facilities

### b) Survey Results

- 1/ There are many new health and medical facilities that are not being fully used. Many district health facilities are built by each community without regard for guidelines on types of construction appropriate for medical facilities and bed numbers.
- 2/ Some district communities repaired their health facilities within a month of the completion of the survey by the Department of Health.

3/ Cost estimates for rehabilitation

The following table shows WHO's cost estimates for rehabilitation. These estimates do not include facilities that were being seriously underused before the cyclone struck and those that had already been repaired. This may account for the large differences between the estimates of the Department of Health and WHO as detailed in Table 2-10.

Table 2-10 Cost Estimates for Rehabilitation of Health and Medical Facilities

Type of facility	Cost estimates by the Department of Health	Costs estimated by WHO
Headquarters of the Department of Health	WS\$ 717,000	WS\$ 792,300
Nursing administration and nursing schools	WS\$ 330,000	WS\$ 424,300
National Referral Hospital	WS\$ 2,591,000	WS\$ 2,377,700
Health facilities - Upolu	WS\$ 2,300,000	WS 2,013,200
Health facilities - Savaii	WS\$ 12,685,000	WS\$ 2,521,600
Equipment, medical supplies, medical instruments	WS\$ 1,500,000	WS\$ 1,500,000
<b>Total</b>	<b>WS\$ 20,096,000</b>	<b>WS\$ 9,629,100</b>

(Sources: Report on Damage by Cyclone Val to Facilities and Equipment, Department of Health; Executive Summary of a Mission, WHO)  
 (Note: WHO estimates were made in US\$ so all figures must be multiplied by 2.7 to get their WS\$ values. In addition, equipment replacement costs were not included.)

c) Recommendations

WHO recommends that the Department of Health understand how each facility is actually used, establish a master plan for development of health and medical facilities, and prioritize rehabilitation of facilities.

3) Provisions for Rehabilitation in the Present Budget

The budget for FY 1992/1993 contains the following provisions for rehabilitation of the facilities.

The FY 1992/1993 budget, however, provides only 9.2% of the funds WHO estimates. It provides a relatively high percentage of funds for nursing administration and nursing schools as well as the headquarters of the Department of Health. On the contrary, the budget provides a low percentage of funds for health and medical facilities, which directly benefit people. Funds for health facilities on Savaii Island

appear to particularly insufficient: the WHO estimate is only about 20% of the Department of Health estimate and the budget has provisions for only 5.5% of the WHO estimate.

Table 2-11 Provisions for Rehabilitation in the FY 1992/1993 Budget

Type of facilities	Budget (WS\$)	Percentage of WHO estimate provided for in the budget
Headquarters of the Department of Health	187,000	25.6%
Nursing administration and nursing schools	168,000	39.6%
National Referral Hospital	162,245	6.8%
Health facilities - Upolu	226,000	11.2%
Health facilities - Savaii	139,000	5.5%
<b>Total</b>	<b>882,245</b>	<b>(average) 9.2%</b>

(Source: FY 1992/1993 Budget for Western Samoa ((legislative assembly document))

## 2-3 DEVELOPMENT PLAN

### 2-3-1 NATIONAL DEVELOPMENT PLAN

#### (1) Previous Development Plans

Western Samoa has had national development plans since shortly after it achieved independence. Previous development plans are outlined below:

Table 2-12 Previous Development Plans

Development plan	Year	Primary goals and strategies, notes
First Development Plan	1966-1970	
Second Development Plan	1970-1974	
Third Development Plan	1975-1979	To increase agricultural production, diversify the economy, and develop infrastructure
Fourth Development Plan	1980-1984	To achieve economic independence and to promote national development through the participation of the people
Short-term Action Plan	1983-1984	Required adjustment to the Fourth Development Plan in response to the oil crisis
Fifth Development Plan	1985-1987	Same goals as the Fourth Development Plan, but to increase foreign aid and to promote tourism (upgrade airport facilities) to achieve them
Sixth Development Plan	1988-1990	1) To preserve the environment by creating short-term, mid-term and long-term goals 2) In February 1990 Cyclone Ofa struck and the GDP dropped 5% 3) Foreign aid accounted for about 85% of government investment.

(Source: Country Report—JICA)

#### (2) DP7 (1992-1994)

##### 1) Features of DP7

Cyclone Val struck the country as DP7 was being prepared. Consequently, the strategies, policies, and targets set out in the original document needed to be revised. The revised plan was announced in March 1992. Its features are described below:

a) Previous development plans were comprehensive and the sectoral plans of all government departments were incorporated. In contrast, the present plan consists of a primary document containing the development strategy and a secondary document containing the Public Sector Investment Programme. The responsibility for the development of detailed sectoral plans has been given to each department.

b) In 1991 the term of the fiscal year was changed. Up to that year, the fiscal year coincided with the calendar year; however, from 1 July 1991 a new fiscal year ending 30 June was started. The term of the Public Sector Investment Programme in DP7 is from July 1992 to June 1995 and is based on the new fiscal year. However, DP7 itself is based on the calendar year from January 1992 to December 1994.

c) DP7 was prepared by the present government which was inaugurated in April 1991. Though DP7 incorporates some of the goals of previous development plans, such as their long-term goals, it also sets out various new goals such as giving priority to maintenance of existing infrastructure rather than new development. This had not been done in previous plans.

## 2) Goals of the Plan

### a) Long-term Goals

DP7 incorporates the long-term national development goals of previous plans. The long-term goals of DP6 incorporated into DP7 have been distilled and are described below:

- 1/ To provide for sustainable economic growth
- 2/ To improve the quality of life of all Western Samoans
- 3/ To promote national self-reliance
- 4/ To improve regional balance
- 5/ To ensure equitable distribution of socio-economic opportunities
- 6/ To protect the natural environment

### b) Three-year Objectives

DP7 concludes that although large development investments have been made in Western Samoa, none of the six goals described above has been achieved over the last 10 years. The economy has been stagnant as production has not kept pace with consumption. Most Western Samoans struggle to make a living and are unable to economically progress beyond providing for their basic needs. The Government recognizes the economic realities most people face and with DP7 has set the following clear and achievable objectives:

- 1/ To raise the GDP above the population growth rate, taking into account the likelihood of reduced net emigration and a return flow of Western Samoan overstayers in New Zealand

- 2/ To achieve the above objective through sustainable development; that is, without net consumption of capital, including those capital assets which take the form of natural endowment
- 3/ To finance a steadily increasing proportion of national investment from domestic savings, especially savings generated in the private sector
- 4/ To maintain the foreign reserves at a level equivalent to not less than six months' merchandise imports
- 5/ To maintain the role of the village as the principle focus of social, cultural, and economic life while facilitating the planned development of urban areas
- 6/ To make a broader range of economic opportunities available throughout the country, especially in the rural areas and to facilitate peoples' access to those opportunities
- 7/ To reduce the size of the Government so that the private sector becomes responsible for a growing share of the economy and increasingly takes the initiative in economic development
- 8/ To reduce the vulnerability of the economy and infrastructure to natural disaster, particularly cyclones

### 3) Development Strategies

While analyzing DP6 and setting goals for DP7, the Government became increasingly aware that the natural environment is deteriorating as a result of the increase in the population due to decreased emigration, and that previous development strategies need to be altered. Consequently, the Government established the following four development strategies:

#### a) Consolidation of Past Investments

Much money has been invested in developing the country's infrastructure, however, due to shortages of funds and human resources, their maintenance has often been neglected. Maintenance must be improved so infrastructure can be used more efficiently.

#### b) Efficiency Improvements

Despite the large amount of money the Government has pumped into the national economy, the economy has stagnated. To increase the country's economic independence and the incomes of its citizens, it is vital that economic efficiency be improved. Without such improvements, educated and skilled citizens will not be able to

satisfy their aspirations and will likely emigrate, thereby compromising Western Samoa's independence. To improve efficiency, the Government is promoting education, human resource development, privatization of government-owned enterprises, and increased economic activity by the private sector.

c) Employment Creation

Increasing employment is one of the main strategies of the DP7. Increases in employment can be expected in agriculture and the following sectors:

- 1/ Tourism
- 2/ Industries using the country's natural resources
- 3/ Low-wage industries processing products for export

d) Revitalization of the Primary Sector

Various policies for expanding production in agriculture, forestry, and fisheries are being implemented.

4) Macroeconomic Targets

The goals for the macroeconomic indexes in DP 7 are as follows:

a) Population

1/ Population Growth Rate

The birth rate will fall, but due to economic difficulties in other countries, so will the emigration rate. Consequently, the projected population growth rate is 1.0%.

2/ Employment Rate

It is estimated that 51.0% of the population between the ages 15-59 is employable.

3/ Table 2-13 shows projections for the total population of the country, the percentage of the population between the ages of 15-59, and the working population for the years 1992-1994 based on the analysis above.

Table 2-13 Projected Population for the Duration of DP7

Year	Total population	Population between 15-59	Working population
1991	159,862	89,842	45,819
1992	161,461	90,741	46,277
1993	163,075	90,648	46,740
1994	164,706	92,565	47,207



b) Gross Domestic Product (GDP)

The GDP projections for each sector of the economy for the duration of DP7 are listed in Table 2-14. Due to the effects of Cyclone Val, the GDP dropped significantly in 1992. However, it is expected to recover over the following two years, thus the average growth rate for the GDP for the duration of DP7 is projected to be 2.5%.

Table 2-14 Projected GDP for the Duration of DP7

Sector	1991	1992	1993	1994
Primary industries (agriculture, forestry, fisheries, and commerce)	129.1	98.4	118.5	129.0
Secondary industries (manufacturing, power, and construction)	45.4	47.4	53.0	57.1
Tertiary industries (trading and services)	111.5	115.8	117.4	122.9
Total	286.9	261.6	288.9	308.9
Growth relative to the previous year (%)	-2.0	-8.8	10.4	6.9

c) International Balance of Payments

Projections for the international balance of payments in each year for the duration of DP7 are listed in Table 2-15.

Table 2-15 International Balance of Payments  
(WS\$ 1 million at constant 1991 prices)

Item	1991	1992	1993	1994
1. Current account balance	-98.6	-114.5	-78.6	-45.9
a. Trade balance	-214.1	-244.0	-197.1	-172.0
1 Exports	18.4	22.0	32.7	41.6
2 Imports	-232.5	-266.1	-229.7	-231.6
b. Services	31.0	42.2	31.5	37.7
1 Receipts	74.9	90.0	78.7	83.8
2 Payments	-43.9	-47.8	-47.2	-46.1
c. Investment income	10.1	7.3	7.0	6.0
d. Private transfers	74.4	80.0	80.0	82.4
2. Capital account	102.0	89.5	63.0	43.0
a. Government transfers	33.3	38.6	29.8	33.8
1 Project grants	27.2	24.6	26.3	30.3
2 Cash and commodities	10.1	18.2	7.9	7.9
3 Others	-4.0	-4.2	-4.4	-4.4
b. Nonmonetary capital	68.7	50.9	33.2	9.2
1 Loan disbursements	49.2	35.2	21.0	2.3
2 New loan disbursements	-	12.4	8.4	2.8
3 Loan payments	-6.0	-8.6	-8.2	-7.9
4 Balancing items	25.5	12.0	12.0	12.0
3. Overall balance	3.4	-25.0	-15.6	-2.8

d) Government Finance

Projections for government finance in each year for the duration of DP7 are listed in Table 2-16.

Table 2-16 Projected Government Finance for the Duration of DP7  
(WS\$ 1 million at constant 1991 prices)

Item	1992	1993	1994
1. Revenue and grants	205	189	193
1) Revenue	157	150	150
2) Project grants	30	31	35
3) Cash and commodity grants	18	8	8
2. Total expenditures	266	229	191
1) Current expenditures	135	115	115
2) Development expenditures	112	95	60
3) Others	19	19	16
Budget surplus/deficit	-61	-40	2
Financing the deficit			
1) Existing soft loans	45	26	3
2) New borrowing	16	14	-5

(3) Public Sector Investment Programme (PSIP)

1) Scale of Public Sector Investment

To achieve the goals of DP7, the scale of the PSIP was established in consideration of the following factors.

- a) Needs, as implied by the national development strategy and associated policies outlined in the Strategic Plan
- b) Availability of funds, from both domestic and external sources
- c) The absorptive capacity of the economy and of the machinery of Government
- d) Prudent level of imports for investment purposes
- e) Financial capability to operate and maintain additions to the stock of public assets
- f) Need for balance between investment and consumption
- g) Restraints on direct investment by the public sector to activate the private sector

The total investment over three years is WS\$ 242 million; it is allocated as shown in Table 2-17.

Table 2-17 Public Sector Investment Allocations for Each Fiscal Year  
(unit: WS\$ 1 million)

	1992/93	1993/94	1994/95	Total
Investment	122.4	62.2	57.0	241.6
Percentage of total investment	50%	26%	24%	100%
Percentage of GDP	44%	20%	18%	27%

2) Investment Allocations for Each Sector

Table 2-18 shows the allocations of public sector investment funds to each sector.

Table 2-18 Allocation of Public Sector Investment Funds to Each Sector (unit: WS\$ 1 million)

	Sector	Present projects	New projects	Total	Percentage
Economy	Agriculture	11.5	5.7	17.2	
	Fisheries		2.8	2.8	
	Forestry	18.1		18.1	
	Environment and land use		7.5	7.5	
	Manufacturing, commerce, and finance	2.0	2.0	3.9	
	Tourism		3.7	3.7	
	Others		0.1	0.1	
	Subtotal		31.6	21.7	53.3
Infrastructure	Transport	38.4	12.2	50.7	
	Energy	32.2		32.2	
	Construction	16.9		16.9	
	Posts and telecommunications	26.9	0.1	26.9	
	Water supply and sewage	3.7	16.9	20.6	
	Subtotal		118.1	28.9	147.0
Social	Education and training	3.4	25.5	28.9	
	Health and nutrition	2.1	6.1	8.1	
	Police and fire		1.9	1.9	
	Others		2.4	2.4	
Subtotal		5.4	35.9	41.3	17%
Total		155.1	86.5	241.6	100%

Note: Second decimals were rounded off to the nearest first decimal so figures may not balance perfectly.  
(Source: PSIP—National Planning Office)

According to the policies of the present government, investment in infrastructure development is reduced to 61% of the total, even though infrastructure damaged by Cyclone Val requires rehabilitation.

The PSIP focuses on the following three categories:

- 1/ Economic sectors with highest levels of productivity and which can stimulate private sector investment

2/ Environmental preservation

3/ Human resource development

As Table 2-18 shows, WS\$ 155 million, which is 64% of the total allocation for public sector investment, is being absorbed by ongoing projects and WS\$ 87 million is for new projects and projects presently being negotiated.

3) Sources of Investment Funds

As Table 2-19 shows, 30% of the funds for public sector investment are from the operational surplus in the national budget and the sales of stock held by the Government. The remaining 70% are from overseas sources.

Table 2-19 Planned Sources of Public Investment Funds (unit: WS\$: 1 million)

Source of funds	1992/93	1993/94	1994/95	Total	Percentage
Operational surplus	25.5	21.7	19.1	66.3	27%
Sale of BWS shares	7.0			7.0	3%
Foreign grant assistance	26.3	26.2	35.4	87.9	36%
Soft loans—ongoing	44.7	3.2	1.4	49.3	20%
Soft loans—new	18.9	11.1	1.1	31.2	13%
Total	122.4	62.2	57.0	241.6	100%

4) Foreign Assistance

Plans are for foreign assistance to provide WS\$ 166.3 million for public sector investment. Table 2-20 presents a breakdown of these sources by country and organization.

Table 2-20 Sources of Foreign Assistance (unit: WS\$ 1 million)

Types of assistance	Country/organization	Grant aid	Loans	Total	Percentage
Bilateral aid programmes	Australia	12.8		12.8	(23%)
	France	0.7		0.7	
	Germany	3.5		3.5	
	Japan	38.6		38.6	
	New Zealand	9.1		9.1	
	China		10.4	10.4	
	Others		0.6	0.6	
	Subtotal	64.7	11.0	75.7	45%
Multilateral aid programmes	ADB		23.6	23.6	48%
	EC	10.6	10.9	21.5	
	United Nations Capital Development Fund	1.0		1.0	
	UNDP	7.9		7.9	
	World Bank	0.2	20.8	21.0	
	WHO	3.0		3.0	
	Others	0.8	0.0	0.8	
	Subtotal	23.5	55.3	78.7	
Unclassified				11.8	7%
Total		88.2	66.3	166.3	100%

Note: Second decimals were rounded off to the nearest first decimal so figures in Table 2-19 and Table 2-20 may not coincide.

**2-3-2 DEVELOPMENT PLAN OF THE HEALTH AND MEDICAL SECTOR AND PUBLIC INVESTMENT FOR THE SECTOR**

**(1) Outline of 7th Development Plan for the Health and Medical Sector**

**1) Principal Goals**

DP7 was prepared by the National Planning Office in the Prime Minister's Office. Before DP7 was issued in March 1992, in September 1991 the Department of Health prepared the seventh development plan for the health and medical sector (DP7 health). According to the plan, it is vital that health and medical services at all levels be upgraded during the DP7 period. To achieve this, the following concrete goals were set:

- a) To intensify primary health care and primary medical care
- b) To develop Tuasivi Hospital and other selected district hospitals, which provide secondary medical care
- c) To develop the National Hospital, which provides appropriate specialized clinical care
- d) To provide appropriate training to health staff at all levels

**2) Development Projects**

In accordance with the four goals above, each division of the Department of Health proposed its action plan in the form of a development project. Table 2-21 below shows the major projects.

Table 2-21 Health and Medical Services Development Projects (unit: WS\$ 1000)

Project No.	Project Name	Source of funds		Total
		National treasury	Foreign aid	
1	Human Resource Development	697	2,210	2,907
2	Environmental Sanitation	633	238	871
3	Dental Health	120	237	357
3-3	AIDS	162	829	991
6	Health Information/Planning	350	119	469
10	National Hospital Development	14,254	2,678	16,942
11	District Hospital Development	7,595	256	7,851
12	Mental Health	25	138	163
13	Nursing Education Development	950	1,087	2,037
14	Nutrition Development	308	1,165	1,143
15	Essential Drugs/Pharmacy, Drug 2 & Vaccine	6,087	296	6,383
	Eleven other projects	1,648	2,304	3,952
	Total	32,829	11,557	44,386
	Percentage	74%	26%	100%

(Source: DP7 1992-1994, Department of Health)

## (2) Outline of the District Hospital Development Project

The District Hospital Development Project, which is one of the projects listed in the above table and related to the Project, is outlined below:

### 1) Project Goals

- a) To improve health and medical care at the rural level
- b) To ensure continuity in facility maintenance and to make a concerted effort to repair damage caused by Cyclone Ofa
- c) To strengthen and to provide continuing education and training for health care staff at the district level
- d) To decentralize health care

### 2) Important Sub-projects

#### a) Improvement of District Health and Medical Facilities

- 1/ Rebuild Tuasivi Hospital
- 2/ Rehabilitate facilities damaged by Cyclone Ofa (Tuasivi, Sataua, Safotu, etc.)
- 3/ Upgrade run-down facilities (Poutasi, Lefaga, Manono)
- 4/ Refurbish housing for staff of the above facilities, especially in Fagamalo and Safotu
- 5/ Provide district hospitals, health centres, and subcentres with equipment for maintenance, furnishings, and supplies.

#### b) Upgrading of Telecommunications

- 1/ Install direct telephone lines (Tuasivi, Sataua, Poutasi, Leulumonga)
- 2/ Install radio telephones in facilities without them
- 3/ Train staff to properly operate and maintain radio-telephones

#### c) Training of Staff to Manage District Health Facilities

- 1/ Train staff in the nurse education programme
- 2/ Implement On-the-job Training (OJT) at All Levels

#### d) Reorganization of District Health and Medical Services

- 1/ As it is difficult to provide staff for district facilities, especially doctors and nurses, the management system for district health and medical facilities is reexamined to reinforce primary health care at the community level.
- 2/ Convert district hospitals at Fagamalo and Foalalo to health centres and have only district hospital on the island at Sataua. Station four doctors at Tuasivi Referral Base Hospital and reinforce all nursing staffs.

- 3/ Have resident registered nurses manage the health centres and the health centres manage the health subcentres.
  - 4/ Station a resident enrolled nurse at each health subcentres and have them manage these facilities. Have registered nurses from the health centres visit the subcentres to support the enrolled nurses.
  - 5/ Train staff under the present nurse development project to implement the above.
- e) Improving Transportation for District Health Services  
Provide two vehicles to district health facilities to reinforce their operations

### (3) PSIP for the Health and Medical Sector

Table 2-22 shows the development projects adopted in PSIP and their investment plans.

Table 2-22 Funds for Public Sector Investment in Health and Medical Services

Projects	Investment (unit: WS\$ 1000)					Total	Type of assistance
	1992/93	1993/94	1994/95	Domestic capital	Foreign capital		
<b>Approved on-going projects</b>							
Short-term medical specialist	118				118	118	NZ grant
UNVs for health service	321	321			642	642	UNDP grant
Medical experts/treatment scheme	441	441	441		1323	1323	NZ grant
<b>Subtotal</b>	<b>880</b>	<b>762</b>	<b>441</b>		<b>2083</b>	<b>2083</b>	
<b>Pipeline projects</b>							
District hospital development	200	247	258	449	256	705	Japan/NZ/WHO
National hospital development	1100	1086	1006	507	2687	3192	NZ/WHO grant
Dental health services	68	145	145	120	238	358	WHO grant
Nursing services and schools development	352	453	467	185	1087	1272	WHO grant
Health information system development	137	166	167	351	119	470	WHO grant
<b>Subtotal</b>	<b>1857</b>	<b>2097</b>	<b>2043</b>	<b>1610</b>	<b>4387</b>	<b>5997</b>	
<b>Proposed new projects</b>							
Mental health		61		10	51	61	Not yet determined (grant)
<b>Total Amount</b>	<b>2737</b>	<b>2920</b>	<b>2484</b>	<b>1620</b>	<b>6521</b>	<b>8141</b>	
<b>Percentage</b>	<b>33.6</b>	<b>35.9</b>	<b>30.5</b>			<b>100</b>	

(Source: PSIP--National Planning Office of the Prime Minister's Office)

For the district hospital development project, which the Project is related to the following are adopted:

- a) Improvement of the 13 district facilities
- b) Establishment of a radio telephone system
- c) Extension of nurse education with OJT
- d) Reorganization of district medical systems

The Department of Health estimates the total cost of the district hospital development projects to be WS\$ 7,851,518 (including foreign assistance of WS\$ 256,000). PSIP is providing funds only for some of the top priority health and medical service development projects, and the total investment is WS\$ 705,000 (including foreign assistance of WS\$ 256,300). However, the amount of foreign assistance budgeted by the Department of Health for the said project is almost the same as that budgeted by PSIP. Therefore, PSIP contains all sub-projects to be funded by foreign assistance.



## 2-4 CIRCUMSTANCES OF HEALTH AND MEDICAL SERVICES

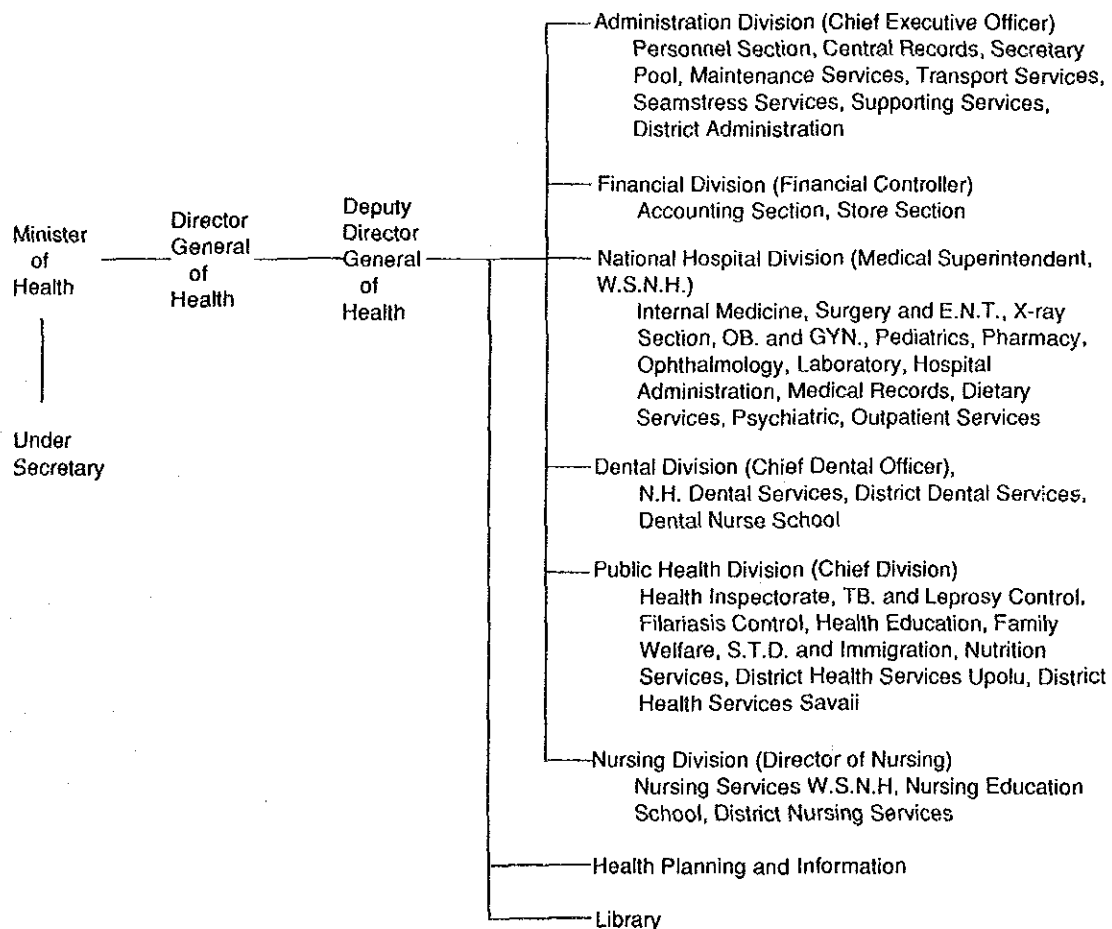
### 2-4-1 ADMINISTRATION OF HEALTH AND MEDICAL SERVICES

In Western Samoa, almost all health and medical services are directly administered by the Department of Health and their finances are provided for by the national budget.

#### (1) Organization of the Department of Health

As shown in the figure below, the Minister of Health administers a single administrative body of the Department of Health. In the Department, there are six divisions: Administration Division, Financial Division, National Hospital Division, Dental Division, Public Health Division, and Nursing Division. The Health Planning and Information Office and the Library are common service bodies for all divisions.

Figure 2-5 Organizational Chart of the Department of Health



Primary functions of each body of the Department of Health are as follows:

1) Administration Division

The Administrative Division, which is the central administrative body of the Department of Health, is comprised of eight sections, including the following: Personnel Section, Central Records, Secretary Pool, Transport Services, Maintenance Services, and District Administration.

2) Financial Division

The Financial Division is comprised of the Accounting Section and the Store Section. The division is responsible for accounting functions such as planning the departmental budget and collecting hospital revenues.

3) National Hospital Division

The National Hospital is a general hospital, but it does not operate as an independent entity. It is defined as a conglomeration of the functions of the Department of Health. The National Hospital has no director who represents it and directs all of its functions: the medical superintendent of the National Hospital supervises the hospital's medical and administrative operations, but is not responsible for the overall administration of the Hospital.

4) Dental Division

One of the functions of the National Hospital is to provide dental services; these services are administered independently from medical services. The dental clinic of the National Hospital is directly administered by the Dental Division of the Department of Health, which provides dental care services not only at the hospital but nationwide. The division is also in charge of the dental nurse school.

5) Nursing Division

Nursing services, another responsibility of the National Hospital, are also administered independently from the medical division. The Nursing Division contains the Nursing Services Section, the Western Samoa National Hospital Section and the District Nursing Services Section. The Nursing Division administers nursing schools and nursing services; it also supports medical treatment and primary health care (PHC) in conjunction with the National Hospital, district hospitals, and health centres.

6) Public Health Division

The Public Health Division administers public health services and health education throughout the country. In addition, it administers district health and medical services through two regional medical officers.

7) Health Planning and Information Office

The Health Planning and Information Office analyzes health information, compiles health data, provides health information, and prepares health plans and manages their implementation.

Base level organizations within the Department of Health include district hospitals, health centres, and health subcentres, all of which provide medical and health services in rural areas. These base level organizations are administered either by the District Health Services-Upolu Section or the District Health Services-Savaii Section through regional medical officers.

(2) Department of Health Budget

The national budget basically consists of two budgets: a budget based on revenues and a development budget based on both revenues and foreign assistance funds. However, the budget based only on revenues has two components: a current budget and a development budget. The current budget is for current expenditures such as salaries, office expenses, and facility maintenance. The development budget is for operation of special projects. Most of the Department of Health budget is allocated to the current budget.

Table 2-23 shows changes in government expenditures and Department of Health budgets from FY 1988 to FY 1991.

Table 2-23 Changes in Government Expenditures and Department of Health Budgets

Fiscal year	Government Expenditures	Department of Health budget	
		Amount	Percentage
1988	70,545,825	8,731,060	12.4%
1989	81,824,930	9,552,790	11.7%
1990	116,107,688	10,659,735	9.2%
1991	154,313,443	11,958,385	7.7%

(Source: Budget data for 1988/1990 is from Annual Report 1988-1990, Department of Health; 1991 data is from 1992/1993 Budget Parliamentary Paper.)

Data for the Department of Health budget for FY 1992/1993 presented in the Parliamentary Paper on the budget is as follows.

Table 2-24 Department of Health Budget for FY 1992/1993 (unit: WS\$)

	Current budget	Development budget	Total	Percentage
Government revenues			163,337,900	100.0%
Department of Health revenues			450,000	0.3%
Government expenditures	85,384,068	67,447,073	153,281,141	100.0%
Department of Health expenditures	11,135,397	1,646,244	12,781,641	8.3%

(Source: Parliamentary Paper 1992, No. 11)

The National development budget and Department of Health development budget for FY 1992/1993 is as follows.

Table 2-25 Development Budgets (unit: WS\$)

Source	National total	Department of Health	District health services
Government expenditures	67,447,073	1,646,244	400,980
Project grants	36,742,685	2,410,280	667,600
Project loans	32,003,220	0	
Total	136,192,978	4,056,524	

Of the WS\$ 1,646,244 allocated for development in the Department of Health budget for FY 1992/1993, WS\$ 400,980 is for the development of District Health Services, which is related to the Project. The breakdown of the WS\$ 400,980 is as follows:

Table 2-26 Budget for District Health Service Development

Item	Amount
Domestic travel	13,000
Office operations	7,200
Consumables	11,000
Vehicle operation	4,780
Disaster rehabilitation	365,000
Total	400,980

Project grants amount to WS\$ 2,410,280 and are allocated to development projects such as National Hospital Maintenance, Medical Treatment Scheme, District Hospital Rehabilitation, and General-Health Assistance. Of the WS\$ 2,410,280, WS\$ 667,600 is allocated to District Hospital Rehabilitation.

**(3) Administrative Districts for Health and Medical Services**

Western Samoa is divided into the following districts for administration of health and medical services:

Table 2-27 Administrative Districts for Health and Medical Services

No.	District name	Population	Number of facilities	Facility name
01	Apia	46,520	1	National Hospital
	Afega	14,816	1	Afega H.C.
02	Leulumoenga	13,382	2	Leulumoenga D.H.
03	Falelatai	8,443	4	Falelatai H.C.
04	Lefaga	3,823	1	Lefaga H.C.
05	Safata	7,328	4	Fusi H.C., Sium SC, Saanaputai SC, and Saanapuuta SC
06	Falealili	4,779	2	Poutasi D.H. and Salesatele SC
07	Aleipata	8,125	4	Lalomanu D.H., Lotofaga SC, Lepa SC, and Amaile SC
08	Fagaloa	1,593	1	Fagaloa (Musumusu) H.C.
09	Lufilufi	7,806	4	Lufilufi H.C., Faleapuna SC, Falefa SC, and Sauano SC
Upolu subtotal		116,619	24	
10	Faasalelega	11,943	1	Tuasivi Referral Base Hospital
11	Fagamalo	3,664	3	Fagamalo D.H., Samalaulu SC, and Patamea SC
12	Safotu	5,416	2	Safotu H.C. and Aopo SC
13	Sataua	7,647	2	Sataua D.H. and Falealupo SC
14	Salailua	6,852	1	Foalalo D.H.
15	Satupaitea	7,169	3	Satupaitea H.C., Taga SC, and Sili SC
Palauli *3			2	Palauli H.C. and Tafuatai SC
Savaii subtotal		42,699	14	
Total		159,318	38	

(Source: Annual Report 1988-1990, Department of Health, DP7—Department of Health, and others)

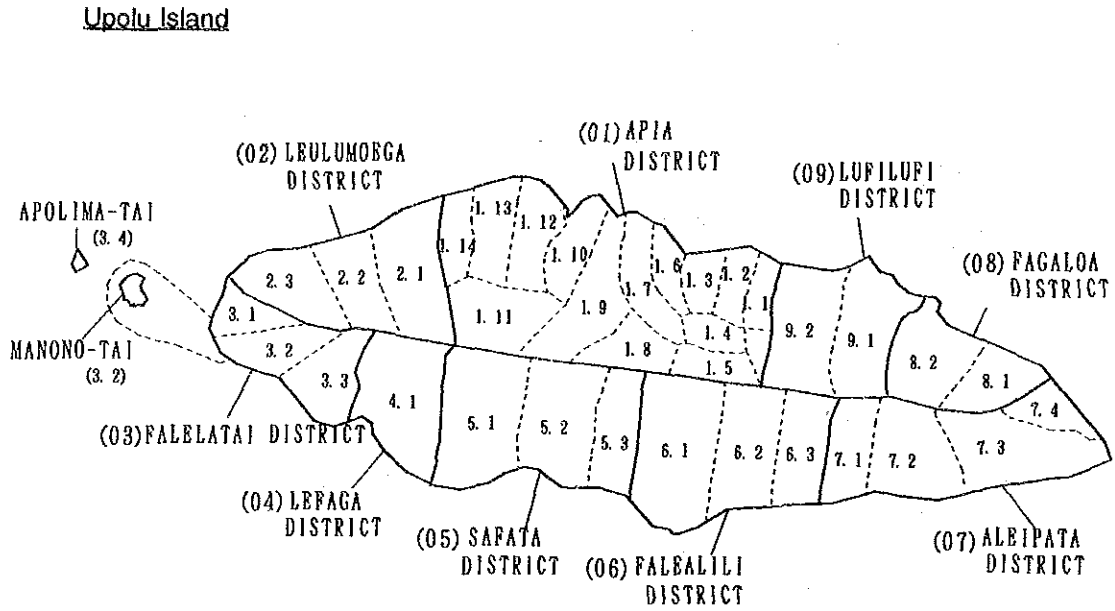
Note 1: The maps of administrative districts in the Annual Report show the country divided into 15 districts, which are given the numbers in the table above.

Note 2: Afega is listed on a statistic table in the Annual Report, but the area is not given in the maps of administrative districts in the Annual Report.

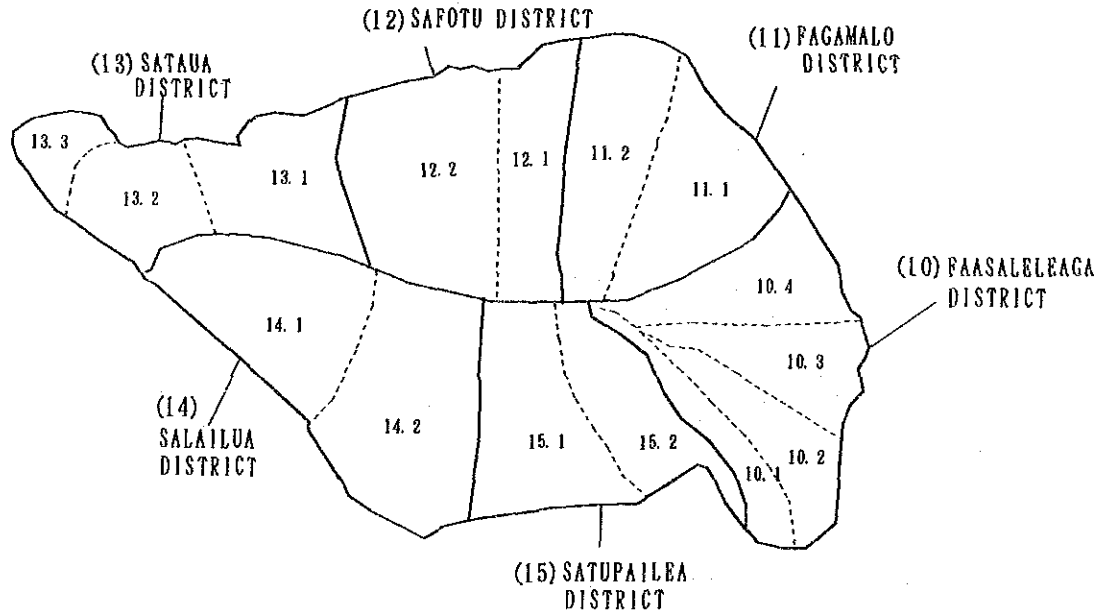
Note 3: Palauli is a new health center established in 1990: the name Palauli was used in the WHO survey report as an independent administrative district separate from Satupaitea.

The following page shows the district maps in the Annual Report.

Figure 2-6 Administrative Districts for Health and Medical Services



Savaii Island



## 2-4-2 HEALTH AND MEDICAL STANDARDS

### (1) Health Indexes

Table 2-28 compares health indexes of Western Samoa, Japan, and the Philippines which is a typical developing country.

Table 2-28 Comparison of Socioeconomic and Health Indexes

Item	Western Samoa	Japan	Philippines
GNP per person (US\$) (Note: *GDP)	670	*3,650	668
Estimated population (x 1000)	162.0	123,612	61,481
	27.7	110.8	30.3
Average life expectancy	Men: 63.0 Women: 65.0	75.9	Average 64.3
Infant mortality (per 1000)	24.9	4.6	51.5
Nutrition			
Calories (kcal/day)	3,983	2,053	1,750
Protein (g/day)	98	8.5	49.7
Number of doctors (per 100,000)	31	165	12.3
Maternal mortality rate (per 10,000)	4.3	0.8	8.0
Low birth weight infants under 2500 g (%)	4.0	6.0	15.4

(Source: Western Pacific Regional Data Bank on Socioeconomic and Health Indicators, WHO)

### (2) Morbidity and Mortality

Based on the Annual Report 1988-1990, Department of Health, and other documents, morbidity and mortality in Western Samoa are outlined below:

#### 1) Number of Patients (1990)

##### a) Number of Outpatients (estimate)

As Table 2-29 shows, the annual number of outpatient visits is estimated at 239,297. As facilities are open 260 days a year, the daily outpatient average is 920.

Table 2-29 Outpatients in 1990

Facility/area	General outpatients	Special case outpatients	Dental outpatients	Maternity outpatients	Total
National Hospital	42,963	31,862	48,473	11,911	178,172
Rural Upolu	45,697	0	0	9,582	55,279
Savali	39,298	0	* 2,160	7,351	48,809
Total	127,958	31,862	50,633	28,844	239,297

(Source: Annual Report 1988-1990, Department of Health \* The figure is an estimate based on an average over three months.)

b) Number of Inpatients

As shown in Table 2-30 the number of inpatient admissions throughout the country is 10,127; the daily average is 166.

Table 2-30 Inpatients in 1990

Facility/area	Number of in-patients per year	Total in-patient days	Average length of stay	Number of in-patients per day
National Hospital	6,338	47,852	7.55 days	131
Rural Upolu	1,685	5,667	3.36 days	16
Savaii	2,104	7,099	3.37 days	19
Total	10,127	60,528	6.04 days	166

(Source: Annual Report 1988-1990, Department of Health)

2) Patient Rate

The patient rate is a co-efficient to indicate a rate of patients to 100,000 population who are actually examined or treated in medical facilities.

Table 2-31 shows the patient rate in 1990. The figures are derived from the statistics shown in Tables 2-29 and 2-30 above.

Table 2-31 Patient Rate in 1990

Facility/area	Number of patients per day		Population	Patient Rate	
	Outpatients	Inpatients		Outpatients	Inpatients
National Hospital	520	131	46,520	1,118	282
Rural Upolu	212	16	70,099	302	23
Savaii	188	19	42,699	440	45
Total	920	166	159,318	677	104

(Source: Annual Report 1988-1990, Department of Health)

Note: Number of outpatients per day = Total number of outpatients / 260 days. Number of inpatients per day is from Table 2-29.

According to "Health Trends in Japan" issued by Japan's Health and Welfare Statistics Association, the patient rate in Japan for 1987 is about 10 times greater than in Western Samoa. If statistics for Japan were entered into the table, the figures would be 5,460 and 1,180 for outpatients and inpatients, respectively.



### 3) Morbidity

Although there is no data on morbidity trends of outpatients in the Annual Report, inpatient morbidity and the causes of inpatient mortality are shown as follows:

Table 2-32 Ten major causes of hospitalization in 1990

Rank	ICD	Disease/condition	Total	Occurrence per 10,000 population	Rank in previous years	
					1989	1988
1	480-487	Pneumonia and influenza	741	45.5	1	1
2	001-009	Infectious intestinal diseases	643	39.5	3	3
3	490-496	Chronic obstructive pulmonary disease and related conditions	585	35.9	2	2
4	780-789	Signs and symptoms	417	25.6	6	4
5	760-779	Conditions originating in the perinatal period	347	21.3	4	-
6	140-239	Malignant neoplasms	306	18.8	-	-
7	640-648	Complications mainly related to pregnancy	274	16.8	8	-
8	870-879	Injuries to the head, neck, or trunk	257	15.8	-	6
9	797-799	Causes of morbidity and mortality not clearly defined or unknown	243	14.9	7	9
10	530-537	Diseases of the esophagus, stomach, and duodenum	241	14.9	5	5

ICD = International Classification of Diseases

Table 2-33 Leading Causes of Inpatient Mortality in 1990

Rank	ICD	Disease/condition	Total	Occurrence per 10,000 population	Rank in previous years	
					1989	1988
1	420-429	Heart disease	31	1.9	2	4
2	E 958.9	Suicide	21	1.3	1	1
3	430-438	Cerebrovascular disease	12	0.8	4	1
4	140-239	Malignant neoplasms	11	0.7	6	6
5	001-009	Infectious intestinal diseases	10	0.6	-	9
5	030-041	Bacterial diseases	10	0.6	9	-
7	480-487	Pneumonia	9	0.5	3	3
7	797-799	Causes of morbidity and mortality not clearly defined or unknown	9	0.5	7	8
9	401-405	Hypertensive diseases	7	0.4	-	10
10	250-259	Endocrine gland diseases	6	0.4	4	7
11	490-496	Chronic obstructive pulmonary disease and related conditions	5	0.3	7	-

4) Trends in Tooth and Gum Disease

According to the Annual Report of the Department of Health, dental patients are increasing at an annual rate of 50%. The major tooth and gum diseases are cavities and gum inflammation.

(3) Nutrition

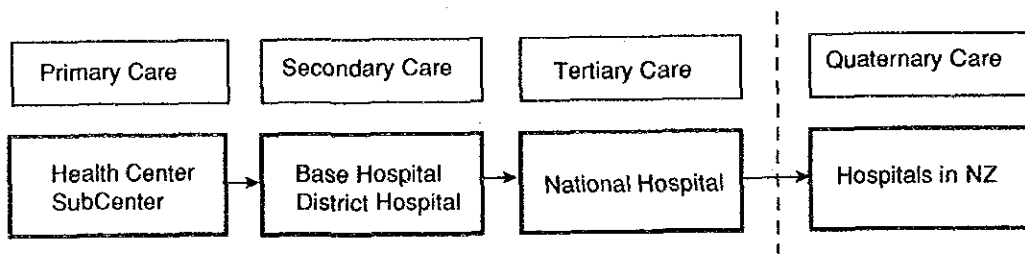
As Table 2-28 showing WHO socioeconomic and health indexes indicates, calorie intake in Western Samoa is excessive. Originally, this was a function of the country's abundant food resources. Compounding this situation is the inflow of high calorie foods such as meat and sweets into the country as lifestyles change. Furthermore, most people are not familiar with good health and nutrition practices.

2-4-3 PRESENT CIRCUMSTANCES OF MEDICAL SERVICES

(1) Medical Care Systems

Western Samoa has a referral system whereby facilities that cannot provide patients with the medical services they require refer patients to more advanced facilities. District hospitals function as referral hospitals for health centres and health subcentres and the National Hospital as the referral hospital for district hospitals.

Figure 2-7 Medical Care Systems in Western Samoa



The functions of district health and medical facilities were defined in a 1959 Department of Health Ordinance and are outlined below.

1) District Hospitals

District hospitals provide both health and medical services and admit patients. There is usually at least one resident doctor and several registered nurses and enrolled nurses.

## 2) Health Centres

Health centres provide both health and medical services but are staffed only by a few registered nurses. At centres, nurses provide basic treatment for outpatients. Health centres also admit inpatients and have 10-20 beds for the purpose. A doctor from a nearby district hospital regularly visits health centres to provide medical services.

## 3) Subcentres

Subcentres provide health and medical services for people in remote villages. Nurses at these subcentres provide primary health care and simple outpatient treatment. Subcentres usually have 1-10 beds for inpatients.

The medical service system in Western Samoa outlined in Figure 2-7 is somewhat different from the international norm. The concepts of the medical care hierarchy are outlined below:

### 1) Primary Medical Care

Primary medical care is the medical care provided by nurses at the community level in health centres and subcentres. These services are closely related to daily life and include outpatient care and the nursing of inpatients. Primary medical care also includes care provided by visiting doctors from a nearby district hospital. The medical care provided daily to general outpatients at the National Hospital and district hospitals is also a part of primary medical care.

### 2) Secondary Medical Care

Secondary medical care means the care provided by resident doctors at district hospitals equipped with laboratories and surgery facilities for patients referred by lower level medical facilities; it includes similar care provided at the National Hospital.

### 3) Tertiary Medical Care

Tertiary medical care is the more specialized care being provided only in the National Hospital.

### 4) Quaternary Medical Care

Quaternary medical care means of the more sophisticated medical care that even the National Hospital cannot provide. In Western Samoa, there is no facility providing quaternary medical care, and patients requiring it usually must go to hospitals in New Zealand. The

National Hospital transfers 50 patients a year to New Zealand. In the budget for FY 1992/1993, WS\$ 700,000 (¥ 35 million) is allocated for this service.

(2) Medical Personnel and Facilities

1) Circumstances of people Working in Medical Services

a) Number of Medical Personnel

The table below shows a breakdown by profession of people working in medical services in 1990. These figures have been compiled from the Annual Report 1988-1990, Department of Health.

Table 2-34 Medical Personnel of Medical Facilities in Western Samoa

	National Hospital	Others	Total	Notes
Medical officers (MD)	30	14	44	Excluding doctors presently studying overseas
Private practitioners	-	7	7	1 private practitioner on Savaii Island (non-practicing)
Dentists	5	1	6	1 dentist on Savaii Island
Dental nurses	20	1	21	Including 5 assistants
Dental technicians	3	0	3	
Nurses	130	127	257	Excluding nurses working for private practitioners
Pharmacists	10	3	13	Including 10 assistants
Laboratory technicians	21	2	23	Including 10 in training
X-ray technicians	6	2	8	

Note: In the "Others" column for doctors, 8 out of the 14 are working in district hospitals and 6 are working in health services and administration.

b) Number of People per Doctor and Patients per Doctor

Based on 1990 statistics, the number of people per doctor and patients per doctor are listed below. The ratio of people per doctor is based on the figure (51) for all doctors, which includes private practitioners. The ratio of patients per doctor is based on the figure (38) for doctors working at the National Hospital and district hospitals because figures from private practitioners on the number of patients are unavailable.

Table 2-35 Number of People per Doctor and Patients per Doctor

	People per doctor/ dentist/nurse	Outpatients per day	Inpatients per day
Doctors	3,124 (609)	28.7 (34.2)	4.4 (7.4)
Dentists	26,553 (1,770)	33.3 (18)	
Nurses	620 (163)	4.2 (8.9)	0.6 (2.4)

(Figures in parenthesis are for Japan shown in Health Trends in Japan.)

c) Training and Education of Medical Service Personnel

1/ Doctors

There is no medical school in Western Samoa, therefore, most Western Samoan doctors are educated at the medical school in Port Moresby, Papua New Guinea established by the governments of South Pacific countries. Some doctors also study at medical schools in Fiji, New Zealand, and Australia. In 1990, there were 26 Western Samoans studying medicine overseas.

2/ Dentists

There is no dental school in Western Samoa either, so as with doctors, dentists study overseas.

3/ Nurses

The nursing school is located near the National Hospital. This school has offered a three-year course for registered nurses and a one-year course for enrolled nurses; 20 to 30 students have been enrolled in each course. The registered nurse course, however, is being revised and upgraded as an undergraduate school of nursing affiliated with the National University of Western Samoa. The enrolled nurse course, which is intermittent, is for training health employees. The course was not offered in 1993 because the curriculum was being revised. A few nurses are dispatched abroad to develop their skills and knowledge in countries such as Australia.

4/ Laboratory technicians

Laboratory technicians are trained at schools in Fiji and Papua New Guinea.

5/ X-ray technicians

X-ray technicians are also trained at schools in Fiji and Papua New Guinea.

6/ Dental nurses

Dental nurses are trained at the dental nurse school near the National Hospital. The dental nurse course is three years.

2) Circumstances of Medical Facilities

According to the Annual Report of the Department of Health, there are 38 official medical facilities in Western Samoa; this includes facilities ranging from the National Hospital to health subcentres.

Table 2-36 shows a breakdown of the medical personnel in each category of medical facility in Western Samoa.

Table 2-36 Breakdown of the Medical Personnel in Each Category of Medical Facility

Type of facility	Number of facilities	Number of beds	Number of primary medical services personnel				
			Doctors	Dentists	Nurses	Laboratory technicians	X-ray engineers
National Hospital	1	284	30	5	130	21	7
Base Hospital	1	50	2	1	127	2	1
District hospital	7	120	6	0		0	0
Health center	8	239	0	0		0	0
Subcenter	21	88	0	0			
<b>Total</b>	<b>38</b>	<b>781</b>	<b>38</b>	<b>6</b>	<b>257</b>	<b>23</b>	<b>8</b>

(Source: Annual Report 1988-1990, Dept. of Health)

### (3) Medical Fees and the System for Dispensing Pharmaceutical Drugs

#### 1) Medical Fee System

The Department of Health budget for FY 1992/1993 is about WS\$ 12.8 million (about ¥ 650 million). This amounts to WS\$ 80 (¥ 4000) per person for both health and medical services. Fees collected from patients amount to WS\$ 450,000, which is only 3.5% of the sectoral budget. The bulk of the financial burden for medical expenses is borne by the national treasury. The medical fees and the payment system are as follows:

#### a) National Hospital

##### 1/ Examination and Treatment of Outpatients

At the National Hospital, which is directly operated by the Department of Health, all outpatients pay \$WS 0.50 for each visit regardless of the examination or treatment provided. This fee must be paid in advance and does not include charges for drugs.

##### 2/ Examination and Treatment Outside Regular Hours

Patients pay WS\$ 2 for each hospital visit outside regular hours.

3/ Examination and Treatment of Inpatients

The hospital provides inpatients with food and linen services.

Fees vary with the room and are as follows:

Single-patient room: WS\$ 12/day; two-patient room: WS\$ 6/day;  
standard room: WS\$ 4

b) Tuasivi Hospital

1/ Examination and Treatment of Outpatients

All outpatients pay \$WS 0.30 for each visit; as at the National Hospital, the outpatient fee is standard for all examinations and treatments. The fee must be paid in advance and does not include charges for drugs.

2/ Examination and Treatment Outside Regular Hours

Patients pay WS\$ 1 for each visit outside regular hours.

3/ Examination and Treatment of Inpatients

The hospital has only one standard room and does not provide inpatients with food or linen services. The fee is WS\$ 4 + WS\$ 1/day regardless of the examination or treatment provided; it is paid when the patient is released from the hospital.

c) District Hospitals and Health Centres

For residents of a community operating a district hospital or health centre, fees are the same as those of Tuasivi Hospital. Fees for non-residents are determined by each community.

d) Fees for Pharmaceutical Drugs

The Department of Health sets the prices charged to patients for pharmaceutical drugs. Outpatients must pay for drugs when they present their prescriptions.

2) Pharmaceutical Services

Pharmaceutical services and medical treatment are independently operated in Western Samoa. Though pharmacies sell some non-prescription drugs, in principle, a doctor's prescription must be presented to obtain drugs at pharmacies. Most patients get drugs from the pharmacies at the National Hospital, Tuasivi Hospital, or health centres because there are only two private drugstores in the country and both are in Apia. Private practitioners issue prescriptions but their clinics do not have pharmacies.

## 2-4-4 FEATURES AND PROBLEMS OF HEALTH AND MEDICAL SERVICES

### (1) Features of Health and Medical Services

As the health indexes indicate, Western Samoa is a developing country in terms of health and medical standards. However, statistics on infant mortality, average life expectancy, nutrition intake, and inhabitants per doctor put Western Samoa in the upper range of developing countries. This is a function of Western Samoa's benevolent natural environment which provide its people with a bountiful food supply. Given this context, the features of health and medical services in the country are outlined as follows:

#### 1) Lifestyle and Nutrition

As nature has always provided Western Samoa with abundant supplies of food, historically, people have been able to eat without concern about depleting food stocks. In recent years, lifestyles have westernized and diets have changed: Western Samoans' consumption of meat and sweets has increased. Due to excessive calorie intake, obesity has become a serious public health problem and in order to overcome it the Department of Health has been promoting better diet and nutrition practices.

#### 2) Patterns of Morbidity

The patterns of morbidity in Western Samoa are atypical for a developing country but are similar to those of a developed country. In developing countries, infectious diseases and diseases related to poor nutrition are usually the primary causes of morbidity. In Western Samoa, however, remarkable diseases in developed countries such as heart disease, cerebrovascular disease, malignant neoplasms, and hypertensive diseases are the main causes of death. Furthermore, it appears that diabetes as a result of obesity has greatly increased. In recent years, among young people, suicide has been the primary cause of death. Although the reason for this has also not been clearly established, friction between youths and adults, expectations created by the expansion of information and the restrictions of traditional customs or lifestyles, is a likely cause. The Department of Health considers the escalation of suicides among young people to be a vital social problem and funds are allocated in PSIP during DP7 to find solutions.



3) Demand for Medical Services

In Western Samoa in 1990 the numbers of outpatients and inpatients per 100,000 people are 577 and 104, respectively. In Japan, these figures are about 5,460 and 1,180, respectively, 10 times greater than in Western Samoa.

4) Excessive Number of Medical Facilities

Except for Apia, there are no major concentrations of population in the country. Villages of a few hundred to a few thousand people are scattered along the coasts of both Upolu and Savaii Islands. Medical facilities such as district hospitals and health centres are located in all larger villages that function as regional centres. Each village has built its own facilities without any master plan for health and medical facilities. As a result, there are too many facilities relative to the population.

5) Regional Disparities in Medical Services

As Western Samoa only has a population of about 160,000, it is appropriate for the country to have only one national hospital that provides tertiary medical services and to locate it on Upolu Island where two-thirds of the people live. Given this situation, it is inevitable that medical services on Upolu Island are superior to those on Savaii Island.

6) People By-passing Local Facilities to Go to the National Hospital

As Western Samoa is a small country, transportation to Apia where the National Hospital is located is quite convenient. As a result, especially on Upolu Island, many people by-pass local facilities to go to the National Hospital. The visitation rates at local facilities on Upolu is very low compared to the National Hospital. But relatively few people on Savaii Island by-pass local facilities to go to the National Hospital because it is less convenient for them to go to Apia.

(2) Problems in Health and Medical Services

In Western Samoa, although the morbidity rate is low as a result of the climate and other natural features, the infant mortality is still high and the average life expectancy is short compared to developed countries. This is a consequence of the following health and medical problems.

## 1) Problems in Medical Services

### a) The level of Medical Technology

Medical treatment technology in Western Samoa is inadequate for the country's disease pattern which is similar to that of a developed country. This causes the high mortality rates from heart disease and hypertensive diseases. In order to utilize advanced medical technology, skilled personnel and sophisticated equipment and facilities are required, and Western Samoa has a shortage of all of them. To acquire and maintain such personnel, equipment and facilities, there must be a certain level of demand. In a country with a small population like Western Samoa, few patients need such advanced medical technology, even if it were obtained. Therefore, it would not be used efficiently. It is more advantageous for Western Samoa to expand the visitations of foreign specialists and to send some patients requiring specialized medical care to New Zealand. However, it is important to upgrade treatment technology by expanding the training of the present staff so that treatment provided overseas or by doctors invited to Western Samoa can be effectively followed up.

### b) Distribution of Doctors, Nurses, and Dentists

As Table 2-28 shows, the number of doctors per 100,000 people in Western Samoa is one-fifth that of Japan. At first glance, it appears that there is a great shortage of doctors in Western Samoa. However, as Table 2-35 shows, the number of patients per 100,000 people in Western Samoa is one-tenth that of Japan. Western Samoa, therefore, has no absolute shortage of doctors: the problem is the distribution of doctors within the country. Table 2-37 compares the patient to doctor ratios at the National Hospital and other rural medical facilities around the country.

A doctor at the National Hospital treats about one-fourth the average number of patients of a doctor in Upolu-rural or on Savaii Island. As the National Hospital is the top referral hospital in the country and provides relatively sophisticated medical services, it is not always adequate simply to compare it with other medical facilities in rural areas. Despite this, the one-fourth figure above proves that there is an overconcentration of doctors at the National Hospital.

Table 2-37 Comparison of the Patient to Doctor Ratios and the Distribution of Doctors

	National Hospital	Facilities in rural Upolu	Facilities on Upolu	Facilities on Savaii
Doctors	30	4	34	4
General outpatients	42,963	45,697	88,660	39,2948
Special case outpatients	31,862	0	31,862	0
Subtotal	74,825	45,697	120,522	39,2948
Outpatients/doctor	2,494	11,424	3,545	9,825
Inpatients per day	131	16	147	19
Inpatients per day/doctor	4.4	4.0	4.3	4.8

Since Table 2-35 shows that the number of patients per nurse is quite low compared to Japan, as with doctors, there is no absolute shortage of nurses in the country. However, as Table 2-35 shows, there is a definite shortage of dentists: the number of patients per dentist is 1.9 times greater than in Japan. Further, patients are increasing by 50% annually.

c) Excessive Number of Medical Facilities

As explained in Section 2-4-4 (1) which describes the features of health and medical services in the country, there are too many medical facilities in rural areas. If a doctor were to be stationed at each of these facilities, there would be too few patients for him to treat. Even areas that have a district hospital do not usually have enough residents to warrant the stationing of a doctor at the hospital. For reasons of efficiency alone, it is unrealistic to have doctors stationed at all medical facilities in the country. Consequently, the vast majority of medical facilities are run by nurses and are equipped with only the most basic equipment. This has increased medical disparities between these facilities and the National Hospital. It is quite natural that people living near these low level facilities often avoid them and go to the National Hospital. This practice worsens the already low rates of use of low level facilities and unbalances the system even further. Despite this situation, the Department of Health has to continue to station nurses in order to maintain the existing medical service even at facilities that are infrequently used. This is a great waste of both manpower and money.

d) Lack of Measures for Correcting Regional Disparities

The regional disparities are inevitable due to the existence of the National Hospital. However, measures must be taken to minimize the disparities. The primary and secondary medical services on Savaii Island must be upgraded to levels higher than in rural Upolu Island. But no effective measures have been taken to date; residents of Savaii Island have access only to very basic medical care unless they go all the way to the National Hospital, which costs them considerable time and money.

2) Problems in Health Services

a) As a result of excessive food consumption and due to the lack of knowledge on health and nutrition, rates of diabetes, heart disease, and hypertensive diseases are all high.

b) Mother and child health services are inadequate, thus the rates of diseases related to pregnancy and diseases afflicting infants are also high.

c) Public health facilities are in poor condition and sanitation standards are often low. In Western Samoa, one of the most vital problems in public sanitation is the inadequate treatment of waste. Generally, wastewater is discharged into septic tanks where basic putrefaction takes place but no disinfection is done.

As the islands of Western Samoa are volcanic and the soil is primarily volcanic ash and porous stone, water drains very well. Due to the design of septic tanks and the well-draining soils, wastewater easily drains out before being disintegrated. Therefore, the pumping of sludge from most septic tanks is infrequently required. As a result, the groundwater may become contaminated, and contaminated groundwater near the coast may cause the environmental problem of sea pollution.

## 2-5 HEALTH AND MEDICAL SERVICES ON SAVAII ISLAND AND THE PRESENT CIRCUMSTANCES OF TUASIVI HOSPITAL

### 2-5-1 HEALTH AND MEDICAL SERVICES ON SAVAII ISLAND

#### (1) Implementation Bodies of Health and Medical Services

All health and medical services for residents of Savaii Island are provided by government facilities. These services are administered by the regional medical officer stationed at Tuasivi Hospital. According to DP7, Savaii Island is divided into seven administrative districts for health and medical services, and there are four district hospitals including Tuasivi Hospital, three health centres, and seven health subcentres.

Although Tuasivi Hospital is one of the district hospitals, it functions as a referral hospital for all other facilities. To distinguish it from other district hospitals, it is called a base hospital. The hospital provides primary and secondary care for people in its vicinity and secondary care for people from other parts of the island. In addition, as a local agency of the Department of Health, it also provides health services.

Table 2-38 shows the major facilities and the medical personnel stationed at them in each administrative district. Except for Tuasivi Hospital, most other district hospitals, health centres, and health subcentres were built by their respective communities and are administered by volunteers from community women's committees. Each community decides fees for medical services and is responsible for facility maintenance, but the Department of Health stations doctors and nurses and provides medical and health services.

Table 2-38 Medical Personnel in Each Administrative District on Savaii Island

Administrative district	Major facility	Medical personnel				Total
		Doctors	Dentists	Nurses	Others	
Faasafelega	Tuasivi R.B.H.	2	1	12	9	22
Fagamalo	Fagamalo D.H.	0	0	6	0	6
Safotu	Safotu H.C.	1	0	5	0	6
Sataua	Sataua D.H.	1	0	5	0	6
Salailua	Foalalo D.H.	0	0	6	0	6
Satupaitea	Satupaitea H.C.	0	0	6	0	6
Total		4	1	40	9	54

(Source: Annual Report 1988-1990, Department of Health)

## (2) Finances

### 1) Changes in Previous Years

The national budget provides funds for health and medical services on Savaii Island. Table 2-39 compares the overall government expenditures, the budgets of the Department of Health, and funds allocated to Savaii Island from 1988-1991.

Table 2-39 Comparison of Overall Government Expenditures, Department of Health Budgets, and Funds Allocated to Savaii Island from 1988-1991

Fiscal year	Overall government expenditures	Department of Health budget		Funds for Savaii Island	
		Amount (WS\$)	Percentage	Amount (WS\$)	Percentage
1988	70,545,825	8,731,060	12.4%	990,710	11.3%
1989	81,824,930	9,552,790	11.7%	1,029,780	10.8%
1990	116,107,688	10,659,735	9.2%	1,103,420	10.4%
1991	154,313,443	11,958,385	7.7%	1,211,711	10.1%

(Source: In the above table, 1988/1990 data on government expenditures and the Department of Health Budgets are from the Annual Report 1988-1990, Department of Health; 1991 data on government expenditures and the Department of Health Budget are from 1992/1993 Budget Parliamentary Paper. Data on funds for Savaii Island in the Department of Health Budgets is from answers to a questionnaire prepared by the Department of Health.)

### 2) Budget for FY 1992/1993

Table 2-40 shows the overall Department of Health budget for current expenditures and allocations for current expenditures on Savaii Island in FY 1992/1993 as described in Budget Parliamentary Paper 1992.

Table 2-40 Department of Health Budget for Current Expenditures and Allocations for Savaii Island in FY 1992/1993

Expenditures	Department of Health	Savaii Island	
	Amount (WS\$)	Amount (WS\$)	Percentage
Personnel	5,818,465	615,280	47.3%
Local/overseas travel	232,980	30,770	2.4%
Office expenses	170,000	12,500	1.0%
Office machines/fittings	17,560	8,790	0.7%
Machines/equipment	153,600	31,335	2.4%
Utilities	701,927	98,800	7.6%
Operating supplies	230,000	35,000	2.7%
Vehicles	220,000	55,475	4.2%
Facility maintenance	308,160	42,000	3.2%
Local training	3,400	250	0.0%
Medical stores	2,000,000	360,200	27.7%
Rations	500,000	0	
Overseas treatment	700,000	0	
Accommodations	26,300	0	
Contingencies	5	0	
<b>Total</b>	<b>11,135,397</b>	<b>1,301,900</b>	<b>100.0%</b>

(Source: Parliamentary Paper 1992, No. 11)

### (3) Use of Health and Medical Facilities

Table 2-41 shows the use of the 14 health and medical facilities on Savaii Island (1988-1990 average).

In general, the rates of use of the facilities are low. Bed occupancy rates are particularly low: the average bed occupancy rate, excluding the subcentres which have only one bed, is about 20%. Tuasivi Base Hospital, other district hospitals, and Safotu and Satupaitea Health Centres, however, are relatively well used. In addition, the new health centres in Palauli was very underutilized in 1990 because it had just opened, but at present it is well used. There are no statistics for the Patamea Subcentres.

Table 2-41 Use of Health and Medical Facilities on Savaii Island (1988-1990 average)

Administrative district	Major facility	Number of patients		Number of beds	Bed occupancy rate (%)
		Outpatients	Inpatients		
Faasaleleaga	Tuasivi R.B.H.	10,607	974	50	21.9
Fagamalo	Fagamalo D.H.	2,477	109	20	5.6
	Patamea SC	-	-	-	-
	Samaleulu SC	1,588	48	4	9.6
Safotu	Safotu H.C.	3,584	220	24	13.4
	Apo SC	502	23	1	36.6
Sataua	Sataua D.H.	7,758	407	20	17.1
	Falualupo SC	860	36	1	32.8
Salailua	Foalalo D.H.	7,745	200	10	20.4
	Taga SC	931	54	1	55.8
Satupaitea	Satupaitea H.C.	4,991	256	24	12.9
	Sili SC	166	3	1	2.3
Palauli	Palauli H.C.	660	34	50	0.6
	Tafua SC	460	39	1	45.9
Total		42,328	2,412	207	-

(Source: Annual Report 1988-1990, Department of Health)

### (4) Circumstances of By-pass Patients

There are two categories of patients on Savaii Island using the National Hospital: people who are referred to the National Hospital by Tuasivi Hospital and people who voluntarily by-pass Savaii Island facilities and go directly to the National Hospital. The number of people on Savaii Island using the National Hospital can be estimated by establishing the

ratio of visits to medical facilities on Savaii Island to the island's population, and by comparing this ratio with the ratio of visits to medical facilities throughout the country to the national population. For the reasons outlined in a)-c) below, this comparison makes it possible to estimate the number of people on Savaii Island using the National Hospital. As Western Samoa is a small country with relatively homogenous sanitary standards and disease trends, this comparison assumes that people in all parts of the country require medical services at an equal rate.

a) On Savaii Island, the ratio of visits to medical facilities to the island's population would be the same as the national average if nobody requiring medical care on the island went to the National Hospital.

b) If there were patients from Savaii Island seeking medical care at the National Hospital they would not be counted as patients of facilities on Savaii Island but as patients of the National Hospital.

c) If the rate of visits to medical facilities on Savaii Island were lower than the rate of visits to medical facilities for the country as a whole, the amount by which it is less must be equal to the number of patients from Savaii Island using the National Hospital.

The number of people on Savaii Island by-passing medical facilities on the island and going to the National Hospital can be calculated by subtracting the number of patients from Savaii Island referred to the National Hospital from the total number of patients from Savaii Island using the National Hospital. Only 80 patients on Savaii Island are referred to the National Hospital each year so this figure is ignored in calculating the number of by-pass patients on Savaii Island. Given this, the number of by-pass patients from Savaii is considered equal to the total number of patients from Savaii Island using the National Hospital. The estimate of by-pass patients from Savaii Island is outlined below.

#### 1) By-pass Outpatients

Table 2-42 compares the number of outpatient visits, including those of special clinics, to medical facilities and the ratio of these visits to the population in 1990 by region.



Table 2-42 Comparison of Outpatient Visits to the Population by Region in 1990

Area	Population	Visits to medical facilities	Ratio of visits to population	Compared to national average
Urban area around Apia	46,520	74,825	1.61	1.61
Rural Upolu	70,099	45,697	0.65	0.65
Savaii	42,699	39,2948	0.92	0.92
All of Western Samoa	159,318	159,820	1.00	1.00

The ratio of outpatient visits to the population of Savaii Island compared to the national average is 0.92. Thus 92% of the outpatients use medical facilities on the island and 8% use the National Hospital. The number of people this 8% figure represents is calculated below:

$$39,298 / 0.92 \times 0.08 = 3,417$$

2) By-pass Dental Outpatients

Table 2-43 compares the number of visits to dental facilities and the ratio of these visits to the population by region in 1990.

Table 2-43 Comparison of Dental Visits to the Population by Region in 1990

Area	Population	Visits to dental facilities	Ratio of visits to population	Compared to national average
Apia	46,520	48,473	1.04	3.25
Rural Upolu	70,099	0	0	0
Savaii	42,699	2,160	0.05	0.16
All of Western Samoa	159,318	50,633	0.32	1.00

The ratio of dental outpatient visits at Tuasivi Hospital to the population of Savaii Island compared to the national average is 0.16. Thus 84% of dental outpatients on the island use the National Hospital. The number of people this 84% figure represents is calculated below:  $2,160 / 0.16 \times 0.84 = 11,340$

3) By-pass Inpatients

Table 2-44 compares the number of inpatient visits to medical facilities and the ratio of these visits to the population by region in 1990.

Table 2-44 Comparison of Inpatient Visits to the Population by Regions in 1990

Area	Population	Visits to medical facilities	Ratio of visits to population	Compared to national average
Apia	46,520	6,338	0.1362	2.14
Rural Upolu	70,099	1,685	0.0240	0.38
Savaii	42,699	2,104	0.0493	0.78
All of Western Samoa	159,318	10,127	0.0636	1.00

The ratio of inpatient visits to medical facilities on Savaii Island to the population of the island compared to the national average is 0.78. Thus 22% of inpatients on the island use the National Hospital. The number of people this 22% figure represents is calculated below:

$$2,104 / 0.78 \times 0.22 = 593$$

## 2-5-2 THE OPERATION AND ADMINISTRATION OF TUASIVI HOSPITAL

### (1) Medical Services

#### 1) Outpatient Services

a) Clinics: General outpatient clinic, Dental clinic, Antenatal care/family planning clinic

b) Hours: Monday-Friday, 8:00-12:00 and 13:00-16:00, 260 days a year

#### 2) Inpatient Services

Nursing is provided for inpatients 24 hours a day. There is space for 50 beds, but as demand for them is limited, many are not in operation.

#### 3) Medical Services Outside Regular Hours (emergencies)

The regional medical officer and other important medical staff live on-site so that they can attend to emergencies outside regular hours. Tuasivi Hospital has two ambulances. On-duty nurses in the wards receive calls at night.

#### 4) External Services of Doctors

The regional medical officer on Savaii Island and the doctor stationed at Sataua District Hospital make the rounds once or twice a week on an irregular basis to district hospitals and health centres that have no resident doctor. As the schedule is usually pre-announced, patients congregate there on that day.

## **(2) Health Services**

### **1) Primary Health Care**

Under the direction of the regional medical officer, nurses and health inspectors are in charge of primary health care such as mother and child health, nutrition, and expanded immunization programmes. They also promote health education at schools and public relations on health issues in the community.

### **2) Family Planning**

Under the direction of the Nursing Division of the Department of Health, midwives provide guidance on mother and child health. They also supply and fit birth control devices.

### **3) Sanitation**

Under the direction of the Health Inspectorate of the Department of Health, health inspectors monitor infectious diseases, programmes to control noxious insects, water supply conditions, wastewater disposal conditions, food sanitation, and school health.

## **(3) Principal Medical Service Systems**

### **1) General Outpatient Service System**

#### **a) Reception, Accounting, and Medical Records**

- 1/ An outpatient visiting the hospital first goes to reception and pays a fixed fee; there is no difference in procedures between new patients and repeat patients.
- 2/ A medical records clerk takes out the card of the patient from the file of his/her family and takes it to an examination room.
- 3/ The patient waits in the hallway and is then called in turn by the doctor.
- 4/ After the examination is over, the patient's medical record is filed with the records of other family members.

#### **b) Tests**

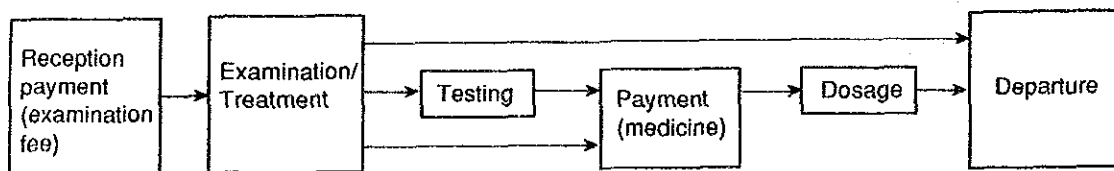
- 1/ When X-ray inspections or clinical laboratory tests are needed, the doctor issues a form requesting these services and the patient takes it to the appropriate room.
- 2/ The X-ray and/or laboratory technicians perform their tasks according to the doctor's instructions and pass the results onto the doctor.

3/ All physiological examinations are conducted by doctors as a step in the diagnosis process.

c) Dosage

- 1/ A patient requiring pharmaceutical drugs take the prescription issued by the doctor to the pharmacy.
- 2/ The pharmacy issues the patient an invoice and the patient pays for the medicine at the reception. The reception issues the patient a receipt.
- 3/ While the patient is paying for the medicine, the pharmacy fills the prescription.
- 4/ The patient receives medicine from the pharmacy when the receipt is shown.

The patient flow described above is as follows:



2) Antenatal Care and Family Planning Guidance System

a) Antenatal Care

- 1/ A woman taking a pregnancy test proceeds through the system in the same manner as other outpatients.
- 2/ After pregnancy is confirmed, midwives conduct regular check-ups and provide perinatal and antenatal care. After the initial pregnancy test, all medical services related to pregnancy are free.
- 3/ Regular check-ups and guidance for pregnant women are not provided individually but at group meetings. These meetings are held in the antenatal clinic and women attend them without proceeding through the system as an outpatient seeking medical consultation.

b) Family Planning

- 1/ Guidance on family planning is regularly provided for women who want it.

- 2/ Family planning concepts and the use of birth control devices are explained with diagrams, and birth control pills and other contraceptives are distributed or fit at the antenatal clinic.
- 3/ All family planning services are provided free of charge.

c) Mother and Child Health Care

Midwives check mother and child health and provide guidance for mothers.

3) Dental Care System

Procedures for dental patients are basically the same as those for general outpatients. However, in keeping with practices at the National Hospital, dental records are filed separately from medical records.

4) Inpatient Service System

a) Examination, Treatment, and Nursing

Inpatients are treated by doctors making the rounds at the hospital and nursing is provided by nurses and family members. According to the rules, one family member is permitted to stay overnight at a facility for families; however, if there is an empty bed in the hospital, a family member is sometimes permitted to sleep there instead.

b) Food and Linen Services

At Tuasivi Hospital, food and linen services (the lending of sheets and pajamas) are not provided, but nurses instruct family members on the provision of food. Patients are expected to provide their own linen, which is usually washed by family members.

5) Testing System

a) Clinical Laboratory Tests

For outpatients requiring blood, biochemical or bacteriological tests, blood, urine, feces, or sputum are collected by technicians in the laboratory. For inpatients, samples are collected by nurses or technicians in the wards.

b) X-ray Inspections

At present, the X-ray apparatus is not functioning, but prior to the cyclone, X-ray inspections could be done for patients with a chest problem or fractured bones. In such cases, patients were sent to the X-ray room.

6) Surgical Operation

Cyclone Val damaged the anesthesia apparatus at the hospital, and since then, all patients requiring surgical operations, except for one woman who required an emergency cesarean section, have been sent to the National Hospital. Surgical operations performed before the cyclone, all of which are classified as emergency surgical operations, are as follows: suturing of cuts from accidents, emergency incisions, emergency amputations, basic abdominal surgical operations, cesarean sections, and appendectomies. The configuration of staff involved in an operation depends on the type of surgical operation being done. Most basic surgical operations require only one doctor and one nurse. A full team consisting of a surgeon, an anesthetist, a midwife, and two nurses conducts major surgical operations such as cesarean sections.

7) Delivery System

Normal deliveries are conducted in the delivery room by a midwife and one or two assistants. In the case of cesarean sections, a doctor and the other staff described above deliver the baby in the operation theatre. Mothers and newborns are cared for in the women's ward. Infants requiring intensive care are transferred to the National Hospital.

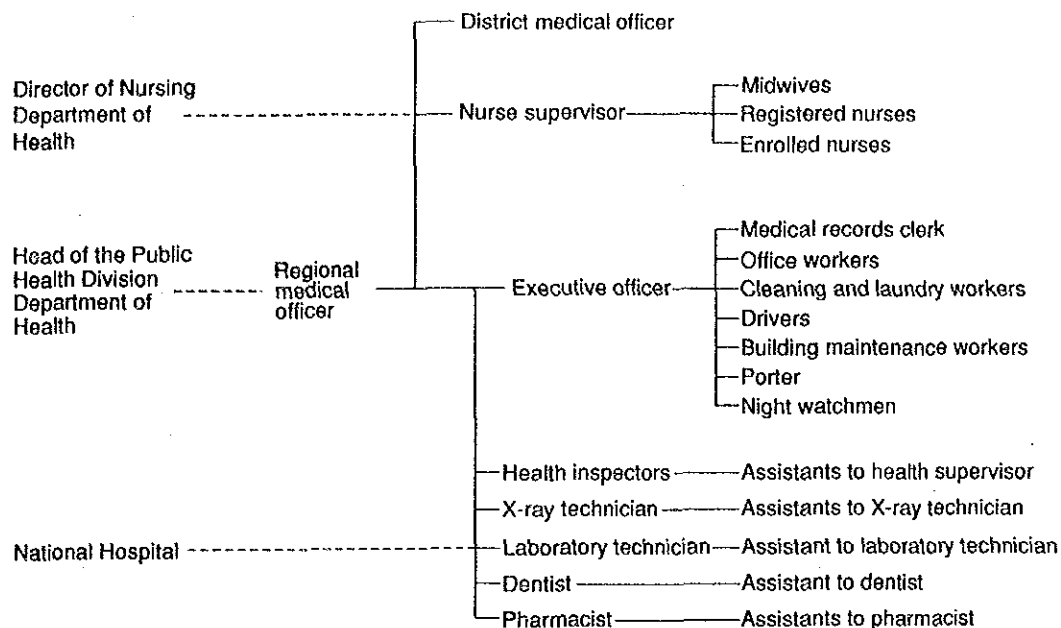
(4) Organization and Administration System

1) Organization of Tuasivi Hospital

The administration system at Tuasivi Hospital is similar to that of the National Hospital. Many operations of each section of Tuasivi Hospital are directly connected with relevant sections in the Department of Health or the National Hospital.

- a) Nursing and primary health care provided by nurses are administered by the regional medical officer but the Nursing Division of the Department of Health also controls them.
- b) Laboratory technicians at Tuasivi Hospital are administered by both the regional medical officer and the clinical laboratory of the National Hospital.
- c) Administrative activities of Tuasivi Hospital are reported to both the regional medical officer and the Chief Executive Officer of the Administrative Division of the Department of Health.

Figure 2-8 Organization Chart of Tuasivi Hospital



2) Staff Configuration

Based on different information, the present configuration is presumed to be as follows:

Table 2-45 Staff Configuration at Tuasivi Hospital

Classification	Occupation	Number	Notes
Medical	Doctor (medical officer)	3	Only 1 in Oct, 1992, but 2 in Feb. 1993
	Nurse supervisor	1	
	Midwife	5	
	Registered nurse	11	
	Enrolled nurse	2	
Dental	Dentist	1	
	Dental nurse	1	
	Dental technician	(1)	Regularly sent from Apia
Paramedical	Laboratory technician	2	Including 1 assistant
	X-ray technician	2	Not presently stationed
	Pharmacist	3	Including 2 assistants
Public health	Health inspector	4	Only 1 according to the budget
Non-medical	Administrative officer	1	
	Office worker	4	An accounting clerk, a stationary clerk, a typist, and a clerk- trainee
	Medical record clerk	1	
	Bldg. maintenance worker	5	1 employee and 4 day workers
	Driver	5	1 transport inspector and 4 drivers
	Cleaning and laundry worker	3	1 person in charge and 2 day workers
	Porter	1	Employee
	Night watchman	3	
<b>Total</b>		<b>58</b>	

## 2-5-3 DAMAGE TO TUASIVI HOSPITAL CAUSED BY THE CYCLONES AND ITS REHABILITATION

### (1) Damage to the Buildings and Recovery

#### 1) Outline of Damage to the Buildings and Measures for Recovery

##### a) Cyclone Ofa

The children's ward was the most seriously damaged examination and treatment facility because its roof was destroyed. Damage to other wards was relatively light. The building for outpatients, the building containing facilities for X-ray inspections, clinical laboratory testing, and the dental clinic, and the building for surgical operations and delivery only sustained damaged roofs.

The X-ray technician's house was the most seriously damaged of all houses: it was completely destroyed. About 30-50% of the roofing was blown off the houses of the regional medical officer, the nurses, and the dentist. Houses of the pharmacist, technicians, and health inspectors were only slightly damaged. Damaged buildings were repaired soon after the cyclone by the Government and repair teams from overseas. The repairs done by these teams are as follows:

- 1/ The 32nd Field Squadron, British Army, was dispatched immediately after the cyclone and mainly repaired the roofs of the hospital buildings.
- 2/ FAIM, a crew of electricians, carpenters, and plumbers, was sent by a rotary club in Australia; this crew did equipment work and finishing work on the houses of the X-ray technician, the dentist, and the doctors.

##### b) Cyclone Val

Cyclone Val caused more damage to all buildings than Cyclone Ofa. The X-ray technician's house, which was completely destroyed by Ofa and had just been rebuilt, the regional medical officer's house, the dentist's house, and the garage, were completely destroyed by Val. The houses of the pharmacist and technicians, which were not seriously damaged by Ofa, were seriously damaged by Val. The buildings for X-ray inspections, clinical laboratory testing, and the dental clinic did not collapse, but were also seriously damaged. The roofs were blown off the buildings for outpatients,



surgical operations, and delivery, therefore, their interior and exterior finishes and 50% of their installations were destroyed. Many of the buildings Val damaged were repaired soon after the cyclone by the Government and repair teams from overseas. The repairs done by these teams are as follows:

- 1/ The Queen's Gurkha Engineers, British Army, was dispatched immediately after the cyclone and mainly repaired the roofs of hospital buildings.
- 2/ Sawhorse, a New Zealand volunteer group of retired craftsmen, was sent by the Government of New Zealand; this group rebuilt the regional medical officer's house.

The houses of the X-ray technician and the dentist, and the garage, have not been rebuilt. Since only simple roof repairs were done to the seriously damaged buildings for X-ray inspections, clinical laboratory testing, and the dental clinic, and the pharmacist's house, they cannot presently be used.

## 2) Recovery of Functions to Date

At present, examinations and treatment at Tuasivi Hospital are greatly hindered by the cyclone damage. The recovery of hospital functions to date can be classified into the following three categories:

### a) Functions Recovered

Spaces and installations have been recovered by temporary repairs so that the functions of the facilities could continue at pre-cyclone levels.

Examination and treatment rooms for general outpatients; the wards; the surgical operation and delivery building; rooms for antenatal care and family planning; the generator room; houses other than those of the X-ray technician, the pharmacist, and the dentist; and the administration building

### b) Functions Reduced

Previous functions have been reduced because alternate facilities or insufficiently repaired facilities must be used.

The clinical laboratory, the dental clinic, pharmacy rooms, and the garage