No. 3

BASIC DESIGN STUDY REPORT
ON
THE PROJECT FOR THE CONSTRUCTION
OF
NEW TUNGARU CENTRAL HOSPITAL
IN
THE REPUBLIC OF KIRIBATI

DECEMBER, 1988

JAPAN INTERNATIONAL COOPERATION AGENCY

BASIC DESIGN STUDY REPORT
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MARCH, 1989

JAPAN INTERNATIONAL COOPERATION AGENCY

PREFACE

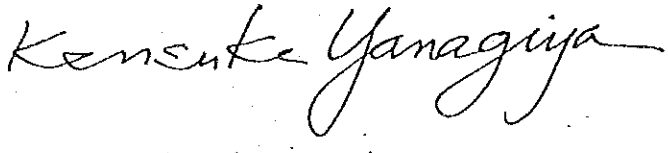
In response to the request of the Government of the Republic of Kiribati, the Government of Japan has decided to conduct a Basic Design Study on the Project for the Construction of New Tungaru Central Hospital and entrusted the survey to the Japan International Cooperation Agency (JICA). JICA sent to Kiribati a study team headed by Dr. Yukio Matsutani, Deputy Director, Medical Economics Division, Health Insurance Bureau, Ministry of Health & Welfare, from September 21 to October 22, 1988.

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

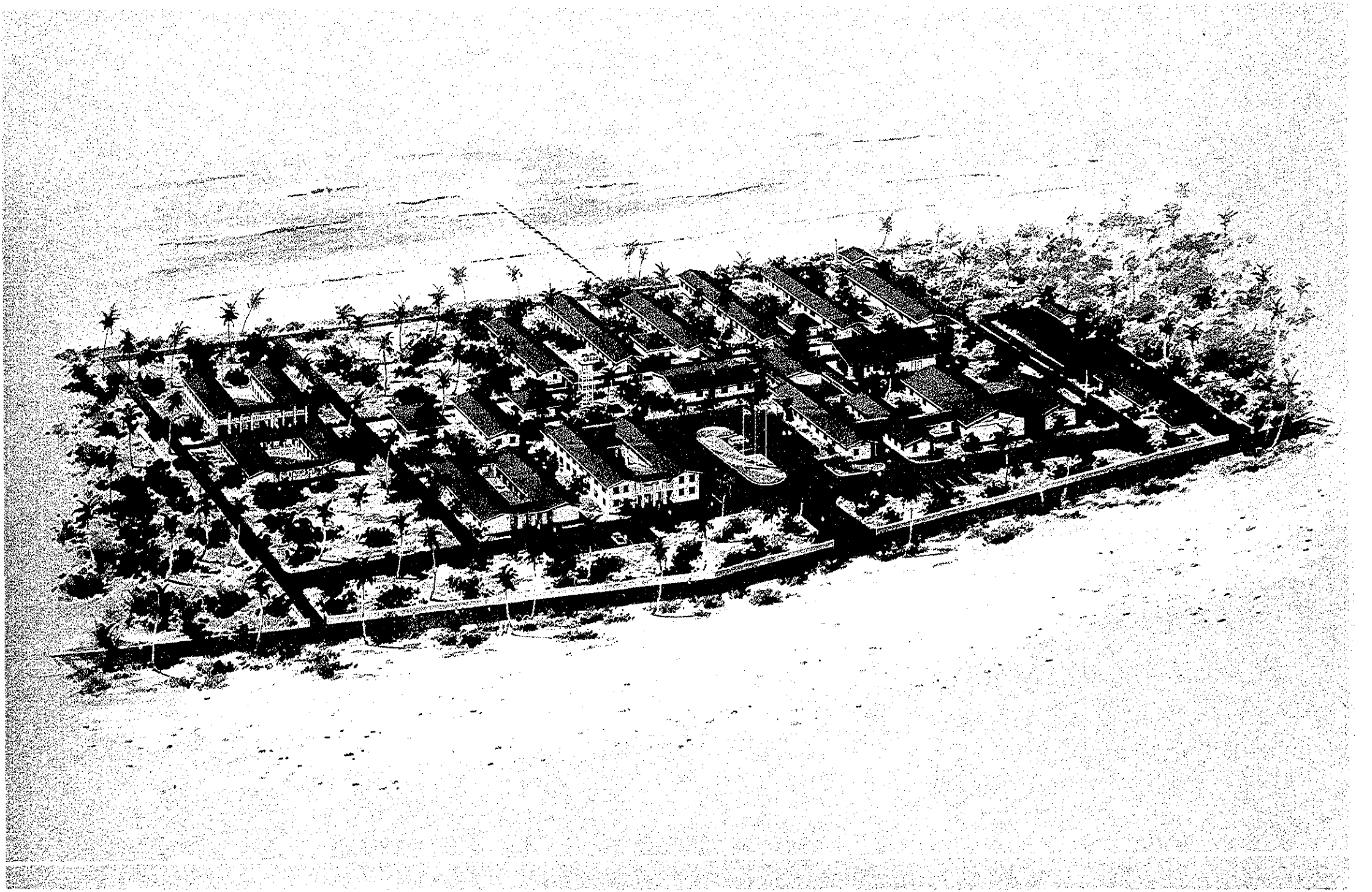
I hope that this report will serve for the development of the Project and contribute to the promotion of friendly relations between our two countries.

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

March, 1989



Kensuke Yanagiya
President
Japan International Cooperation Agency



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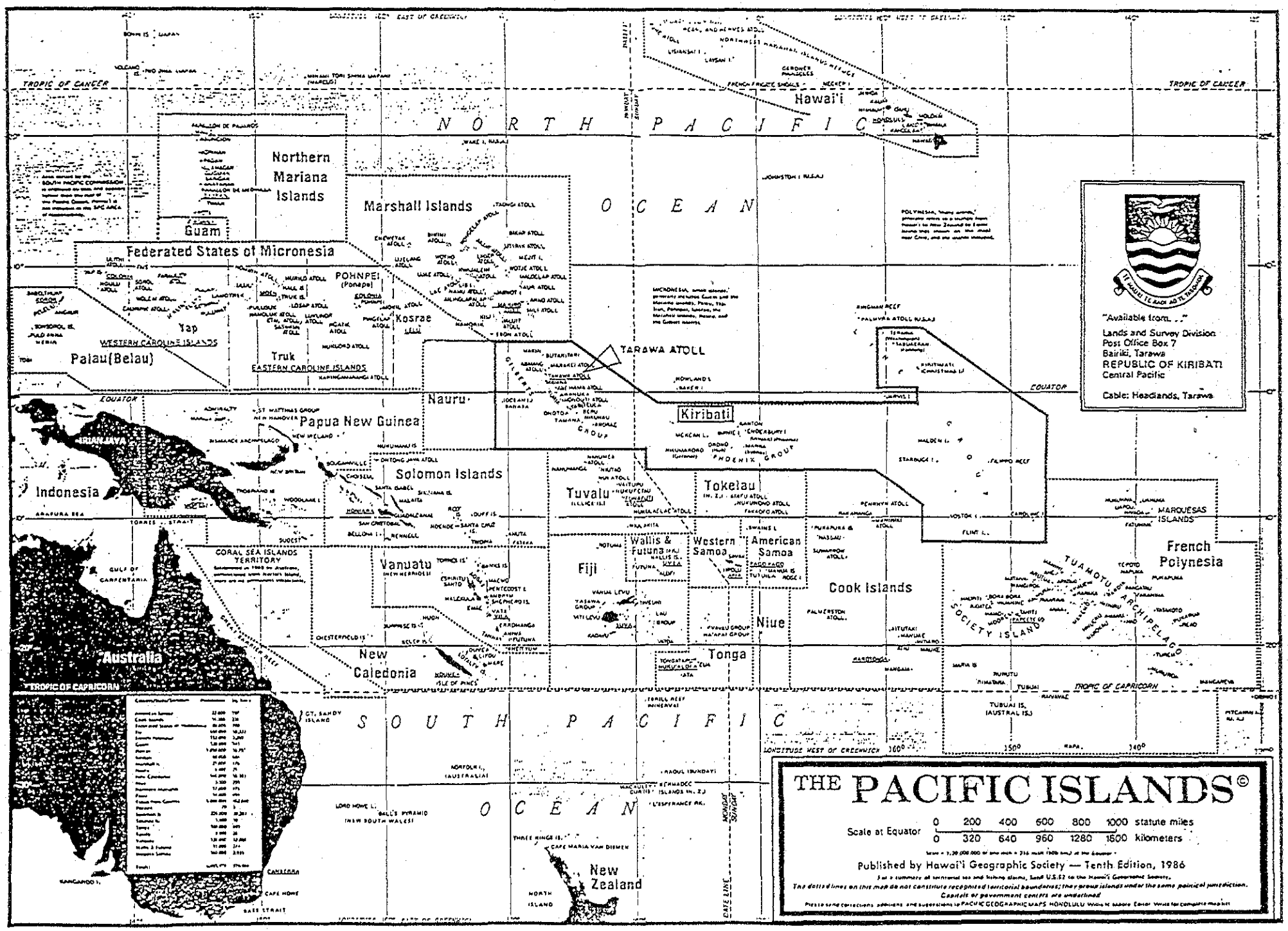
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Yap
WESTERN CAROLINE ISLANDS
Palau(Belau)
Truk
EASTERN CAROLINE ISLANDS
TARAWA ATOLL
Nauru
Kiribati
Papua New Guinea
Solomon Islands
Indonesia
Australia
CORAL SEA ISLANDS TERRITORY
Vanuatu
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THE PACIFIC ISLANDS©
Scale at Equator
0 200 400 600 800 1000 statute miles
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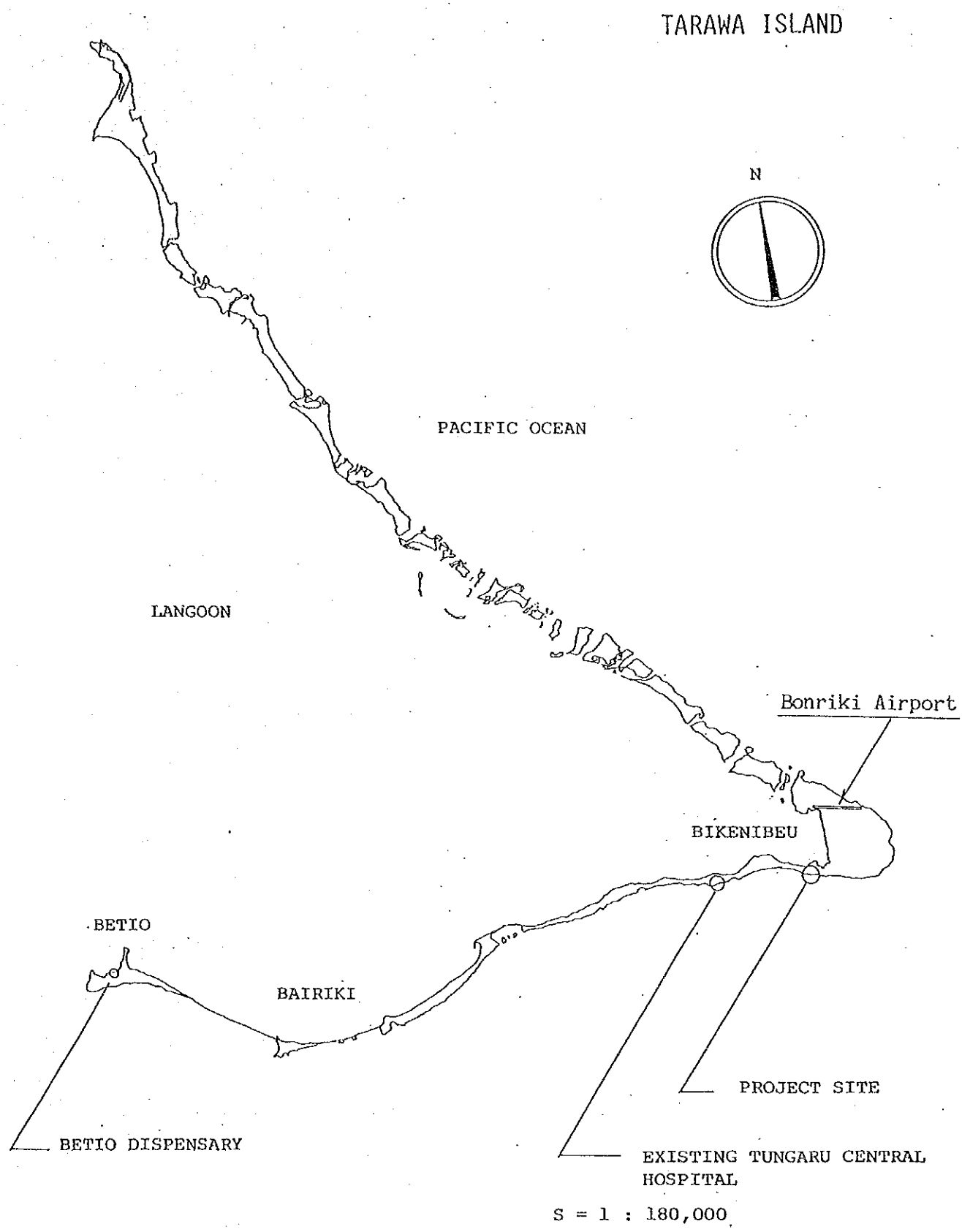
Published by Hawai'i Geographic Society — Tenth Edition, 1986
The dotted lines on this map do not constitute recognized territorial boundaries; they group islands under the same political jurisdiction.
Capitals or government centers are underlined.


TARAWA ISLAND
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LANGOON
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PROJECT SITE
BETIO DISPENSARY
EXISTING TUNGARU CENTRAL HOSPITAL
S = 1 : 180,000

SUMMARY

SUMMARY

The Republic of Kiribati (hereinafter referred to as "Kiribati") is an island country consisting of 33 atolls including the Gilbert Islands, Phoenix Islands and Line Islands dotting the South Seas directly below the equator.

Kiribati has a population of some 66,000, of which 40% or so is concentrated on Tarawa Island where the country's capital is located.

The Kiribati economy had been heavily dependent on the export of phosphate rocks until the country became independent in 1979, but ever since the depletion of phosphate rock resources in the same year, the economy has been in a severe condition. Although an attempt is being made to utilize fisheries resources as an export commodity to replace phosphate rocks and high hopes are being placed on this development, the gap is still too large to make up for the loss of revenue from the sale of phosphate rocks.

In view of the aforementioned situation, Kiribati is presently receiving economic assistance to promote various development projects under bilateral agreements and also from international organizations. Kiribati had been receiving technical cooperation from Japan in various fields even prior to its independence, and since 1980, it has been receiving grant-aid.

Kiribati is now pushing forward its Sixth National Development Plan (covering the 1987-1991 period), on the basis of which its Second National Health Plan was formulated, and is making efforts to expand and amplify health and medical services for its people. The National Health Plan is predicated on the basic principles and policy measures of primary health care, and aims to guarantee a physically and mentally satisfactory social life for its people by improving health services.

The health and medical service system of Kiribati consists of village welfare groups in charge of primary health care, over which are health

centers that offer diagnosis and treatment as well as health guidance for inhabitants living within a radius of approximately 5km, dispensaries established in each medical district on each island, and Tungaru Central Hospital (hereinafter referred to as "TCH") which functions as the core of all these institutions.

TCH is the only general hospital capable of offering tertiary medical treatment in Kiribati, and it accepts referral patients from every corner of the country, although its system is to transfer patients whom it is incapable of treating to New Zealand, Hawaii and other places. The existing TCH has an extended facility floor area of about 4,600 m^2, and with its staff of some 300, it treats more than 10,000 patients every year and accepts about 520 referral patients (actual record for 1987).

Besides being a medical service institution as mentioned above, TCH is deeply involved in the administrative activities of the Ministry of Health and Family Planning, such as in the operation of the Nursing School, offering of health education activities for the mother and child and family planning, public health laboratory services, dispensing and shipping of drugs and medical supplies to every part of the country, etc., and thus bears a large responsibility in improving the health of the people and the level of medical service. However, the deterioration of its various facilities which are more than 30 years old, and break-downs and the shortage of necessary medical equipment in its medical departments which are resulting in a deterioration of medical functions, are seriously hindering its medical and health service activities.

In order to solve these various problems, the Government of Kiribati planned the reconstruction of TCH including the rebuilding of various necessary facilities and the provision of essential medical equipment, and requested grant-aid financial cooperation of the Government of Japan in implementing this project.

In compliance with this request, the Government of Japan decided to dispatch a basic design study team, and the team conducted a field survey in Kiribati from September 21 to October 22, 1988.

This project does not undertake to rebuild all of the existing facilities. The Dental Clinic Building and Mental Ward Building which can sufficiently withstand continued use will not be included in the building construction plan while the Operating Theater Building, General Outpatient Department and the Pharmacy which are apparently proving to be hindrances will be expanded so that the total extended floor area of the facilities will become 4,637.0m². This project aims at efficient functioning of TCH's medical and health service activities by rationally designing the layout of its facilities, improving working efficiency by effectively utilizing the existing manpower and coping with the workload which is rising yearly and thereby saving running expenses. As for medical equipment, it is not considered appropriate to drastically change the present system to a highly sophisticated system, so equipment will be replenished with due regard to the present technical level while equipment which is considered usable will be relocated for continued use.

The content of the project will roughly be as follows:

(1) Facilities

Scale:

Building		Extended Floor Area (m²)
One-storied	Various diagnosis and treatment buildings, ward buildings, operating theater building, service building, education building, etc.	3,668.2
Two-storied	Administration building, dormitory for nursing school students	968.8
Total (30 buildings)		4,637.0

The total extended floor area will be 6,433.7m², adding 1,796.6m² for connecting corridors and others to the above.

Structure: Reinforced concrete block construction

Ancillary building facilities: Electricity, air conditioning, ventilation, water supply and drainage, sanitary facilities

(2) Equipment

- Medical equipment
- Educational equipment
- Other general provisions for the school and hospital

The proposed construction site for this project is located 2.7km to the east of the existing facilities and covers an area of about 3.7 ha which faces the open sea and where necessary infrastructure facilities are already completely provided. Although the proposed construction site is owned privately, the Government of Kiribati has firmly committed itself to leasing the land for 99 years as the construction site of the facilities under this project.

The executing organization for this project is the Ministry of Health and Family Planning, which will also assume full responsibility for the administration of TCH. In addition, the Ministries of Home Affairs, Foreign Affairs, Finance and other government agencies will also share the responsibility for this project and take part in its implementation.

When considering that the project is to be implemented by the grant-aid cooperation of the Government of Japan, it is appropriate to implement it in two stages in view of its size. 16 months is considered necessary for implementing this project, beginning with consultancy contract, detailed design, tender, construction of facilities, procurement of equipment and materials up to completion and delivery of the facilities, assuming 12 months for the first stage construction and 8 months for the second stage and substracting 4 overlapping months.

As for the division of work between the Government of Kiribati and the Government of Japan, the Kiribati side will mainly undertake ground levelling, drawing-in and connecting of water supply and drainage pipes,

electric power cables, telephone lines and the like, while the Japanese side will mainly undertake construction of facilities on the premises, piping and wiring work, and procurement of equipment and materials including medical equipment. The aforementioned scope of work to be undertaken by each side has been agreed to by the Kiribati side.

The implementation of this project will improve the efficiency of the health and medical service, avoid human and economic losses originating from the deficiency of medical facilities. Rebuilding of the nursing school and its dormitory will contribute to the stable supply of human resources indispensable to health and medical services. As the Government of Kiribati promises to make every possible effort to provide the special budget necessary for the operation and maintenance of the facilities, it has been confirmed that the operation of TCH will not be hampered in any way.

As stated above, this project, as a part of the Second National Health Plan which is now being pushed forward by Kiribati, also aims to amplify medical services and to further diffuse health education in Kiribati so that its early implementation is being looked forward to. The significance of offering Japan's grant-aid for the implementation of this project is considerable as it will contribute to the improvement of the medical and health service level and bestow great benefits upon the people of Kiribati.

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APPENDICES

CHAPTER 1

INTRODUCTION

CHAPTER 1 INTRODUCTION

The economy of the Republic of Kiribati which had depended on exports of phosphate rocks until the nation's independence in 1979 has declined due to depletion of those resources in the same year.

The Republic of Kiribati, amidst such circumstances, launched its sixth national development plan in 1987-1991, the principle aims of which is to secure to achieve economic independence.

The country, in the meantime, has also put in much effort to expand and improve health care and medical services for its population of some 66,000. In accordance with its first national health programme launched in 1982, the Government is supporting the development and activities of community's self-help bodies, organizing a health care and medical service network, expanding medical services based on its policy of promoting primary health care on a nationwide scale and offering guidance on preventive medicine and family planning with the aim of turning all the people of Kiribati into "healthy people by the year 2000".

The organization in charge of health care and medical administration in Kiribati is the Ministry of Health and Family Planning. The Ministry, with a staff of 300 persons, has established 24 dispensaries and 37 health centers on outer islands across the country and offers medical treatment and carries out education and training in public hygiene and health care.

The Tungaru Central Hospital, the only general hospital of the country and the central facility for the medical activities of the Ministry, has a staff of 93 persons, and functions not only as the referral hospital where patients from across the country are sent to but as the medical service institution for the 22,000 inhabitants on Tarawa Island.

However, the hospital, which was constructed some 30 years ago, is considerably worn out and needs to be improved in many respects when compared to the modern medical system. Not only that, it is lacking in

essential medical equipment. The activities of the Tungaru Central Hospital are diverse, and the improvement of its facilities and replenishment of essential medical equipment are urgent and indispensable for expanding the country's health care and medical services. However, due to the country's dwindling economy since 1979 there is no hope of a drastic increase in the national budget, and the budget appropriated for the Ministry of Health and Family Planning has risen only slightly each year. Particularly the cost of repairs on the facilities and the cost for replenishment of medical equipment for the Tungaru Central Hospital are exerting a pressure on the budget of the Ministry of Health and Family Planning, the effects of which are beginning to show up in the medical activities of the hospital as well as in other activities of the Ministry.

It is against such a background that the Government of the Republic of Kiribati requested the Government of Japan for its grant-in-aid cooperation for the project of reconstructing the facilities and replenishing the essential medical equipment of the Tungaru Central Hospital for the purpose of strengthening its activities.

In response to this request, the Government of Japan decided to conduct a basic design study on this Project, upon which the Japan International Cooperation Agency dispatched a Basic Design Study Team headed by Dr. Yukio Matsutani, Deputy Director, Medical Economics Division, Health Insurance Bureau, Ministry of Health and Welfare to Kiribati for the period between September 21 and October 22, 1988.

The team confirmed the contents of the request, investigated the current status of activities conducted by the Tungaru Central Hospital and the condition of its existing facilities and medical equipment and discussed the contents of the Project, confirmed the arrangements for implementing the Project and surveyed the construction situation.

Upon returning to Japan, the Team analyzed the results of those field surveys, examined the propriety of the Project, worked out the basic design for the facilities and equipment and evaluated the project. The Team compiled the contents of the foregoing work into a draft final

report and dispatched a draft final report explanation team headed by Tohru Chosa, International Medical Cooperation Department, National Hospitals Medical Center, Ministry of Health and Welfare to Kiribati for the period between January 26 and February 7, 1989.

This report compiles the results of aforesaid basic design study. The List of Study Team Members, Itinerary of Study, List of Principal Persons Interviewed, a copy of the Minutes of the Meeting an other informative references are appended at the end of this report.

CHAPTER 2

PROJECT BACKGROUND

CHAPTER 2 PROJECT BACKGROUND

2-1 Outline of the Republic of Kiribati

The republic of Kiribati is an equatorial island country which consists of altogether 33 atolls including the Gilbert Islands, Phoenix Islands and Line Islands and extends over a sea area of 3,870km long in the east-west direction and 2,050km long in the north-south direction (covering an area of some five million km²) on both sides of the international date line.

The country became independent from Greater Britain in July, 1979. The country has a territorial land area of 810km² which is approximately the size of Tsushima in Japan. Of its total population of 66,100, 63,883 live within the country (1985 Census), of which some 40% (24,000) are concentrated on Tarawa in the Gilbert Islands where the national capital is located.

Only the Islands of the Gilbert Group and three other islands in the Line Group mainly Washington, Fanning, and Christmas are inhabited with permanent settlement. About 96% of the national population is concentrated at the Gilbert Group which accounts for less than 40% of the country's total land area. The population density of Tarawa is 214 persons/km² while that of Line Islands is 6 persons/km².

As regard to racial composition, 98% is accounted for by Micronesians, and the rest by Polynesians and Europeans. Official languages are Kiribati and English. The latter is commonly used as a means of written communication between ministries and department within Government set-up.

To illustrate further the distribution of the population of the 3 groups of Islands in Kiribati in relation to the total land area of each of three groups including that of South Tarawa and those working abroad on overseas vessels, a summary analysis is made at Table 2-1.

Table 2-1 Analysis of the Population of Kiribati

Islands & Abroad Ships		Area km²	Population		Population Density/km²	
			1978	1985	1978	1985
With Resident Population	Gilbert Islands	285.5	53,843	61,023	189	214
	(South Tarawa)	(15.8)	(17,921)	(21,190)	(1,134)	(1,341)
	Line Islands	431.7	2,115	2,633	5	6
	Phoenix Islands	9.1	...	24	-	3
	Abroad Ships	...	255	203	...	
	Sub-total	726.3	56,213	63,883	77	88
Without Resident Population	Line Islands	19.5	...	...	0	0
	Phoenix Islands	64.9	...	...	0	0
	Sub-total	84.4	...	...	0	0
Total		810.7	56,213	63,833	69	79

2-1-1 Political System and Administration

The Republic of Kiribati adopts a democratic form of government based upon a republican model. The Berekilenki a President who is also the Minister of Foreign Affairs is elected in a plebiscite, in an among duty. He becomes the Head of the State and also the Head of Government whose role in respect of the latter is to oversee the activity of the Central government. The National Assembly of the Republic is unicameral and its 41 members are elected from 24 constituencies with the exception of the Attorney General who is an ex-office member. Local administration is carried out by 17 island councils and two town councils. The council members are chosen by the screening of inhabitant elected in vote any islands in 7 years for that matter and are responsible for local administration, project identification and execution, reparing of roads, etc.

Within the network of operation of the central government, there are 10 Ministries and the office of the Berekilenki. The Ministers are the Ministry of Foreign Affairs; Ministry of Finance and Economic Planning;

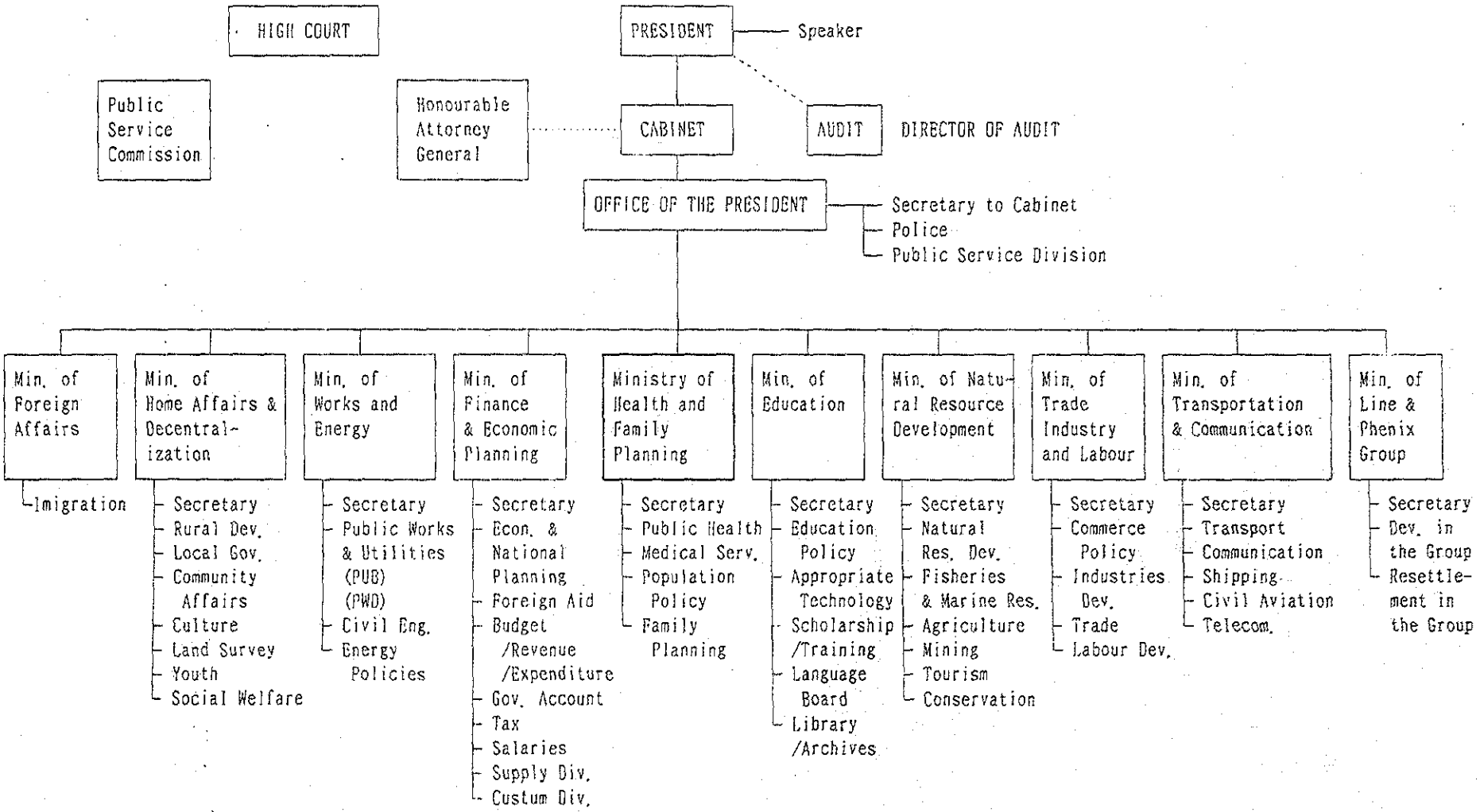
Ministry of Trade, Industry and Labour; Ministry of Natural Resource Development; Ministry of Education; Ministry of Home Affairs and Decentralization; Ministry of Works and Energy; Ministry of Transport and Communication; Ministry of Health and Family Planning; and Ministry of Line and Phoenix Groups. The Ministers selected from among the members of national assembly members constitute the Cabinet.

Since 1980 the government finance has been drastically retrenched since 1980 due to the depletion of phosphate rock in 1979. In order to provide for the budgetary situation after the depletion of phosphate rock, the government of the Republic of Kiribati established a revenue equalization reserve fund of A$ 75 million by 1979, which earns an annual interest of around A$ 5 million. Revenue and expenditure in the 1988 budget, Government's were A$ 19,108,500 respectively.

The government of the Republic of Kiribati is now pushing forward its sixth national development plan (covering 1987-1991 period) which aims at the preservation of culture, economic development to attain self-sufficiency, population containment and abatement of population concentration in the capital city (Tarawa), decentralization of authorities and promotion of outer island development, expansion and improvement of education, and development of infrastructure.

Fig. 2-1

ORGANIZATION CHART OF THE GOVERNMENT OF THE REPUBLIC OF KIRIBATI



2-1-2 Economic Trend

Kiribati used to be economically dependent on the export of phosphate from Banaba Island. Until 1979, the revenue with phosphate which accounted for 3/4 of the total exports value and 1/2 of the national budget. With the depletion of this resource in 1979, Kiribati was placed in a severe economic condition. Its GNP in 1978, after to the depletion, was about A$ 39 million in 1980, this dropped to A$ 21 million. On the balance of trade, there has been a continued an excess of imports ever since 1980.

The major exports of Kiribati today are copra and fisheries. But copra production is unstable, being determined by the amount of rainfall each year. Remittances from seamen, phosphate rock miners working in Nauru and other Kiribati workers employed overseas also constitute an important source of revenue.

In 1983 Kiribati GNP was A$ 30 million. The development of fisheries resource is looked at with much hope to becoming the major export industry taking the place of phosphate. To this end, the Mautari Ltd., the National Fishing company established in 1981, is making a revenue contribution through foreign exchange earnings by directly engaging in the commercial dealings with countries like its and American Samoa over the selling if its catch including those sold to it by local fishermen.

As it is appreciated, people on outer islands other than those on South Tarawa (national capital) and Christmas Island have greater potential of becoming economically self-sustaining. This is mainly because of the very limited dependence on imports and the like. People in South Tarawa and Christmas Island are virtually dependent on imports and their life style in often dectated by the process of cash transactions. By comparison in monetary terms, it would appear that there is no hope on outer islands. This is a common problem caused by the failure of the economic analysis in a being able to convey the National Product into monetary value.

However, Kiribati per capita GNP in 1985 was estimated at A$ 415. It's per capita GDP of the same year was slightly lower, A$ 320.

Table 2-2 Economic Indices of the Republic of Kiribati

- Itemized Export and Import Value in 1984 -

		A$ thousand	%
Exports	Copra	6,987	54
	Fish	2,232	17
	Shark's fin	46	-
	Others (estimate)	3,700	29
	Total	12,965	100
Imports	Foods, tobacco	6,586	28
	Machinery & transportation equipment	8,564	37
	Fuel	2,214	9
	Chemicals	1,118	5
	Raw materials	302	1
	Other manufactured products	4,465	19
	Others	137	1
	Total	23,387	100

Table 2-3 Shares in Import Values by Source Country

Australia	49%	United Kingdom	4%
Japan	15	U.S.A.	3
New Zealand	9	Hong Kong	1
Fiji	7	Others	12

2-1-3 Economic Cooperation by Japan

Since 1980, Japan has extended economic cooperation in the total amount of ¥4,315 million, consisting of grant-in-aid in the amount of ¥3,582 million, including training in skipjack fishing and ¥733 million in technological cooperation which have achieved successful results.

2-2 Health and Medical Services in the Republic of Kiribati

2-2-1 Health and Population Indices

The population structure of the Republic of Kiribati indicates a high ratio of the younger generation which reflects a high birth rate. The population under the age of 15 accounts for about 40% and those under 50 for about 90% of the total. The rate of natural increase is about 2.1%.

The infant mortality rate is high at 82 deaths per 1,000 live births. According to the statistics of the Ministry of Health and Family Planning, major diseases in Kiribati are recorded to be diseases of the respiratory system, diarrhoeal diseases, wounds, etc.

As the major causes of death, diseases of the digestive system (liver diseases), pneumonia, influenza, diseases of the endoctrine system, and symptoms of unknown causes rank high.

Table 2-4 Population Statistics of Kiribati

- Population Structure (males 49.5%, females 50.5%)

  Distribution by age group

Aged 0 - 14	38.9%
Aged 15 - 49	49.7%
Aged 50+	11.4%

- Ordinary crude birth rate : 37.5/1,000 (1981-1985)
  crude death rate : 13.9/1,000 (1981-1985)
  infant mortality rate: 82/1,000 (1981-1985)
  Life expectancy : Males 50.6 years
  Females 55.6 years

- Total special fertility rate: 4.9

- Rate of natural population increase: 2.1% per annum (1978-1985)

Table 2-5 Major Diseases in 1981 and 1985

1981			1985		
Rank	Diseases	No. of Patients	Rank	Diseases	No. of Patients
1	Upper respiratory tract diseases*	26,588	1	Upper respiratory tract diseases	7,178
2	Diarrhea	6,333	2	Wounds	4,915
3	Lower respiratory tract diseases**	4,328	3	Infectious skin diseases	2,678
4	Wounds	3,440	4	Diarrhea	2,670
5	Conjunctivitis	3,430	5	Conjunctivitis	1,202
6	Infectious skin diseases	2,156	6	Lower respiratory tract diseases	360
7	Otitis media	1,156	7	Worm infestation	264
8	Infectious diseases	817	8	Infectious diseases	249
9	Anemia	466	9	Malnutrition	212
10	Fish poisoning	433	10	Anemia	126
11	Malnutrition	390	11	Fish poisoning	80
12	Worm	304	12	Otitis media	29

Source: TCH Statistics Div.

* Including influenza.

** Diseases such as pneumonia, bronchitis.

Note: As statistical method and coverage seem to have changed between 1981 and 1985, simple comparison of the number of patients between these two years is impossible.

2-2-2 Health and Medical Services Administration

Health and medical services administration is undertaken by the Ministry of Health and Family Planning (which shall be abbreviated as M.H.F.P. hereinafter). The M.H.F.P. carries out its activities with a total strength of 343 staff including the Minister (the legally prescribed number) but with an actual strength of 296 at present.

The M.H.F.P. headquarters has three organs: one for the establishment of basic policies (Minister), one for the formulation of implementation programmes (Secretary) and one for the implementation (Assistance Secretary and Chief Medical Officer). The implementation function is divided into the Public Health Division, Medical Division and Supporting Service Department (Public Nursing Officer); the Public Health Division consists of the Organizing Community Sub-Division, Promotion of Preventive Medicine Sub-Division, and Convalescenece and Rehabilitation Control Sub-Division; and the Medical Division consists of the Diagnosis and Detection Sub-Division, Treatment Sub-Division and supporting Hospital Department. The Hospital Department consists of the Laboratory Section, Medical Specialties Section, and Medical Ratio Network Section.

The Supporting Service Department is divided into the Health (Statistic) Information Centre, Health and Family Planning Education Section, Research and Development Section, Nursing Section, Pharmacy, Administration Section, and Education and Training (Nursing School) Section.

In local areas, the Village Welfare Group (VWG) is organized in every village (with nurse aide or third grade nursing student), and a Health Centre (with Health Aide + Nursing Officer) is provided by the unit of several VWGs, and a Dispensary is established for almost every island (with Medical Assistant and Nursing Officer). In such a way health care and medical services are offered throughout the country.

Utilizing the primary health care approach, which has been found to be quite successful.

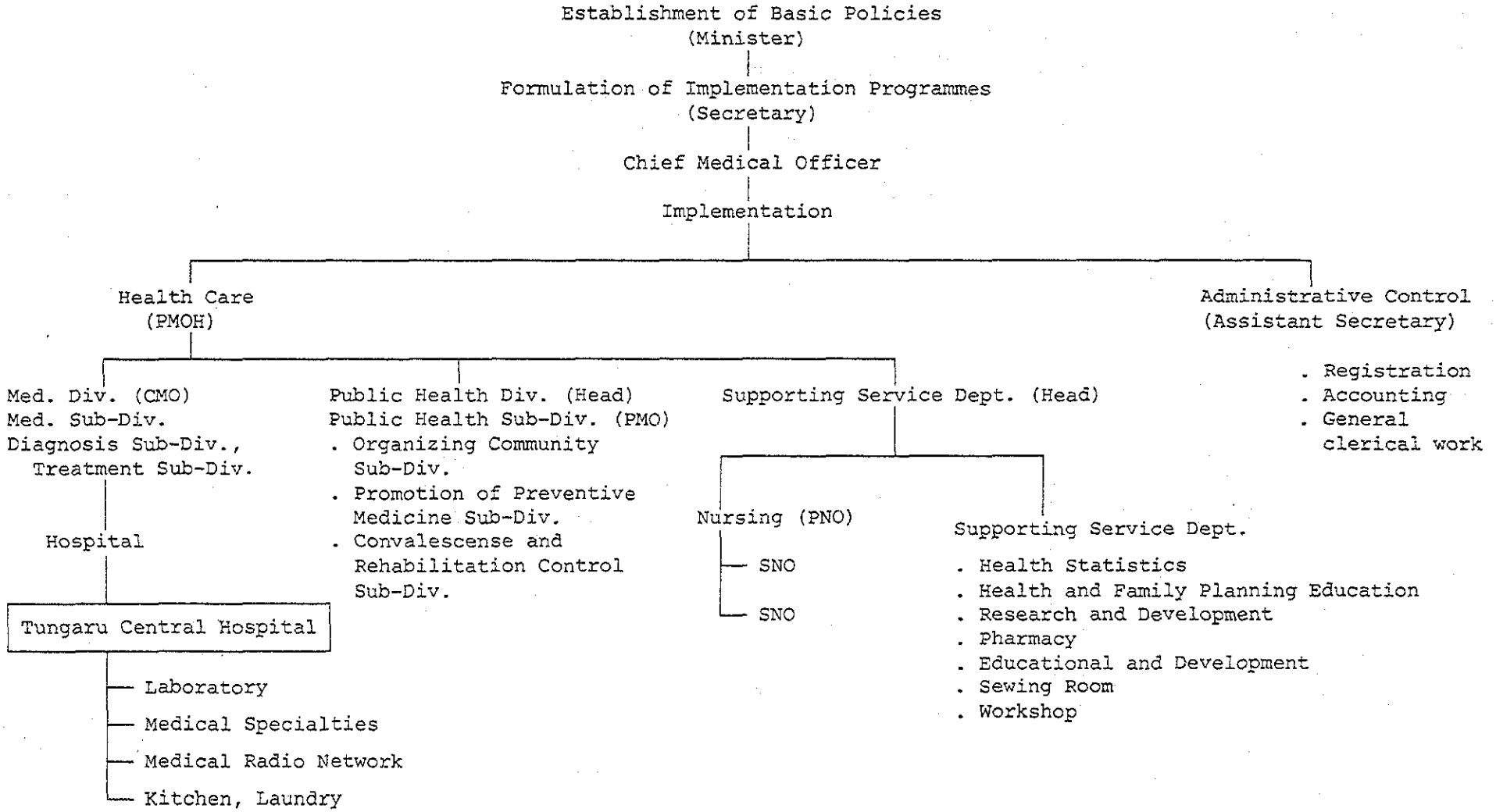


Fig. 2-2 Organization Chart of the Ministry of Health and Family Planning, the Government of the Republic of Kiribati

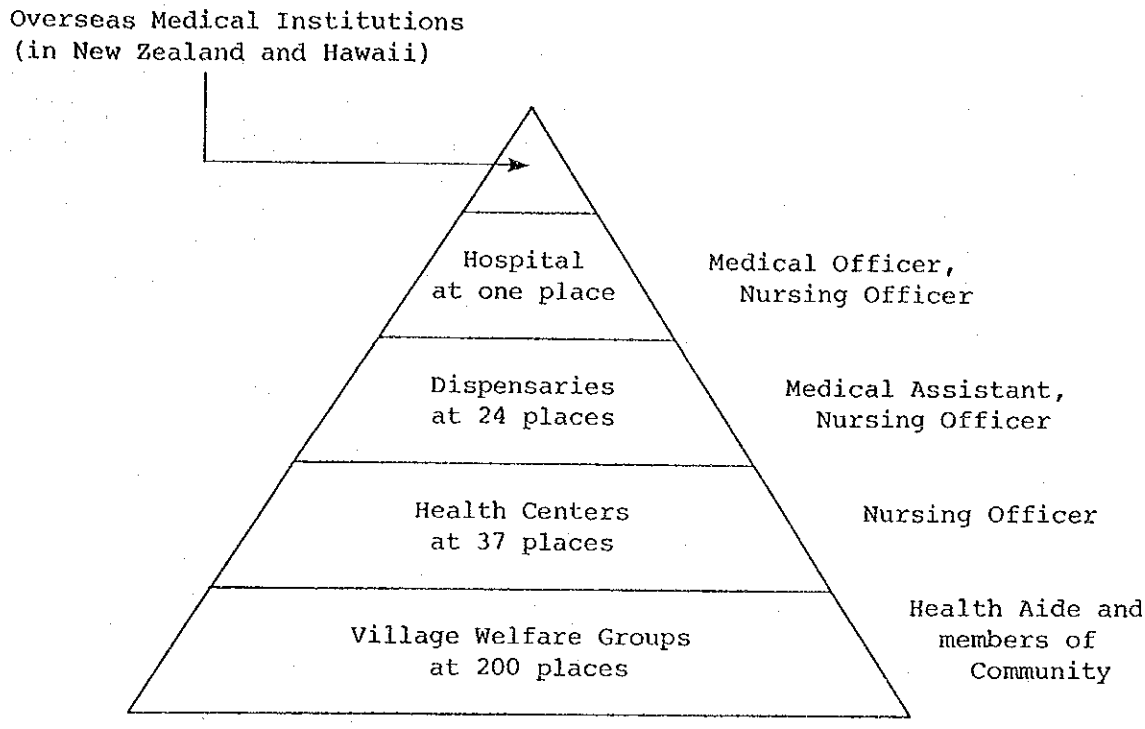
2-2-3 Outline of Health and Medical Services (Facilities Manpower, and Services)

Facilities: 1 hospital, 24 dispensaries, 37 health centers

Total No. of staff: Authorized strength; 343 persons
Actual strength ; 296 persons

The nationwide health and medical services are carried out by the Tungaru Central Hospital (hereinafter referred to as TCH), and by a total of 24 dispensaries and 37 health centers which cover the local medical districts established for almost every island. The foregoing activities are supported by community self help welfare group organized by the unit of each village. With the aim of offering medical services and health guidance to more than 85% of the inhabitants, each health center throughout the counting is established within a radius of 5km from their residences, and a dispensary is established for almost every island as a referral institution for several health centers. TCH functions as a referral hospital for these dispensaries and health centers, and has accepted 520 patients during the period between January and December, 1987 by utilizing the referral system by means of medical radio network. Whenever special tertiary medical treatment is necessary, TCH transfers such patients overseas. Destinations of such transfers are New Zealand and Hawaii (with respect to patients from Christmas Island). In New Zealand, medical treatment is offered free of charge by the assistance provided by the respective governments. During FY 1986, 8 patients were transferred to New Zealand and another 8 to Hawaii. Those patients were diagnosed to have hydrocephalus, osteomyelitis, lung cancer, stab wounds in the abdomen, and caissons disease.

Fig. 2-3 Health and Medical Services System



A detailed description of TCH will be made later. Here, the dispensaries and health centers scattered throughout the country will be described first. The staff who operate the 24 dispensaries and 37 health centers throughout the country consist of three District Medical Officers (DMOs) (who are also central level staff), five Principal Nursing Officers who are all district staff, and three in Hospital Medical Assistants who are all peripheral level staff, three Senior Nursing Officers, and 52 Nursing Officers.

All the central level staff belong to either public health and Medical Division Support Services. The authorized number of staff of each is one Principal Medical officer, four Medical Officers, six Principal Nursing Officers, three Senior Nursing Officers, 24 Medical Assistants, and 55 Nursing Officers, but the number of staff (doctors) has become smaller compared to around 1980. Altogether 123,035 out-patients have visited those facilities during the year of 1987. The following table shows the manpower allocated to the dispensaries and health centers at each place and the number of out-patients who have visited those facilities.

Table 2-6 Activity of Dispensaries and Health Centers at Each Place

Medical District	Island	Dispensary	Health Center	Total	Job Classification					No. of Out-patients	No. of Referral Out-patients to TCH
					DMO	PNO	MA	SNO	NO		
NORTH	Makin	Makin	Kiebu	2			1		1	1,349	8
	Butaritari	Butaritari	Keuera Kumma Ukiangang Bikaati	5		*1	1		4	4,908	24
	Marakei	Rawannawi	Norauea Tekarakan	3			1		2	4,001	19
	Abaiang	Taburao	Nuotaea Tebunginako Tebanga Koinawa Ribono	6			1		5	4,879	30
TARAWA BANABA BEITO	North-Tarawa	Abakaoro	Tabiteuea Tearnibai	3					3	4,746	45
	South-Tarawa	TUC	Bairiki Nanikaai Banraeaba	9						5,945	135
			Bikenibeu West Bikenibeu-East	9	1			3	7		
	Banaba	Etani Banaba	-----	1			1		7	447	4
		Beito	Takoronga Temakin	3	*1	*1			6		
CENTRAL	Maiana	Tebangetua	Bubutei Tekaranga	3		*1			3	1,832	23
	Kuria	Buariki	-----	1						1,612	6
	Aranuka	Buaruki	Takaeang	2					2	1,809	13
	Abemama	Kariatebike	Kabangaki Tekatirirake Abatiku	4					3	3,601	14

Medical District	Island	Dispensary	Health Center	Total	Job Classification					No. of Out-patients	No. of Referral Out-patients to TCH
					DMO	PNO	MA	SNO	NO		
SOUTH WEST	Nonouti	Matang	Teuabu Temotu	3		*1			3	3,663	35
	Tabiteuea North	Utiroa	Tanaegang Kabuna Aiwa	4			1		3	3,049	44
	Tabiteuea South	Buaruki	-----	1			1			1,542	8
	Onotoa	Buariki	Aiaki	2			1		1	1,604	35
SOUTH EAST	Beru	Temaraa	Aoniman	2		*1			2	2,219	25
	Nikunau	Roreti	Tabomatang	2			1		1	2,813	28
	Tamana	Bakaka	-----	1					1	2,471	7
	Arorae	Roreti	-----	1					1	3,823	12
LINEX & PHOENIX	Christmas Island	London	Banana Poland	3	1		1		3	3,322	4
	Fanning Island	English Harbour	Napari	2			1			760	0
	Washington Island	Tangkore	-----	1			1			1,602	1
	Canton Island	Canton	-----	1					1	68	0
Total		24	37	61	3	5	14	3	52	123,035	520

Source: TCH Statistics Div.

* : Local Staff

DMOs: District Medical Officers
PNOs: Principle Nursing Officers (District staff)
MAs : Medical Assistants
SNOs: Senior Nursing Officers
NOs : Nursing Officers

District Medical Officers have acquired their doctor's qualifications in Fiji and other overseas countries while Principal Nursing Officers who are district staff have experiences as like those of Medical Assistant and are to perform supervisory and medical treatment where there is no doctors or Medical Assistants have received one-year training in primary health care, at TCH after three years of practical nursing experience. Diagnostics and treatment of diseases at TCH after 3 years basic nurse training including practical experiences in TCH followed by one year primary health care training in TCH. Qualifications for entry into the nursing school can be acquired by graduating from the fifth or sixth grade of secondary school. 70 to 80 persons apply for the nursing school every year, of which 10 persons are admitted. Female nurses account for about 95% and male, about 5% of the total.

As for community health services, a welfare group which has been organized by the MOH and the people of each village under local administration carries out health activities such as improvement of jointly used wells and construction of toilets based on the primary health care policy measures.

All the district have designated district Medical Officer also have other responsibilities at central level and district PNOs who are also based in Tarawa.

2-2-4 Financial Resources for Health and Medical Services Expenditures

As both preventive and medical treatment fees for the nationals of Kiribati are 100% borne by the Government, there is no source of fund other than the budget allocated to the Ministry of Health and Family Planning save for some revenue from hospitalization fees, purchases of spectacles are treatment of some Non Government employees.

The budget allocated to the said Ministry for 1988 was A$ 2,230,710 which accounted for about 12% (15% in terms of personal emoluments) of the national budget (for operation).

A comparative study of the Ministry's 1986 actual and 1987 and 1988 budget estimates indicates that the share of personal emoluments has risen and reached nearly 50% of the total expenditures. The rate of rise versus a year ago of the total budget is estimated to be 3% for 1987 and 11% for the 1988. Although not on an actual base, the ordinary working expenditure is projected to show a decrease of 5.9%. For 1988, a rise of 11% is accounted for both personal emoluments and ordinary working expenditures. In the category of ordinary working expenditure, however, only a 5% increase is appropriated for price inflation for drugs and medical supplies while other sub-heads are held constant, so that the budget cannot be said adequate enough when price inflation and other factors are taken into account.

When the breakdown of expenditure other than personal emoluments is reviewed, purchasing cost of drugs and medical supplies ranks at the top (30.9% of the ordinary working expenditure on the basis of 1987 actual), overseas medical treatment in the second place (12.4%), utilities in the third place (10.3%), then followed by rations for in-patients (8.6%).

Table 2-7 Budget and Actual Revenue and Expenditure of the Ministry of Health and Family Planning

Sub-Head	Services	Actual 1986 (A$)	Approved Estimate 1987 (A$)	Revised Estimate 1987 (A$)	Estimate 1988 (A$)	Increase/ (Decrease) (A$)	Note
	Revenue - Head 140						
01	Medical fees	7,953	7,000	6,000	6,000	(1,000)	Based on current receipts
02	Drugs and supplies	3,321	3,500	1,000	1,000	(2,500)	"
03	Rations	720	1,500	1,500	1,500	0	
	Sub-total	11,993	12,000	8,500	8,500	(3,500)	
	Total Revenue	11,993	12,000	8,500	8,500	(3,500)	
	Expenditure - Head 240						
	Personal Emoluments						
01	Salaries	745,421	877,940	857,940	972,910	94,970	Annual increments
02	Allowances	32,737	32,000	32,000	38,400	6,400	
03	Temporary assistance and overtime	51,072	33,000	53,000	40,000	7,000	Under-estimated
04	Wages	42,012	43,780	43,780	44,130	350	
	Sub-total	871,242 (44.7%)	986,720 (49.1%)	986,720 (45.85%)	1,095,440 (49.1%)	108,720	
	Other Charges						
11	Entertainment	0	0	0	1,000	1,000	
12	Office expenses and incidentals	11,807	8,000	15,500	11,000	3,000	
13	Travelling & transport	427,878	182,500	282,000	237,000	54,500	Includes air/sea freight of medical drugs and supplies
14	Overseas travelling	0	0	0	5,000	5,000	For Minister and officials
15	Hire of plants and vehicles	20,468	38,000	38,000	38,000	0	
16	Utilities	124,388	100,000	120,000	120,000	20,000	Under-estimated
18	Volunteer assistance	0	100	100	100	0	
19	Local training	4,497	4,200	4,200	4,200	0	
20	Specialist books and forms	460	500	500	500	0	
21	TCH maintenance	12,843	7,000	10,000	10,000	3,000	Under-estimated
22	Occupational therapy	352	500	500	500	0	
25	Patients requirements	31,443	20,000	20,000	20,000	0	
26	Uniforms	2,067	3,800	3,800	3,800	0	
28	Drugs and medical supplies	302,824	360,000	360,000	378,000	18,000	Cater for inflation
29	Rations	85,912	100,000	100,000	100,000	0	
31	Medical equipments	3,169	6,000	6,000	6,000	0	
33	Contribution to WHO	34,140	36,870	37,220	37,220	350	
60	BPA charges	1,220	2,500	2,500	3,750	1,250	40% increase covered
61	Telecom charge	14,510	14,000	20,000	20,000	6,000	Under-estimated
64	Overseas medical treatment	0	139,200	145,000	139,200	0	
	Sub-total	1,077,978	1,023,170	1,165,320	1,135,270	112,100	
	Total Expenditure	1,949,220	2,009,890	2,152,040	2,230,710	220,820	
	Deficit	(1,937,227)	(1,997,890)	(2,143,540)	(2,222,210)		

Table 2-8 Trend of the Budget for the Ministry of Health and Family Planning, Kiribati

Year	Budget, A$
1979	1,153,000
1980	1,482,000
1981	1,735,000
1982	1,811,000
1983	1,721,000
1984	1,647,000
1985	1,647,000
1986	1,966,000

Source: JICA Information and Data, Economic Development of the Republic of Kiribati, Core Issues and Outlook, May, 1988

2-2-5 Outline of Foreign Aids

Actual foreign aids received and aids requested for the future by the Ministry of Health and Family Planning are as follows.

1. Actual Records

(1) WHO

1) Provision of medical equipment

2) Guidance on health and medical statistics and their assessment methods

3) Dispatching of consultants (on long term and short term basis) and supply of human resources (health and manpower)

4) Others

(2) Australia

1) Dispatching of ophthalmologist (eye) team

Dispatching of team for treatment and operation of eyes and provision of materials twice a year for a duration of three weeks each time.
(AIDAB provides the necessary fund and NGO implements the programme by commission.)
The programme has been continued for the past five years.

2) Dispatching of orthopedic plastic surgery team

Dispatching of plastic survey team once a year.
The programme has been continued for the past 3 years.

(3) The United Kingdom

1) Dispatching of dentist (The differential in personal emoluments is compensated for by the British Government.)

2) Provision of dental clinic facilities and its equipment

Implemented in 1987. (about A$ 50,000)

3) Provision of portable X-ray unit to TCH

Scheduled for 1989.

(4) New Zealand

1) Acceptance of treatment for emergency patients.

Free of charge for a maximum of 5 patients per year.

2) Scholarship

Table 2-9 Outline of Projects for which Foreign Aid is Requested by the Ministry of Health and Family Planning

(Units in A$ thousand)

		1987	1988	1989	1990	1991	Total	Possible funds
Capital Projects								
1	Health Systems Programmes and Research	70	90	90	90	90	430	WHO
2	Public Information and Education	45	75	75	65	65	325	WHO
3	Oral Health Programmes	-	15	15	20	20	70	WHO
4	Prevention of Mental Disorder	8	10	10	11	11	50	WHO
5	Environmental Health	55	55	55	65	65	295	WHO
6	Diagnostic Therapeutic Rehabilitation Services	40	30	30	20	20	140	WHO
7	Essential Drugs	15	50	55	35	30	185	WHO
8	Recording of Traditional Medicines	-	-	6	1	-	7	WHO
9	Tungaru Central Hospital Redevelopment	2	-	2,500	2,000	-	4,502	JAPAN?/KG?
10	X-Ray Unit	-	72	-	-	-	72	UK?
11	Extension of Dental Surgery & Mobile Team Equip.	5	-	-	-	90	95	CANADA?/?
12	Port Health Service Betio	-	100	-	-	-	100	GERMANY?/?
13	Upgrading Kiritimati Hospital	-	-	-	-	100	100	UNFPA/?
14	Community Health-Family Planning	10	10	20	30	30	100	UNFPA/?
15	Solar Fridges on Outer Islands	30	30	-	-	-	60	CANADA/?
16	Outer Island Health Clinics & Equipment	30	30	30	-	-	90	Com'ty/CANADA?
17	Emergency Health Care	40	40	40	40	40	200	NZ/ADAB
	Total Capital Projects	350	607	2,926	2,377	561	6,821	
Technical Assistance Projects								
1	Doctors (Surgeon, Architect, Port Service)	140	70	70	-	-	280	UK/GERMANY?
2	Senior Dental Surgeon	70	70	70	70	70	350	UK
3	Eye Team	80	80	80	80	80	400	ADAB
4	Plastic Surgery Team	40	40	40	40	40	200	Aust:private
5	Health Assessment	-	-	-	-	8	8	WHO
6	Advisory Missions	100	100	100	100	100	500	WHO
7	Disease Control Consultancy	20	25	30	35	-	110	WHO
8	Health Manpower	10	33	33	27	27	130	WHO
	Total Technical Assistance Projects	460	418	423	352	325	1,978	
	TOTAL SECTOR	810	1,025	3,349	2,729	886	8,799	

2-2-6 Outline of the National Health Programme

The Government of the Republic of Kiribati is now pushing forward its sixth national development plan (covering the 1987-1991 period), its contents being the preservation of Kiribati's own culture, establishment of laws and the government system, solving of economic problems stemming from the depletion of phosphate rock, development of a good living environment for its nationals, measures to cope with the problems of population growth and urbanization, and strengthening of linkage and solidarity with other countries.

The second national Health programme (1987-1991) now in progress is a part of the national development plan. It aims to ensure a physically and mentally satisfactory social life through improvement of health services based on primary health care measures along with the basic policy of "health for all Kiribati nationals by year 2,000".

The methods for attaining the foregoing target are to contain the population within a proper size, to offer appropriate guidance on health and improve the living standard. These can be achieved through the development of infrastructure for health services covering 90% of the population. Not only the Ministry of Health and Family Planning but Ministries of Education, of Works and Energy, and of Transportation and Communication must cooperate for this purpose and carry out health and medical training comprehensively by employing the best of methods to achieve effective results. At the same time, the community's wholehearted participation shall be encouraged. These activities must be performed to the best of the country's ability by using the most realistic and appropriate technology afforded by the available resources and based on the cultural and religious tradition of Kiribati.

The priority health problems which the Government of Kiribati faces today are, diseases of the respiratory system, intestinal diseases, wounds, eye diseases, skin diseases, ear diseases, communicable diseases, anaemia and mulnutrition, fish poisoning, round-worm, dental diseases, alcoholism, and non-communicable diseases. As the specific methods to solve these, the followings are advocated.

Immunization of babies and children under five years of age; guidance on methods for family planning through the participation of communities; provision of portable water supply systems and improvement of human and animal filth treating facilities through self-help activities of the community; control of communicable diseases and reduction of deaths resulting therefrom by preventive injection and prompt action; offering of guidance on production, preservation and consumption of food and water to promote physical growth and strengthen resistance against diseases; effective implementation of travelling service by dentists and surgeons by using the facilities of the Ministry of Health and Family Planning and the transportation means established by the community; thoroughgoing education on dental health for school pupils and children under school age: education on healthy family life through mothers' club meetings; education for the younger generation on how to lead healthy lives; teaching the school pupils on how to recover one's health in the event of physiological anomaly; early detection and treatment of diabetes and hypertension through self-help activities of the community; reduction of morbidity and death through early referral of seriously ill patients.

2-3 Facilities and Activities of the Tungaru Central Hospital (TCH)

2-3-1 Roles and Functions of TCH

The Tungaru Central Hospital heads the expanding medical system of the Republic of Kiribati as the "nucleus" of the medical facilities of the Ministry of Health and Family Planning which is pushing forward the national health programme, and bears the role of supporting and/or coordinating every activity being implemented under the said programme.

Besides the above, the TCH has advanced medical facilities are the only hospital capable of offering tertiary medical treatment and assumes the role of the referral hospital which accepts patients transferred from every corner of the country and also the role of undertaking medical services for the inhabitants of Tarawa Island. Because of this, the functions performed by the hospital are diverse.

This hospital,

(1) being the only hospital in Kiribati, is the only place that offers medical services for the whole country. It performs such functions as acceptance, consultation and treatment of general out-patients, referral patients from all over the country and emergency patients, dispensation of medicine, various laboratory examinations, surgical operation and hospitalization;

(2) carries out not only medical services but the following activities as well for the improvement of people's health. The hospital staff concurrently serve as the staff of the Ministry of Health and perform activities in the administration ares.

1) Operates the nursing school and medical assistants' school, and offers on-the-job training as a training hospital.

2) Bears the role of supervising preventive medicine through education and extension activities such as on health education, including maternity (mother and child) health and family planning.

3) The laboratory and X-ray facilities of the hospital which conduct medical examination by means of X-ray are also engaged in public health activities, such as testing of drinking water and sewerage facilities.

4) The pharmacy of the hospital is the only facility which prescribed drugs in Kiribati and ships out drags and medical supplies to dispensaries and health centers throughout the country as the central dispensing center.

As above, the hospital is so deeply involved in every field of activities of the Ministry of Health and Family Planning that it is not only almost impossible to distinguish the roles of TCH and the Ministry but also meaningless to do so in the Republic of Kiribati.

This may also be understood from the chronic shortage of medical staff who are only those who have been educated overseas as local medical education institutions are scanty in Kiribati.

The right answers for Kiribati to cope with the situation would be to have the staff assume concurrent duties and to concentrate the facilities.

2-3-2 Organization and Manpower of TCH

In terms of organization, TCH is placed under the Secretary and under the shared responsibility of the Chief Medical Officer who is in charge of health and the Assistant Secretary who is in charge of administrative control. The chief Medical Officer oversees the Principal Medical Officer in charge of Medical Division and the Principal Medical Officer in charge of Public Health Division. Hospital facilities, of which TCH is the nucleus are placed under the Head of the Medical Division. On the other hand, registration, accounting and general clerical work are assigned to the administrative control function. The Chief Medical Officer also oversees the Chief Nursing Officer as well as the head of the supporting service functions. The organization chart is shown below, according to which it becomes apparent that TCH has the function of the Ministry of Welfare as well as the function of a health center.

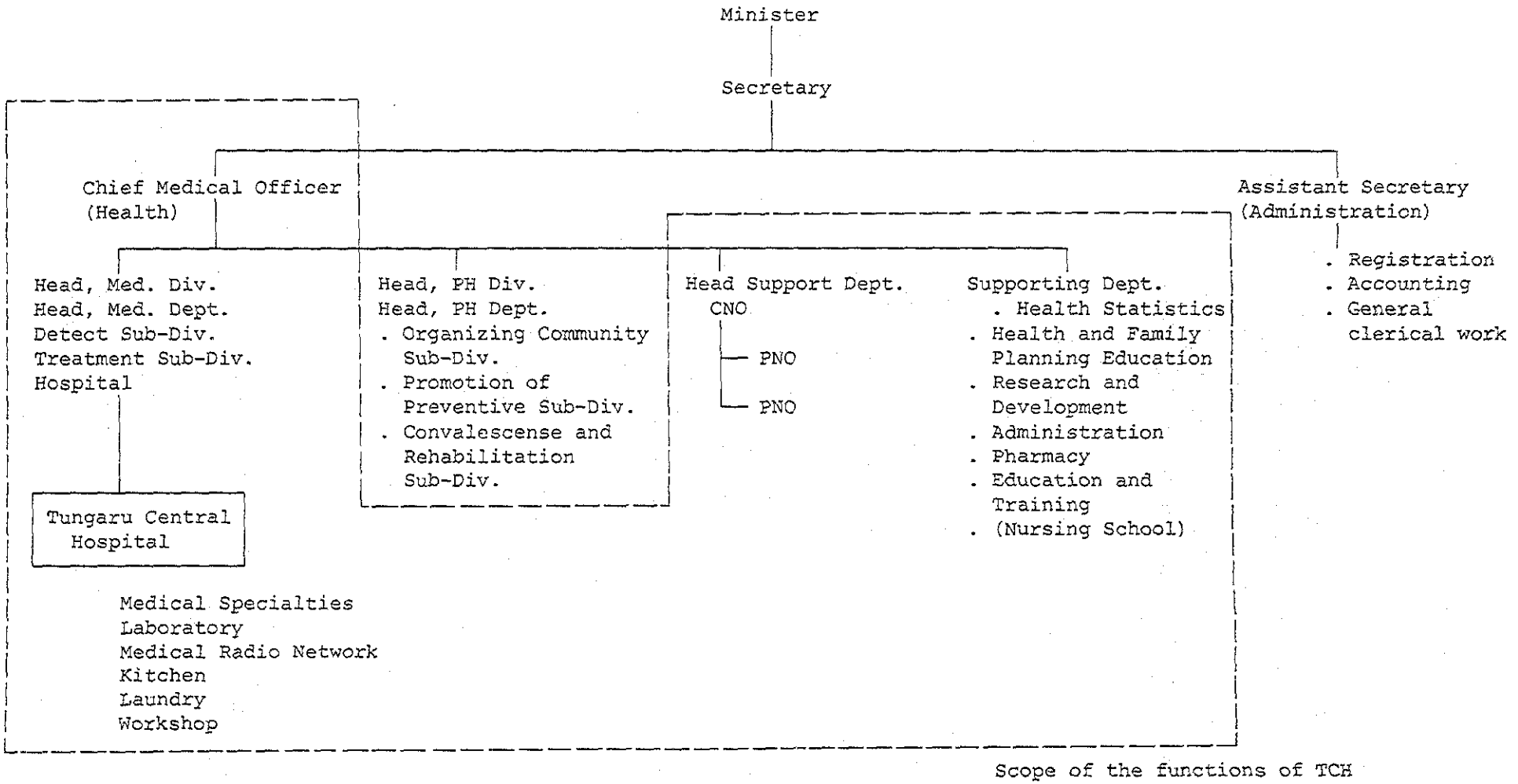


Fig. 2-4 Organization Chart of Tungaru Central Hospital

This hospital employees eight doctors (of which one doctor is British on a two-year contract) and 78 nurses (authorized full strength, existing force is 7 nurses). Besides these, two doctors are now studying in Fiji two in PNG and another doctor in Hawaii, who are scheduled to join the staff upon their return. On-duty hours are 8:00-12:30, 13:30-16:15 (nurses and ambulance drivers take night duties), while nurses work on three shifts (7:00-15:00, 15:00-23:00, 23:00-7:00) and one to two nurses serve each ward. During night, doctors are on a call-up system.

Table 2-10 Staff of the Ministry of Health and Family Planning and the Tungaru Central Hospital

	Staff Position	Authorized Number	Existing Number
Health Administration	Minister	1	1
	Secretary	1	1
	Chief Medical Officer	1	1
	Assistant Secretary	1	1
	Chief Nursing Officer	1	1
	Assistant Secretary	1	0
	Deputy Chief Nursing Officer	1	0
	High Executive Staff	2	1
	Personal Aide	1	1
	Executive Staff	2	1
	Transport Staff	1	0
	Clerk	5	4
	Typist	3	3
	Telephone Operator	1	1
	Total	22	16
Kitchen	Nutritionist	1	1
	Chief Cock	1	1
	Cock	8	8
	Total	10	10
Pharmacy	Pharmacist	1	1
	Pharmacy Technician	2	1
	Dispensary Assistant	2	1
	Medical Storage Staff	1	1
	Medical Storage Assistant	1	0
	Store Keeper	3	3
	Package Wrapper	2	2
	Bottle Cleaner	1	1
	Total	13	10

	Staff Position	Authorized Number	Existing Number
Support	Sewer (Seamstress)	1	1
	Mechanical Engineer	1	1
	Electrical Engineer	1	1
	Carpenter	2	2
	Driver	7	6
	Washwoman	5	5
	Boatman	1	1
	Palm Tree Chopper	1	1
	Laborer	2	2
	Watchman	1	1
	Night Watchmen	2	2
	Scrub Woman	28+2	26
	Nurse Aide	4	4
	Total	58	53
Dental Service (Clinic)	Senior Dentist	1	1
	Dentist	2	0
	Dental Treatment Head	6	5
	Dental Technician	2	2
	Dental Assistant	3	2
	(British Dentist)		*1
	Total	14	11
Health Survey	Senior Survey Officer	1	1
	Survey Officer	2	1
	Survey Assistant	5	4
	Drug Distributor	2	2
	Total	10	8
Health Education	Senior Health Educator	1	0
	Health Educator	3	3
	Health Education Assistant	6	2
	Total	10	5
Nursing School	Principal	1	1
	Senior Nursing Officer	3	2
	Total	4	3
Statistical Service	Medical & Health Statistician	1	1
	Statistical Worker	1	0
	Clerical Worker	2	2
	Statistics Register	2	1
	Total	6	4

	Staff Position	Authorized Number	Existing Number
Treatment (Hospital)	Medical Director (Hospital Director)	1	1
	Senior Internist. Psychiatrist	1	0
	Senior Surgeon	1	0
	Medical Staff (Doctor)	8	7+1*
	Principal Nursing Officer	2	2
	Senior Nursing Officer	10	9
	Nursing Officer	66	60
X-ray	Radiographer	2	2
	X-ray Technician	1	1
	Total	92	83
Laboratory	Senior Laboratory Officer	1	0
	Laboratory Officer	3	1
	Assistant Laboratory Technician	6	6
	Laboratory Assistant	1	1
	Total	11	8

* British persons (on a two-year contract)

Source: Salary Grade Table of the Ministry of Health and Family Planning Staff

2-3-3 Hospital Statistics and Current Conditions of Activities

Departments of the Tungaru Central Hospital (hereinafter referred to as TCH) are largely divided as follows.

1. Out-Patient Department
   (1) General Out-Patient
   (2) Emergency
   (3) Specialty Out-Patient
   (4) Dental Clinic
   (5) Pharmacy

2. Central Diagnostic and Therapeutic Department
   (1) Radiology Department
   (2) Laboratory Department
   (3) Blood Bank

3. Surgical Operation Department
   (1) Operating Theater
   (2) Central Supply and Sterilization Department
   (3) Postmortem Examination Room

4. Ward Department
   (1) Private Ward
   (2) Men's Ward
   (3) Women's Ward
   (4) Pediatric Ward
   (5) Tuberculosis Ward
   (6) Obstetric Ward
   (7) Mental Ward

5. Service Department
   (1) Kitchen
   (2) Laundry

6. Nursing School

   (1) Classrooms

   (2) Nursing School's Dormitories

7. Health Education and Family Planning

8. Maneaba

In terms of organization, this hospital is provide the curative and support services the Curative Sub-Division of the Ministry of Welfare, but its specialist physicians also serve as the Ministry of Healths' staff while its laboratory officers also conduct examinations for the Public Health Division, and the physicians conduct guidance for the Health Education and Family Planning Division. Students of the Nursing School also work in the hospital to gain practical training. The hospital which thus assumes the role of supervising preventive medicine besides carrying out actual therapeutic activity is deeply involved in most of the activities of the Ministry of Health and Family Planning.

These are quite effective as methods for effectively utilizing the manpower resources and reducing the running cost by comprehensively integrating the facilities within the limited annual budget.

That all of the facilities of the Ministry of Health and Family Planning other than dispensaries and health centers should exist on this site seems to be the right answer for a country with a limited national budget.

2-3-3-1 Conditions of the Activities of Each Department

1. Out-patient Diagnosis and Treatment Department

(1) General Out-Patient Department

Diagnosis and treatment days	:	6 days a week
Medical service hours	:	8:00-12:30, 13:30-16:15
Daily mean number of out-patients	:	40-50 new patients
Doctor in charge	:	one person

The Department carries out medical services for some 22,000 inhabitants on Tarawa Island (estimate as of December, 1987) and accepts referral patient transferred from the dispensaries and health centers throughout the country. During 1987, altogether 520 referral patients were recorded.

According to the system, every patient must visit the local dispensary or health center to consult the local Nursing Officer first. If more accurate diagnosis or further treatment is deemed necessary, such a patient will be sent to TCH. If it is more convenient and closer for the patient to go to TCH, however, a direct visit to TCH as an out-patient is also permissible. Even in making a direct visit, however, a referral letter issued by the dispensary or health center is still necessary. The patient will visit the General Out-Patient Department first, receive his chart and undergo preliminary examinations by a nursing Officer. If deemed necessary, the patient will be further examined by a doctor. After the patient receives treatment there he (or she) will be given a prescription, and receive the prescribed drug at the pharmacy.

If more accurate diagnosis is deemed necessary, the patient is ushered to the specialty clinic. The chart if carried by the Nursing Officer.

(2) Emergency Room (amalgamated into General Out-Patient Department)

As emergency entrance is provided at the General Out-Patient Wing, but the consulting room and other facilities of the Out-Patient Department are also used for emergency treatment. The doctor in charge is also the same. During 1986, 177 emergency patients were recorded. Many of the patients were treated for traumatic wounds cased by traffic accidents and for food poisoning.

(3) Speciality Out-Patient Clinic (service hours 13:30-16:15)

1) Internal Medicine, Psychiatry

Medical service days: every Thursday, two doctors

There are two consulting rooms, where an internist and another internist cum psychiartist are engaged in diagnosis and treatment.

2) Surgery, Pediatrics, Gynecology, Pre-Delivery Care and Obstetrics

Each doctor for surgery and pediatrics, and one doctor for gynecology, pre-birth care and obstetrics share the same consulting room for diagnosis and treatment. Medical services are offered twice a week or once a week, as follows.

Monday ..... surgery, gynecology
Tuesday ..... pediatrics
Wednesday ... Pre-delivery care
Thursday .... Internal medicine
Friday ..... Obstetrics

Table 2-11 Emergency Cases in Tungaru Central Hospital (1986)

Diseases \ Age	0		1-4		5-14		15-44		45-54		55-64		65-		Total	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
Motor vehicle accident			2		1	1	2								5	1
Other noncollision motor vehicle traffic accident					2	-	17	5			1	2			20	7
Accidental poisoning from food stuff and poisonous plants			2		4	5	17	14	4	1	2	2			29	22
Other fall from one level to another						1	3								3	1
Foreign body accidentally entering other crifice			1	4	2										3	4
Accidents caused by cutting and piercing instruments or objects	1			1	3		7	1	4	1					15	3
Poisoning by solid or liquid substances, underminedwhether accidentally or purposely inflicted	1	1	1	2	3	2	33	9	2	1	1	1			41	16
Total	2	1	6	7	15	9	79	29	10	3	4	5	0	0	116	54

M: Male
F: Female

Source: TCH Statistics

(4) Dental Clinic

A British dentist, working on a two-year contract is treating 50 patients a day. Both building and dental equipment are new, with which thorough treatment is being offered. All these were completed in 1988 by the assistance of the British Government.

(5) Pharmacy

The pharmacy not only dispenses for in-patients and out-patients of TCH but dispenses for and ships out drugs and medical supplies to dispensaries and health centers throughout the country. Its drugs and medical supplies are imported once a year based on the List of Essential Drugs on a tender basis, each at the lowest price. Sources of import are China, Japan, West Germany and other countries. Empty bottles of beer, juice, whisky, etc. are cleaned with hot water in the bottle washing room and carefully stored for use in distributing drugs and medical supplies. Vaccines and the like are air-lifted to each island according to the flight schedule of Air Tungaru.

The quantity of drugs and medical supplies which must be packed and shipped out to every part of the country is vast, and all this work is done manually today. A great deal of manpower can be saved if the provision of manually operated fork lift and other reinforcements are ever possible.

Table 2-12 Flight Schedule for Vaccine to Outer Islands

As of December, 1987
Unit: dose

Islands		BCG	DPT	OPV	TT	MEASLES
A	Maiana	30	90	90	90	30
	Kuria	15	45	45	45	15
	Abaiang	38	114	114	114	38
	Marakei	30	85	85	85	30
	Tab North	50	152	152	152	50
	Tab South	21	63	63	63	21
B	Onotoa	31	92	92	92	31
	Beru	45	92	92	92	45
	Nikunau	30	92	92	92	30
	Butaritari	30	92	92	92	30
	Makim	20	92	92	92	20
C	Aranuka	15	45	45	45	15
	Abemama	45	135	135	135	45
	Nonouti	47	140	140	140	47
	Tamana*	23	29	29	29	23
	Arorae*	23	29	29	29	3

Schedule

A = JAN./APR./JUL./OCT. Mondays

B = FEB./MAY/AUG./NOV. Tuesdays

C = MAR./JUN./SEPT./DEC. Wednesday, thursdays

2. Central Diagnostic and Therapeutic Department

(1) Radiography Department

Consultation days : 5 days a week
Consultation hours: 8:00-12:00, 13:00-16:30
Regiographer : 2 persons

Health examination if being carried out with the use of x-ray apparatus with broken fluoroscopic function. During 1987, around 860 persons were photographed each month. This means that about 30 to 40 persons are photographed in a day and the required time 10 to 15 minute per radiograph. Because of the lack of radiation protection (shielding) device, the effect of radiation on the health of radiographers is feared. As the portable x-ray apparatus is out of order, patients who cannot move are carried on a stretcher from the ward. The dark room here develops x-ray photographs for the dental clinic, too.

Table 2-13

Region Examined	Monthly Mean Patient	(%)
Chest	300	35
Limbs	145	17
Spine	101	12
Head	100	12
Abdomen	97	11
Pelvis	80	9
Barium contrast radiography, etc.	42	-
Total No. of patients examined: (Total No. of films used :	865 persons/month 1,295 films/month)	

- Monthly mean x-ray examinations (during 1987) -

(2) Clinical Examination

1) Blood analysis

Technician: one person

Erythrocyte sedimentation rate and hematocrit

Table 2-14

Blood Analysis	Annual No. of Tests	(%)
Hemoglobin density	2,141	46
Leukocytes counting	682	15
Leukocytes classification and counting	650	14
Blood type determination	448	10
Erythrocyte sedimentation rate measurement	262	6
Hematocrit value	230	4
Other	253	5
Total annual No. of examinations:	4,666 (1987)	100

2) Bacteriological examination

Examination of plant poisoning, tubercle bacillus, feces

Table 2-15

Bacteriological Examination	Major Contents of Examination	Annual No. of Examination	(%)
Feces	Parasites, culture occult blood	1,771	47
Urine	Culture, sensitivity, pH, specific gravity, pregnancy	846	22
Sputum	Staining, culture, sensitivity	716	19
Pus	Staining, culture, sensitivity	359	10
Other		79	2
Total annual No. of examinations:		3,771 (1987)	100

3) Biochemical analysis

Examinations of matters contained in blood.

Table 2-16

Biochemical Analysis	No. of Annual Examinations	(%)
Blood sugar	1,131	46
Potassium	430	17
Sodium	420	17
Urea	199	8
Other (RPR, HBsAg, SGOT, SGPT. Total protein, etc.)	287	12
Total annual No. of examinations:	2,467 (1987)	100

4) Weighing room, reagent room

Weighing is done by means of an electronic balance.

5) Water quality analysis

Chlorine and bacteria contained in water are examined. The room and equipment are used by the Public Health Inspectors. As the same types of equipment also exist in the Public Health Office of the Administration Building, activities there are also hoped for in the future.

(3) Blood Bank

Simple tests are conducted at the Blood Bank while the laboratory rooms are used for complicated tests. The store room in the same building is air-conditioned for storing reagents by the laboratory and also for storing broken machines of local dispensaries for repairs.

Blood Bank

People applying for donation of blood: 1,709 persons

Actual blood suppliers : 665

Table 2-17

Judgement of compatibility			
Blood type test	:	1,624	52%
Cross matching test	:	753	25%
Hemoglobin test	:	719	23%
Total annual No. of tests	:	3,096	100% (1987)

3. Surgical Operation Department

(1) Operating Theater

Surgical, obstetric and gynecologic operations are conducted. The number of operations was 328 in 1985, 349 in 1986 and 361 in 1987, increasing by some 20 cases each year. One of the causes is the increase in traffic accidents. Patients on account of traffic accidents nationwide were recorded to have been 331 persons (January through August, 1988).

As the Department of Surgery performs operations collectively on Tuesdays and Thursdays, as many as five operations are sometimes performed in a day. Since there is only one operating room, it takes time to clean and make other preparations between performing dirty and clean operations in a day.

During the period in which an ophthalmologist team visits Kiribati by the assistance of Australia and performs operations for cataract and other eye diseases in a concentrated manner twice a year (100 patients in three weeks each time, totalling 200 patients a year), ordinary surgical operations must be stopped or performed at night.

(2) Central Supply and Sterilization Department

Sterilization work for the entire hospital is performed by nurses and orderlies. Four persons are on duty at all times.

(3) Autopsy Room

Autopsies for medical jurisprudence (judicial autopsies) are performed two or three times a year. The room is also utilized as a mortuary for outer island patients pending the departure of ship or aircraft.

4. Ward Department

Nurses work on three shifts of 7:00-15:00, 15:00-23:00, and 23:00-7:00. Normally one or two nurses attend each ward.

Table 2-18 No. of Sick Beds in Each Ward

Ward	Existing No. of Beds	Design No. of Beds	Requested No. of Beds	No. of Annual in-patients
Private ward	7	7	10	313
Men's ward	21	22	35	658
Women's ward	21	22	35	630
Children's ward	8+(3)*	21	24	360
Tuberculosis ward	17	16	28	111
Obstetric ward	8	8	28	461
Mental ward	30	30	30	-
Total	112+(3)	126	190	2,533

* Used as three bed space equivalent although there is no bed now.

(Note) The number of existing beds and design number of beds of the mental ward do not represent the actual number of beds but means that the space is large enough to accommodate those number of beds.

No. of in-patients: 1986 ..... 1,929 persons
1987 ..... 2,533 persons
1988 (Jan.-June) ... 788 persons

Table 2-19 Bed Occupancy Rate

Year	Month	Monthly Cumulative No. of In-patients	Monthly Mean No. of In-patients per Day	Maximum No. In-patients in A Day	No. of Patients Died
1987	July	2,568	82.8	90	11
	Aug.	2,681	86.4	93	16
	Sept.	2,355	78.5	90	13
	Oct.	2,544	82.6	94	11
	Nov.	2,424	80.8	92	6
	Dec.	2,312	74.5	89	14
1988	Jan.	2,268	73.1	84	9
	Feb.	2,181	75.2	87	15
	Mar.	2,472	79.7	99	8
	Apr.	2,414	80.4	91	12
	May	2,616	84.3	96	9
	June	2,371	79.0	90	12
	July	2,522	81.3	94	15
	Aug.	2,571	82.9	92	8
(Excluding mental patients)		34,299	79.6		159

Mean duration of hospitalization: 13.5 days
(excluding mental patients)

Major causes:

Delivery complications, tuberculosis, intestinal infectious diseases, pneumonia, anaemia, bronchitis, skin diseases, traffic accidents, alcoholism, toxemia of pregnancy, diabetes, easy labor (childbirth).

(1) Private Ward

There are seven private rooms, of which two rooms are with bath and can accommodate attendant family members as well. Many of the patients are treated for infectious diseases of the digestive system.

Patients mostly stay for only two or three days. The ward is used for patients who must be isolated for infectious diseases. The patients are mostly those suspected of infectious diseases of the digestive system (hepatitis, etc.) who shall not come into contact with other patients until the results of examinations become available.

(2) Men's Ward

21 beds, 7 beds for surgery patients and 14 beds for internal medicine patients on each side of the nurse station.

As surgery patients and medical patients are in the same ward, the risk of hospital infection is quite high. Attendant family members also stay with the patients.

(3) Women's Ward

21 beds. The same arrangement used in the same way as the men's ward.

(4) Pediatric Ward

8 beds + (3 beds). Takes in children under six years of age. Although initially designed for 21 beds only eight beds remain now as the rest have broken down, and the 3 private rooms were originally designed to accommodate 2 beds, 2 beds and one bed respectively, but they are being used by laying the patients on floor mats, one in each room so that the ward is used as a 11-bed ward now. Attendants also sleep on the floor. As these

is no room for tubercular children in the tuberculosis ward. they are also hospitalized here which makes the risk of infection high.

(5) Tuberculosis Ward

17 beds. The ward is divided for men and women by the nurse station placed between them. Each room has four beds. It is necessary to provide sickrooms for children, as mentioned before. That this ward is close to the children's ward is a problem.

(6) Obstetric Ward

Designed for 8 beds.

Easy delivery 333 babies (1987), infant deaths (zero aged) 72 babies (1987).

As there is one delivery bed only, babies are occasionally given birth on the labour bed. There are four prepartum beds and four postpartum beds, but some of the prepartum beds are used as postpartum beds which are not enough. Due to shortage of beds patients are discharged one or two days after delivery.

(7) Mental Ward

The facility is capable of accommodating 30 patients. 27 patients (including on female) are hospitalized now. Some of the long-staying patients have been hospitalized for nearly 10 years. There is one large room each for men and women and also four private rooms which can be used for both men and women.

As both the mildly ill and the gravely ill are accommodated in the same large room, the former are adversely affected.

Although sports are played on the outdoor rehabilitation yard, no vocational training is offered.

6. A Three-year Course Nursing School

(1) Classrooms

The nursing school admits 10 new students selected from applicants from all over the country every year and offers a three-year curriculum. The students receive classroom lectures and practical training at the TCH for the first two years, and undergo on-the-job practical training including apprenticeship at a local dispensary in the third year. After obtaining a license for Nursing Officer, they are assigned to local dispensaries or health centers. A working experience of three years or more as a Nursing Officer, qualifies them to apply the enrollment in the Medical Assistant course. The Medical Assistant course accepts three to four new students every year for a one-year curriculum on diagnosis and therapeutics. At present, there is one 20-student classroom for the nursing school and one large classroom for Medical Assistants, which are used alternatively by two different classes which take shifts in practical training.

(2) Dormitory for Nursing Students, Two Buildings

All students are required to live in the school dormitory. Some are from outer islands. The dormitory consists of 20 rooms for girls and four rooms for boys. It also has a room where Nursing Officers on night duty can sleep for a few hours.

7. Health Education and Family Planning

This group prepared teaching materials on primary health care and family planning and propagates them in local areas. The group also offers guidance in the counselling room.

The family planning acceptors reached 3,588 by the end of 1987 and 3,948 as of the end of September, 1988.

The group prepares radio publicity programs and sends them on the air through the public broadcasting station, and prints pamphlets and posters or records tapes and carries them to outer islands for propagation. The existing offset-printing machine was donated by WHO.

8. Maneaba

It is an assembly hall for village meetings which is a unique social system of Kiribati. It is used for deciding on village affairs, health education, various commemorative events, festivals, and occasionally as a movie theater. It is a large building of about 200m^2 in floor area, and the roof thatched with Pantanus leaves.

It is utilized as an accommodation for family members caring for in-patients. It is simply provided such as with toilet and water tap. Patients who have been discharged due to shortage of beds can also stay here and commute to the hospital. Also patients from outer islands can stay here while waiting for their ship.

Meals for the patient and one attendant per patient at Maneaba are served by the hospital, which sometimes reach as many as for 290 persons. Other attendant family members cook and wash for themselves at Maneaba.

9. Service Department

(1) Kitchen

Meals are served free of charge to in-patients and on attendant per patient and also to the nursing school students. 350 to 400 meals on average per day are prepared.

(2) Laundry

As the washing machine is out of order now, washing is done manually. The quantity washed is about 50 kg/day of sheets, white robes and drapes.

2-3-4 Current Conditions of Facilities and Equipment

2-3-4-1 General Conditions of Existing Buildings

The floor area, number of stories, principal rooms of existing buildings are approximately as shown in the following table. All the buildings except the dental clinic (completed in 1988 under the aid of the British Government, A$50,000 for building only), operating theater (completed in the 1970s), and the office of the Red Cross (extended portion) were constructed in 1958 under the grant-in-aid of the British Government. It is easy to see that the buildings are cared for as the inside and outside of the buildings are quite clean. As 30 years have already elapsed since their construction, however, utilities piping of the water section and electric wiring are conspicuously aged and unstable in some places.

Administration Wing No.1 and No.2 are two stories high, their ground floors being concrete block dressed masonry, the second story floors wooden, with wall siding or asbestos slate board, and corrugated steel sheet roof. The rest are single storied with concrete block masonry, wooden truss, and corrugated steel sheet roofs. As for inside of the buildings, the floor is either plastic tile of trowel finished mortar, the second story floor is planked, the ground floor wall concrete block dressed masonry or paint finished, the second story wall paint finished board, and the ceiling paint finished board. Windows are movable glass louvers with wooden doors, and the entrance and exist doors are wooden.

The workshop and pharmacy have no ceilings, and their roofs are exposed corrugated steel sheet. Maneaba has a pandanus-leaf thatched roof, concrete floor, wooden pillars or concrete columns.

When the layout of buildings is reviewed in terms of the medical treatment plan and traffic line plan, the following problems exist.

1. As the operating theater is located at the farthest end of the site, patients must go through long corridors. The gravely ill patients being carried to the operating room are exposed to the eyes of other patients and attendants of other wards.
2. Windows of every ward are kept open in order to save air-conditioning cost. As the pediatric ward is contiguous to the tuberculosis ward, infection is feared.
3. The obstetric and gynecologic ward does not have any operating room and is located far from the operating theater.
4. The site plan does not distinguish the clean zone and dirty zone by taking the wind direction into consideration.

These problems are considered to have arisen as a result of necessary changes having been made the initial use of each building, or some buildings having been rebuilt.

As described above, the present layout plan is unsuitable for maintaining the functions of the hospital, and when considering how the existing facilities have aged it is better to rebuilt them based upon an adequate study of the layout plan rather than remodel them.

Table 2-20 Outline of Existing Facilities

Facility	Principal Rooms	Area (m^2)
1) General out-patient (screening & emergency)	Consulting room, treatment room, nurse station, chart filing room, library, store room, waiting room, reception counter	About 141
2) Specialty clinics	4 consulting rooms, nurse station, waiting room for patients,measuring room, front room store room	About 117
3) Pharmacy	Pharmacy, pharmacist room, dispensing room, store room, shipment lot sorting room, office room, shipping counter, store room (A.C.), incoming room, washed bottle yard, WC, bath, pilotis	About 268
4) Dental clinic (completed in 1988 by the grant-in-aid of the British Government)	2 consulting rooms, dentists' room, dental technician's room, WC, bath, waiting room	About 104
5) X-ray and laboratory	X-ray room, dark room, film storage Blood testing room, sterilizing room, 3 culturing rooms, water quality analysis room, testing room, spare room, store room	About 52+136
6) Operating theater	Front room, anesthetizing room, operating room, hand washing room, waiting room, preparation room, instruments supply, CSSD, store room, nurse entrance & exit, water boiling room, dressing room for nurses, bath	About 223
7) Blood bank and laboratory store house	Waiting room, blood collecting room, blood storage, laboratory storage, telephone exchange room	About 132

Facility	Principal Rooms	Area (m²)
8) Surgical and medical ward (one building each for men and women)	Surgery sick room 7 beds, medical sick rooms 9+6 beds, WC, shower, store room, nurse station, dressing room, hot water room (bath room)	About 150x2 = 300
9) Gynecologic ward	4 prepartum bed, 4 postpartum bed, labour room, delivery room. milk room, nursery room, 2 bath rooms, store room, WC, nursing station	About 150
10) Tuberculosis ward (same building for men and women)	Two 4 bed rooms + two 4 bed rooms, with shower and WC, nursing station, drug store room	About 159
11) Pediatric ward	Two 4 bed rooms, 4 private rooms, nursing station, treatment room, pantry, store room, shower, WC, linen store room	About 150
12) Private ward	7 private rooms, treatment room, nursing station, pantry, 3 baths, WC, rehabilitation room	About 183
13) Mental ward	Large common room for men with bath & kitchen, 4 private rooms, large common room for women with bath & kitchen, nursing station, work room	About 446+50
14) Kitchen and laundry	Kitchen, nutritionist's room, pantry, store room	About 223 (About 125)
	Washing room, waiting room	(47)
	Sewing room	(24)
	Wash drying yard	166
15) Workshop	Electric appliance repair shop, carpentry	About 87
16) Mortuary house		About 25

Facility	Principal Rooms	Area (m^2)
17) Education & family planning room, printing room	Designing room, printing room, store room, recording room, manipulating room, office room	About 480
18) Administration wing No.1 (two-storied)	1F: Accounting, Typist, Registration, WC 2F: Minister, Secretary, Assistant Secretary, Chief Medical Officer	About 242
19) Administration wing No.2 (two-storied)	1F: WHO Office, Computer Room Statistical Office, Medical Radio Network, Transport Officer, Public Health, Inspector Staff (MOH) 2F: Conference Room, PMO (Preventive), CNO, PMO (Curative)	About 297
20) Fuel storage Generator room (Generator is out of order)		9 18
21) Red Cross Headquarter & Canteen		60
22) Nursing school dormitory (two two-storied buildings)	Dormitory for 20 female students + for 20 nurses + for 8 male students, dining room, kitchen, baths, toilets, recreation room, washing room	60 About 442 About 298
23) Nursing school classrooms, etc. - For training of nurse	Classroom ($63.2m^2$) with 2 black boards and 20 sets of desk and chair, demonstration room ($38m^2$) with 2 model beds and sink, library cum study ($20m^2$), instructor's room with toilet ($32m^2$)	About 154
- For Training of medical assistant	Classroom building ($156.0m^2$), classroom store room Dormitory ($156.0m^2$)	313

Facility	Principal Rooms	Area (m^2)
24) Corridor	Width: 2,400mm Extension: 118m + 16m x 6 = 214m	513.6
25) Maneaba (Assembly House)	- Care Taker's Accommodation - Discharged in-patient's Accommodation - With simple living accommodations such as toilet and water tap	221.2
26) Church or chapel	Used as a mortuary	49
27) Others 3 store houses		70 in total
Total floor area of existing buildings:		About 6,249.8

2-3-4-2 Current Conditions of Existing Equipment

When the Outpatient Department, Central Diagnostic and Therapeutic Department, Operating Department, Ward, Service Sector, Nursing School and other public health related facilities are reviewed in the light of current conditions of equipment, almost every department is provided with necessary equipment related to the secondary or tertiary medical treatment or to nursing education and extension of primary health care and family planning. However, it is only in a very few sections that these equipment are generally being used in a satisfactory condition, while many other sections are faced with problems of aging and malfunction of equipment or lack of necessary equipment, or faced with the situation where replacement of equipment must certainly be considered within the next few years.

The largest cause of the foregoing situation is the failure to smoothly conduct maintenance and replacement in due course which is necessary as the durable life of equipment is far shorter than the building by comparison. Because of this, activities of every section have been more or less restricted, which have been the major cause of inviting the lowering of medical services.

The shortage of equipment in the Outpatient Department, equipment breakdowns in the Central Diagnostic and Therapeutic Department, aging tendency of equipment in the Wards are especially remarkable, and unless some countermeasures are taken, these departments would inevitably be restricted to offering substantially the medical services of only primary level sooner or later.

Only the equipment of the dental clinic in the Outpatient Department, operating room in the Operating Department and Health Education and Family Planning Department are being effectively utilized and are attaining anticipated results because they have been provided relatively recently and have been carefully maintained.

In general, the lack of medical equipment or their faulty conditioning are grave problems which not only impose a large burden on doctors,

nurses and other medical staff but invite deterioration of their morale in work and in research.

For the improvement of medical services and the level of medical treatment, the improvement of the medical environment surrounding equipment is as important as the training and development of medical manpower and the establishment of the diagnostic and therapeutic system, and is a matter that needs urgent attention.

Maintenance conditions of equipment are classified and summarized for each department (and for each section) in the following.

"A" represents a well maintained condition on the whole. In other words, it indicates the condition in which every equipment is systematically and effectively utilized and maintained in good working condition.

"B" represents a condition which permits routine diagnostic and therapeutic activities to be continued somehow although somewhat dissatisfactorily. (The failure of a major equipment, however, is highly likely to lead to an immediate deterioration or stoppage of the functions of many departments.)

"C" represents a condition which demands drastic improvement from the viewpoints of medical services to patients, sanitation or alleviation of labor burden on the medical staff.

These ratings are as of October, 1988, and it is highly likely that the appraisal a few years later will considerably underrun these.

Table 2-21 Maintenance Conditions of Existing Equipment

Department	Section	Maintenance Condition	Major Existing Equipment
Outpatient	General outpatient	C	Examining couch, weighting scale, illuminating box, sphygmomanometer, stethoscope, aspirator, treatment couch, boiling sterilizer, wheel chair
	Emergency	C	3 ambulances, oxygen cylinder
	Specialty		
	- Internal medicine (2 rooms)	C	Examining couch, illuminating box, weighing scale, other examining instruments and apparatus
	- Surgery		
	- Pediatrics (1 room)	C	Examining desk, examining couch, weighing scale, illuminating box, sphygmomanometer
	- Gynecology		Stethoscope
	- Obstetrics		
	Dental clinic	A	2 dental units, dental x-ray unit, equipment for dental technician
	Pharmacy	B	Storage shelves, medicine cabinet, dispensing table, pill counter, typewriter, electronic balance, deep freezer
Central Diagnostic & Therapeutic Department	Radiography	C	X-ray fluoroscopic and radiographic apparatus, developing tank, dark room work bench, film keeping shelves, illuminating box (schaukasten)
	Clinical examination		
	- Clinical laboratory	C	Hematocrit centrifuge, microscope, mixer, refrigerator
	- Microbiological laboratory	B	Microscope, incubator, refrigerator, colony counter, hot plate
	- Biochemical laboratory	B	Flame photometer, electrophoretic apparatus, spectrophotometer, thermostatic water bath
	- Washing room	C	Autoclave, distillation apparatus, drying oven
	- Weighing room	B	Electronic balance, reagent shelves
	- Water quality room	B	Filtering apparatus, counter, boiling sterilizer
	Blood bank	B	Donor bed, blood bank refrigerator, centrifuge, thermostatic water bath
Operating Department	Operating theater	B	Operating table, anesthesia apparatus, ventillator, suction unit, shadowless light, operating microscope
	Postanesthetic recovery room	B	Cardiac defibrillator, stretcher, slit lamp

Department	Section	Maintenance Condition	Major Existing Equipment
	Central Supply and Sterilization Dept.	C	2 boiling sterilizers, high voltage (pressure) horizontal sterilizer, vertical autoclave, 2 table-tup autoclaves
	Autopsy room	C	Autopsy table
Wards	Private ward (7 beds)	B	7 sets of bed and mattress, 7 over-bed tables, wooden instrument cabinet
	Men's ward (22 beds)	C	21 beds, 17 matresses, 18 over-bed tables, meal wagon
	Women's ward (22 beds)	C	22 beds, 11 mattresses, 20 over-bed tables, boiling sterilizer
	Pediatric ward (21 beds)	C	8 pediatrics beds, 7 over-bed tables, mixer, baby balance
	Tuberculosis ward (16 beds)	C	13 sets of bed and mattress, 13 over-bed tables, aspirator
	Obstetric ward (8 beds)		
	- Patient's room	C	8 sets of bed and mattress, 3 baby beds, 2 over-bed tables
	- Delivery room	B	Delivery bed, autoclave, aspirator, electrocardiograph, weighing scale, fetal heart detector, delivery instrument set
	- Immature infant room (nursery)	C	Incubator, baby balance, baby bed, bed, bathing tank
	- Mental ward (30 beds)	B	2 large wooden beds, refrigerator, work table, instrument table
Support services	Washing	B	Washing is done manually as the washing machine is out of order
	Kitchen	C	Electronic range, fryer, rice cooker, refrigerator
	Workshop	B	Tools, work bench
	Linen room	C	2 electric sewing machines
Others	Nursing School	B	20 sets of desk and chair, dummy human models, other teaching materials for demonstration
	Nurse (nursing student) dormitory	C	Hospital beds and mattresses
	Public Health Sub-Division	B	pH meter, electric conductivity meter, oxygen monitor, chloride meter
	Health Education & Family Planning Sub-Division	A	Offset printing machine, book binding machine, 16mm movie camera, color photoenlarger, recording system

(Note) Figures in parenthesis in each ward indicate the stipulated no. of patient beds. The number of beds in the mental ward does not indicate the actual number of beds but means that the ward can accommodate 30 patients.

The Central Outpatient Department consists of the consultation room, treatment room, and room for preliminary examination by nurse, an patients are dealt with by doctor and nurse in parallel without distinguishing between surgery and internal medicine. In regard to equipment, aging of equipment in the consulting room and deficiency of surgical equipment in the treatment room are particularly remarkable.

The Emergency Room shares the same facilities and equipment with General Outpatient Department, and the only equipment which it can call its own are ambulances and oxygen cylinders.

In Specialty Clinics, all sections except internal medicine, namely surgery, pediatrics, gynecology and obstetrics share the same consulting room by changing the days of week for respective consultation, and the equipment they have are only sphygmomanometer and other general diagnostic instruments.

The Outpatient Department except the dental clinic and pharmacy may be characterized by the shortage and aging of equipment, smallness of rooms and deficiency of provisions, for which expansion and improvement of both facilities and equipment are most earnestly desired.

The Central Diagnostic and Therapeutic Department consists of three sections when roughly divided in terms of its functions, which are radiology, clinical (laboratory) examination, and blood bank. Although it possesses some related equipment, physiological examinations, endoscopic examinations rehabilitation and also pathological examinations in the clinical examination department are not performed as a matter of routine. However, this department which may be called the nucleus of the hospital and which is quite active has the largest number of equipment breakdowns. Most of its equipment have been delivered between the early 1970s and early 1980s and the mixed existence of both old and new equipment suggests that they were replaced piece by piece each time there was a breakdown.

However, some of its relatively new laboratory equipment are no longer in use or have remarkably deteriorated, so that the length of the period of

use does not necessarily seem to reflect the conditions of the equipment in general. In Japan, the durable life of medical equipment is said to be 7 to 10 years, both in an unfavorable facilities environment, this standard is not applicable. It is more so in the case of structurally complicated devices, and as the existence or non-existence of a maintenance system and technical competence also make a great difference, the wear and tear of equipment may be deemed far greater than in Japan in general.

The section where improvement is most urgently required in this department is radiology. The fluoroscopic and radiographic apparatus of the early 1970s which is the only equipment in operation now as a broken and inoperable fluoroscopic unit. The equipment related to dark room are also in a similar condition. As the section diagnoses an average of 30 to 40 patients a day including those for medical checkup spending 10 to 15 minutes per patient, the processing capacity of the existing system is considered to have reached the limit.

In the clinical examination department, the functions of the hematology and irrigation sections have conspicuously deteriorated, but the department has the necessary equipment for major examinations and has performed 4,600 hematological examinations, 3,700 bacteriological examinations, 2,400 biochemical examinations and 230 water quality tests during 1987. However, as about 1/4 of the equipment are either out of order or have some sort of difficulties, it would be difficult for the department to maintain its current activities unless its equipment in use now are maintained in good condition at all times from now on.

The blood bank, though small, has its own laboratory equipment and performs hemoglobin examination, blood type judgement, cross matching test and other examinations. There are some 1,700 applicants wishing to donate their blood, of which about 1/3 have actually donated. They are mostly relatives of patients or volunteers.

The Operating Department is composed of the operation room, a recovery room and the Central Supply and Sterilization Department (CSSD) which is juxtaposed to it, and the nurses work interchangeably in any one of them.

The equipment related to the operating room are on the whole carefully maintaining in good condition although some small problems have arisen in each of the equipment, such as leakage of gas from the anesthesia apparatus, lowering of intensity of illumination of the shadowless lamp, missing accessories of the operating table, etc. The largest pending problem now is the shortage of operating instruments.

The CSSD is somewhat inconvenient to approach from the Outpatient Department and patients' wards in terms of traffic line but its being annexed to the Operating Department allows it to efficiently perform its work. In terms of equipment, however, it is not only lacking in capacity to meet the demands of the entire hospital including the Outpatient Department and wards, but its processing capacity has remarkably dropped due to overwork of the equipment. Thus, a table-top autoclave is used as a substitute, but this cannot solve the problem completely. The deterioration of the function of this Department is likely to advance further in the future.

The autopsy room has an autopsy table only. As available transportation means are few for patients from other islands and their transfer may not necessarily be carried out smoothly, it is desirable that a facility for storing corpses be provided.

In every ward, the situation is roughly the same, and it is the wards where the improvement of equipment is most urgently required. Their devastation is clearly manifested even in the difference in the number of beds and the number of mattresses, or the difference in the prescribed number of beds and actual number of beds in the pediatric ward.

At the nurse station, the poor working environment including the deficiency of equipment may be claimed to be an important problem that requires improvement. For nurses to execute their routine duties, securing of working space in the ward is particularly essential, and the provision of supporting equipment also indispensable.

As deficiencies in facilities and equipment related to wards lead to a decline in service levels for patients and result in imposing a heavy

technical and labor burden on the nurses, they must be given adequate considerations in all future planning.

Although the lying-in room is functionally divided into the labour room, delivery room, nursery room (for immature babies) and milk room, their equipment are insufficient and worn out so that reinforcement matching their respective activities must be planned.

In the Supporting Service Department, with the exception of the kitchen, hardly any equipment is found, especially in the laundry and workshop.

At the Nursing School, the major equipment are the common classroom equipment such as desks and blackboards and dummies for practical training and instruments.

At the nurse (student) dormitory, the only equipment are old hospital beds and mattresses.

The Public Health Sub-Division has equipment used for examination of water quality (drinking water, sea water) denoted by WHO (in 1988) but it must perform the examinations at two places within the hospital as it does not have a laboratory of its own.

The Health Education and Family Planning Sub-Division consists of the printing room, design room, dark room and recording room where the offset printing machine, book binding machine and other related equipment donated by WHO (during 1986-1988) are being operated smoothly.

2-4 Circumstances and Contents of Request

The Team appraises that the Government of the Republic of Kiribati in promoting its first national health programme (1982-1986), has made successful efforts to provide advanced medical services to its population and completed said programme with good results under the assistance of WHO. However, it still has many problems which it must improve, such as the high mortality rate, short average length of life, chronic shortage of medical staff, etc. In order to solve these problems, the Team pointed out the need for improvement in the following three areas.

1) Improvement in the organization of community self-help bodies in order to further promote the participation of communities.

2) Improvement of health care and medical service facilities.

3) Improvement of health care and medical services by means of a primary health care method which is extended nationwide.

Of the foregoing three areas, the second item, improvement of health care and medical service facilities, is considered to be extremely difficult on account of the country's limited financial resources. Among others, improvement of the Tungaru Central Hospital (TCH), the only hospital to which referral patients are transferred from every corner of the country and the center of all medical facilities in Kiribati, is the biggest problem of all.

TCH has an accommodating capacity of 100 to 150 beds and offers the services of its internal medicine, surgery, pediatrics, obstetrics and gynecology and psychiatry sections and the emergency clinic throughout the year. Is is linked with 61 health centers and dispensaries across the country through radio network and each air ports and accepts all referral patients. However, TCH has become so work out in the 30 years since its construction that it is unable to finance the cost required for its repair and improvement.

For the patients who must receive treatment the environment could not be worse, and the hospital staff are exposed to dangers of electric shock

and other hazards. The meager budget of the Ministry of Health and Family Planning is being appropriated to repair broken concrete as a stop gap measures. Equipment are also limited in kind, insufficient in number, worn out or out of order, too.

The repair and improvement of TCH is therefore indispensable and urgently called for. It is for this reason that the Government of the Republic of Kiribati has decided to rebuild the facilities of TCH and replenish essential medical equipment and has requested the Government of Japan for its grant-in-aid in order to implement said project.

CHAPTER 3

CONTENTS OF THE PROJECT

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3-1 Objective of the Project

This project aims for reconstructing the worn-out facilities and supplementing essential medical equipment in order to:

1) establish a nursing system and avert danger of infection within hospital.
2) reduce the maintenance cost of facilities.

As the danger of mutual infection within hospital is high with the existing facilities, the project aims to avert it and to establish a high-level nursing system.

The cost for maintaining the existing facilities which have become superannuated are rising yearly and exerting a pressure on the budget of the Ministry of Health and Family Planning. The project therefore plans to rebuild the facilities and, at the same time, conserve energy by doing so.

The objectives of this project are to rebuild the Tungaru Central Hospital which has become worn out after thirty years since its construction and renovate the necessary equipment in order to redue the maintenance and repair cost of the hospital facilities, and to integrate the facilities which perform the same functions and reorganize the traffic line plan and supplement functions which are wanting against needs in order that the hospital may carry out its medical activities more efficiently and to prevent the infectious danger within in hospital.

3-2 Review of the Contents of Request

The TCH is an installation that incorporates all of the functions of the Ministry of Health and Family Planning, such as the hospital function as a medical institution and a referral center for patients on Tarawa Island and throughout the country, the function as a health center, and the function as an educational center for propagating health and sanitation across the country. It is quite significant indeed that the Government of the Republic of Kiribati has planned to refurbish the TCH which is the center for promoting its National Health Programme and requested for a grant-in-aid in reconstructing all of its facilities and supplementing the indispensable medical equipment. However, as TCH's functions are diverse, it would be difficult to offer cooperation of all of them. The objective of this project is to extend cooperation toward its function as a hospital and the areas that assist the hospital, in the light of which the contents of request will be examined by taking into full consideration TCH's problems, its functions which must be strengthened and the country's socio-economic conditions.

(1) Policy

The outlook on the financial condition of the Republic of Kiribati is unfavorable, and it is unlikely that the Ministry of Health and Family Planning can expect a substantial budget increase.

What is more, as the Ministry will be implementing this project for the construction of a new hospital at a time when the rise in manpower cost by the upgrading of doctors and nurses is beginning to exert a pressure on other budget items, it will have to withhold recruitment of new personnel and plan the hospital to be of a scale that can be run by the current force, and contain the operation and maintenance cost for said hospital to a minimum. For instance, it will be necessary to reconsider the traffic line plan in order to further reduce manpower and also induce a system that will save light and heat (especially the electric charges and fuel cost). It will also be necessary to use whatever is available in Kiribati as

much as possible, whether it is replenishment of parts or repair, and avoid the use of electronic equipment. Durability, rather than cost or looks, must be the criterion for selection

(2) Method

Basically, the current scope of activities and scale of facilities will be maintained. As it is judged that the scope of activities can be maintained or even enlarged with current force, this project will examine where the facilities and equipment can be scaled down or merged an used in common and where they should be strengthened. As even the most indispensable medical equipment are short, these will all be reinforced.

(3) Facilities that can be Scaled Down or Merged

1) Part of the kitchen
2) Part of the Health Education Department
3) Storage of the Central Laboratory
4) Blood Bank
5) Classroom of the Nursing School

(4) Departments and Sections which need to be Reinforced

1) Emergency Treatment Department

Treatment room and recovery room for emergency patients which are increasing yearly will be newly added.

2) Operating Department and operating room for Obstetrics Section

The one and only operating room in the country will be increased to two so that operations can be divided into the dirty and clean cases. They will also be used as operating room for the Obstetrics Section. The Central Supply and Sterilization

Department which serves the entire hospital will be reinforced to a scale commensurate with demand.

3) X-ray Examination Department

The one and only x-ray unit in the country will be supplemented by a portable type x-ray unit, and two x-ray rooms will be provided so that the latter can be used in whichever ward as necessary. X-ray protection devices will also be strengthened.

4) Addition of the ward for tuberculosis children to the tuberculosis ward

A children's tuberculosis ward will be newly added to prevent hospital infection among children.

5) Number of beds for each ward

Based on the study on the number of inpatients and duration of their hospitalization, the number of beds for each ward will be determined as follows. (For existing design number of beds and current number of beds, refer to Table 2-18.)

	Planned No. of beds
a. Private ward	7
b. Pediatric ward	16
c. Medical ward	26
d. Surgical ward	22
e. Obstetric ward	20
f. Tuberculosis ward	12
g. Mental ward	(30)
Total	103 + (30)

6) Segregation of Assortment by Pharmacy

As drugs and medical supplies for use at TCH and those for dispensaries and health centers across the country are brought