BASIC DESIGN STUDY REPORT
ON
INTRA ISLANDS VESSEL PROJECT
IN
THE REPUBLIC OF KIRIBATI

MARCH, 1983

JAPAN INTERNATIONAL COOPERATION AGENCY

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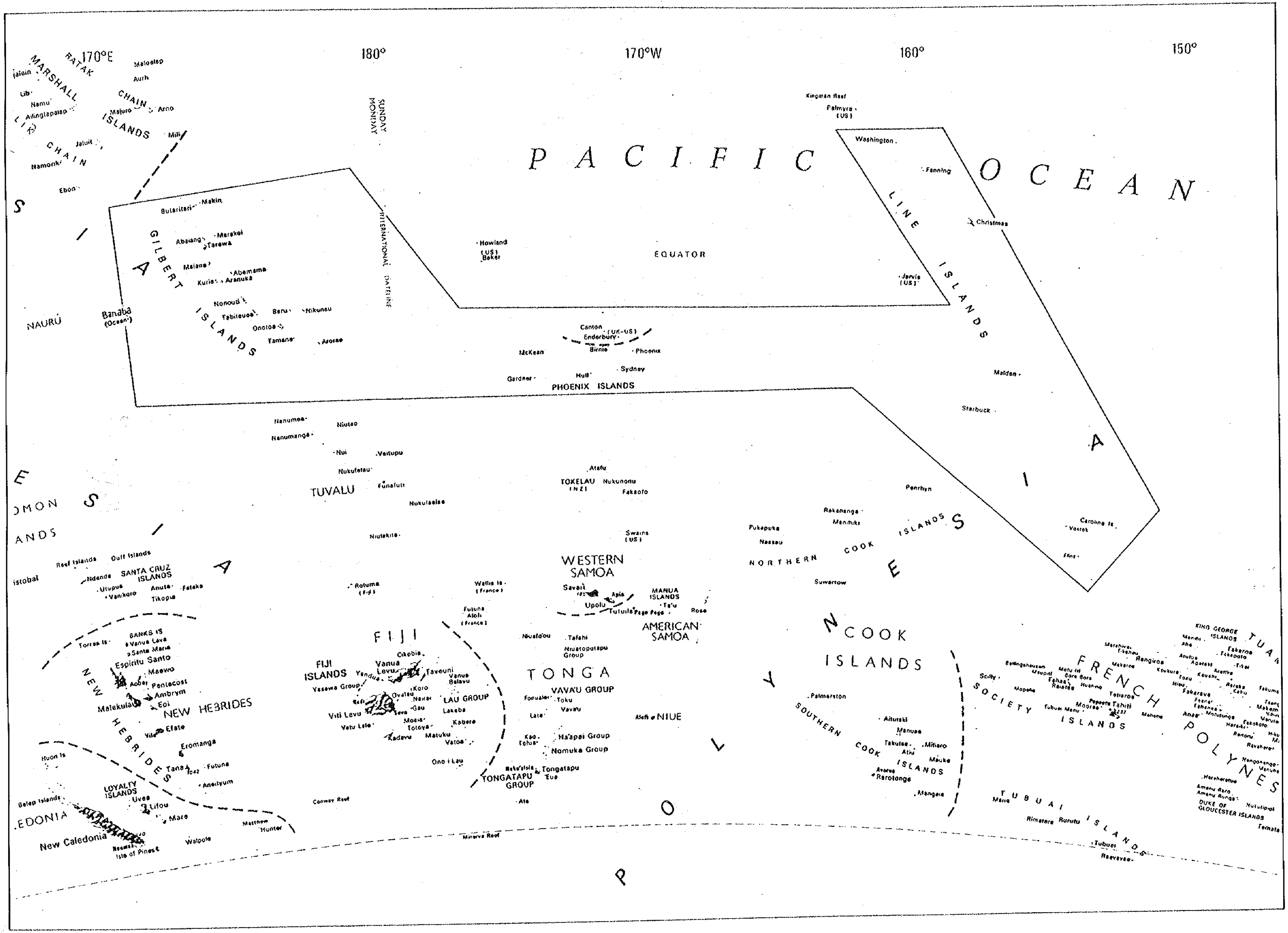

170°E
180°
170°W
160°
150°
MARSHALL ISLANDS
RATAK CHAIN
RALIK CHAIN
Majuro
Arno
Mili
Jaluit
Ebon
PACIFIC OCEAN
INTERNATIONAL DATELINE
SUNDAY
MONDAY
EQUATOR
Kingman Reef
Palmyra (US)
Washington
Fanning
Christmas
LINE ISLANDS
Jarvis (US)
Malden
Starbuck
Caroline Is.
Howland (US) Baker
GILBERT ISLANDS
Butaritari
Makin
Abaiang
Marakei
Tarawa
Maiana
Abemama
Kuria
Aranuka
Nonouti
Tabiteuea
Beru
Nikunau
Onotoa
Tamana
Arorae
NAURU
Banaba (Ocean)
Canton (UK-US)
Enderbury
Birnie
Phoenix
McKean
Sydney
Gardner
Hull
PHOENIX ISLANDS
Nanumea
Niutao
Nanumanga
Nui
Vaitupu
Nukufetau
Funafuti
TUVALU
Nukulaelae
Niulakita
Atafu
TOKELAU (NZ)
Nukunonu
Fakaofo
Swains (US)
Penrhyn
Rakahanga
Manihiki
Pukapuka
Nassau
NORTHERN COOK ISLANDS
Suwarrow
WESTERN SAMOA
Savai'i
Apia
Upolu
Tutuila
Pago Pago
MANUA ISLANDS
Ta'u
Rose
AMERICAN SAMOA
Wallis Is. (France)
Futuna Alofi (France)
Rotuma (Fiji)
SANTA CRUZ ISLANDS
Reef Islands
Duff Islands
Ndende
Utupua
Vanikoro
Anuta
Fataka
Tikopia
BANKS IS
Vanua Lava
Santa Maria
Torres Is.
Espiritu Santo
Maewo
Aoba
Pentecost
Ambrym
Malekula
Epi
NEW HEBRIDES
Efate
Vila
Eromanga
Tanna
Futuna
Aneityum
Hunter
Matthew
Walpole
LOYALTY ISLANDS
Uvea
Lifou
Mare
New Caledonia
Isle of Pines
Belep Islands
Huon Is.
FIJI
FIJI ISLANDS
Vanua Levu
Cikobia
Taveuni
Yasawa Group
Viti Levu
Vatu Lele
Kadavu
Koro
Gau
Lakeba
LAU GROUP
Moala
Totoya
Matuku
Vatoa
Ono-i-Lau
Conway Reef
Niuafo'ou
Tafahi
Niuatoputapu Group
TONGA
VAVA'U GROUP
Fonualei
Toku
Vava'u
Late
Kao
Tofua
Ha'apai Group
Nomuka Group
TONGATAPU GROUP
Tongatapu
'Eua
'Ata
Minerva Reef
Alofi
NIUE
COOK ISLANDS
Palmerston
SOUTHERN COOK ISLANDS
Aitutaki
Manuae
Takutea
Mitiaro
Atiu
Mauke
Avarua
Rarotonga
Mangaia
SOCIETY ISLANDS
Scilly
Maupiti
Bora Bora
Huahine
Raiatea
Tahaa
Moorea
Tahiti
Papeete
Tubuai Manu
FRENCH POLYNESIA
Rangiroa
Makatea
KING GEORGE ISLANDS
TUBUAI ISLANDS
Maria
Rimatara
Rurutu
Tubuai
Raevavae
DUKE OF GLOUCESTER ISLANDS
Tematangi
POLYNESIA
MELANESIA
MICRONESIA

P R E F A C E

In response to the request of the Government of the Republic of Kiribati, the Government of Japan decided to conduct a Basic Design Study on the Intra-Islands Vessel Project and entrusted the study to the Japan International Cooperation Agency (JICA). The JICA sent to Kiribati a study team headed by Mr. Ikuo Ishida, Special Assistant to the Director of Machinery Div., Ship Bureau, Ministry of Transport, from January 19th to February 2nd, 1983.

The team had discussions with the officials concerned of the Government of Kiribati and conducted a field survey in Tarawa, Butaritari and Abemama . After the team returned to Japan, further studies were made 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 deep appreciation to the officials concerned of the Government of the Republic of Kiribati for their close cooperation extended to the team.

March, 1983

Keisuke Arita

Keisuke Arita
President
Japan International Cooperation Agency

CONTENTS

SUMMARY

SUMMARY

Republic of Kiribati is located on 33 coral islands which are scattered in the South West of Pacific Ocean, within a range of some 1,800 km north-south and about 4,500 km east-west, and divided into the three regional zones of Gilbert Islands, Phoenix Islands and Line Islands.

The development of such scattered Islands is therefore crucial to the future economic growth and the well-being of the whole community. The Government of Kiribati established the Outer Islands Development Plan based on the National Development Plan (1979 - 1982), to fulfil this essential objectives. The plan contemplates to provide an effective and satisfactory network of shipping service to all the islands of distribution of daily commodities and other cargos required for medical service, education and industrial development, in an effort to improve living standards and industrial development in the islands, thereby avoiding concentration of population in Tarawa.

Furthermore, after the termination in 1979 of phosphate mining, the plan is aimed at providing an effective shipping of copra and other export items from the outer islands to Betio port.

As an improvement of marine transport survice is essential for development of the outer islands, the Government of Kiribati requested the Japanese Government to extend a grant aid for the inter-island freight/passenger vessel. In response to such request, Japan International cooperation Agency dispatched the Basic Design Study Team to Kiribati and made a survey from January 19th to February 2nd, 1983.

The Basic Design Team surveyed the present conditions of Kiribati's shipping industry, Betio and other port facilities and the ship building and repair facilities. Furthermore the team exchanged views with Ministry of Communications which will supervise this project and also with shipping Corporation of Kiribati which is the executing agency of this project. As a result of field surveys and discussions with Kiribati officials, the provision of a ship capable of fulfilling the following requirements is considered as the most appropriate :

Gross Tonnage	About 500 tonnes			
Lengthxbreadthxdepth	Approx. 38 x 9.6 x 4 m			
Designed draft	Approx. 3m			
Freight	Cargo Tonnage approx. 250 tonnes			
	Hold capacity approx. 390 cu.m			
Accommodation	Crews	:	Officer	6
			Crew	11
	Passenger	:	Cabins	6
			Deck	30
	Cadets	:	Instructor	1
			Cadets	12
			Total	66

Service Speed (Fully Loaded) : Approx. 9.5 knots

Operating distance (at the above-mentioned speed) : Approx. 5,000 nautical miles.

Construction of the proposed vessel is estimated that detailed design, cost estimation, bidding and contracting will take about five months, then construction in Japan roughly seven months and voyage from Japan to Kiribati and delivery about one month.

The proposed inter-island vessel is planned to be operated by the wholly government-owned Shipping Corporation of Kiribati which has been performing shipping operations since 1978.

While the Corporation is operating a total of four vessels at pressent, there is only one ship capable of giving effective service in terms of ship's age and performance.

The 1981 shipping record shows 8,647 freight tons of general cargo and 5,765 freight tons of copra. 8,110 passengers were carried during the same year. Demand for general cargo and passenger transportation is likely to increase.

Furthermore, in view of the nation's urgent need to encourage seamen to work them on foreign ships as a foreign exchange earners, operating the proposed ship as a training vessel would serve the useful purpose, since the Kiribati's Marine Training School has a sail-type training vessel only at present.

Accordingly the provision of the proposed inter-island vessel is considered as the most timely and significant.

The proposed vessel is planned to be operated for the service in Gilbert Islands at a rate of about two weeks per voyage and 22 voyages per year. Whenever the need may arise, it will be served in Phoenix and Line Islands as well.

With regard to the estimated income and expenses in operating the proposed vessel, it turns out that the estimated income could well absorb operation and maintenance expenses, but not upto the extent of allowing for depreciation. In the event when in future a need may arise for replacement of this vessel, therefore, it will be necessary for the Kiribati Government to assist financially the replacement.

Additionally, to operate the proposed vessel more efficiently toward national economic development, it is recommended that further efforts should be directed to the following points :

- To improve port facilities and navigational safety equipment.
- To regularize the shipping schedule by organizing periodical production of copra.
- To provide a satisfactory network of telecommunication among the islands.

CHAPTER 1
INTRODUCTION

CHAPTER 1 INTRODUCTION

The Republic of Kiribati is composed of 33-islands divided into the three zones of Gilbert Islands, Phoenix Islands and Line Islands, which encompass a distance of some 1,800 km north-south and about 4,500 km east-west on the Pacific Ocean.

Because of such geograph of the nation, development of outer islands is considered as a major contribution toward Kiribati's overall economic growth and improved social services.

Accordingly, the Government of Kiribati prepared a plan of "Development of Outer Islands", based on the National Development Plan (1979 - 1982). The plan contemplates to promote improvement of living standards in the outer islands, to limit urban population growth in South Tarawa, and to provide an effective shipping service to the outer islands copra (Kiribati's main export item) and other products.

In order to meet the needs to centralize the present copra shipments into Betio, (in Tarawa), which is the main export port in the country, as well as to provide an efficient transportation of daily commodities from Betio to the outer islands, the Government of Kiribati requested the Government of Japan to extend a grant aid for vessel to transport both cargo and passengers between Betio and the outer islands.

In responce to such request, the Japanese Government dispatched the basic design study team, headed by Mr. Ikuo Ishida, a senior official of Shipbuilding-related Industry Section, Department of Vessels, Ministry of Transport, to Kiribati, for 20 days from January 18th to February 6th 1983, to confirm the contents of grant request and review viability of the project, by way of having discussions with Kiribati Government officials and also through field surveys.

Members of the Basic Design Study Team, along with a list of Kiribati's counterparts and also the team's itinerary are indicated in Annexes 1 to 3 respectively. The Basic Design Study Team had a series of meeting with Kiribati's Ministry of Communications which is administering this project, Shipping Corporation of Kiribati which is the executing agency and other regulatory agencies about the background and essential require-

ments of this project, while it carried out surveys on the present status of shipping, harbours, seamen training and shipyards existing in Kiribati.

Further, after reviewing viability and aid benefits of this project, the Team signed the Minuites of Discussions (Annex 4) with Ministry of Communications, Kiribati Government, and Shipping Corporation of Kiribati.

CHAPTER2
BACKGROUND OF PROJECT

CHAPTER 2 BACKGROUND OF PROJECT

2-1 National Development Plan

In April 1979, the Government of Kiribati formulated National Development Plan. A list of objectives planned is as follows:

1. To promote the development of export industry based on marine resources and increased copra production in pursuit of the nation's economic independence after the end of phosphate mining on Banaba.
2. To improve living standards in the outer islands.
3. To ensure that the benefits of development are felt throughout the Community and that existing inequalities are reduced.
4. To maintain a satisfactory network of communications for the social and business activity of the islands.
5. To decentralise economic activity and move such activity to the outer islands, so as to place limitations in urban population growth in Tarawa.
6. To develop co-operative relationships with Pacific neighbours.

To fulfil these objectives in the national development plan, the Government of Kiribati has contemplated a number of policies. For the marine transport among others the development plan calls for the following :

1. To ensure that access to good shipping services among islands are available.
2. To maintain a satisfactory network of shipping services which is essential for the improvement of living standards in the islands.
3. To ensure that the benefits of development are felt throughout the community and that existing inequalities are reduced, by maintaining a network of shipping service between the islands.
4. The Shipping Corporation of Kiribati will take charges of implementing the 1st to 3rd objectives.

The Corporation's fleet is mostly obsolete requiring replacement or

inefficient because of small loading capacity. To ensure satisfactory shipping services to all the islands, the provision of useful vessel is essential.

2-2 Outer Islands Development Plan

The Government of Kiribati formulated the Outer Islands Development Plan which is crucial to the future economic growth and the wellbeing of the nation. The plan describes the need for provision of a ship for inter-island freight/passenger transport, as follows :

The development of the Outer Islands is cruicial to the future economic growth and the well being of the whole community. To fulfil this essential requirement, there is an immediate need to obtain a ship most suitable for the required service.

The specific services it has to provide are :

1. To transport foodstuff and fuels to the outer islands.
2. To transport equipment and materials necessary for schools, hospitals and housings in the islands.
3. To transport equipment and material necessary for establishing new rural industries in the outer islands.
4. To ship the Kiribati's main export items of copra and other produce from the outer islands to Tarawa.

   Through fulfillment of these requirements, it is aimed at promoting improvements of living standards in the outer islands, in particular medical and education services, thereby reducing existing inequalities, as well as decentralising economic activity in an effort to avoid concentration of population in Tarawa.

CHAPTER 3
OUTLINE OF MARITIME SITUATION

CHAPTER 3 OUTLINE OF MARITIME SITUATION

3-1 Maritime Administration System

The Maritime Affairs are administered by the Ministry of Communications in the Republic of Kiribati. Its Administrative Structure is shown in the Fig. No.1. All the works including harbour management, certification and registration of seamen, and inspection and registration of vessels are carried out by the Marine Superintendent. The construction and repairs of vessels are done in Kiribati Shipyard inside the Betio port which is located in the south of Tarawa island. This is the only shipyard existing in this country and operated by the government.
As for marine transportation,Shipping Corporation of Kiribati which was established in 1978 in place of the Gilbert Island Development Authority, is engaged in the interval shipping service of this country. The Corporation is under control of the Ministry of Communications. In addition, the Corporation allocates a part of its vessels to international shipping service for the purpose of exporting copra.

All the rules and regulations concerning the maritime affairs are prescribed in the following chapters of the Laws of the Republic of Kiribati (January 1, 1981).

Chapter	Contents
Chapter 40 Harbours	(1) Matters relating to the harbour area (2) Matters relating to harbour master and his functions (3) Matters relating to pilotage (4) Matters relating to dangerous items (5) Matters relating to obstacles (6) Matters relating to port facilities such as wharf (7) Matters relating to anchorage (8) Matters relating to lights (9) Matters relating to gevernment-owned wharf and wharage. (10) Matters relating to port charge.

Chapter 93 Shipping	(11) Penalty (1) Matters relating to certificates of vessels, appointment of qualified seamen and its related work. (2) Matters relating to inspector (3) Matters relating to qualification of officers and crew. (4) Matters relating to inspection and standard on safety of vessels. (5) Matters relating to fees for qualifying examination of seamen and inspection of vessels. (6) Penalty
Chapter 94 Shipping (Certification of Seamen)	Supplemental regulation on qualification of seamen.
Chapter 94 A Shipping Corporation	(1) Matters relating to establishment of Government Shipping Corporation and its function and assets (2) Articles on accounting

Chart of Administrative Structure

(Ministry of Communications)

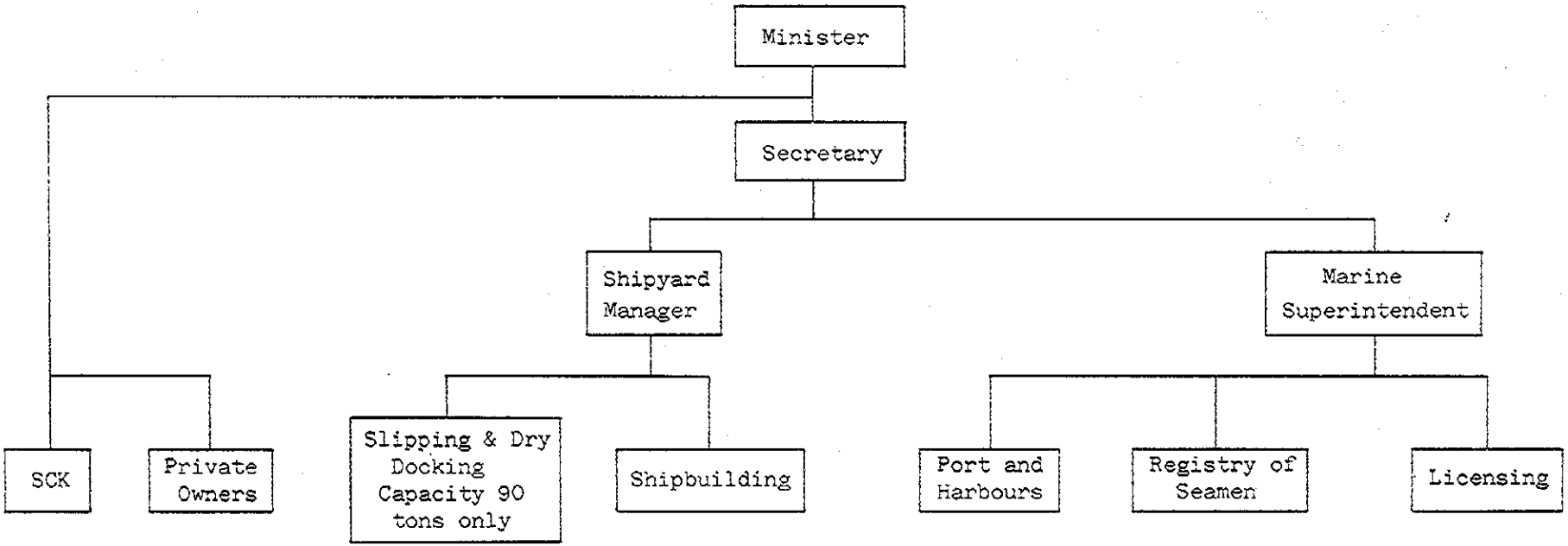


Fig. 1 Chart of Administrative Structure

3-2 Shipping

3-2-1 Outline

Republic of Kiribati consisting of three groups of islands which are widely scattered in the Pacific Ocean. Mass marine transport of passengers and freight pays an important role as a traffic and transportation measure which links to those islands each other. This inter-island shipping service, which is operated by the Shipping Corporation is confirmed within Kiribati. The international service by the corporation-owned vessels is performed only by some specified vessels in exceptional cases.

The pattern of the domestic transport service is ; to transport general cargo, such as foodstuffs, medical materials, construction materials, educational materials, automobiles, motorcycles and small marine machinery, from Tarawa (Betio Port) to the outer islands within the Gilbert Islands, as well as to transport copra, one of the major export items, from those islands to an overseas port, Betio Port, by request of the Copra Board (public corporation) in charge of collecting copra, and to carry passengers on the same routes.

One of the major problems which beset the shipping is lack of natural harbours with deep drafts and efficient cargo-handling facilities because of coral reef areas. The ports where small vessels of about one meter draft can berth alongside are only Betio Port in Tarawa Island and the mole in Banaba Island. Accordingly, copra loading and freight landing on the outer islands requires small boats and barges to work and carry to the ships anchoring several hundreds meters off shores. In addition, loading of cargo into the boats and discharging on the shore are totally dependent on man power.

Therefore, in this situation of Kiribati, vessels with relatively shallow draft and goods performance of ocean going seem to be most practical and desirable.

No voyage services to Phoenix Islands and Line Islands other than Gilbert Islands are available except in special cases (notably by order of the government). Establishing a shipping service network with these remote groups is seen as a major unsolved problem in future.

3-2-2 Shipping Corporation of Kiribati

The organization of SCK is shown in an attached Figure 2: The General Manager under the board supervises 6 : divisions -- shipping operation, port, finance, ferry service, personnel, and marine engineering. The total personnel numbers approximately 200.

The 1981 shipping performance showed that 14,400 freight tons of cargo and 8,110 passengers were carried.

The 1981 freight revenues was approximately A$1,100,000 and the 1982 passenger fare income reached a high of A$152,000.

The fleet owned by Shipping Corporation of Kiribati is listed in the following table (excluding vessels engaged in port services).

Vessel	Construction Year	Output	Cargo Tonnage	Passengers
Moanaraoi	1958	750	842	54
Nei Momi	1982	750	250	56
Makambo	1973	208	30	32
NeiNimmanoa	1977	240	40	32

The largest vessel, M.V. Moanaraoi, built originally for international routes is engaged in 9 voyage services annually to Fiji, but it has already become 25 years old suffering physical and economic problems. The remaining vessels except Nei Momi built in 1982 are small sized landing drafts of shallow draft suitable for the reef area, but their small freight capacity and short cruising range results in reduced economic scope.

The Corporation's financial condition shows that in spite of a steady increase in revenues including passenger fare since 1978 the rising operating expenses have caused continuous years current-account deficits notwithstanding government subsidy (in 1980 it reached approximately A$190,000), but in 1980 the balance has turned around to a surplus of A$97,000 largely because of a rapid growth of revenues. The cumulative

deficit after reaching some A$700,000 in 1979 is likely to decrease gradually to some A$200,000 in 1982.

The subsidy to Shipping Corporation of Kiribati has been established primarily for subsidizing freight rates on unprofitable route between outer islands and its source is from a levy imposed on import commodities.

Although it is very difficult to forecast future financial prospects, approximately A$83,000 to 100,000 annual profit is anticipated due to an increase in freight revenues.

Accordingly, it is an urgent task for Shipping Corporation of Kiribati to promote restructure of the fleet currently owned by the corporation and to improve its profitability to maintain a stable operating system.

As of Dec. 31, 1982

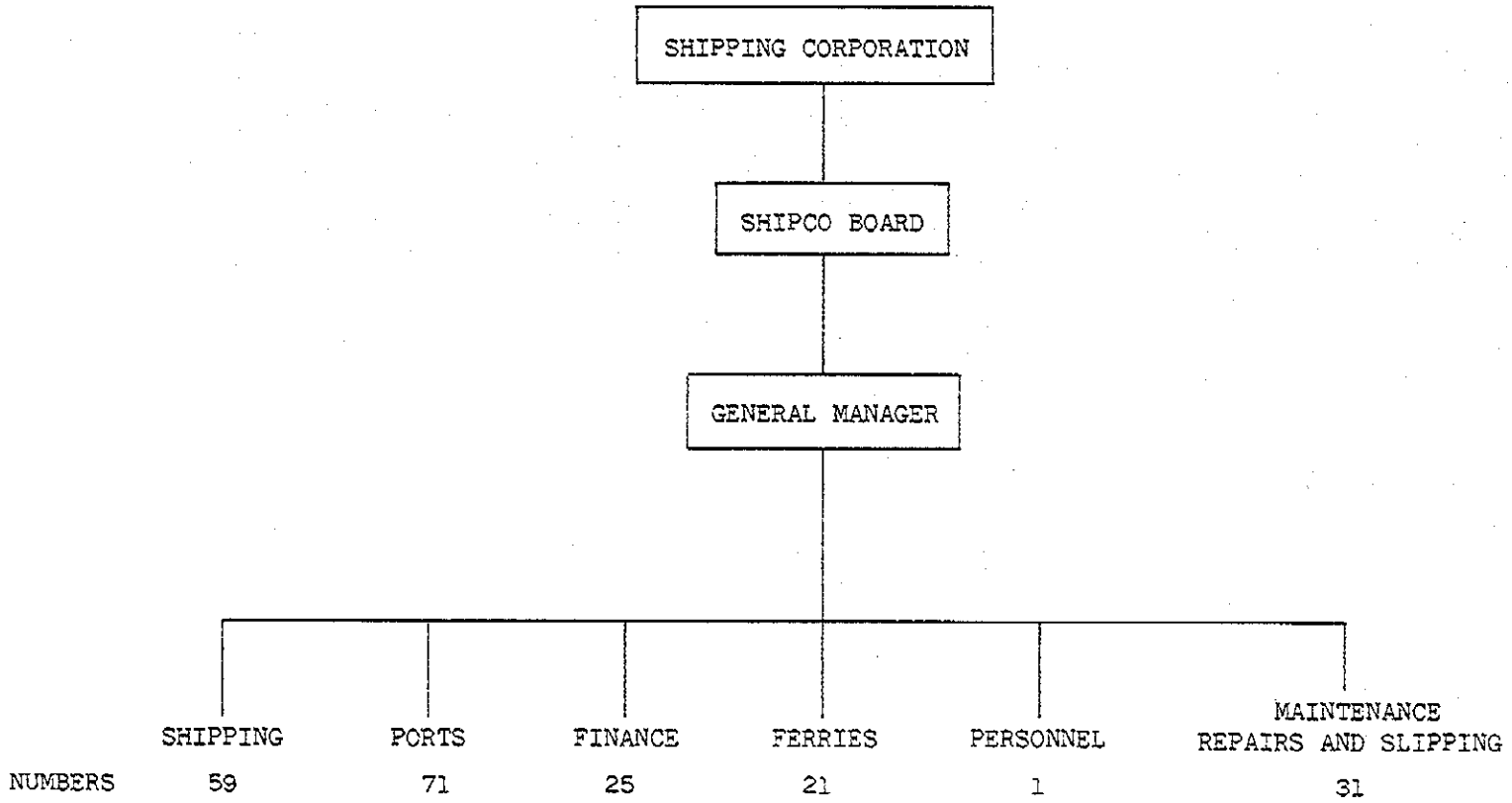


Fig. 2 Shipping Corporation of Kiribati

3-3 Harbours

The harbour facilities as well as vessels are important factors for freight and passenger transport service between islands in the Republic of Kiribati. At present, however, harbour facilities in this country is in extremely unsatisfactory conditions; Betio port (Chart 1) situated in the southern Tarawa is the only port equipped with harbour facilities among all the Gilbert islands. Butaritari Island (Map 2), Abemama (Map 3) and Banaba (Map 4) among other islands have only simple banks like moles for loading and unloading cargos. The detail conditions of respective port are decribed in the followings :

3-3-1 Conditions of Betio port

This is the port located at the north side of Betio island which is at the south western end of Tarawa Atom. The anchorage area which has access through the channel at the western side of Tarawa atoll and is surrounded by the reefs is 20 meters deep at its deepest part. In the cove lying at the innermost end of the channel between the two moles at the northern side of Betio Island, there are anchorage area for small vessels, shipway of Kiribati Shipyard and warehouses. However, the water depth inside the cove is 1 to 2 meters, and it is impossible for large vessels to anchor in the port alongside the pier. Most vessels over 100 tons anchor at the offshore anchorage whence loading and unloading of passengers and freight are done by tugs and barges.

The wharf inside the cove is equipped with a crane of 25 tons and a mobile crane which works for loading and unloading. It is also possible at this port to unload containers from the barges which carries them from the anchored vessel. At the foot of the mole a fuel-storage tank is constructed, from which a pipe-line is laid out to the tip of the mole. Larger-size vessels of Kiribati Shipping Corporation can be fueled by connecting a hose to the pipeline while they are anchored near the tip of the mole.

At Betio port, water supply is also available in the same way. Eight warehouses on Betio port are all managed by the Kiribati Shipping Corporation and most of import-export cargos are shipped through this Betio port.

Since most of government and public offices of the Republic of Kiribati are located in Bairiki, it was planned to construct a causeway between Bairiki and Betio but it has not been completed yet. Therefore small ferry boats (operated by KSC) are operated between Bairiki and Betio.

3-3-2 Conditions of the harbours other than Betio Port

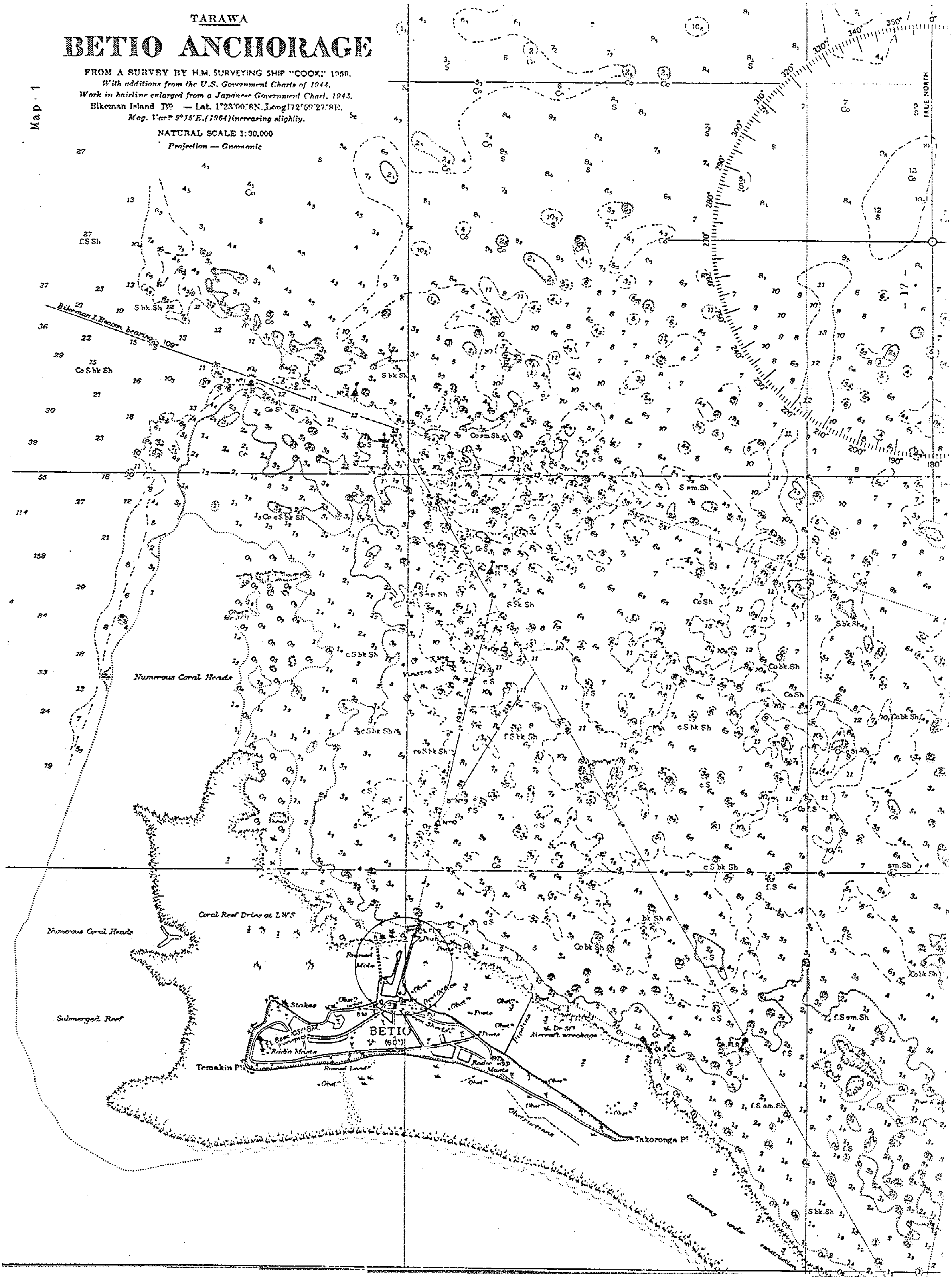
No island in this country except Tarawa Island has what can be called harbour facilities.

Butaritari Island, Abemama Island and Banaba Island have each one mole, which is used for handling cargos. But, since the areas around the moles of Butaritari Island and Abemama Island are both 1 ~ 2 meters deep, ships are obliged to anchor in lagoons and the passengers and cargos are loaded and unloaded by utilizing tugs. There is no cargo-handling equipment or facility, so that the entire works of loading and unloading is done manually by labours.

In two islands mentioned above, which are major copra producing islands, several landing points are provided for loading Copra on the ship and Copra sheds are installed for the storage. Because the anchorage areas around the Gilbert Islands have all different conditions, such as the one inside lagoons or in the open sea, it is strongly desired that incoming and outgoing vessels should have with the draft less than 3 ~ 3.5 meters.

The tide difference in lagoons is comparatively greater at each island and the difference in Betio Port at the spring tide is nearly 2 meters. In addition the tidal current near the channel between lagoon and the open sea reaches 2 knots at fastest. The islands out of the Gilbert island group where vessels can enter safely are Butaritari, Abaiang, Abemama and Nonouti. In the other islands, vessels are usually obliged to anchor off their atolls, so that cargo handling, and entry and exit of vessels at night become susceptible to weather and sea conditions.

Map 1


TARAWA
BETIO ANCHORAGE
FROM A SURVEY BY H.M. SURVEYING SHIP "COOK," 1959.
With additions from the U.S. Government Charts of 1944.
Work in hairline enlarged from a Japanese Government Chart, 1943.
Bikeman Island — Lat. 1°23'00"8N. Long 172°59'27"8E.
Mag. Var. 9°15'E. (1964) increasing slightly.
NATURAL SCALE 1:30,000
Projection — Gnomonic
Bikeman I. Beacon bearing 109°
Numerous Coral Heads
Submerged Reef
Coral Reef Dries at LWS
Temakin Pt
Takoronga Pt
BETIO
Radio Masts
TRUE NORTH

BUTARITARI

Map · 2

NEIBAROAO REEF

RAKAI TUAI

RAKAI NI BITAU

BTZ 3

Tabonuea

Demolished Pier

Makin Azimuth

Bangkai Atoll Products Factory

Butaritari Airfield (Approximate Alignment)

Stone Pier

Tabononobi Point

Makin Sadeno

Manaeba

Kings Wharf

Warehouse

Shop

Butaritari

Rest House

Hospital

Govt. Office

On Changs Wharf

BTZ 6

BTZ 5

Ukiangang

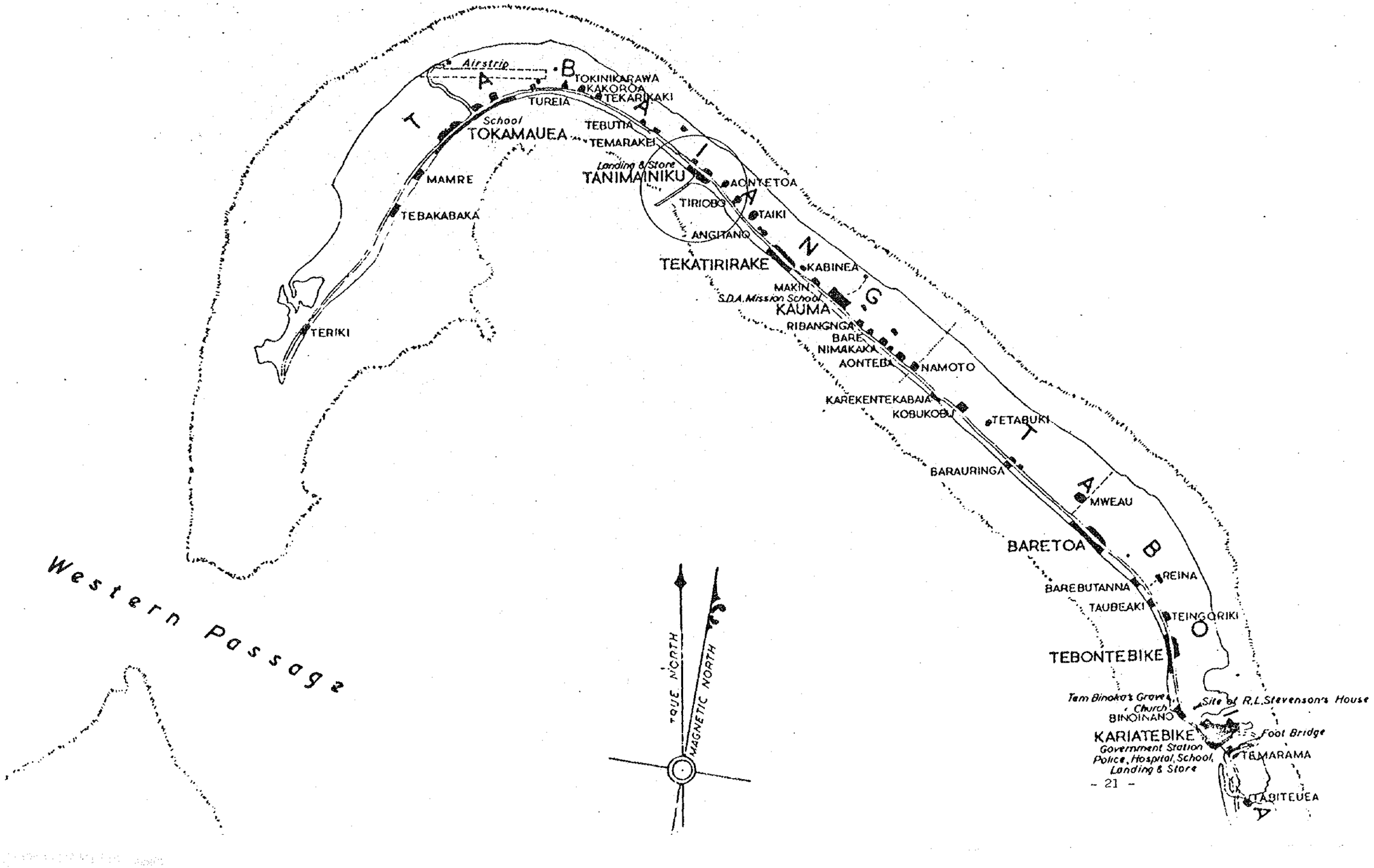
Ukiangang Point

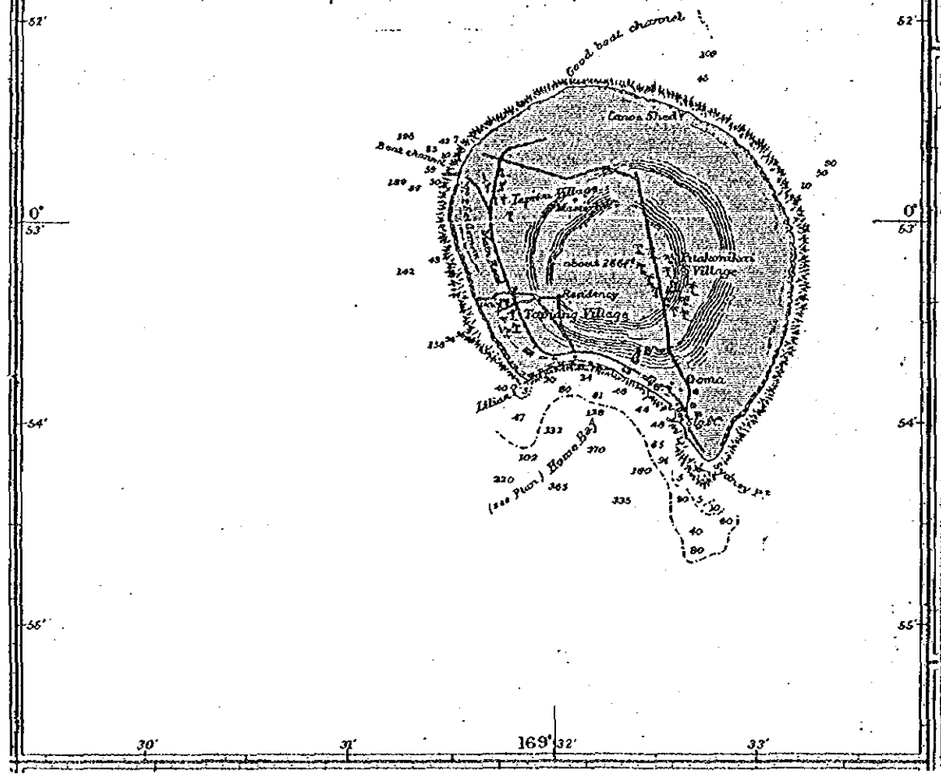
I. TABONTENGEA

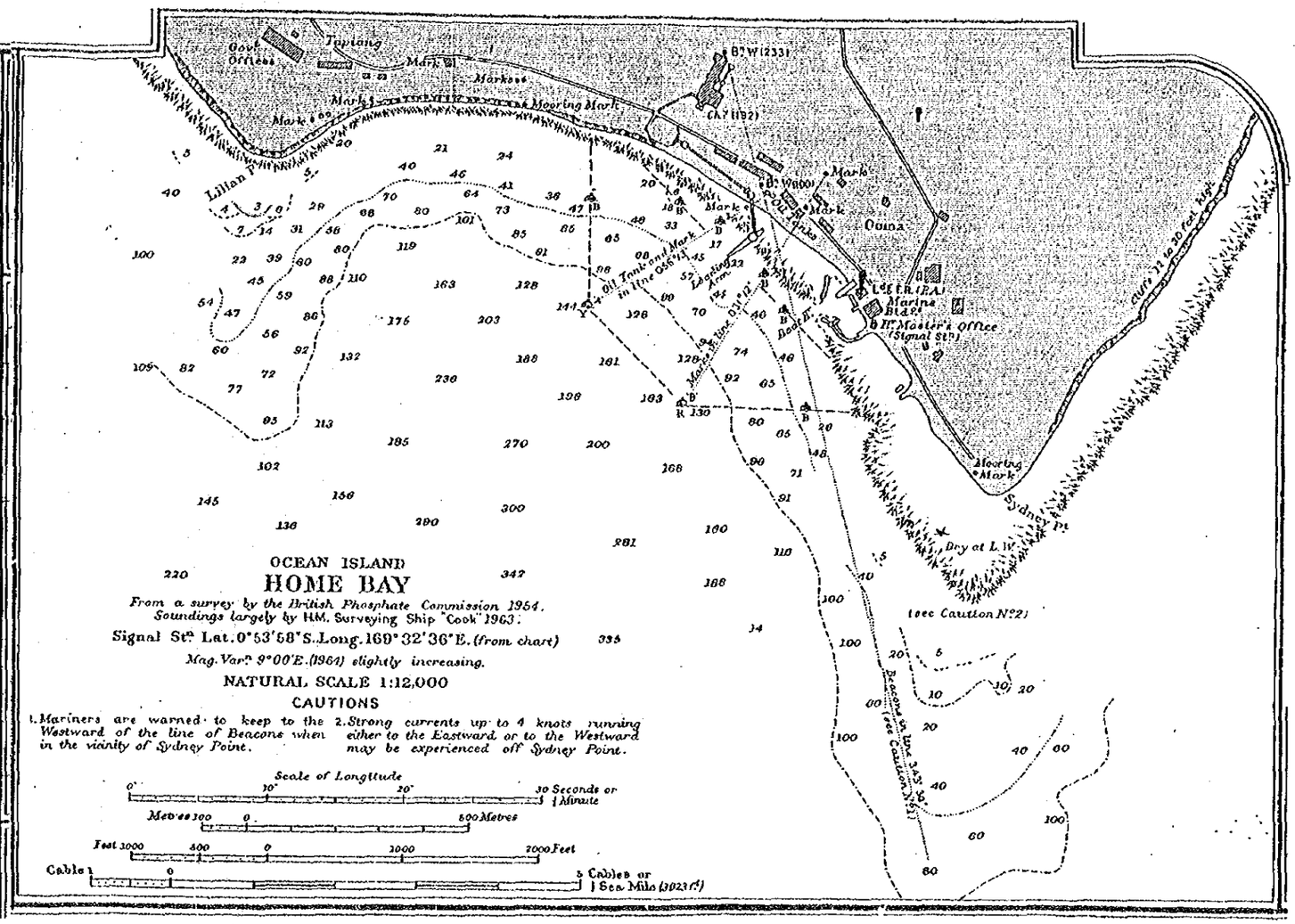
172°45'E

172°50'E

ABEMAMA


Airstrip
A
B
TOKINIKARAWA
KAKOROA
TEKARIKAKI
TUREIA
School
TOKAMAUEA
TEBUTIA
TEMARAKEI
Landing & Store
TANIMAINIKU
AONTETOA
MAMRE
TIRIOBO
TAIKI
TEBAKABAKA
ANGITANO
TEKATIRIRAKE
KABINEA
MAKIN
S.D.A. Mission School
KAUMA
RIBANGNGA
BARE
NIMAKAKI
AONTEBA
NAMOTO
KAREKENTEKABAJA
KOBUKOBU
TETABUKI
BARAURINGA
MWEAU
BARETOA
REINA
BAREBUTANNA
TAUBEAKI
TEINGORIKI
TEBONTEBIKE
Tem Binoka's Grave
Church
Site of R.L.Stevenson's House
BINOINANO
KARIATEBIKE
Government Station
Police, Hospital, School,
Landing & Store
Foot Bridge
TEMARAMA
TABITEUEA
TERIKI
Western Passage
TRUE NORTH
MAGNETIC NORTH





OCEAN ISLAND (BANABA)

From a survey by Mr. F. Danvers Power, Mining Engineer "The Pacific I! Co. Ltd." 1909.
With corrections to 1963.
Mag. Varn. 9°00'E.(1964) slightly increasing.

NATURAL SCALE 1:55,200

OCEAN ISLAND

HOME BAY

From a survey by the British Phosphate Commission 1954.
Soundings largely by H.M. Surveying Ship "Cook" 1963.

Signal Stn. Lat. 0°53'58"S. Long. 169°32'36"E. *(from chart)*

Mag. Varn. 9°00'E.(1964) slightly increasing.

NATURAL SCALE 1:12,000

CAUTIONS

1. *Mariners are warned to keep to the Westward of the line of Beacons when in the vicinity of Sydney Point.*
2. *Strong currents up to 4 knots running either to the Eastward or to the Westward may be experienced off Sydney Point.*

3-4 Education of crew

The Marine Training School for cadet seamen in Kiribati is located in Betio.

This school offers one-year training oourses centring on fundamental education of crew. Boy students of 18 to 25 years of age who passed an examination are trained with the following curriculum.

Course	Term	Quorum	Training subjects
Basic	4 months	60	Knowledge of maritime affairs and English language
Intermediate	4 months	60	Deck-hand, fireman, steward
Senior	4 months	60	Practical excercise

A graduate who has finished these courses and through practical excercise on the ocean and then passing the qualification examination designated by laws, is eligible for promotion to a boatswain or an officer.

The qualification for a crew member of a ship serving among Pacific islands is given in the Fiji Institute of Technology, and to qualify for a ocean going seaman one has to finish a further senior courses in New Zealand or Australia. The number of teachers at the Marine Training School is 48 at present, including 4 Englishmen and 3 Germans. A majority of the graduates are employed by a consortium, the South Pacific Marine Service (SPMS), consisting of 8 German shipping companies. Kiribati seamen working for foreign ships after trained in the Marine Training School, which was established in 1966 with the support of the British Commonwealth of Nations and UNDP, has numbered about 700, and it is reported that the annual remittances sent from them amount to some A$2.5 million.

A sohooner which was bought from the United States of America in the last fall, is about to start its activity as a training ship shortly. It is also planned that trainees will have on-board training on the

cargo boat under this request. Therefore, Kiribati with limited foreign exchange sources is earnestly hoping for increased foreign exchange earning through supplying seamen actively in response to the demands from developed maritime powers and remittances from them.

3-5 Ship building and repairs

3-5-1 Construction and repairs of small vessels

As mentioned in the above, Kiribati Shipyard is the nation's only facilities for ship building and repairs while the traditional canoe manufacturing and repairs have been done by private sectors. The scale of the Kiribati Shipyard is :

Employees	40 persons
No. of slipway	3 (Only 1 line has a rail)
Capacity of slipway	90-Ton vessel (Gross Tonnage)

The "Nei Nimanoa", tugs and burges presently operated by Kiribati Shipping Corporation were constructed at this shipyard. As to the shipyard facilities, there are wood working shop, machine shop, assembly shop , etc. Although each shop is small in scale, construction and repairs of small vessels and some minor repairs of large vessels afloat can be done by this Shipyard. It is not known whether they can repair FRP and alminum materials.

The feasibility study on expanding the facilities to increase the capacity of this shipyard is scheduled to start soon.

3-5-2 Repairs of large vessels

There is no capacity of slipway for the vessels over 100 tons in Kiribati Shipyard, so that the repairs of such large vessels owned by Kiribati Shipping Corporation have been carried out at the Fiji Marine Shipyard in Suva City in Fiji. The outline of this shipyard is as follows :

(1) Management

This shipyard is directly controlled by the Fiji Government, under the supervision of Ministry of Transport and Civil Aviation.

(2) Shipbuilding

1930 - 1982	No. of vessels built	73
	(largest vessel	384 GT)

(3) Repairing capacity (Capacity of slipway)

At the Suva Public Slipway in this shipyard, there are slipways of 1,000 tons, 500 tons and 200 tons of capacity.
Repair wharf is at the far end of the slipway.
This shipyard normally provides services to pull the vessel on to the slipway and other preparatory works for repair.
Repair works are done by the private repair companies.
There is no shipyard with larger capacity in the South Pacific area, so that the repairs of vessels of less than 1,000 tons are mostly carried out at the Fiji Marine Shipyard.

(4) Number of employees

They have about 400, and 310 of them are field workers.

(5) Facilities

Besides slipway for repairs,they have a crane of 300 tons, mold loft, wood working shop, plate work shop, machine shop and fitting shop for the construction of new vessels.

CHAPTER 4
OUTLINE OF THE PLAN

CHAPTER 4 OUTLINE OF THE PLAN

4-1 Freight and Passenger Transport Demands

4-1-1 Passenger Transport Demands

The actual record of passenger transport over the recent five years is shown below :

Year	Record of Passenger Transport
1978	6593
1979	7146
1980	7923
1981	8109
1982	7773

Based on this record, growth of passenger transport over the coming five years after 1983 is assumed as follows :

Year	Estimated passengers
1983	8300
1984	8500
1985	8600
1986	8700
1987	8800

Our own survey indicated that movement of people among the islands is more dense and frequent than expected and ships serving in the Gilbert Islands are heavily congested with passengers.

This trend is highly likely to be accelerated with growth in population and improvements in socioeconomic conditions in future.

4-1-2 Freight demands

Major cargo in Kiribati can be roughly grouped into copra and general cargo.

Copra which is virtually the only product in this country is produced in the outer islands but its production still remains at hand picking, labour-extensive stage and is susceptible to natural factors such as weather. Namely, since fruit of coconut palm is dried in the sun for several days to yield copra, the yield in a rainy year is rather poor and so a planned increase in production by plantation is very difficult.

The maximum copra production after 1970 was recorded in 1974 at approximately 12,200 tons. However, it is very difficult to produce copra as planned for and to estimates its future production because it depends very much on natural condition.

According to past results it can be expected to reach amount of about 8,000 tons annually, and its shipping tonnage is estimated at about 5,000 tons. According to the Shipping Corporation of Kiribati, copra tonnage over the recent five years is as follows :

Year	Copra tonnage
1978	3,946
1979	4,269
1980	4,910
1981	5,765
1982	4,210

While copra is almost the only export comodity of this country, general cargo includes a wide variety of import goods for consumer's use handled by the government and import traders. Marine transport for distributing these commodities to the islands is crucial for national economy. General cargo tonnage over the recent five years is follows :

Year	General cargo tonnage
1978	5,918
1979	6,404
1980	7,366

Year	General cargo tonnage
1981	8,647
1982	6,315

Marine transport volumes of general cargo is expected to increase markedly due to population growth and rising standards of living. In the same way as for passenger demands, growth of general cargo over the next five years is estimated as follows :

Year	General cargo tonnage
1983	7,700
1984	7,800
1985	8,000
1986	8,100
1987	8,200

It is anticipated that in future years the transport frequency of bulky cargo such as construction materials is likely to go up gradually. In terms of freight revenues, too, expanded tonnage general cargo in future will play decisive role for development of marine business.

4-2 Operation Plan

Of the four vessels currently operated by the Shipping Corporation of Kiribati, the largest one, M.V. Moanaraoi, is serving for international routes (mainly for Fiji) as well as for internal shipping among the islands, while the remaining small vessels are engaged in passenger and cargo transport within Gilbert Islands center of Tarawa. These vessels are not assigned on the Phoenix Islands and Line Islands routes without special request from the government.

Cargo flow of these domestic services are classified roughly as follows :

- o General cargo including imported goods by government or importers are classified for individual destinations by S C K and shipped by above mentioned vessels.

- o Copra which is produced in the outer islands is bought and collected by Copra Board into copra shed of each island. According to situation of accumulation of copra in each island, Copra Board ask shipping space from S.C.K. to effect copra shipment from distant islands.
  Based on such circulating process of cargos, S.C.K. schedules annual operation plan and S.C.K. trys to operate their fleet to the plan where possible.
  It follows that in case of general cargo which are to be transported from Tarawa to the outer islands, S.C.K.can make shipping operation as planned for because it is possible to easily catch cargo contents.
  However, in case of copra, it is not always synchronized with transportation of general cargos because its production and collection are usually affected by natural condition and sometimes S.C.K. is obliged change their schedule.

Therefore, the operation plan for a newly built vessel will have a pattern in which one cycle requires about 2 weeks, as shown in the following table. That is, it will transport general cargo to the northern, central and southern Gilbert Islands, and ship copra from the islands to Tarawa (Betio Port). Passengers will also be carried on the same routes.

Division	Loading place	Voyage period
Northern Gilbert Islands	Makin Butaritari Marakei Abaiang	2 weeks
Central Gilbert Islands	Maiana Kuria Aranuka Abemama Banaba	2 weeks

Division	Loading place	Voyage period
Southern Gilbert Islands	Nonouti Tabifeuea Bery Onotoa Nikunau Tamana Arorae	2 weeks
Others (Phoenix Islands, Line Islands)	Available only by request from the government	

CHAPTER 5
BASIC PLAN FOR INTRA ISLANDS VESSEL

CHAPTER 5 BASIC PLAN FOR INTRA ISLANDS VESSEL

5-1 Design philosphly

The design philosphly of the intra islands vessel is as follows :

(1) Voyage route

As mentioned in the previous chapter the voyage route of the vessel is mostly within the Gilbert Islands centering upon Tarawa. However whenever necessary, the shipping service is available to Line Islands and, etc.

(2) Passenger accommodation and cargo tonnage

1) Passengers

36, considering the recent transport record and future demand of transport.

2) Cargo

About 250 tons, considering the recent freight shipping record and future demand.

The cargo holding capacity is estimated at about 390 cu.m, using the conversion rate of 0.4 for capacity based on the freight volume of copra per shipment of about 130 - 150 tons.

3) Cadet seamen

The accommodation facilities for 12 cadets and one training officer of Marine Training School besides passenger are to be provided.

(3) Ship's speed and travel distance

Considering the situation of transportation of cargo and passengers within the Gilbert islands, the service speed at fully loaded condition is about 9.5 knot.

The distance of voyage is about 5,000 nautical miles at the service speed at fully loaded condition in order to meet the demand of servicing to the Line islands and others.

(4) Others

Based upon the energy situation in the Republic of Kiribati, an energy-saving type ship should be designed.
As the facilities for ship building and repair are not satisfactory, it should be designed to be easily repaired and maintained.

5-2 Design conditions

(1) Classification

NS* and MNS* of Nippon Kaiji Kyokai (NK).

(2) Applicable rules and regulations

Following rules and regulations are applicable :

1) Rules and regulations for Steel Ships of Nippon Kaiji Kyokai (NK).

2) International Loadline Regulation in 1966.

3) SOLAS Rules and Regulations in 1974 with suitable waivers for this class vessel.

4) IMCO Recommendation on Intact Stability for Passenger and Cargo Ships under 100 meters in length (A-167)

5) Tonnage measurement regulation in Japan.

6) Maritime regulations in Japan applicable for this type of vessel.

(3) International voyage

When carrying passengers, the vessel will not be engaged in international routes.

(4) Draft

Less than 3.0 meter at fully loaded conditions, because of the situation of the ports and voyage routes.

(5) Complement

6	Officers	
11	Crew	Total 17 (excluding cadets)

5-3 Basic Design of the Vessel

The final plan based on detailed reviews is shown in the following :

OUTLINE SPECIFICATIONS
OF
INTRA ISLANDS VESSEL

1. General

The vessel shall be designed and constructed as a single screw diesel driven ocean going cargo and passenger vessel.
The vessel shall be a single decker with a sunken forecastle having raked stem, a long poop and a cargo hold. All accommodation and engine room placed aft are shown on the General Arrangement Plan and the vessel shall be designed to provide accommodation for seamen cadets. The vessel shall be registered under the flag of Kiribati.

2. Principal particulars

Length o.a.	approx. 43 m
Length b.p.	approx. 38 m
Breadth, mld.	approx. 9.6 m
Depth to upperdeck, mld.	approx. 4 m
Draught designed, mld.	approx. 3 m
Gross tonnage	approx. 500 GT
Fuel oil tank	approx. 70 m^3
Lube oil tank	approx. 2 m^3
Fresh water tank	approx. 25 m^3
Cargo capacity	approx. 250 t
Bale capacity	approx. 390 m^3

Complement

Captain	1
Officers	6 (including one training officer)
Crews	11
Cadets seamen	12
Cabin passengers	6
Deck passengers	30
Total	66 persons

Service speed	approx. 9.5 knots
Endurance at service speed	approx. 5,000 sea miles

Class and Rules

The vessel shall be designed, manufactured and built under the supervision by and to the classification requirements of Nippon Kaiji Kyokai (NK) and registered under the symbols of: NS*, MNS*. The following Rules and Regulations shall be applied or referred to also:

Rules and Regulations of Classification Society (NK)

1966 International Loadline Regulation

1974 SOLAS Rules and Regulation with suitable waivers for this class vessel

Tonnage measurement regulation in Japan

IMCO recommendation on Intact Stability for passenger and cargo ships under 100 meters in length (A-167)

Maritime Regulations of Japan applicable for this kind of ship.

Hull equipment and deck machinery

4.1 Anchoring and mooring

3 -	Bower anchor, stockless	660kg each
1 -	Anchor chain cable with stud	22mmφ x 302.5m in total length
1 -	Tow line steel wire rope,	20mmφ x 180m
4 -	Mooring rope synthetic rope,	28mmφ x 120m each
1 -	Anchor windlass, hydraulic driven,	4 tons x 9m/min
1 -	Mooring capstan, hydraulic driven,	2 tons x 15m/min

4.2 Steering system

1 - Electro-hydraulic steering gear, 2.5t-m x 28sec/65 deg.

4.3 Cargo handling

2 -	Hydraulic cargo winch,	3t x 30m/min
2 -	Cargo derick boom	3 tons

4.4 Commissary equipment

Equipment for each galley:

1 - Gas range with 3 burners and 1 oven

1 - Dresser

1 - Refrigerator, market stock, abot 250 lit.

1 - Sink, Stainless top

1 - Butan gas bottles to be provided on the upper deck for two galley

4.5 Refrigerating system

2 - R12 compressor units 1.5KW each

4.6 Ventilation

2 - Supply fan for accommodation space, 0.75KW each

2 - Exhaust fan for sanitary space, 0.4KW each

2 - Exhaust fan for galley, 0.4KW each

2 - Supply fan for engine room, 1.5KW each

4.7 Life saving equipment

2 - Life raft	Inflatable type (20P)
2 - "	" (15P)
4 - Life buoy	
2 - Self igniting light	
1 - Self activating smoke signal	
12 - Parachute signal	
6 - Rocket signals	
66 - Life jacket	
6 - Life jacket for children	

4.8 Fire fighting equipment

Fire hydrants with fire hoses (sea water) — Applied for accommodation space, engine room and weather deck

Fire extinguishers

Location	Type and capacity	No.
Engine room	foam, 9 lit	2
Engine room	foam, 45 lit	1
Accommo. space (including store etc.)	foam, 9 lit	4
Main switchboard	dry chemical 3.5Kg	2

Fire protective clothing — 2 sets

Nautical equipment

1 - Magnetic compass, 165mm card dia.

1 - Air horn

1 - Navigation lights one set

1 - Anchor light

2 - N.U.C. lights (electric)

2 - N.U.C. lights (oil)

3 - Black balls

1 - Ship's bell, 250mm

1 - Clinometer

4 - Marine transistorized clock

1 - Binocular

1 - Aneroid barometer

1 - Patent log

2 - Hand leads, 3.2Kg with 46m line

1 - Deep sea sounding lead,12.7Kg with 250m line

1 - Sextant

2 - Ensigns

1 - International code of flag set

1 - Searchlight, 1KW

6 - Flood lights

1 - Clear veiw screen, 300mmφ

1 - Morse light

1 - Chronometer

inery

Main engine	Four cycle in line single acting trunk piston, fresh water cooled, air starting marine diesel engine, 650PS

Reverse/reduction gear

Propeller

t - Intermediate shaft, propeller shaft

Generator engine	Four cycle in line single trunk piston fresh water cooled diesel engine, 75PS
Main air compressor	Motor driven, $5m^3/h \times 30kg/cm^2$
Aux. air compressor	Diesel engine driven, $5m^3/h \times 30kg/cm^2$

2 -	Main air reservoirs	Vertical cylindrical type 80L x 30kg/cm^2
2 -	Fire/bilge/G.S. pump	Motor driven, 20/30m^3/h x 38/20m
2 -	Fresh water pressure set with pressure tank	60L/min x 20m
1 -	Oily bilge separator	0.3m^3/h
1 -	Sea water pressure set with pressure tank	60L/min x 20m
1 -	F.O. Transfer pump	Motor driven, 3m^3/h x 2kg/cm^2
1 -	Standby L.O. pump for main engine	Motor driven, 15m^3/h x 4kg/cm^2
1 -	Standby L.O. pump for reduction gear	Motor driven, 3m^3/h x 16kg/cm^2
Hand operated pumps		Each kind, 1 set
2 -	Hydraulic pump unit,	motor driven, 15KW
1 -	Work bench	In engine room
1 -	Overhaul gear	Chain block 1.0 ton manual travelling

1 set - Main engine ahead-astern, clutch on-off and speed control device from wheel house

1 set - Automatic start and stop system for main air compressor

1 set - Automatic start and stop system for F.O. service pump

1 set - Automatic start and stop system for fresh water pump

1 set - Alarm panel in engine room

6. Electrical equipment

2 - Main generator (225V AC, 50HZ, three phase) 60KVA

2 sets - Battery 24V, 200AH each

1 set - Charging and discharging device

2 - Transformer 10KVA each

1 set - Main switchboard

1 set - Shore connection equipment (220V AC, 50HZ, three phase)

Lighting fixtures and outfits

1 - Radar, 7" CRT

1 - Echo-sounder 50W

1 - Electro magnetic log

1 set - Common battery telephone

1 - Deck announcing and public addressor system, 30W

1 - Fire and general alarm

1 - Engine telegraph

1 - Rudder angle indicator

1 - Inter communication system

1 - SSB radio telephone 150W

1 - VHF telephone 25W

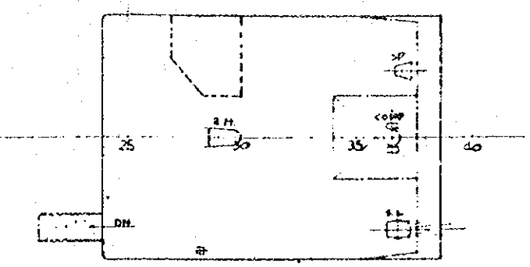
7. Spare parts

Spare parts are desirable to be supplied for two (2) regular working years including the requirements of the Classification Society, and/or Manufacturer's normal standards.

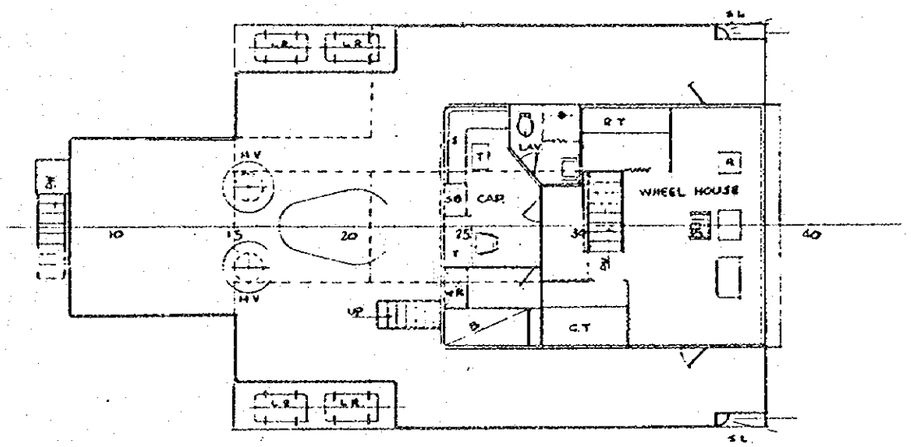
PRINCIPAL PARTICULARS

LENGTH O.A.	ABOUT 42.50 M
LENGTH B.P.	38.00 M
BREADTH Mld	9.60 M
DEPTH Mld	4.00 M
DRAFT DESIGNED	3.00 M
GROSS TONNAGE	ABOUT 500 T
DEADWEIGHT (CARGO CAP.)	ABOUT 250 T
MAIN ENGINE	650 PS
SPEED SERVICE	ABOUT 9.5 KT
CREW	30 P
PASSENGER CABIN	6 P
DECK	30 P
CLASS	NIPPON KAIJI KYOKAI NS* AND MNS*

COMPASS DECK



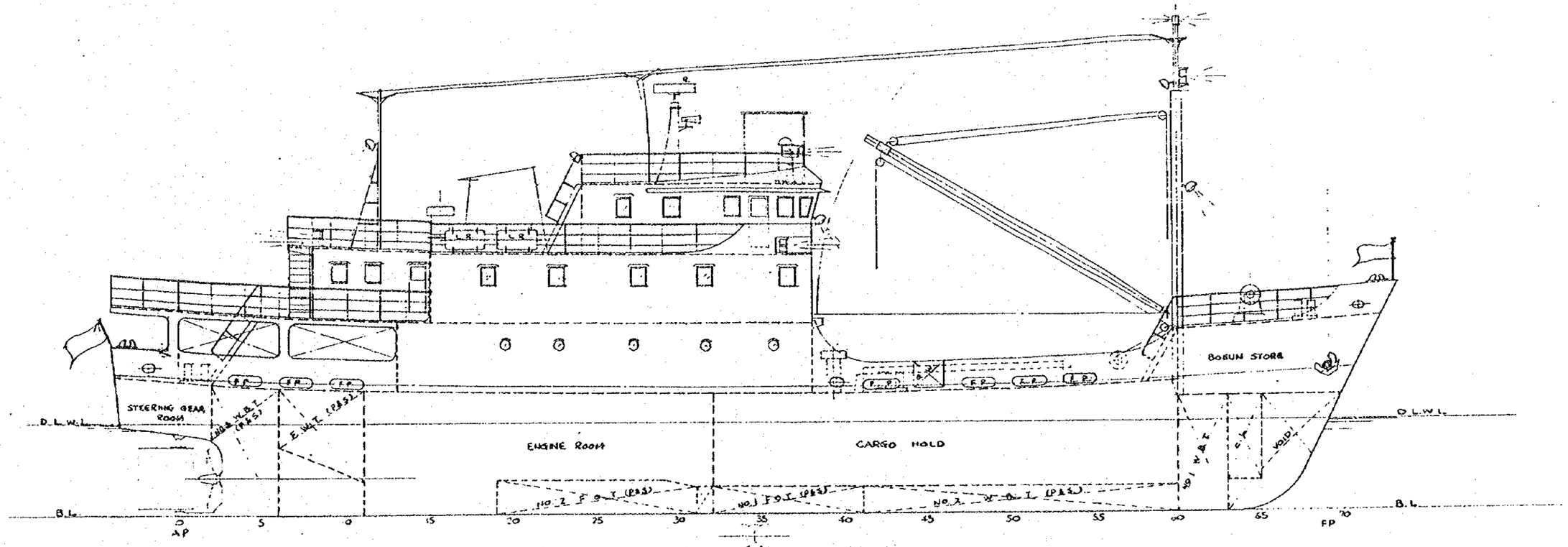
BRIDGE DECK



CARGO AND PASSENGER BOAT

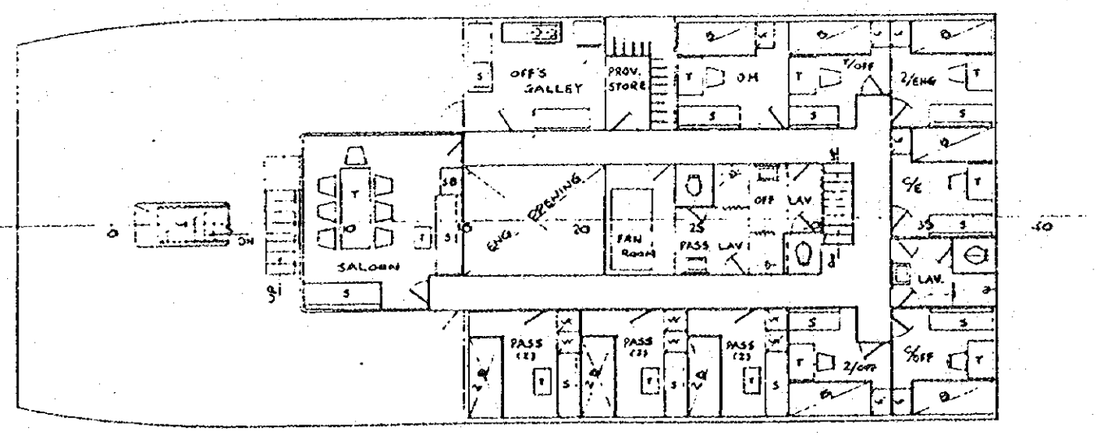
GENERAL ARRANGEMENT

S= 1/100

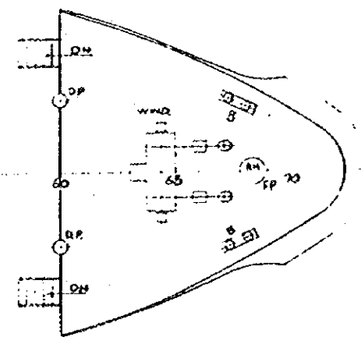


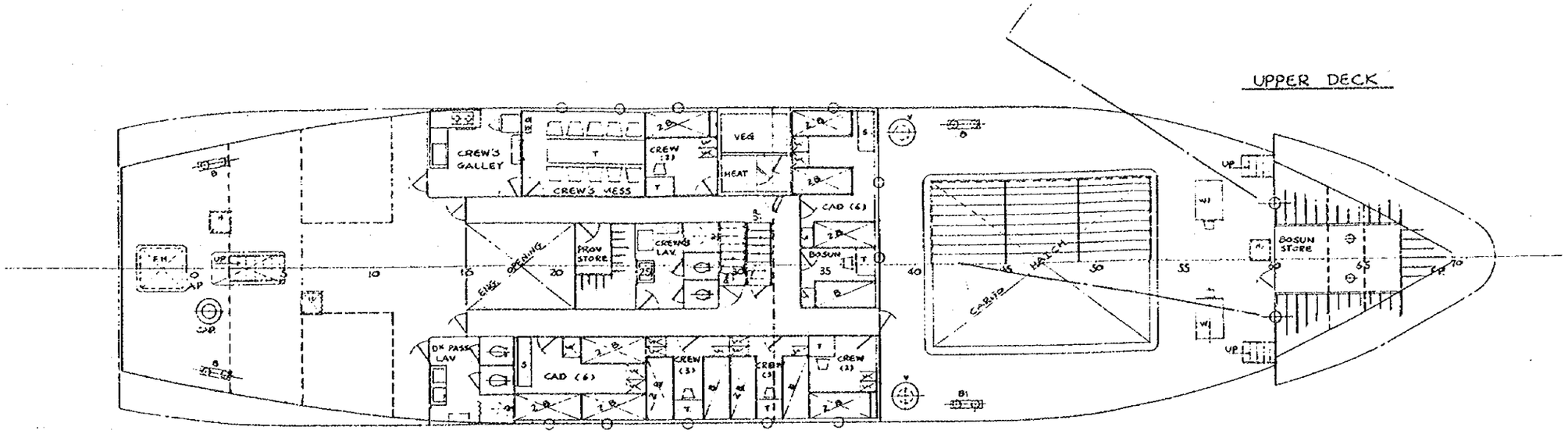
FRAME SPACE 550 mm THROUGHOUT

POOP DECK



F'CLE DECK




UPPER DECK
CREW'S GALLEY
CREW'S MESS
CREW (2)
VEG
HEAT
CAD (6)
PROV STORE
CREW'S LAV
BOSUN
BOSUN STORE
DK PASS LAV
CREW (3)
CREW (1)
CREW (3)
B1
EVSE OPENING
HATCH
CABLE
UP
F.W.
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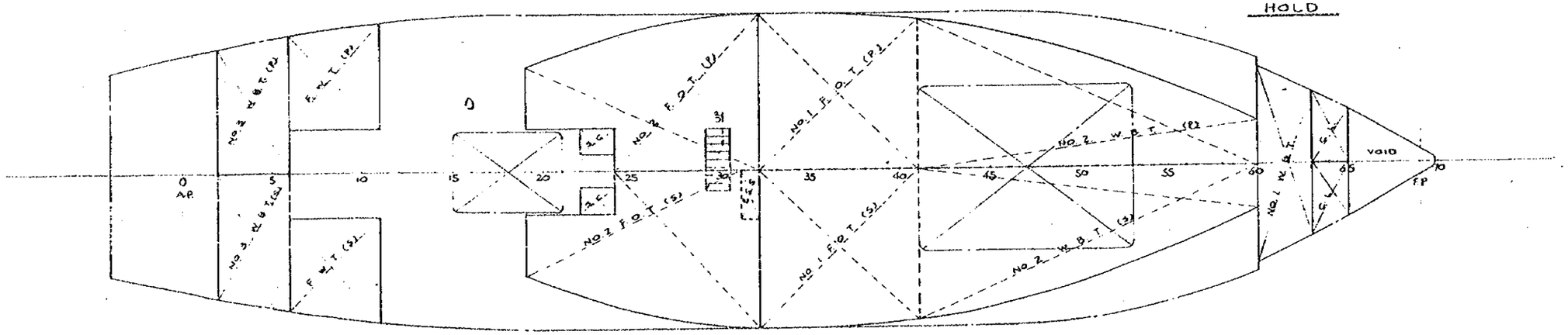
HOLD
No 4 W.B.T. (P)
No 3 W.B.T. (P)
F.W.T. (P)
No 4 F.O.T. (P)
No 3 F.O.T. (P)
No 2 F.O.T. (P)
No 1 F.O.T. (P)
No 2 W.B.T. (P)
No 1 W.B.T. (P)
No 4 F.O.T. (S)
No 3 F.O.T. (S)
No 2 F.O.T. (S)
No 1 F.O.T. (S)
No 2 W.B.T. (S)
No 1 W.B.T. (S)
F.W.T. (S)
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2 C.
VOID
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A.P.
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FP

CHAPTER 6
EXECUTION PLAN

CHAPTER 6 EXECUTION PLAN

6-1 Executing agency

While this project is being supervised by Ministry of Communications, Government of Kiribati, the executing agency is the Shipping Corporation of Kiribati which will take charge of shipping operations and coordination after the proposed vessel is delivered to Kiribati.
As the Corporation has operated internal shipping services all along since the pre-independence days of Kiribati, it is felt that the Corporation has adequate capability and structure to operate with the addition of a new vessel.

6-2 Operation and Maintenance Plan

6-2-1 Port of registration

Betio port, Tarawa

6-2-2 Manning plan

Crew composition for the proposed inter-island vessel is as follows :

Captain	1
Deck officer (1st and 2nd mates)	2
Engineering officer (chief engineer and engineer)	2
Purser	1
Crews	11
Total	17

The Corporation plans to assign their own qualified staffs for the ship.

6-2-3 Maintenance

Minor repairs, whenever the need may arise, will be carried out by the shipyard in Kiribati and some others. Periodical maintenance at dock to be carried out yearly in the shipyard on Suva, Fiji.

6-2-4 Financial Plan

The annual income and expenses in operating the proposed inter-island vessel are estimated as follows :

Estimated Income

Freight	A$510,000
(140tons x @A$83.6 x 22 voyages x 2 =	A$510,000)
Passenger	A$29,000
(34 passengers x @A$19.6 x 22 x 2 =	A$29,000)
Total	A$539,000

Note : (1) Freight and passenger transport volumes are computed from the Corporation's recent performance.

(2) Freight and passenger tarrifs are the average of the Corporation's latest figures.

(3) Annual voyages are set at 22.

Estimated Expenses

Fuel	A$129,000
(1) Main engine	
@A$530 per kl x 175 kl =	93,000
(2) Generator set	
@A$530 per kl x 69 kl =	36,000
Water	A$8,000
Annual insurance premium	A$77,000
Foods for crew	A$26,000
Crews wages	A$73,000
Maintenance	A$24,000
General provisions	A$37,000
Overhead	A$36,000
Charges, fees, etc.	A$37,000
Others	A$40,000
Total	A$487,000

Note : (1) Fuel cost is based on the purchase price by the Corporation.

(2) Annual fuel consumption for main engine and generator is based on :

Main engine : the output is set at 85%, with fuel consumption of 175 gr/PS/H. Annual operating hours are 1,560 hrs.

Generator set : the output is set at 40 PS, with fuel

consumption of 170 gr/PS/H. Annual operating hours are 8,760 hrs.

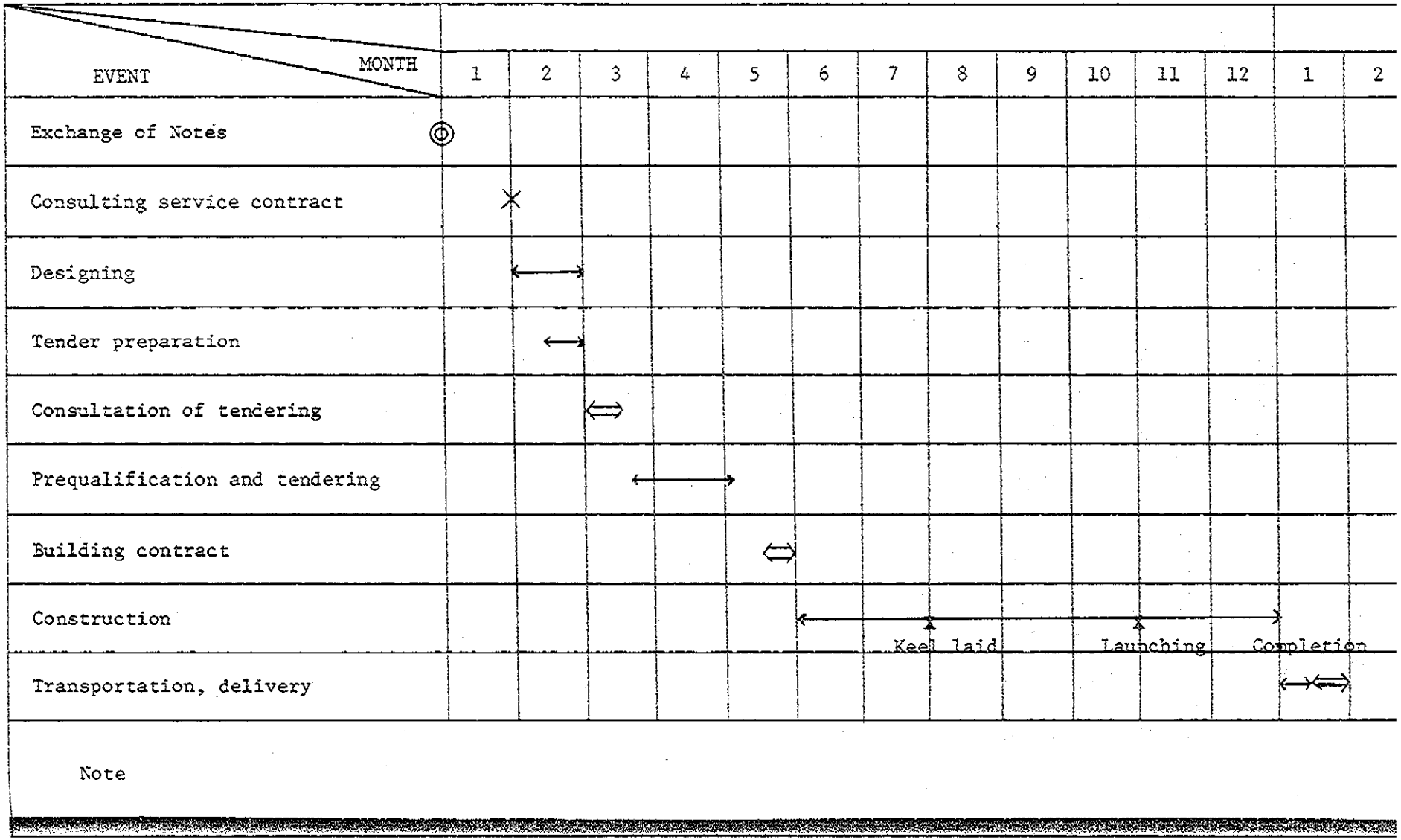
(3) Expense other than fuel are computed from the Corporation's information.

Estimated excess of income over expenses + A$52,000

6-3 Construction Process

The construction process of the planned Intra Islands vessel is as shown below :

CONSTRUCTION PROCESS



CHAPTER 7
EVALUATION OF THE PROJECT

CHAPTER 7 EVALUATION OF THE PROJECT

7-1 Operational aspect

7-1-1 Effect on development of outer islands

Out of the inter-island fleet operated by the Shipping Corporation of Kiribati, there is virtually only one vessel capable of giving useful and efficient service. Accordingly it is expected that the provision of the proposed vessel will contribute substantially to the improvement of the present shipping efficiency, thereby ensuring that shipping services of copra and other export items from the outer islands will be promoted and that a satisfactory distribution of consumer items and construction equipment will be effected within the whole community. An effective shipping service will also become great instrument in fulfillment of the Corporation's requirement to provide interchanges of people and culture between the islands while maintaining a network of inter-island communications.

7-1-2 Seamen training

The proposed vessel under this project is designed to have accomodation for cadet seamen of the Marine Training School. It is planned to be operated as a training vessel, while providing freight and passenger transport services to the outer islands. As the on-board training avails for cadet to accumulate experience in the course of seamen training schedule, so as to enhance their seamanship and to familiarize them of machinery operations, this will bring out a significant effect.

In the light of the fact that Kiribati is lacking any sizable industry other than agriculture and fishery, seamen training to work on foreign ships will pay the key role in the nation's labour policy in an effort to provide employment opportunities, and also as an effective means of foreign exchange earnings towards improvements in living standards in the community as a whole.

7-2 Financial aspect (Profitability of Operations)

From the estimations made in Chapter 6-2-4 "Financial Plan", annualized profitability of operating the proposed vessel is computed as follows :

Freight Income

Cargo	A$510,000		
Passenger	29,000		
Total Income	A$539,000	.....	(1)
Expenses			
Fuel	A$129,000		
Water	8,000		
Insurance Premium	77,000		
Foods for crew	26,000		
Crew Wages	73,000		
Maintenance	24,000		
General provisions	37,000		
Overhead	36,000		
Charges, Fees, etc	37,000		
Others	40,000		
Total Expenses	A$487,000	.....	(2)
Annual Profit (1)-(2)	A$52,000	.....	(3)

As shown in the above, the pre-depreciation profit turns out to be A$39,000 per year.

Assuming that a capital investment of the proposed vessel set at A$2,300,000 is to be amortized in equal instalments over 20 years, annual amortizing amount would turn into A$115,000, reversing the annual profit into a deficit, as follows :

Annual Profit	A$ 52,000
Annual Depreciation	115,000
Annual Loss	A$ 63,000

While the future trend in income and expense is hardly forecosted at the moment, it is expected that the proposed ship will show an improved performance progressively with general cargo growth.

As the Kiribati Government is inclined to stop or avoid any increase in freight rates where possible in the face of social objective of the plan, therefore, there is little likelihood of rapid improvement of profitablity

of operating the proposed vessel. Accordingly in the event in future a need may arise for replacement of this ship, there should be some measure to be taken by the Kiribati Government in the form of subsidization for such replacement.

CHAPTER 8
CONCLUSION AND RECOMMENDATION

CHAPTER 8 CONCLUSION AND RECOMMENDATION

Considering the present living conditions of the people in the Republic of Kiribati and their accompanying problems, development of agricultural products and marine resources are considered as crucial in foreign exchange earnings after the end of phosphate mining in Banaba.

In particular, promotion of copra export will increase opportunities for cash earnings in the outer islands, as the majority of people continue to depend on copra production, while efforts to ensure a stable supply of daily commodities will maintain and improve living conditions in the islands, thus contributing towards economic development of the nation as a whole and the outer islands.

Accordingly, it is considered that the provision of the proposed inter-island vessel is the most appropriate, and should be implemented as early as possible, in light of existing fleet operated by the Shipping Corporation of Kiribati.

Furthermore, operating this ship as a training ship to teach cadet seamen on board will play a significant role in manpower development.

Wharves and ports in most of the outer islands are found still inadequate for loading and also access for vessels.

As there are move ports for the vessels calling at ports of the outer islands at present, and this would reduce returns on capital investment on port facilities, it is yet recommendable that further efforts should be directed to centralize cargo loading stations and to improve port facilities and navigational safety equipment, along with augmented inland transport, thus ensuring improved total efficiency in shipping services with the introduction of more efficient vessels.

Furthermore, regular scheduling of vessel where possible is essential to reduce operating costs, which is turn will require copra production levels to be periodically scheduled, as copra forms a bulk portion of cargo from the outer islands to Tarawa.

It is equally important that a satisfactory network of telecommunication should be provided between Tarawa and outer islands, so that change of

freight and passenger demands in the islands will be made known in no time and accurately, thereby making shipping services and scheduling more efficient.

ANNEX

ANNEX - 1 BASIC DESIGN STUDY TEAM MEMBERS

Mr. Ikuo Ishida	Team leader (Special Assistant to the Director of Machinery Division, Ship Bureau, Ministry of Transport)
Mr. Keiichi Yoshida	In charge of shipping demands (Chief of International Section, Overseas Division, Shipping Bureau, Ministry of Transport)
Mr. Seiichi Kinjo	Project coordinator (Personnel Division, Personnel Department, Japan International Cooperation Agency)
Mr. Nobuo Tomita	In charge of ship planning (Overseas Shipbuilding Cooperation Centre)
Mr. Akira Takahashi	In charge of shipping operation (Marine International Cooperation Center)

ANNEX - 2 COUNTERPARTS ATTENDANTS

1. Counterparts attendants, Kiribati Side

Mr. J. Ikakeau Tonganibea	Secretary, Ministry of Communications
Mr. Tabokai Kiritomi	Assistant Secretary, Ministry of Communications
Mr. Beiaiti Highland	Capt. Marine Superintendent, Ministry of Communications
Mr. Atanroi Baiteke	Secretary, Ministry of Foreign Affairs
Mr. Mikaere Baraniko	Assistant Secretary, Ministry of Finance
Mr. Jim Wood	Ministry of Education
Mr. John Rooke	Chairman, Shipping Corporation of Kiribati (SCK)
Mr. Tom Murdoch	General Manager, SCK
Mr. Lorry Thetford	Financial Controller, SCK
Mr. Jack Muller	Marine Engineer, SCK

2. Others

Mr. Iwao Shindo	JICA expert

ANNEX - 3 BASIC DESIGN STUDY TEAM SCHEDULE

Jan. 18 (Tue) (1983)	Leave Tokyo and arrive at Nauru
Jan. 19 (Wed)	Leave Nauru and arrive at Tarawa, Meeting on study schedule with Mr. Ikakeau, Secretary of Ministry of Communications
Jan. 20 (Thu)	Courtesy call on Ministry of Foreign Affairs, Ministry of Finance and Ministry of Communications. The first meeting with the members of the Project concerned at the office of Ministry of Foreign Affairs.
Jan. 21 (Fri)	Meeting with the members of Shipping Corporation of Kiribati (SCK) at the office of SCK
Jan. 22 (Sat)	Visit to the Betio port and the Kiribati Shipyard
Jan. 23 (Sun)	Meeting on study schedule, etc.
Jan. 24 (Mon)	Visit to Abemama Island (by chartered plane)
Jan. 25 (Tue)	Visit to Buraritari Island (by chartered plane)
Jan. 26 (Wed)	A group: Visit to the Marine Training School (MTS) B group: Meeting on the details of Intra Islands vessel with the members of SCK
Jan. 27 (Thu)	2nd meeting with the members of the Project cercerned at the office of Ministry of Energy and Works.
Jan. 28 (Fri)	Meeting with the members of Ministry of Communications and SCK at the office of Shipyard
Jan. 29 (Sat)	Drafting the Minutes of Discussions
Jan. 30 (Sun)	Do.
Jan. 31 (Mon)	Meeting with the members of Ministry of Communications and SCK. Explanation and signing of the Minutes of Discussions. Explanation of the Japanese grant aid system to the counterparts.
Feb. 1 (Tue)	Collecting and reviewing data
Feb. 2 (Wed)	Leave Tarawa and arrive at Suva, Fiji
Feb. 3 (Thu)	Courtesy call on the Embassy of Japan in Fiji to report the results of the study.
Feb. 4 (Fri)	Visit to the Fiji Marine Shipyard
Feb. 5 (Sat)	Leave Suva and arrive at Nadi
Feb. 6 (Sun)	Leave Nadi and return to Tokyo

Annex 4 – Minutes

Minutes of Discussions on the basic design study
for the Intra-Islands Vessel in
the Republic of Kiribati

In response to the request by the Government of the Republic of Kiribati for Grant Aid for the Intra-Islands Vessel Project (the Project), the Government of Japan has sent, through the Japan International Cooperation Agency (JICA), a survey team headed by Mr. Ikuo Ishida (Ministry of Transport) to carry out a basic design study on the Project from January 18th, 1983.

The team has carried out a field survey, held a series of discussions and exchanged views with the authorities concerned of Kiribati.

As the result of the survey and discussions, both parties have agreed to recommend to their respective governments and the authorities concerned to examine the result of the survey attached herewith toward the realization of the Project.

January 31st, 1983
Tarawa
Republic of Kiribati

石田育男

Ikuo Ishida
Team Leader
Japanese Survey Team

John Ikakeau Tonganibeia
Secretary
Ministry of Communications

Capt. Tom Murdoch
General Manager
Shipping Corporation of Kiribati

Attachment

1. The objective of the Project is to supply an intra-islands vessel (the Vessel) to promote the Programme for Development of Outer Islands in Kiribati.
2. The proposed home port of the Vessel is Tarawa.
3. The shipping operation plan of the Vessel is described in ANNEX I.
4. Ministry of Communications of Kiribati will be responsible for the administration of the Project and the Shipping Corporation of Kiribati will be the executing agency of the operation of the Vessel.
5. The Japanese survey team will convey to the government of Japan the desire of the Government of Kiribati that the former takes necessary measures to cooperate in implementing the Project and provides the Vessel described in ANNEX II within the budgetary limits of Japanese economic cooperation in Grant Aid.
6. The Government of Kiribati will take necessary measures as follows:-
   a) to provide data and information necessary for the design and implementation of the Project
   b) to provide and develop port facilities for more effective operation of vessels
   c) to ensure prompt custom clearance of the Vessel at the port of Kiribati
   d) to exempt the Japanese nationals concerned from customs duties, internal taxes and other fiscal levies which may be imposed in Kiribati on the occasion of the supply of materials and services for the Project
   e) to provide and accord necessary permissions and licenses for carrying out the Project
   f) to bear all the expenses other than those to be borne by the grant, necessary for the Project
7. Both parties confirmed that the Japanese survey team explained the Japanese Grant Aid system and Kiribati side understood it.

ANNEX I,

SHIPPING OPERATION PLAN FROM TARAWA TO OUTER ISLANDS

	DESTINATION	DAYS OF VOYAGE
Northern Gilbert Islands	Makin Butaritari Marakei Abaiang	two weeks
Central Gilbert Islands	Maiana Kuria Aranuka Abemama Banaba	Ditto
Southern Gilbert Islands	Nonouti Tabiteuea Beru Onotoa Nikunau Tamana Arorae	Ditto
Others Phoenix Islands Line Islands	Occasional service	

ANNEX II

PRINCIPAL PARTICULARS OF THE INTRA-ISLANDS VESSEL

1. Cargo carrying capacity: abt. 250 tons in cargo weight
2. Complement: abt. 390M3 in bale capacity

   (1) Number of passengers: 6 cabin passengers
   30 deck passengers

   (2) Number of crews: 6 officers and 1 training officer
   11 ratings

   (3) Number of seamen cadets: 12 cadets

3. Performance

   (1) Speed (service speed): abt. 9.5 knots at 85% of maximum continuous rating (MCR) of the main engine in the fully loaded condition of the vessel

   (2) Endurance: abt. 5,000 nautical miles at service speed

4. Class

   Nippon Kaiji Kyokai (NK), NS* (Hull) and MNS* (Machinery)

5. Applicable rules and regulations

   (1) Rules and regulations of the classification society (NK)
   (2) International Loadline Regulation in 1966
   (3) SOLAS Rules and Regulations in 1974 with suitable waivers for this class vessel
   (4) IMCO Recommendation on Intact Stability for passenger and cargo ships under 100 metres in length (A-167)
   (5) Tonnage measurement regulation in Japan
   (6) Maritime regulations in Japan applicable for this type of the vessel

6. Principal dimensions

   (1) Length = abt. 38 metres between perpendicular
   (2) Breadth = abt. 9.6 metres
   (3) Depth = abt. 4 metres
   (4) Draft = abt. 3 metres