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REPORT OF PRE-FEASIBILITY SURVEY
FOR
REFORESTATION COOPERATION PROJECT
IN
SOLOMON ISLANDS

September, 1977

JAPAN INTERNATIONAL COOPERATION AGENCY

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Courtesy Call on Minister for Natural Resources



Looking at Western Guadalcanal



A Village in Eastern Guadalcanal



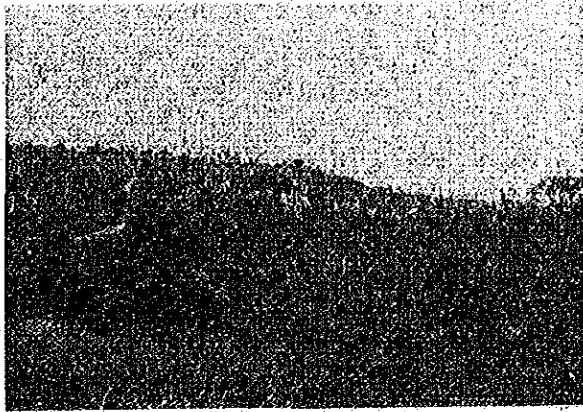
A Logging Site in Northern Kolombangara



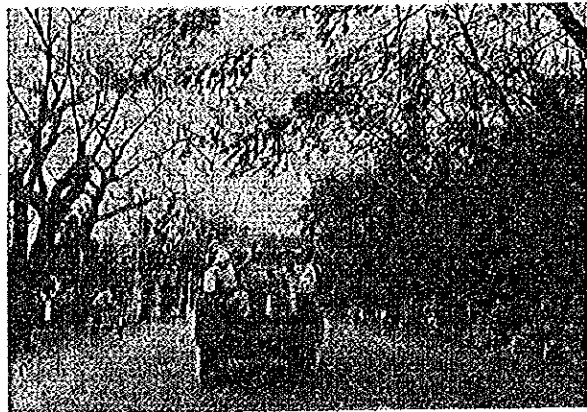
A Grassland Near Honiara



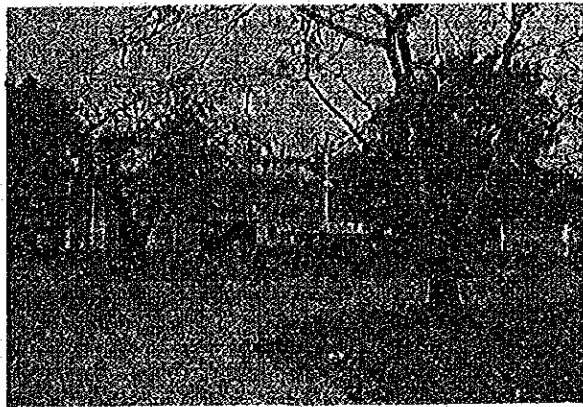
Soil Profile in the Grassland



A Village Near Honiara



The Street of Honiara



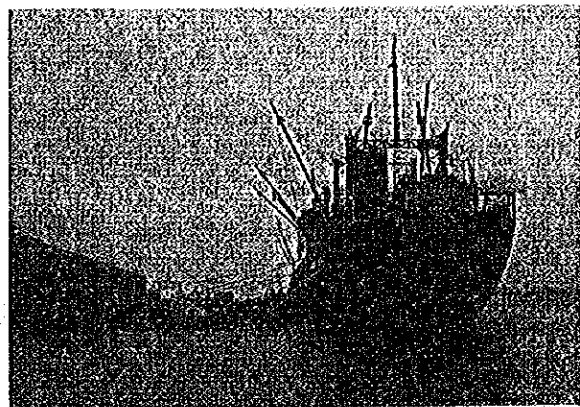
Government Offices



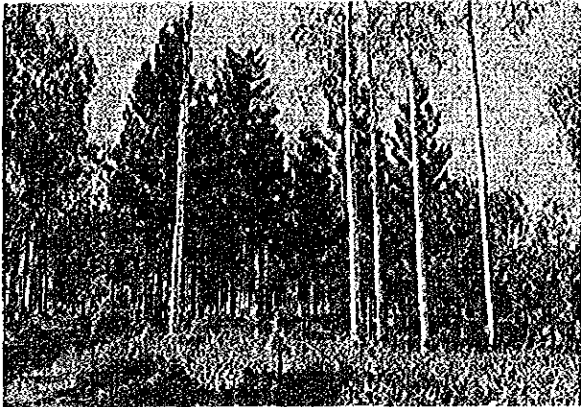
A Electric Power Near Honiara



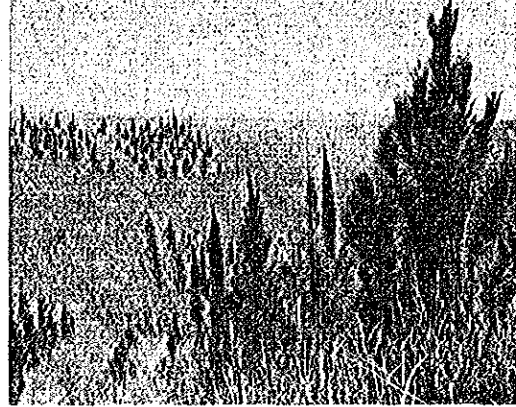
Honiara Port from Aircraft



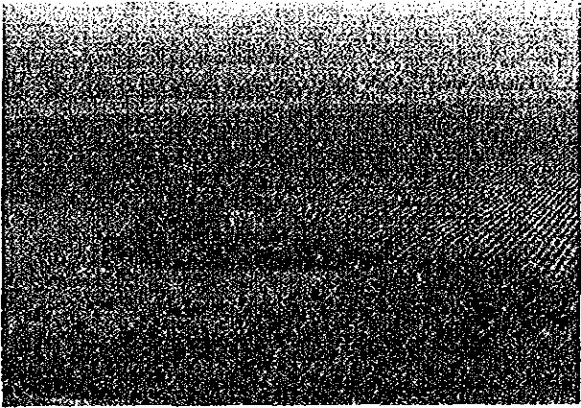
A View of Honiara Port



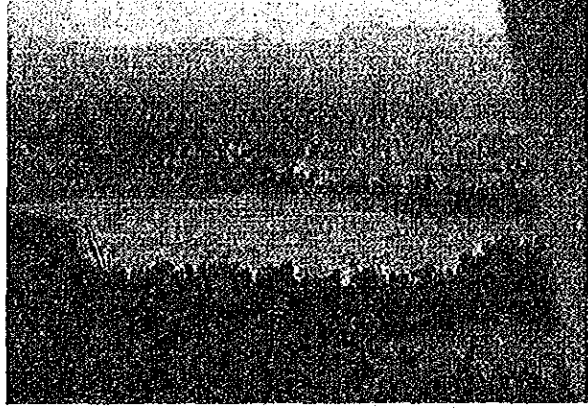
Sample Plantation (Kauri Pine) on Mt. Austin



Pinus Caribaea on Left-mentioned



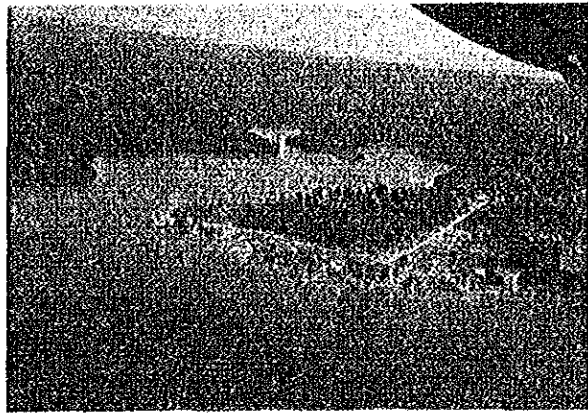
An Oil Palm Plantation in Eastern Guadalcanal



A Paddy Lands in Left-Mentioned



Foreign Private Sawmill in Eastern Guadalcanal



Port of Ringi Cove Kolombangara

FORWORD

On the eve of political independence from the United Kingdom, the Government of the Solomon Islands is exerting strenuous efforts for the promotion of industries based on the indigenous natural resources and for the accelerated development of regional communities and economy. Above all, great importance is attached to the well-planned development of the valuable forest resources as well as to their conservation and cultivation. In this connection, the Government of the Solomon Islands has long been seeking Japan's financial and technical cooperation in its afforestation project.

The Solomon Islands have maintained close relations with Japan particularly through the export of greater part of its timber to Japan. The Japanese forest industry, which is very much interested in the forest production in the Solomon Islands, has sent a number of survey teams to the Islands in the past to increase the supply of tropical wood from diversified sources.

In order to explore the feasibility of the said afforestation projects, the Japan International Cooperation Agency sent a survey team to the Solomon Islands in October 1976 for a preliminary survey under its development cooperation programme. This survey was designed primarily to select adequate sites for afforestation and it is hoped that further detailed surveys and studies will be made in future to enhance the cooperation between Japan and Solomon Islands in the field of forest industry. These efforts will no doubt contribute to the independence and socio-economic development of the Solomon Islands.

It is my sincere hope that this report, which contains the findings of the survey, will be found useful as basic data by all quarters concerned.

I avail myself of this opportunity to express my deep gratitude to Mr. Kishio Ofuku, leader of the survey team, and the members of his team, to the Ministry of Natural Resources and other government officers of the Solomon Islands which offered helpful assistance to the team, as well as to the Ministry of Foreign Affairs, Ministry of Agriculture and Forestry of Japan, Japanese Embassy in Papua-New Guinea and private organizations concerned.

Shinsaku Hogen
President

Japan International Cooperation Agency

September 1977

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PURPOSE OF SURVEY

This survey team, dispatched by the Japan International Cooperation Agency at the request of the Government of Solomon Islands, was designed to study the possibility of Japan's cooperation in forest development and afforestation project in Solomon Islands.

Solomon Islands are by and large covered with a thick blanket of forest. Lumber is the most important natural resource for the islands and the export of lumber has been listed an extremely important factor for the development of the islands' economy. But the past deforestation and the cultivation of crops by burning farm fields have deprived the lumber industry of economic value to such an extent that now breeds a grave concern about future prospects of the industry.

Therefore, the Government of Solomon Islands moved to place deforestation under strict control with a view to keeping up for good the production of lumber which is an effective tool for obtaining foreign currency. At the same time, the government mapped out a large-scale plan for afforestation. It is for this reason that the Government of Solomon Islands, now bent on the introduction of funds and technology, has sought Japan's financial and technical cooperation.

In the meantime, the Japanese forest industry has been importing lumber for furnitures from Solomon Islands. And it is undoubted that the islands-produced lumber will increase in importance for Japan. We hope that future cooperation between Japan and Solomon Islands will contribute to the prosperity of the forest industries of the two countries and also to the growth of other industries related to the forest industry.

COMPOSITION OF SURVEY TEAM

Staff	Name	Occupation	Assignments
Leader	Kishio Ofuku	Deputy Chief Director of Japan Paper Association; Representative Director of Japan Overseas Afforesting Association	General Management
Member	Mamoru Yoshimoto	Manager of Forestry Department of Kyushu Branch of Forestry Experiment Station	Afforestation
Member	Mitsuru Naito	First Section Chief in Charge of Forestry Governing, Forest Products Section, Forestry Agency	Forestry Economy
Member	Shunichi Mizuochi	Forestry Development and Co-operation Department, Japan International Cooperation Agency	General Affairs

**ITINERARY FOR PRELIMINARY SURVEY OF AFFORESTATION
AND DEVELOPMENT PROJECT IN SOLOMON ISLANDS**

Day table	Date	Date of week	Itinerary		Contents of survey	Place of lodging
			Departure	Arrival		
1st day	Oct. 4	(Mon.)	Tokyo			On board plane
2nd day	Oct. 5	(Tues.)		Sydney		Sydney
3rd day	Oct. 6	(Wed.)	Sydney	Port Moresby	Courtesy call to Ambassador Yamaguchi	Port Moresby
4th day	Oct. 7	(Thurs.)	Port Moresby	<u>Honiara</u>	Exchange of views with the Japanese concerned stationed in Solomon Islands	<u>Honiara</u>
5th day	Oct. 8	(Fri.)		<u>Honiara</u>	Courtesy call to the Minister for Natural Resources and the Prime Minister in the morning. Courtesy call at The Minister for Foreign Trade Industry & Labour. Consultation with Officials of the Forestry Agency and the Central Planning Office in the afternoon	<u>Honiara</u>
6th day	Oct. 9	(Sat.)		Same as above	Sampling/Inspection of forest Mt. Austin	<u>Honiara</u>
7th day	Oct. 10	(Sun.)		Same as above	Collection of data	<u>Honiara</u>
8th day	Oct. 11	(Mon.)		Same as above	Inspection of northern part of Guadalcanal in the morning. Exchange of views with parliamentarians.	<u>Honiara</u>
9th day	Oct. 12	(Tues.)		Same as above	Inspection of Foxwood Timber Factory in the afternoon	<u>Honiara</u>
10th day	Oct. 13	(Wed.)	<u>Honiara</u>	<u>Gizo</u>	Inspection of New Georgia and Kolombangara islands in the morning. Courtesy call at the	<u>Gizo</u>

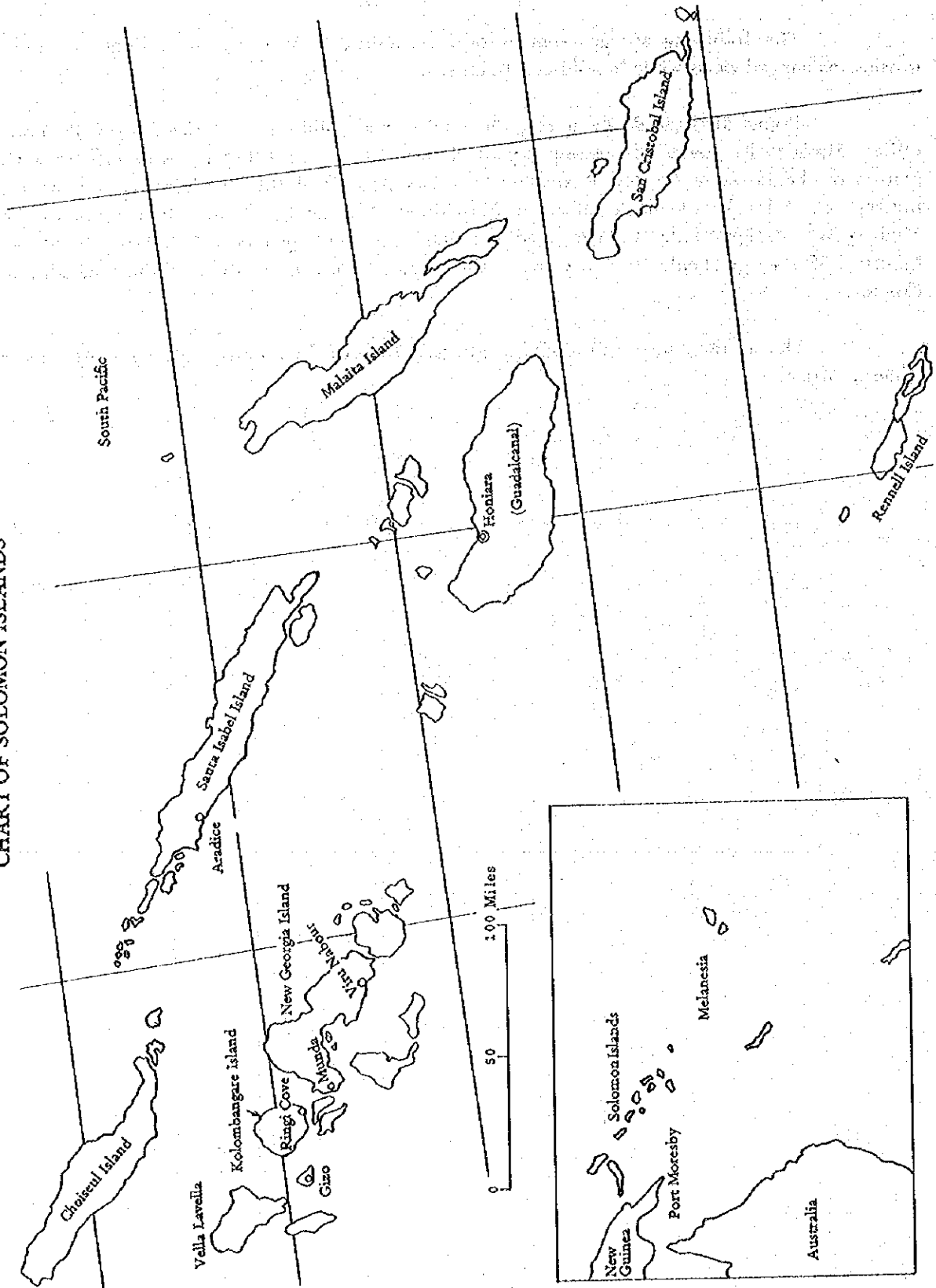
Day table	Date	Date of week	Itinerary		Contents of survey	Place of lodging
			Departure	Arrival		
					District Forestry Office in Gizo and preliminary survey of Gizo Island in the afternoon.	
11th day	Oct. 14	(Thurs.)	<u>Gizo</u>	<u>Munda</u>	Inspection of <i>Levers</i> Pacific Factory in the morning.	<u>Munda</u>
12th day	Oct. 15	(Fri.)		<u>Munda</u>	Inspection of Kolombangara Island in the afternoon	<u>Munda</u>
13th day	Oct. 16	(Sat.)	<u>Munda</u>	<u>Honiara</u>	Consultation with the Minister for Natural Resources and the Director of the Forestry Agency	<u>Honiara</u>
14th day	Oct. 17	(Sun.)		<u>Honiara</u>	Collection of data	<u>Honiara</u>
15th day	Oct. 18	(Mon.)		Same as above	Field study of eastern part of Guadalcanal	<u>Honiara</u>
16th day	Oct. 19	(Tues.)		Same as above	Field study of western part of Guadalcanal	<u>Honiara</u>
17th day	Oct. 20	(Wed.)		Same as above	Compilation of interim report	<u>Honiara</u>
18th day	Oct. 21	(Thurs.)		Same as above	Courtesy call to the Minister For Agriculture and Lands in the morning. Make an interim report to the Minister For Natural Resources and the Director of the Forestry Agency in the afternoon.	<u>Honiara</u>
19th day	Oct. 22	(Fri.)	<u>Honiara</u>	Port Moresby	Make an interim report to the Japanese Embassy in Papua New Guinea	
19th day	Oct. 22	(Fri.)	Port Moresby	Sydney		Sydney
20th day	Oct. 23	(Sat.)	Sydney			Aboard plane
21th day	Oct. 24	(Sun.)		Tokyo		

The following are government organizations and officials with whom the study mission exchanged views while in Solomon Islands.

Prime Minister P. Kenilorea, Chief Officer M. Sibisopere of the Central Planning Office, Minister P. Tovua of the Ministry of Natural Resources, Chief Forestry Officer K.D. Marten of the Forestry Agency, Permanent Secretary A.V. Hughes of the Ministry of Finance, Minister G. Zoloveke of the Ministry of Agriculture and Lands, Minister P. Ghemu of the Ministry of Foreign Trade, Industry and Labour, Permanent Secretary L.P. Maenu'u of the Ministry of Foreign Trade, Industry and Labour, and Chairman E. Bulu of the Guadalcanal Council.

During the course of the survey, Mr. R.T. Kera of the Forestry Agency assisted us as a liaison officer.

CHART OF SOLOMON ISLANDS



CHAPTER ONE PRESENT SITUATION OF FOREST RESOURCES AND DEVELOPMENT OF FOREST

1) General Situation of Forest Resources

Detailed survey on a nation-wide scale of forestry resources is yet to be done, thus raising the need for detailed survey in the future. Below mentioned is an outcome of the preliminary survey.

Solomon Islands scatter between latitude five degrees south and 12 degrees south, and there is naturally a considerable difference in weather condition among these islands. Similar difference can also be found in the variety of tropical trees growing on the islands. For instance, in islands in the neighborhood of Saint Cruz Island which is located in latitude 11 degrees south and 165 degrees of east longitude, there are 6,000 hectares of precious needle-leaf trees called *Agathis Macrophylla* and also sprinkling of *Podocarpus* and *Dacrydium* which are growing in co-existence. Forest in Kolombangara Island is mostly made up of *Colophyllum* (25 per cent) which is 35 to 40 meters in height and one to 1.4 meters in diameter, *Camposperma* (20 per cent), *Pometia* (15 per cent) and *Dillenia* (10 to 12 per cent). But in areas along the northern coast of Guadalcanal Island, *Pometia* with a height of 30 to 35 meters accounts for more than 50 per cent of the forest. And in low-lying marshy area of New Georgia Island grows a dense forest, 60 to 70 per cent of which are made up of *Terminalia brassii*.

The government of Solomon Islands has already announced that the maximum forest area that will come under economic development at the present stage covers approximately 180-thousand hectares whose lumber productivity is estimated at about 10-million m³. But if the government succeeds in building and improving roads, port facilities, etc. and in utilizing a multitude of trees which are currently left untapped, it is considered possible for the government to expand to a considerable extent the forest area for economic development as well as its lumber productivity.

2) Present Situation of Forest Development

Forests in Solomon Islands, as in the rest of regions with similar natural circumstances, are closely linked with the lives of residents there. The forests offered them a place of daily life, day in and day out..... residents obtaining foodstuff from the forests, cutting wood to build their houses, making clothes out of what the forests offer and even obtaining dyestuffs and drugs among the woods. Streams of rivers and trees of forests have been with them for the past hundred years, and the souls of these residents can in no way be separated from this nature. But, the unfavourable economic condition no longer allows the Government of Solomon Islands to leave the forests untapped. And as a step to improve the islands' economy, the government moved in 1963 to authorize extensive deforestation projects by foreign interest, especially in less-developed islands. Among such foreign firms authorized by the government of Solomon Islands are Levers Pacific Timber Company on Kolombangara Island, Allrdyce Lumber Company on Saint Isabel Island, Kalena Timber Company on New Georgia Island, Kalena Timber Company on Vangunu Island, Shortland Development Company on Shortland Island are Allrdyce

Lumber Company on Saint Cruz Island.

According to an announcement of the Government of Solomon Islands, an area of about 250-thousand hectares, or eight per cent of the entire land, was once declared by the government as a target area for possible economic development, and the area was abundant in 164 million m³ of good quality lumber. The government reports that about 35-thousand hectares of land were affected by large-scale deforestation in the past ten years. Rapidity with which the economic development was carried out and forest resources declined has obviously surprised the government. The government has encouraged such forest development and campaigned for such development in and outside parliament as it would bring about the following benefits. 1) increase in employment in regional areas, 2) increase in revenues on the part of lumber owners from the sale of lumber, 3) increase in foreign currency brought about by exports of lumber, 4) increase in national revenues from taxes, 5) promotion of road - and port facility - building projects in local areas and 6) providing residents with technical training. But the rapid deforestation which resulted in drastic decline of forest resources gave rise to a grave concern about the future of forest resources, and led to the establishment in 1975 of the Forestry Policy Committee. Suggestions by the committee which had a series of discussions and arranged on-site surveys, 1) admonish quick deforestation, 2) call for planting of trees where deforestation was carried out, and 3) call for due consideration to subsistence agriculture and the conservation of national land.

The government's five-year plan calls for, among other things, vigorous afforestation projects in sparse wood areas and grass fields brought about by deforestation and cultivation of crops by burning farm fields. The government has already started trial plantings of *Campnosperma*, *Terminalia brassii*, and *Terminalia calamansanai* on a newly-owned government land to study how to fertilize these trees and to demonstrate planting methods and how to raise them. These trees are considered fit for plywood and lumbering -- good items for exports. The government now also encourages afforestation by foreign interests of pulp wood that would produce profits relatively quickly.

CHAPTER TWO OUTLINE OF AREAS SURVEYED

The survey team conducted on-site surveys in Guadalcanal Island, Kolombangara Island and New Georgia Island. The following are the outlines of the surveys.

1) Guadalcanal Island

The island (530-thousand hectares) is as large as Kochi Prefecture of Japan, with its capital Honiara (population: 15-thousand) situated on the northern coast of the island. The island prides itself on the best infra-structures of Solomon Islands.

1-1 Natural condition

a: Weather

Temperatures in the northern part of the island are high in 30°C and its low temperature averages 22°C. Though its tropical weather little differs from the rest of Solomon Islands, annual precipitations are about 2,200 mm, or much smaller than in the rest of the islands. Precipitations during a period starting from April or May to October are specially small, giving rise to a rush of forest fires. This also gives rise to the need for firearresting lines or a belt of trees as fire break in afforestation areas. Cyclone crops up in the vicinity of the island, but little affects the island as it goes past the island before it grows into a strong storm.

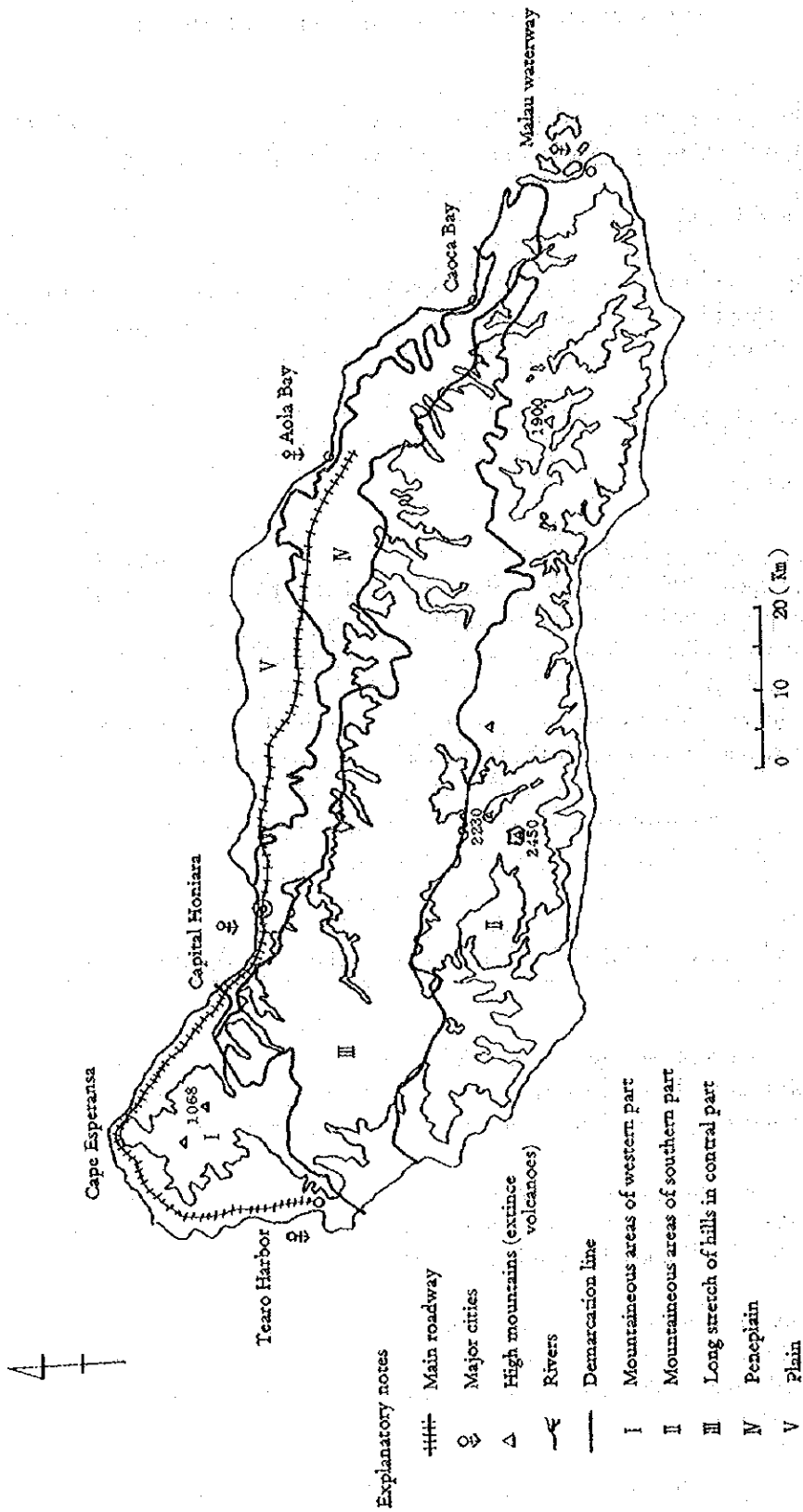
b: topography, geology and soil

Topography

Guadalcanal Island can be divided into the following five categories in terms of topography.

- 1) **Northeastern volcanic area.** This area features a multitude of relatively steep volcanoes which rise less than one thousand meters above the sea level and have smaller space (540 km²) considered suited for afforestation.
- 2) **Southern mountaineous area.** This area has a multitude of steep mountains (the highest is 2,450 m) stretching from the east to the west, and has smaller space (2,240 km²) considered suited for afforestation.
- 3) **Hilly area in the central part.** This area has a stretch of 200 to one thousand meters of hills that run from the east to the west with the width of 12 to 15 km on the north side of the southern mountains. The area has adequate place (1,440 km²) for afforestation.
- 4) **Northern hilly area.** This area has on the north side of the central hills terrace and dissected terrace that rise 200 meters above the sea level and stretches from the east

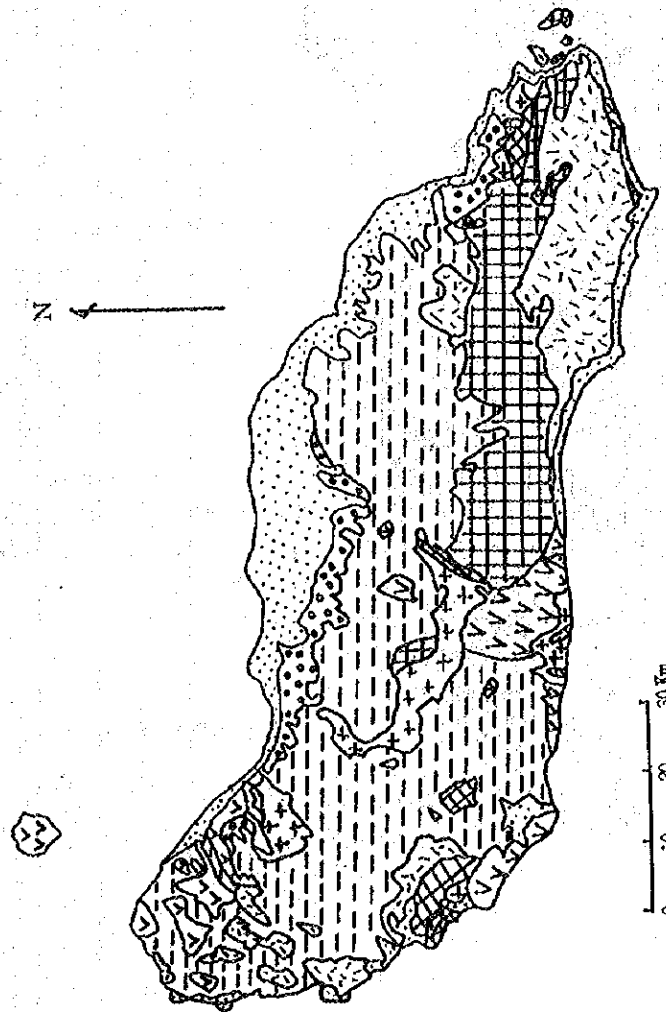
COMMUNICATIONS AND CHART OF GUADALCANAL ISLAND



Explanatory notes

- Main roadway
- ⊙ Major cities
- △ High mountains (extinct volcanoes)
- ~ Rivers
- - - - - Demarcation line
- I Mountainous areas of western part
- II Mountainous areas of southern part
- III Long stretch of hills in central part
- IV Penplain
- V Plain

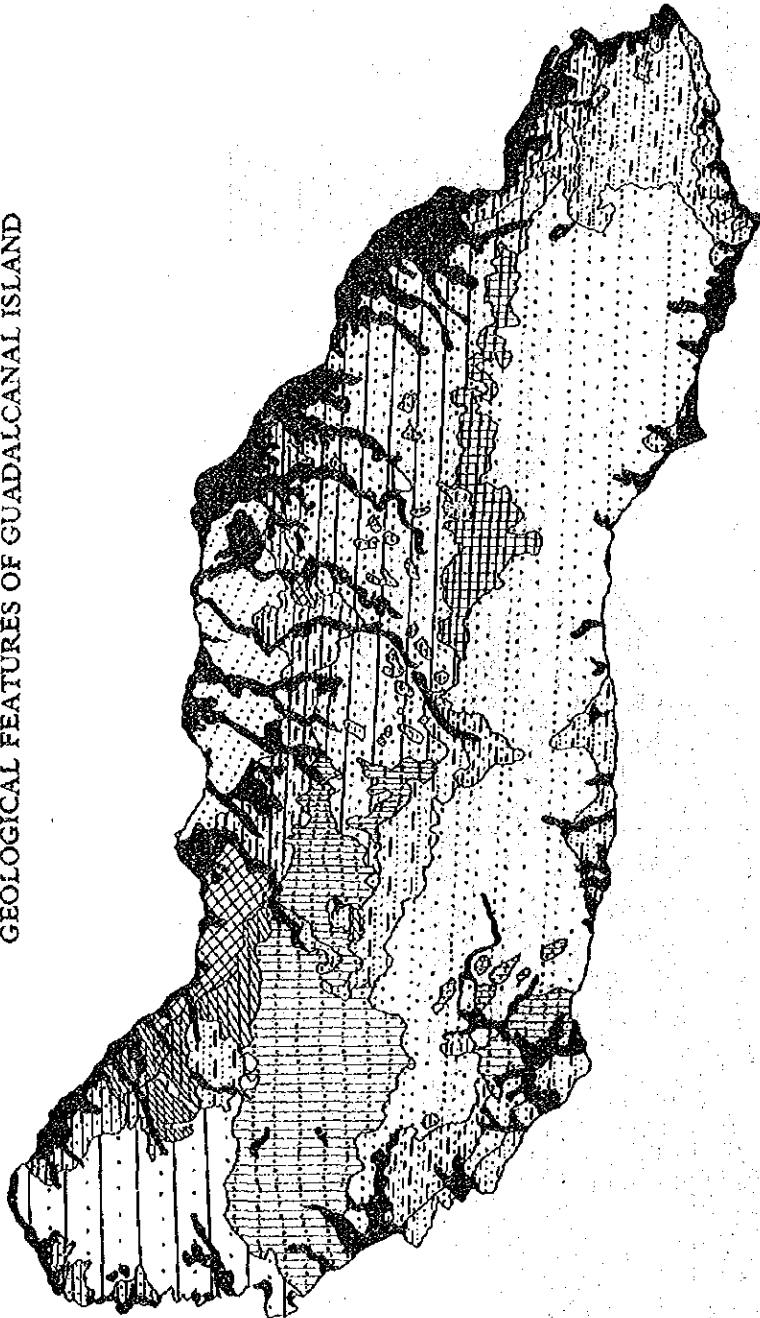
CHART OF SOIL OF GUADALCANAL



Explanatory notes

	Alluvium or Reef Limestone
	Pleistocene Sediments
	" Volcanics mainly Andesitic
	Neogene Sediments
	Palaeogene Ultrabasic Intrusions
	" Volcanics mainly Andesitic
	" Volcanics mainly Basaltic
	" Intrusives
	" Metamorphics

GEOLOGICAL FEATURES OF GUADALCANAL ISLAND



Mark	Nature of Soil	Mark	Nature of Soil	Mark	Nature of Soil
[Dotted pattern]	Eutropepts, Tropudalfs	[Dotted pattern]	Ustropepts	[Dotted pattern]	Eutropepts, Dystropepts, Haploorthoxs
[Dotted pattern]	Eutropepts, Tropudalfs, Dystropepts	[Dotted pattern]	Haplustox, Ustropepts, Tropudalfs	[Dotted pattern]	Dystropepts, Humitropepts, Eutropepts
[Dotted pattern]	Haploorthoxs, Actrothoxs, Dystropepts	[Cross-hatched pattern]	Haplustox, Haplustalfs	[Cross-hatched pattern]	Dystropepts, Humitropepts, Tropohumals
[Dotted pattern]	Tropohumits, Tropudalfs	[Cross-hatched pattern]	Haplustols, Haprustalfs	[Cross-hatched pattern]	Haploorthox, Dystropepts
[Dotted pattern]	Tropudalf, Eutropepts	[Cross-hatched pattern]	Haplustolls, Tropudalfs	[Cross-hatched pattern]	

to the west with the width of one to six km. The area has spacious place (620 km²) considered good for afforestation.

- 5) Northern plane area. This area features a wide seashore plain which spreads out on the north side of the northern hills. This area abounds in adequate spaces for afforestation (460 km²), but is more fit for agricultural development.

Seashores are encircled at several places by coral reefs which deprive the island of good natural harbours, but there are a few places that are considered suited for opening harbours.

Geology

The southeastern and Northeastern parts of the island consist of igneous rocks and metamorphic rocks. In the rest of the island can be seen a wide spread of postneogene aqueous (sedimentary) rocks. The central hills are made up of a neogene formation and the northern hills a neogene formation and a diluvial formation. These formations are a combination of conglomerates, sandstones and clay rocks. Coral reef line stones also found their way to come into being.

Soil

On the island spread a variety of soils which belong to inceptisol, alfisol, mollisol, ultisol and oxisol. These soils have more or less acidity and lie deep in a formation which is tinted red or brown in color. These soils are good for afforestation. But the soils in grass fields are often nearer to the surface of the ground because of erosion, which may cause a decline in lumber productivity. Therefore, there will be the need for a cautious approach to afforestation in these grass fields.

1-2. Social and economic conditions

Guadalcanal Island constitutes a strip of land stretching about 170 km from the east to the west and 60 km from the south to the north. The island has merely a main roadway that runs about 50 km from Honiara along the northern sea coast to the east and about 70 km to the west. There stretch, however, industrial roadways privately built by interests, which reach out to deforestation project areas in the eastern part of the island and also to seashore areas where a plantation of oil palm trees grow in cluster. Though built privately, the surface of these industrial roads is relatively good as road builders utilized in their road building the coral reefs which cropped out of the ground of the island.

The island has harbours other than at Honiara but even Honiara Harbour which is billed as the best of the island can accommodate ships of only a few hundred tons at present. Larger ships are forced to anchor 50 to 100 meters off the shore. (Japanese ships of six to seven thousand tons call at the island monthly.) Local government officials are of the view, however, that expansion of the harbour will not be a difficult job. At the same time, they say they can find other places which will replace the established harbour.

In addition to this Australian lumber factory, the island has a few more, yet small-scale lumber factories. But these factories are not operating to their maximum capacity at present.

Solomon Islands-produced lumber generally drew little interest of Japanese firms in the past, but in view of the quality of the products turned out by the above-mentioned lumber factory, there will be the need for re-appraisal of Solomon Islands-produced lumber as a prospective item for import. There also will be the need for similar re-appraisal of Solomon Islands-produced lumber as a prospective item for import. There also will be the need for similar re-appraisal of the islands-produced lumber as possible pulp wood.

2) Kolombangara Island

2-1 Natural condition

a: Weather

Though there is no data available for weather condition, the weather in Kolombangara Island can be considered similar to that in neighbouring New Georgia Island, which is characterized by high temperatures and a good deal of precipitations typical of tropical weather.

b: Topography, geology and soil

Kolombangara Island has a Caldera or a crater in its central part and has a small volcano on its southwest. The island itself is made up of plural volcanoes, and a small scale of alluvial plain lies on its southeast seashore. The highest mountain of the island rises 1,780 meters above the sea level and from 500 meters above the sea level down, the mountain has a multitude of ravines radiating in all directions... with a wide expanse of its inclined plane spreading down to the foot. The seashore is studded with coral reefs and there is no good natural harbour other than Ringi cove in the southeast of the island.

In terms of geology, the island is mostly made up of olivines, pyroxenes and basalts, and the volcano is made up of andesites.

Study of soils of the island was carried out in the past, but a chart of the soils is yet to be published and the details of soil distribution have been unknown to date. But it is confirmed that peat deposits spread out in the low-lying marshy area on the seashore and a variety of soil formations tinged with red and brown in color spread out on the inclined plane of the mountain. Though the steep slopes along which ravines run down are obviously not suited for afforestation, soils on the inclined plane are deep enough to be considered fit for afforestation.

2-2 Social and economic conditions

Roadways, privately built by foreign interests for afforestation purpose, cover three

fourths of the island. The island has Ringi Cove harbour which allows ships of a few hundred ton class to call at the pier. Ships of 20-thousand tons or more must anchor off the shore. There will be the need for extending the pier 20 to 50 meters out into the sea in order to accommodate a huge chip-loaded vessel. There also will be the need to study the sea currents, the ebbs and flows of the seas, the geological features of the sea bottom and yearly frequencies of high waves.

The island has a small airport which allows small planes to take off and land. There is a twice-a-weekly regular flight between Honiara and the island.

The exist little public facilities on the island. Therefore, even if a camp is pitched on the island, the campers will have to seek the base and center of life on Gizo Island. It will be difficult to acquire labour force on the island, and therefore such labour force will have to be sought at other islands. The foreign interest (Levers Pacific Company) not operating on the island has at present 300 to 400 workers on its payroll. The workers are from other islands and about one third of such workers used to leave the island after three to six month' stay.

There is no huge electric power facilities enough for the operation of a factory, except for household use.

2-3 Present situation of forest development

The Kolombangara Island has in its central part an extinct volcano which rises about 1,600 meters above the sea level. Though the topographical features of the volcano resemble those of Mt. Fuji, slopes up to about 600 meters are considered fit for development from a viewpoint of forestry. The forest on the island is made up of the best tropical trees of Solomon Islands and once abounded in *callophyllum*, *camnosperma*, *dillenia*, *pometia*, *erima*, *palaquium*, *terminalia*, *brassii*, *Terminalia*, *calamansanai*, *cunarium* and *kwila*, all measuring one to 1.2 meters in diameter and 30 meters in height. But many of these trees have already been felled.

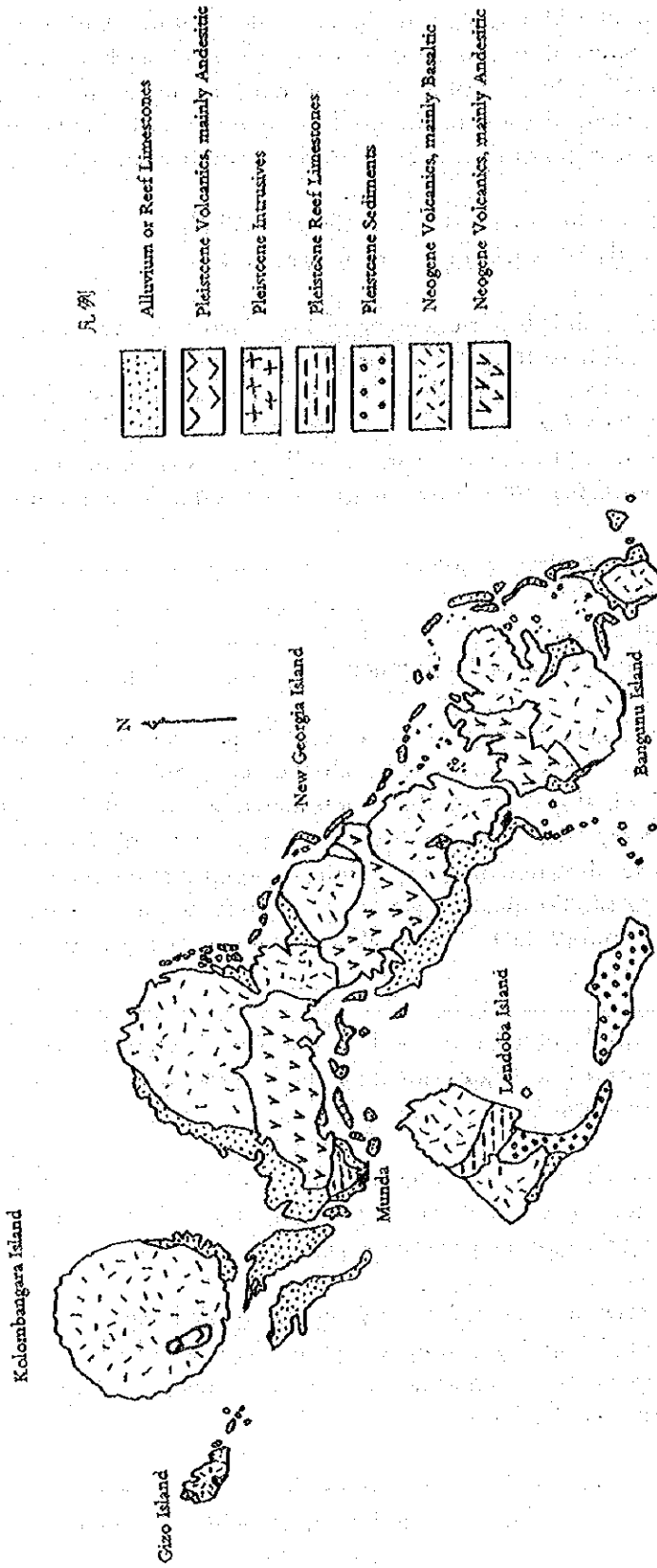
About two thirds of an estimated 70-thousand hectare forest are owned by the government, but most part of such government-owned forest have now turned into a sparse wood as a result of deforestation.

Deforestation of the remaining one third of the forest which grows on the customary lands is expected to be completed in two to three years' time. Such deforestation has already been authorized by the customary land owners.

Such deforestation is carried out by the hands of foreign interests and logs of 40-thousand to 60-thousand m³ have been shipped out of Ringi Cove harbour to Japan. The logs are to be transferred to larger vessels anchoring offshore from Ringi Cove harbour which is capable of eight thousand to 20-thousand ton vessels.

About 200 to 300 workers are engaged in the job. They and their children are staying in a huge camp near the harbour, which is complete with a school and a market.

GEOLOGICAL CHART OF NEW GEORGIA ISLAND
 KOLOMBANGARA ISLAND



Some part of the lands robbed of trees by deforestation are being converted into the ground of line-plantings, and trial plantings of some species are also being attempted. Though these trees are young at present, there is every evidence that such trees that have been given due care are growing satisfactorily. And this raises a bright prospect that line-plantings of such fast-growing broad-leaved trees as *camposperma brevipetiolata*, *Terminalia brassii*, *t. calamasanai*, *Eucalyptus deglypta*, *gmelina arborea* and *albizia falcata* will end up in success. There is no grass land on this island.

3) New Georgia Island

3-1 Natural condition

a: Weather

The highest temperature in the western part (Munda) of the island averages 30.6 degrees C, and the lowest temperature averages 23.5 degrees C. Annual precipitations reach about 3,600 mm. The weather in the island is featured by typical tropical phenomena -- high temperatures and a good deal of downpours. The island has no dry season.

b: Topography, geology and soil

New Georgia Island is made up of dormant and extinct volcanoes that rise 100 to 1,000 meters above the sea level and that runs from the south to the east and from the north to the west. The island has a wide expanse of hilly areas on its southwestern piedmont district and also has coastal plains spreading with the width of one to ten kilometers to the west and to the south. The seashore is studded with coral reefs and has deep coves at several places.

In terms of geology, the island is mostly made up of volcanic rocks such as basalt and andesite. But in a limited part of the island can be found a diluvial formation. Its coastal plains are made up of coral reef limestones and an alluvial formation.

Soil survey had been conducted in the past, but a soil chart is yet to be published and detailed soil distributions have been unknown to date. But it has been confirmed that peat deposits characteristic of low-lying marshy lands exposed themselves on the coastal plains, and in the rest of the area can be found a variety of soils of deep formation, tinged with red or brown in color. Though the mountain slopes are relatively steep and the soils on the slope are shallow, the soils on the plains are deep in most part, offering a suitable site for afforestation.

3-2 Social and economic conditions

The island has a 75-kilometer drag road built by Calena Timber Company. If the government is to proceed with the afforestation project, it will have to extend the road.

The island has a harbour called Viru Harbour in its southern part, which is capable of 6,000 ton vessels. Expansion of the harbour will be almost impossible as the entrance to the

harbour is curved. Therefore, if the government is to build a harbour with a pier large enough to accommodate vessels of 20-thousand tons, it will have to find other harbours than Viru Harbour. There are a prospective reef-free sites for such harbour at the Nolo District in the northwestern part and also at the entrance to Calena Bay in the southern part of the island.

The island has an airport at Munda located northwest of the island, which can allow small planes to take off and land.

There will be the need to bring in labour force from other islands since it is difficult to acquire such force inside the island.

The island has a small power generating facility mainly for household use, but not big enough for operating large timber factories.

3-3 Present situation of forest development

This island covers an area of 350-thousand hectares, measuring about 85 kilometers in width. Except for volcanoes both in the north and south, which rise about one thousand meters above the sea level, the island itself is made up of long stretches of gentle hills.

The forest in the island is made up of tropical trees which spread out over the expanse of the long stretches of gentle hills. Forest development has so far been restricted to the vicinity of Viru Harbour in the southern part of the island. The target area of such forest development, started about a few years ago by a foreign interest (Calena Timber Company), covers an area of about 20-thousand hectares. According to the government's plan, the government seems to have a desire to start deforestation of scores of thousands of hectares each at the southernmost part, the central part and the northern tip of the island.

This island is sparsely populated and there will be little problems accruing from the possible competition between the projected forest deforestation and agriculture.

In some of the deforested areas, the government has already started experimenting with line-plantings of tropical trees. In addition to these line-plantings, the government is working on a trial afforestation of other species. In view of the immediate outcome of such line-plantings and also the favourable natural condition in which the island is cradled, there is as bright a prospect as in Kolombangara Island that line-plantings of fastgrowing broad-leaved trees will be successful.

CHAPTER THREE HOW TO PROCEED WITH COOPERATION

1) Views of the Government of Solomon Islands on Japan's Cooperation in the Afforestation Project

1-1 The government's views on basic matters

This survey team has been sent to Solomon Islands with the view of studying basic matters involved in Japan's cooperation in the islands' afforestation project.

The survey team fully exchanged views on such basic matters with the islands' government agencies concerned, including officials of the Ministry of Natural Resources and the Forestry Agency which is a subordinate organization of the Ministry of Natural Resources. The survey team also had similar sessions with officials of the Central Planning Office which is under direct control of the Prime Minister's Office and also with officials of the Ministry of Finance. The results of these sessions mostly tally with the contents of recommendations by the Forestry Policy Review Committee set up in 1975. The following are a summary of the results obtained from a series of sessions with the officials of the government of Solomon Islands.

-1- The Government of Solomon Islands considers the forest resources. Therefore, the government is of the view that future forest development and deforestation project should be carried out in such a manner as to maintain a healthy production of timber, instead of rushing deforestation as in the past. The government also plans to impose some restrictions on deforestation in the future. At the same time, the government plans to push forward aggressively with reforestation in deforested areas and grasslands.

Furthermore, the government plans to more than replenish the deforested areas with afforestation. (These views are in line with the recommendations, a, b, c of 1, and 2, by the Forestry Policy Review Committee.)

[2] The government considers that it must raise necessary funds for afforestation inside the country, but faces a limit to such domestic funds. Therefore, the government wants firstly to seek financial aid from abroad, secondly to seek loans from international financial organs and thirdly to seek investments by foreign interests. (These views tally with the above-mentioned recommendations, d of 1.)

The government has made every effort to raise the necessary funds both in and outside the country, but such effort has been not fully rewarded to date. The government now welcomes investments by Japanese private interests in the country's reforestation projects. (This view tallies with the above-mentioned recommendations, 17.)

[3] The government is of the view that lands for afforestation will include the public lands. And, if foreign interests come to terms with landowners on afforestation agreements, the government will go ahead with afforestation of customary lands. (This view tallies with the above-mentioned recommendations, e of 1, and 10.)

[4] Such investments by private foreign interests could be either direct or a joint venture by private interests and government agencies or a joint venture by foreign and local interests. But, the Government of Solomon Islands most favours a joint venture by foreign and local interests when the project is considered vital to the islands' economic policy. (This view tallies with the guiding principles of investments, 6)

The government most welcomes private foreign investments in agriculture, forestry industry, stock breeding industry, mineral resources development, extensive development of fishery industry and tourist industry. (This view tallies with the above-mentioned guiding principles of investment, 7)

[5] At present, exports of logs mostly comprise lumber shipments. The government wants to replace such log exports with the exports of processed timber as soon as possible. Therefore, the government will offer as best treatments as possible to investments in lumber-processing projects, including those in chip producing factories. (This view tallies with the above-mentioned recommendations, b of 6, and 7.)

[6] In order to expedite afforestation projects on a commercial basis, the government is ready to convert the Forestry Agency into a public corporation, if necessary.

1-2 The government's views on specific matters

The survey team thus could come to comprehend the above-mentioned views of the Government of Solomon Islands. And in accordance with the government's views, the survey team conducted on-site research and studied concrete measures to cooperate in the islands' afforestation project. And as a result of it, the survey team and the government of Solomon Islands have agreed on the following.

[1] On the prospective sites for afforestation project

The survey team is of the view that, in order to expedite Japan's cooperation in the project, the project should first be launched at Guadalcanal Island which is relatively complete with infra-structures, such as roadways and port facilities. And when the project at Guadalcanal Island proved a success, similar projects should be tried in the rest of the islands.

To this Japanese view, the Government of Solomon Islands expressed the hope that such project should first be launched at islands whose infra-structures are far from complete. The Japanese side explained that investments in afforestation project would fail if a sizable of funds are to be spent for building a roadway, port facilities, power generating facilities and camping facilities. Such Japanese explanation finally was accepted with approval by the Government of Solomon Islands.

[2] On the use of customary lands

Government officials of Solomon Islands explained that a major problem, if any, concerning the projected afforestation in Guadalcanal Island could arise from the fact that a

larger part of the forest there are owned by a multitude of tribes as customary lands. But as a result of a series of sessions with representatives of major land owners in the eastern and western parts of the island, representatives of the major landowners in eastern part of the island turned cooperative and even arranged a guide for the survey team. Such sessions with the representatives of major landowners there were of course suggested by the Ministry of Natural Resources. In the eastern part of the island, scores of thousand hectares have already been loaned to joint concerns (foreign interests included) which currently engage in the operation of large-scale oil palm plantations and rice-crop projects, creating jobs for local residents and helping improve the island's infrastructures. The survey team believes that this proven success of foreign investments did much to make the tribe cooperative to the survey team. But to the chagrin of the survey team, there was not enough time for the team to have through talks with landowners dwelling in the western part of the island as the team was tightly scheduled. The team was forced to give up further talks and to leave the island against its will.

To this, the Government of Solomon Islands agreed to set up, if necessary, an agency solely concerned with customary lands and also establish a sub-committee on lands in the committee on district affairs. The projected agency and the sub-committee are supposed to make every effort to seek cooperation from landowners on the use of customary lands.

[3] On the elementary experiment with afforestation

The government now strongly hopes to start quickly an elementary experiment with afforestation. This is because, among many species of trees experimentally planted in the central part (about 400 meters above the sea level) on the north side (near the fierce battle field on Austin Mountain) of Guadalcanal, caribbean pine and some plants of the eucalyptus group are already in a process of satisfactory growth. There is another factor that urges the government to start an elementary experiment with afforestation at an early time. Three or four years before, the government also planted experimentally caribbean pine and pine in grass lands in the neighbourhood of the fierce battle field and also in the lapilli district of the low-lying area. And close observation of the growth of these pine trees found that some pine trees show a fox-tail phenomenon while the others show no identical phenomenon. This mysterious phenomenon, says the government, gave rise to many questions about tropical afforestation that must be settled without delay. This is the reason why the Government of Solomon Islands is seeking Japan's technical and financial assistance to its projected elementary experiment with afforestation based on a rational planning. (It can be safely said that this is one of the most urgent matters for Japan to tackle if Japan wants to make a large-scale afforestation project a success.)

2) Japanese Reactions to the Cooperation in Afforestation

The survey team has drawn a conclusion from the views of the Government of Solomon Islands and its own survey that there will be little serious problems involved in Japan's cooperation in the islands' afforestation project. And the survey team considers it wise to single out Guadalcanal Island as a candidate place where the afforestation project should be kicked off. The survey team also agreed there is a good deal of possibility that it will be able to secure an adequate space for afforestation on a gentle slope on the north side of Guadalcanal Island. The

gentle slope covers an area of about 200-thousand hectares and rises some 50 to 600 meters above the sea level. More details about the afforestation project are to follow.

[1] On launching the afforestation project in Guadalcanal island

Japanese interests may show hesitancy to the afforestation project if they have to start with building infra-structures. Therefore, it will be best for them to start with Guadalcanal Island which has more infrastructures than other islands. And if the project at Guadalcanal went off to a good start, similar projects should be started at other islands. It will be much easier in Guadalcanal Island to secure labour force and living necessities. And, a plan is underway there for a hydroelectric power plant which would generate power necessary for operating lumber processing factories. The Government also seems ready to start a survey of harbours to see if it can rebuild them. There are two or three good harbours that could be rebuilt into larger ones.

[2] On the candidate afforestation site on the gentle slope on the north side of Guadalcanal island

Topographical features of the island has already been mentioned. There lies an area of about 200-thousand hectares on the gentle slope, some 50 to 600 meters above the sea level, on the north side of the island. The soil there is made up of a combination of weathered igneous rocks, aqueous rocks, coral reefs and a formation of lapilli. Though there is a need for detailed survey of soil before a final conclusion is reached, it seems that a sizable space could be secured for the afforestation project.

[3] On customary lands

a: There will be the need to persuade landowners in the islands to fully understand that customary land owners themselves would much benefit if their lands are converted into an afforestation ground. For this, there will be the need for having a series of sessions with these landowners. There will also be the need for Japan to seek a positive cooperation in this respect from the Government of Solomon Islands. It will also be necessary for Japan to ask for a creation of a sub-committee on land within the committee on district affairs. One idea that is recommended in the execution of the project is to have the way for participation by these landowners in the project.

[4] On technical problems

If the afforestation project is to start at all at the customary lands, such project should be kicked off at the grassland in low-lying area, which covers an area of about 8,000 hectares. Currently, the Forestry Agency is working on trial plantings at a limited space of the government-owned portion of the grassland. Observation to date shows that the growth of caribbean pine, pine and eucalyptus is listed fairly well. But the grassland in most part has shallow and sterile soil, and therefore it will be necessary to start without delay experimental plantings on this grassland to study species of trees, fertilizing techniques, planting methods, mixed plantings of leguminous plants and the creation of a belt of trees as a fire break. Such studies will lead to an adequate choice of species of plants for afforestation and improvement of

sapling techniques, afforestation techniques and plant raising techniques.

[5] *On other problems related to the afforestation project*

The survey team dispatched by the Japan International Cooperation Agency to Solomon Islands was short-staffed and the duration of its stay there was limited. Yet, the team considers it made the most of its mission to reach a conclusion of its own on the natural and social conditions inherent to the islands. The team owes this conclusion to the cooperation extended to them by the Government of Solomon Islands and officials concerned.

However, the team is of the view that there will be the need for conducting similar survey of economic conditions, in addition to more detailed research of the natural and social conditions of the island, if Japanese interests are to join the islands' afforestation project. And in view of the fact that trends of world economy play a decisive role in determining the attitude of private interests, it can hardly be said that the current world economy creates favourable conditions for private interests to plunge into such project.

The Japan International Cooperation Agency would like to conclude this report by emphasizing the need for full understanding and cooperation of those concerned with the project, which are prerequisite to expedite the introduction of cooperation of private enterprises.

- The end -

21 October 1976

INTERIM REPORT

**THE PRIMARY SURVEY FOR AFFORESTATION PROJECT IN THE SOLOMON ISLANDS
(PRIMARY FINDING
BY THE MISSION OF JAPAN INTERNATIONAL COOPERATION AGENCY)**

Mr. P. J. Tovua
Minister for Natural Resources

Dear Sir

It is a great pleasure to present this summarized results of our survey for Afforestation Project in the Solomon Islands, which was conducted from October 7 to October 21, 1976 including field survey for 8 days at several potential areas on Guadalcanal Islands, New Georgia Island and Kolombangara Island.

The teams of references of the mission are:

To explain the JICA Organization and its functions to the authorities concerned in the Solomon Islands' Government.

To exchange the views on possibility of Afforestation work through cooperation between enterprise of the Solomon Islands and a Japanese private enterprise, which would be financed and technically supported by JICA.

General descriptions of the results of the Primary Survey are as follows:

1. Guadalcanal Island

(a) Natural circumstances

Topography and vegetation: Foothills which consist of terraces and dissected terraces extend widely from east to west. As the topography is generally gentle, Afforestation will be easily carried out in this area. If the present unused grassland would be afforested, it would contribute improvement to both the environment conservation as well as the economy of this island.

Climate: This area has an annual rainfall of about 23,000 mm, comparatively less than those of the other parts in the tropics, and seems to be suitable for the Afforestation of some species of pine and eucalyptus. May to October is the dry season when grass fires are expected on the foothills, and fire belt of legume trees which will have to be adopted through trials, will be needed around the plantations.

Soil: The soils are comparatively deep and fertile in the forest areas. The soils are occasionally shallow and less fertile as the result of erosion in the grasslands, especially in the areas where coral layers are found.

(b) Social and Economic circumstances

Road: Main roads are well maintained, feeder roads are not sufficient. Therefore, if Afforestation would start, it would be necessary to construct forestry roads about 10 to 20 km from the main roads at each working unit.

Port: Several places seem to be suitable for port sites, therefore construction of port would be comparatively easy, but it is necessary to study about port sites in details.

Electricity: Although there is electricity facility available in the area, it doesn't produce enough power to supply what a big chip mill would need. However, if the feasibility work now being carried out in the area would be successful, it might probably enough electricity power to facilitate the mill.

Labour force: Working population concentrates around Honiara and it is possible to get enough workmen for the Afforestation work and the chip mill.

Land use and Ownership: In the Solomon Islands, especially in Guadalcanal Island, most lands are customary from which problems remain to be solved. However the Afforestation project could be agreed upon by the landowners concerned whose traditional uses of the lands could work in harmony with Afforestation.

2. Kolombangara Island

(a) Natural circumstances

Climate: This area has annual rainfall of about 4,000 mm, and is one of the most humid areas in the Solomon Islands. Therefore, it is suitable be introduced through trial planting.

Topography, Vegetation and Soil: The area is volcanic which consists of basaltic rocks. The wide, gentle slopes are covered by forests. The soils are deep and fertile. Therefore, there are many good available planting sites.

(b) Social and Economic circumstances

Labour force: Sufficient labour force may not be available in the area.

Port: Although, there is a port which can be used by ships up to 6,000 tons it is not enough for ships of 20,000 to 30,000 tons. Therefore, a 20 to 50 m long jetty would be needed for such ships.

Electricity: To operate a chip mill, it would need electric power station, which could be very expensive.

Other infrastructure: There are no public facilities for the workers such as stores, hospital, school etc. Therefore Gizo would be relied upon for these facilities.

Land use and Ownership: 32,500 ha of this island is public land, which is quite large compared with the other islands. However, further studies must be made as to the possibility of obtaining enough area in this small island, to make commercial reforestation work economical.

3. New Georgia Island

(a) Natural circumstances

Climate: The area has an annual rainfall of 3,000 to 4,000 mm and is considered to be suitable for planting indigenous hard-wood trees.

Topography, Vegetation and Soil: There are ridges distributed widely which are covered with forest, and there are no grasslands. These ridges mostly consist of volcanic rocks and soil seems to be fertile. Therefore, it may be possible to find many good sites for reforestation.

(b) Social and Economical circumstances

Road: There are 75 km of forestry roads built by a private enterprise, but more road will be needed to carry out the reforestation work.

Port: There is a port which can be used by ships up to 6,000 ton, however, it is not enough for ships of 20,000 ton.

Electricity: It would be necessary to have much expensive power plant to run a big chip mill.

Labour force: Sufficient labour force may not be available in the area.

Land use and Ownership: Most lands are customary but farming were found rare in this area. Therefore it may be less problem in the area to try to use most of the unused lands for reforestation.

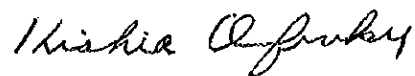
On the base of exchange of views with the authorities concerned in the Solomon Government and our field survey, we consider that the cooperation between Solomon Islands and Japan concerning afforestation is possible in the near future. In this case, if it will be possible to use customary lands in Guadalcanal Island, it is considered at the present time that it would be more suitable to carry out the afforestation project at first in Guadalcanal island, then later onto the other Islands in the Solomons. This is based on the result of economical consideration. As

to the point, the decision will be made through careful consideration in Japan.

If the agreement of your Government can be obtained, JICA is prepared to send the second survey mission after prospects for use of customary lands would be coming more clear.

Lastly we wish to extend our heartfelt gratitude to your government for the various helps and kindness shown to us.

Respectfully yours,



(Kishio Ofuku)
Chief of the Survey Mission
by Japan International Cooperation Agency
for Afforestation Project in the Solomon Islands

cc: Minister for Agriculture and Lands
cc: Central Planning Office
cc: Minister for Trade Industry and Labour

