

附屬資料4.

QUESTIONNAIRE

November, 19, 1990

JAPANESE PRELIMINARY STUDY TEAM
THE STUDY
ON
TOKUA AIRPORT DEVELOPMENT PROJECT
IN
EAST NEW BRITAIN PROVINCE
PAPUA NEW GUINEA
JAPAN INTERNATIONAL COOPERATION AGENCY
(JICA)

The questionnaire is prepared by the Japanese Preliminary Study Team

The questionnaire is prepared by the Japanese Preliminary Study Team for the study on Tokua Airport Development Project in East New Britain Province of Papua New Guinea (the Study) to get basic information and data necessary for the Study. Please answer all the questions in English and also attach materials requested in this questionnaire. Answers need not be too much in detail but should be brief and precise.

However, it should be recognized that because of its preliminary characteristic of this questionnaire, the Study Team would like to ask for additional data/information on the occasion of discussion with th P.N.G. side.

Thank you for your cooperation.

I. GENERAL

1. The Preliminary Study Team would like to obtain general explanation and related information, if any, on the followings:

- (1) Background and necessity of this Study.
- (2) Action having been taken/being taken by the P.N.G. side for the Tokua Airport Development Project such as land acquisition.
- (3) Possible action to be undertaken by the P.N.G. side based upon the output of this Study.
- (4) Present nationwide and regional development plans and other plans which possibly influence on airport development (i.e. tourism development plan).
- (5) Present budget allocation for Aviation-related administration.
- (6) Present status and future role of Tokua Airport and Present plans of Rabaul and Tokua Airports development
- (7) Present problems of Rabaul and Tokua Airports

(8) Relations between P.N.G. Air Force and Rabaul/Tokua Airports

II. INSTITUTIONAL FRAMEWORK FOR AVIATION-RELATED ADMINISTRATION
(PLANNING, FINANCING, CONSTRUCTION, AND OPERATION)

1. The Preliminary Study Team would like to know the government organization concerned with this Study. Please provide the organization chart with jurisdictional responsibilities of each department, division, section, and office etc. for (1) and (2), and brief explanation for (3) (4) (5) (6), if relevant.

- 1) Department of civil Aviation
- 2) Department of Finance and Planning
- 3) Department of Transport
- 4) Department of Works
- 5) Department of Culture and Tourism
- 6) Department of Lands and Physical Planning

2. The Study Team would like to grasp institutional framework of Rabaul and Tokua Airports. (i.e. planning, financing, construction, and operation aspects) Since main items are listed in the attached Table-1, please fill in each column.

(Note: The term "organization charged in" includes ministries, other public organizations, and private bodies, which are mainly responsible for planning, financing, construction, and operation aspects of the two airports.)

III. NECESSARY DATA

The Preliminary Study Team would like to collect documents or maps listed in the attached Table-2, during the Study teams' stay in P.N.G., if possible. Also, please fill in each column of Table-2.

Table-1 INSTITUTIONAL FRAMEWORK OF AVIATION-RELATED ADMINISTRATION
(PLANNING, FINANCING, CONSTRUCTION, AND OPERATION ASPECTS OF THE AIRPORT BY FACILITIES)

If organization concerned is ministry or other public organization, please write down the name of the organization. In case of private body, please write "P.B".

(1)

I T E M	ORGANIZATION CHARGED IN			
	PLANNING	FINANCING	CONSTRUCTION	OPERATION
1. Runway, Taxiway, Apron, Holding bay				
2. Passenger Terminal building				
3. Cargo handling facilities				
4. Residential Quarter for the Airport Staff				
5. Operation Tower				
6. Administration Building				
7. Air Navigational Aids				
8. Lighting System				
9. Communication system				
10. Customs				
11. Immigration				

(2)

I T E M	ORGANIZATION CHARGED IN			
	PLANNING	FINANCING	CONSTRUCTION	OPERATION
12. Quarantine				
13. Fire Station				
14. Rescue Station				
15. Car Parking Lot				
16. Fuel Supply				
17. Drainage				
18. Water Supply				
19. Sewage				
20. Electric Power Supply				

Table-2 THE LIST OF NECESSARY DATA / INFORMATION

No.	ITEM OF NECESSARY DATA	AVAILABILITY		THE NAME OF MATERIALS
		AVAILABLE OR NOT	PLACE OF AVAILABLE DATA	
1	1. Nationwide socio Economic Data			
2	(1) annual report/yearbook/statistics on national and regional economy and economic indicators			
3	a) GDP (last 5years)			
4	b) Polulation (by region) (last 5yeas)			
5	c) Industrial products (by main sort) (last 5 years)			
6	(2) Materials of latest national economic development			
7	a) Authorized development plans of economics, industry, agriculture and tourism.			
8	b) Development programs of transportation facilities			
9	c) Long term forecast of economic indicators (GDP: if revised, other indicator: if any)			
10	(3) Annual budget (national total and by sector)			
11	(4) Public investment by sector (results and plan) (last 5 years)			
12	2. Regional Socio-economic Data (1) Indicator/Statistics and Development Plan			
13	a) Industries			
14	b) tourism			
15	c) Transportation (other than air)			
	d) Rabaul City			
	e) Tokua			
	(2) Maps			
	a) Rabaul city			
	b) Tokua			

No.	ITEM OF NECESSARY DATA	AVAILABILITY		THE NAME OF MATERIALS
		AVAILABLE OR NOT	PLACE OF AVAILABILITY	
16	c) Aerial photograph			
17	d) Geographical map			
	3. Air Transport			
18	(1) Major Agency related to air Transport			
19	a) Name of each agency			
	b) Role of each agency			
20	(2) Air Route Network			
21	a) International			
22	b) domestic (scheduled and non scheduled, if possible)			
	c) future plan/policy for air route network			
23	(3) Airport			
24	a) Geographical distribution of airports			
25	b) Major facilities of each airport			
26	c) Function of each airport			
27	d) Future development plan (by airport)			
	e) design and planning criteria			
28	(4) Airport-related budget			
29	a) Airport construction budget (last 5 years)			
30	b) Airport maintenance budget (last 5 years)			
	c) Financial statement of each airport (last 5 years)			
31	(5) Statistics (at least last 5 years) (national total and by airport)			
	a) Foreigners and local passengers classified with point of departure and destination			
32	b) International and domestic cargo classified with point of departure and destination (including mail by airport)			
33	c) Military aircraft activities			
34	d) Number of takeoffs and landings (including general aviation)			
35	e) Annual Report of DCA			
	(6) Airline Company			
36	a) Name of airline companies in P. N. G.			

No.	ITEM OF NECESSARY DATA	AVAILABILITY		THE NAME OF MATERIALS
		AVAILABLE OR NOT	PLACE OF AVAILABLE DATA	
37	b) International and domestic route map and timetable (by airline)			
38	c) Air fleet (actual and future plan)			
39	d) foreign airline companies desiring to serve the airport in P.N.G.			
40	f) Major airline maintenance facilities in P.N.G.			
41	(7) General Aviation			
42	a) Statistic of activities			
43	(8) Demand Forecast of Transportation (including other transportation)			
44	a) total passengers			
45	b) total cargos			
46	c) total passengers by air			
47	d) total cargos by air			
48	(9) Air Traffic Control			
49	a) AIP			
50	b) Control area map			
51	c) Distribution of navigational facilities			
52	d) Control method			
53	e) Responsible body			
54	4. Rabaul and Tokua Airports			
55	(1) Airport Facilities			
56	a) Airport layout map (1:2000)			
	b) Inventory of facilities			
	c) Construction history of airport			
	d) Cross section of runway			
	e) Actual strength of runway and apron pavement			
	f) Actual supply/disposal volume of following facilities			
	-Water supply			
	-Electric supply			
	-Sewage			
	-Fuel supply			

No.	ITEM OF NECESSARY DATA	AVAILABILITY		THE NAME OF MATERIALS
		AVAILABLE OR NOT	PLACE OF AVAILABLE DATA	
57	(2) Natural Conditions			
58	a) List of consultants for topographic survey and boring in PNG			
59	b) Meteorological data including wind coverage			
60	c) Floods data			
61	d) Topographical map and/or aerophotograph of the area			
62	d) Underground conditions (boring data, results of soil tests)			
63	e) Earthquakes data (list of recorded earthquake, seismic coefficient)			
64	f) Unit cost of investigation and survey (boring, soil laboratory test, soil field test, topographic survey, salary of engineer)			
65	(3) Utilization			
66	a) Map of obstacle limitation surface			
67	b) Report of obstacles for limitation surgance			
68	c) Activities of Military			
69	d) Weight restriction of air craft			
70	e) Access transportation volume from Rabaul city			
71	g) Location of residential quarter for airport staff and number of residence			
72	h) Past aircraft accidents			
73	(4) Existing airport development plan			
74	a) Related studies and plans			
75	5. Laws and Regulations			
76	(1) Civil aviation Laws and related regulations			
77	(2) Aircraft noise standards			
78	(3) Tariff structure			
79	(4) Agreement on the use of airport by the Military			
80	(5) Air services agreement			
81	6. Organizational Chart			
82	(1) Department of Civil Aviation			
83	(2) Each Airport			
84	(3) Carrier			

No.	ITEM OF NECESSARY DATA	AVAILABILITY		THE NAME OF MATERIALS
		AVAILABLE OR NOT	PLACE OF AVAILABLE DATA	
80	7. Environmental Policy (1) Government Policy for environmental issues			
81	(2) Institutional aspects			
82	a) Law and regulation			
83	b) Environmental criteria			
	c) Related organization			

附属資料5.

面談者リスト

1. The Government of the Independent State of Papua New Guinea
Rt. Hon. Rebbie Namaliu GMF MP Prime Minister

2. Department of Civil Aviation in Port Moresby
 - Mr. Honourable Bernard Vogae Minister for Civil Aviation
 - Ms. Jean Kekedo, OBE Secretary
 - Mr. Sam Geno First Assistant Secretary,
Planning and Finance Control
 - Mr. Noga Itana Assistant Secretary,
Aerodrome Branch
 - Mr. Steve Orea Assistant Secretary,
Engineering Branch
 - Mr. Wilson Sagati Assistant Secretary,
Airways Operations Branch
 - Mr. James Nako Assistant Secretary,
National Weather Service
 - Mr. Lez Pereira Assistant Secretary,
Policy and Planning
 - Mr. Sylvester Kenatisi Senior Engineer (Elect./Mech.)
Airways Engineering Branch
 - Mr. Xavier Areni Senior Engineer (Radio/Nav aids)
Airways Engineering Branch
 - Mr. Nars Emita Superintendent,
Aerodromes Branch
 - Mr. Eddie Lohia Principle Project Officer,
Policy and Planning Branch
 - Mr. Tarcicius Bola Assistant Superintendent,
Airways Operations Branch

3. Office of International Development Assistance, Department of Finance and Planning
in Port Moresby
 - Mr. Robert Igara Director

- | | |
|---------------------|---|
| Mr. Chris Mero | Assistant Director,
Bilateral Branch |
| Mr. James Vagia | Assistant Director |
| Mr. Francis Wagaia | Programme Officer |
| Mr. Masanobu Kiyoka | JICA Expert |
4. Department of Transport in Port Moresby
- | | |
|---------------------|--|
| Mr. Cecil Amarasiri | Assistant Secretary,
Infrastructure |
|---------------------|--|
5. Department of Works in Port Moresby
- | | |
|-----------------|--------------------------------------|
| Mr. Peter Young | Assistant Secretary,
Construction |
|-----------------|--------------------------------------|
6. Attorney General Department, in Port Moresby
- | | |
|----------------|---|
| Mr. M. Yalapan | Senior Legal Officer,
(Commercial)
State Solicitor's Office |
|----------------|---|
7. P.N.G. Tourism Development Corporation in Port Moresby
- | | |
|----------------------|-------------------------|
| Mr. Kudo Takimasa | Senior Planning Officer |
| Mr. John K. Ravusiro | Planning Officer |
8. National Mapping Bureau
- | | |
|------------------|-------------|
| Mr. Doi Hiromitu | JICA Expert |
|------------------|-------------|
9. East New Britain Provincial Government in Rabaul
- | | |
|-------------------|-----------|
| Mr. Sinai Brown | Premier |
| Mr. Nason Paulias | Secretary |
10. Department of East New Britain in Rabaul
- | | |
|-------------------|----------------------------------|
| Mr. John Brown | Assistant Secretary,
Land |
| Mr. Maran Nateleo | Assistant Secretary,
Planning |
| Mr. John Addison | Provincial Project Coordinator |

11. Department of Civil Aviation in Rabaul

Mr. Mel Pua	Office - in - Charge Rabaul Unit
Mr. Philip Pahula	Senior Technical Radio Mainte.
Mr. Albert Walongor	OIC National Weather Service
Mr. Sam Kuakua	Senior Technical Radio Maint.

12. Rabaul Volcano Observatory

Mr. Chris Mckee	Chief Volcanologist
-----------------	---------------------

13. 日本大使館

野口安男	特命全權大使
飯野建郎	参事官
大岩 Takaaki	三等書記官

14. JICA パプア・ニューギニア事務所

岡崎俊夫	所長
熊野晃	所員

附属資料6.

収 集 資 料 リ ス ト

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- M-2 ラバウル 1/2,000 地形図
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177294 D , 177295 A , 177295 B , 177295 C , 177295 D , 177296 A ,
177296 B , 177296 C ,
B₀ . コピー、14葉
- M-3 ポートモレスビー 1/2,000 地形図
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111110 , 113106 , 113107 , 113108 , 113110 ,
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7. 土質/地質及び火山

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附属資料 7.

PROJECT AID PROPOSAL
FOR
THE STUDY
ON
TOKUA AIRPORT DEVELOPMENT PROJECT
IN
EAST NEW BRITAIN PROVINCE
PAPUA NEW GUINEA

DEPARTMENT OF CIVIL AVIATION

REQUEST FOR THE STUDY

ON

TOKUA AIRPORT DEVELOPMENT PROJECT

- (i) Study Title : The Study on Tokua Airport Development Study
- (ii) Location : Rabaul, East New Britain Province, P.N.G.
- (iii) Executive Agency : Department of Civil Aviation (DCA)
- (iv) Coordinating Agency : Office of International Development Assistance (OIDA)
- (v) Study Objectives : To work out optimum development scheme in short range and long range term.
- (vi) Project Description and Study Items : as per attached.

1. INTRODUCTION

The Government of Papua New Guinea (PNG) deeply feels the necessity of development of Tokua Airport in Rabaul, East New Britain Province for securing an emergency airstrip as well as for promoting regional development, and requests the Government of Japan to consider the technical assistance for this Project - Tokua Airport Development Project. The background of the Project and the outline of the Project Features are briefly described hereinafter.

2. BACKGROUND OF THE PROJECT

The present Rabaul (Lakunai) Airport is located in the midst of the volcanically hazardous area within about 2 km of potentially active volcanoes. The threat of likely volcanic eruption urged National Executive Council (NEC) to initiate an urgent development plan for temporary airstrip at Tokua, Rabaul particularly for emergency use in disaster. The emergency airstrip at Tokua was developed under the Rabaul Disaster Plan Work Program and started its operation on October 27, 1984, with a limiting landing capacity up to Dash 7 and Hercules C-130 on a pavement concession basis.

Meanwhile, the then Department of Transport and Civil Aviation (DTCA) in 1983 had undertaken an overall study of transport investment nationwide in Papua New Guinea, where the concept of transferring whole operation from Rabaul Airport to Tokua Airport had been established. Then, the development policy of upgrading the existing airport of Tokua was formulated by NEC in October 1984.

Since then, no action has been taken yet neither the feasibility study nor cost review due to financial constraint.

Rabaul, blessed with manificent setting on the shore of Simpson Harbour, ranks among the unforgettable of the South Pacific, attracting a lot of tourist from abroad. And, since the Rabaul was the battle-field at the World War II, many Japanese tourist come to pay homage to the site to memory of their relatives and friends.

Most of tourists fly from Jackson's Airport, Port Moresby. Domestic air service linked to Jackson's Airport and other major airports in Papua New Guinea, with growing passenger traffic demand, are forced to upgrade the aircraft sizes year by year. The Tokua Airport is the case. The design criteria for the immediate development of Tokua Airport needs to meet at least F28 and B737 aircraft. To cater for larger aircraft, all the airport facilities shall be upgraded to more higher airport service level as soon as possible.

3. NECESSITY OF THE STUDY FOR PROJECT IMPLEMENTATION

The policy of upgrading Tokua Airport to meet the level of accommodating F28 and B737 class was materialized, though, the Project still gains a Design List Status in the NPEP standing Design List of Project.

In order to accommodate the present air traffic demands and to cope with ever increasing traffic demands in future, Tokua Airport Development as an airport of entry to the region should immediately be programmed within the framework of the possible future airport system in the region.

In order to catapult the Project into the implementation stage the immediate start of the captioned Feasibility Study aimed at the upgrading the existing airstrip to much higher standard's airport is considered to be the highest priority. The study necessary for the Project implementation is outlined in the next sections.

4. PROPOSED SCOPE OF THE STUDY

Objectives of the Study

The main objectives of the feasibility study (the Study) is to formulate the basis for immediate future funding for the Project which will lead to upgrade the existing Tokua Airport to a main airport of entry to the island as well as a key relay station of PNG air networks. The Study is to assess the need, and to determine the location and the scope of airport feasibilities necessary to provide sufficient airport capacity to meet the air traffic demand up to the year 2010. The economic and financial viability of the recommended project will also be examined in the Study.

Proposed Scope of the Study

The Study will comprise major study items as outlined below:

(1) Data Collection and Analysis

All the available data and information related to the objectives of the study shall be collected and site investigation of existing airport shall be carried out. An inventory shall be prepared for the existing airport covering each of the factors to be considered in the air traffic forecast and master planning. The data will consist of such major categories, but not limited to:

- Existing studies on not only airport, but also regional developments
- Regulatory factor such as the laws, regulations, rules and policies which may affect the air transport system
- Economy, industry, tourism and regional and local development plans
- Social activities such as pilgrimage, transmigration, etc.
- Land use and environmental factors surrounding the airport
- Transportation (other than air) and communication
- Geography, geology and meteorology surrounding the airport
- The existing airport facilities inventory, including civil, architectural, electrical, mechanical and public utilities
- Aeronautical data and air traffic control procedures
- Price of materials and equipment
- Local wages and transportation cost
- - As built drawings of the existing air port facilities
- Availability of local labour and construction material

(2) Evaluation of Existing Air Traffic Service

The existing and possible future situations of the airport system and the aviation activities particularly in New Britain Province Zone shall be evaluated and the impacts and problems related to the development of Tokua Airport shall be identified. This study item will include the following:

- Nationwide aviation activities including distribution of demands, passenger and cargo activities, air route structure, type and number of flights, etc.
- Airspace utilization, particularly in New Britain Province area
- Distribution of economic activities and population
- Tourism activities
- Transportation system other than air, i.e. ship, road, and railway
- Environmental situation, and others

(3) Air Traffic Analysis and Forecast

Taking into account the existing and the possible future conditions of various aspects together with the potential demands related to the air transport system which have been identified in the study, the traffic forecast shall be made for short, intermediate and long range planning periods (5, 10 and 20 years) in the following basic categories:

- Annual passengers traffic by type and route
- Annual freight and mail
- Annual aircraft movements by aircraft type and category

(4) Demand/Capacity Analysis

From comparisons of the facility requirements derived from the air traffic demand forecasts and the capacities of the existing airport facilities, the saturation date and the timing of the need for additional capacity shall be estimated for Tokua Airport Development.

(5) Master Plan of Tokua Airport Development

On the basis of demand/capacity analysis and preceding all the study results, the future airport development plan will be elaborated, in the following steps:

- Identify the possible airport development sites, including the expansion of the existing airport *
- Prepare alternative development options
- Set out the evaluation criteria for screening out the optimum development plan, including preliminary financial and economic analysis and preliminary environment assessment
- Select the most recommendable development plan and prepare the outlined airport layout, including a phasewise short term development plan as well as a long term expansion plan.

(6) Field Survey and Investigation

For the Master Plan Study and the Preliminary Design, essential field data shall be supplemented from the field survey and investigation, including the following key items:

- Topographic survey, including the inventory survey of existing facilities and the establishment of horizontal and vertical control points 1/5,000
航空写真
- Geotechnical investigation, including borings and necessary test at the proposed facilities area

- Investigation of possible new quarry sites
 - Other necessary surveys
- (7) Preliminary Design and Cost Estimate for Short Term Development

The facility requirements for the first phase development shall be established based on the foregoing study results, and preliminary design will be carried out, including the civil works, architectural works, utilities, ATS system, and others. And the following items shall be fully studied and specified.

- Storm water drainage / sewage system;
- Diversion of existing creek;
- Security fencing;
- Technical block and workshop (under Other buildings);
- Electrical mechanical works such as installation of baggage equipment, security equipment, flight information display system, public address, etc.;
- Air navigation system such as installation of visual aids, lighting equipment, ATS equipment / telecommunications, meteorological equipment, power supply system, etc.;
- Rescue and fire fighting system;
- Maintenance hangar;
- Instrument Landing Systems (ILS); and
- Meteorological equipment / system

Cost estimates could be conveniently grouped into civil works, building works, navigation aids / equipment, and consultancy fee.

(8) Project Evaluation

Analysis shall be made of the expected benefits and costs involved in and resulting from the proposed phased construction in order to evaluate the viability of the project.

The benefits considered in the analysis shall include not only quantitative benefits to passengers, cargo and aircraft by developing the airport, introduction of larger aircraft, unconstrained growth of air traffic, operating revenues of the airport, and any other regional or national economic benefits, but also non-quantitative benefits.

The project cost shall include the total construction cost, depreciation cost, and overall operation and maintenance cost of the airport.

After cost/benefit calculation, the overall project appraisal shall be made including such as assumptions / preconditions for analysis, revenue estimates, cost estimation financial analysis (plus sensitivity analysis), economic analysis. Socio-economic analysis and environmental assessment should be also included in the comprehensive project evaluation.

(9) Operation and Management Study

To run the airport operation smoothly and safety, the most suitable operation / management / maintenance system / programmes should be suggested for both domestic and international services.

5. SCHEDULE OF THE STUDY

The Study shall be completed within a period of fifteen (15) months. the tentative schedule for the Study is shown in Appendix attached to this paper.

6. REPORTS

During the Study the following reports shall be submitted within the period specified below.

- Inception Report (10 copies) - one month after commencement of the Study
- Progress Report (10 copies) - six months after commencement of the Study
- Interim Report (30 copies) - at completion of Master Plan
- Draft Final Report (30 copies) - at completion of Short Term Development Plan
- Final Report (30 copies) - one month after DCA's final comment.

7. UNDERTAKING THE BY GOVERNMENT

In order to facilitate a smooth and effective implementation of the study, the Government of the Papua New Guinea will undertake the following items as required.

- (1) To nominate a counterpart group which includes a project coordinator responsible for the field survey works and any trouble arising throughout the study period.
- (2) To arrange for the foreign experts all necessary immigration procedures such as entry, stay, exit and work permits and exempt them from income tax and charges of any kind imposed on or in connection with the living allowance remitted from abroad and from import and export duties imposed on their personal effects, and instrument and materials necessary for the Study.
- (3) To provide a sufficient and suitable office space with appurtenant furnitures and facilities in Rabaul and and Port Moresby, during the period of the Study and a site office if necessary.

- (4) To provide official vehicles with drivers and fuel for execution of the Study.
- (5) To provide available documents, such as reports, drawings, topographic maps, statistics, data and information related with execution of the Study.

8. EXPERTISE INPUTS

The following Engineers will be required for performance the Study.

- (1) Engineer on Airport Planning (Airport Planner)
- (2) Engineer on Terminal Planning (Sr. Architect)
- (3) Engineer on Utilities/Maintenance (Sr. Service Engineer)
- (4) Engineer in Air Traffic Control (Traffic Controller)
- (5) Engineer in Air Navigation Aids (Navigation Specialist)
- (6) Engineer in pavement and drainage design (Sr. Airport Civil Engineer)
- (7) Engineer in Airport Maintenance (Maintenance Engineer)
- (8) Engineer for Construction Planning (Construction Planner)
- (9) Engineer in Transport Planning and Demand Forecast (Transport Planner)
- (10) Economist for Project Evaluation (Project Economist)
- (11) Engineer for foundation analysis (Geotech., Engineer)
- (12) Engineer for environmental analysis (Environmentalist)
- (13) Economist in Tourism Industry (Tourism Expert)

The required man-months for experts is estimated at 70 man-months in total as shown in below.

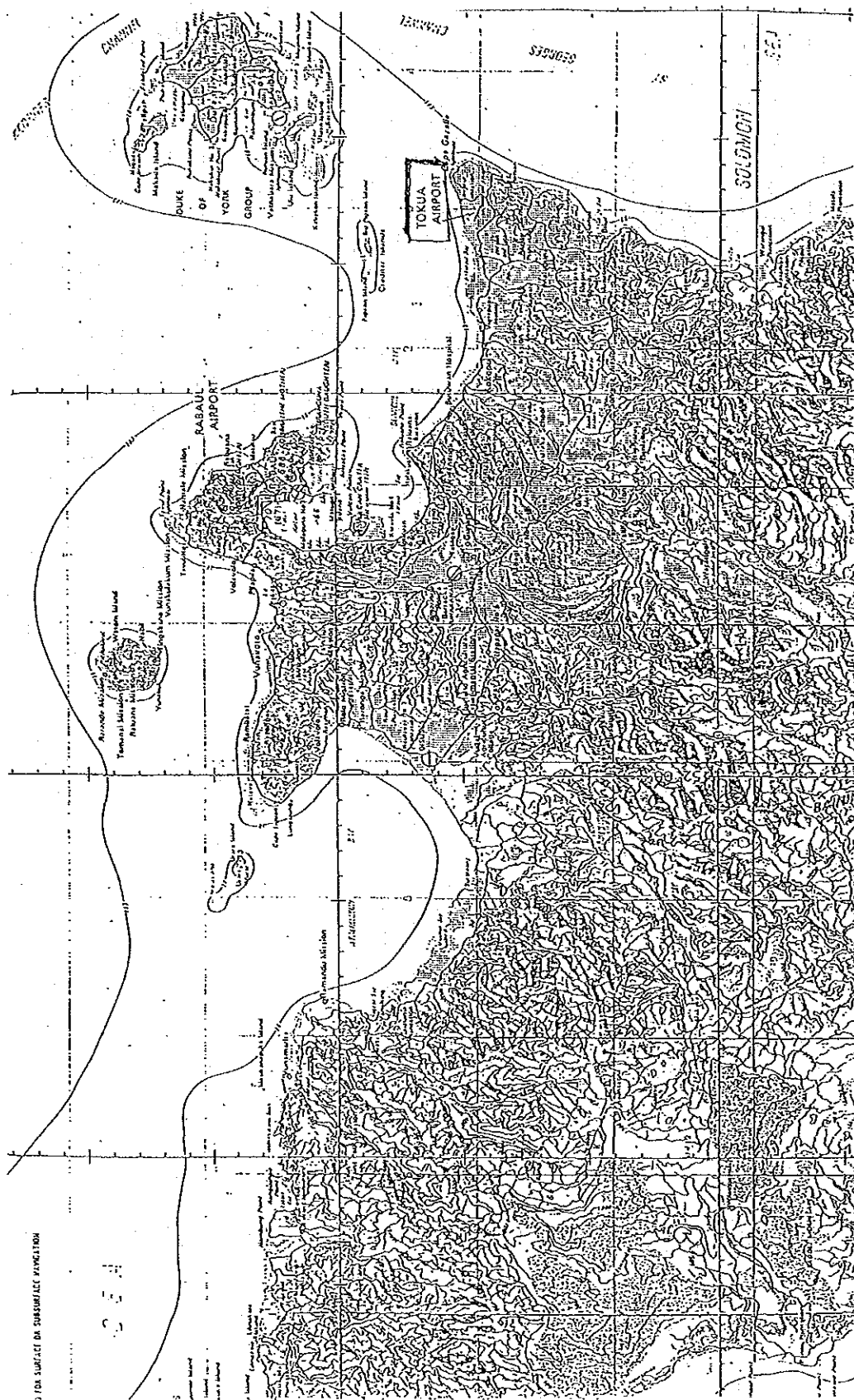
(1)	Airport Planner	10 M/M
(2)	Sr. Architect	9 M/M
(3)	Sr. Service Engineer	8 M/M
(4)	Traffic Controller	4 M/M
(5)	Navigation Specialist	8 M/M
(6)	Sr. Airport Civil Engineer	8 M/M
(7)	Maintenance Engineer	4 M/M
(8)	Construction Planner	4 M/M
(9)	Transport Planner	3 M/M
(10)	Project Economist	5 M/M
(11)	Geotech. Engineer	3 M/M
(12)	Environmentalist	2 M/M
(13)	Tourism Expert	2 M/M

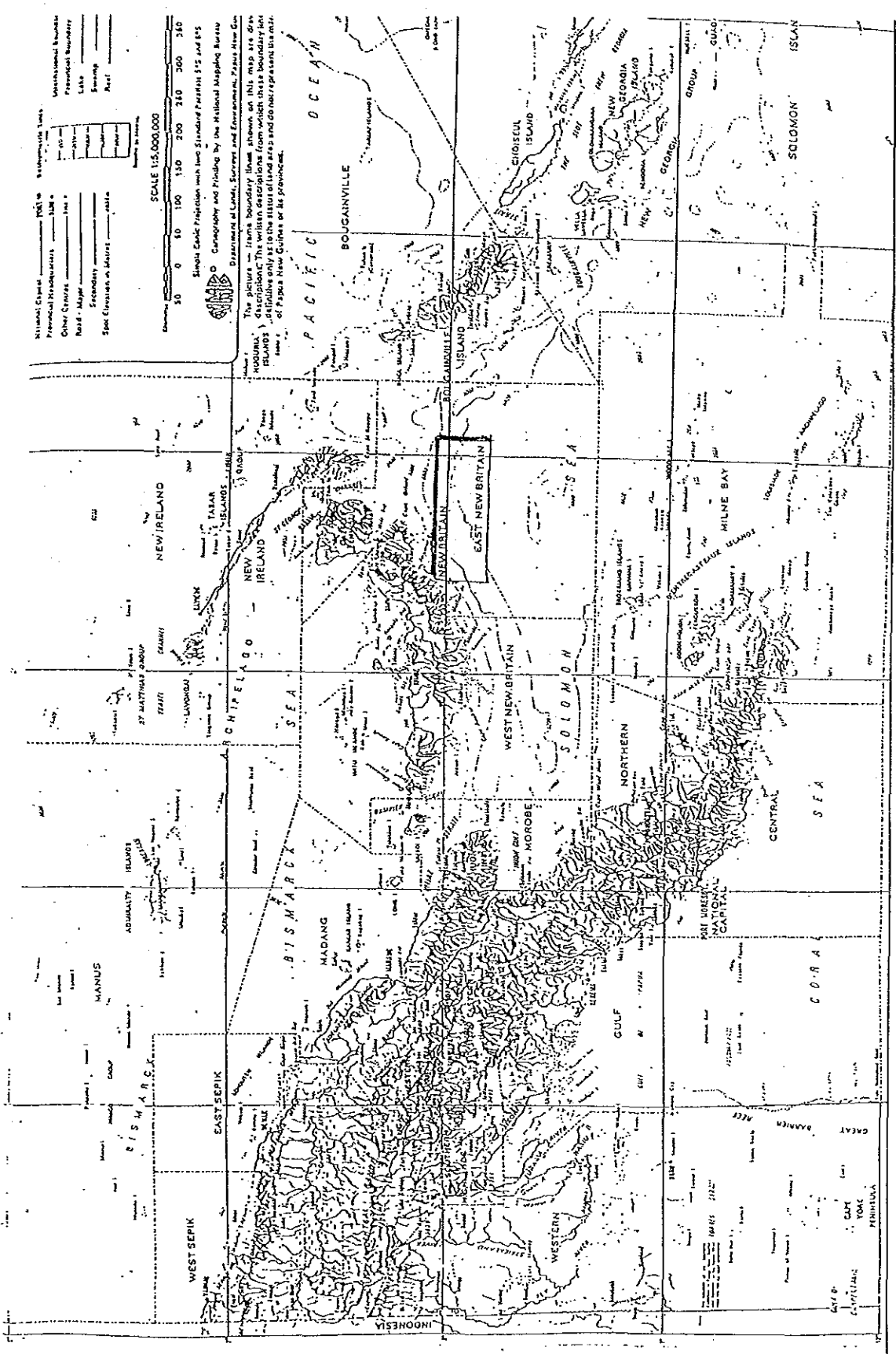
70 M/M

APPENDIX

Tentative Schedule for the Study

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
WORK IN PAPUA NEW GUINEA															
WORK IN JAPAN															
	△	IC/R	△	P/R	△	IT/R	△	DF/R	△	F/R					
(1) Data Collection and Analysis															
(2) Evaluation of Existing Air Traffic Service															
(3) Air Traffic Analysis and Forecast															
(4) Demand/Forecast Analysis															
(5) Master Plan of Tokua Airport Development															
(6) Field Survey and Investigation															
(7) Preliminary Design and Cost Estimate for Short Term Development															
(8) Project Evaluation															
(9) Operation and Management Study															





National Capital
 Provincial Boundaries
 Other Cities
 Road - Major
 Spot Elevation in Meters
 International Lines
 Mile
 Kilometer
 Lake
 Swamp
 Reef
 Island

SCALE 1:5,000,000
 0 50 100 150 200 250 300 350
 Single Gatic Projection with the Standard Parallels 5°S and 8°S
 Department of Lands, Survey and Environmental Plans New Guinea
 The names of islands, boundaries, rivers, towns, etc. are given in Roman letters. This includes the names of the islands, boundaries, rivers, towns, etc. are given in Roman letters. This includes the names of the islands, boundaries, rivers, towns, etc. are given in Roman letters.

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