

## 1. 調査団員・氏名

### 1-1 第1次現地調査時(平成20年2月27日～4月1日)

- (1) 総括 : 喜多村祐介 (JICA パプアニューギニア事務所長)
- (2) 計画管理 : 江上雅彦 (JICA 無償資金協力部第一グループ運輸  
交通・電力チーム)
- (3) 業務主任/橋梁計画 : 安井淳治(株式会社 長大)
- (4) 橋梁設計 I : 森 雅彦(株式会社 長大)
- (5) 橋梁設計 II : 中村仁司(株式会社 長大)
- (6) 環境社会配慮 : 黒木浩則(日本技術開発 株式会社)
- (7) 施工計画/積算 : 森下 潤(株式会社 長大)
- (8) 自然条件調査 I : 岡部信之(日本技術開発 株式会社)
- (9) 環境社会配慮 II/自然条件調査 II : 川辺了一(株式会社 長大)

### 1-2 第2時現地調査 (平成20年6月15日～6月28日)

- (1) 総括 : 喜多村祐介 (JICA パプアニューギニア事務所長)
- (2) 環境社会配慮 I : 黒木浩則(日本技術開発 株式会社)
- (3) 環境社会配慮 II : 川辺了一(株式会社 長大)

### 1-3 概要説明時(平成20年10月5日～12日)

- (1) 総括 : 喜多村祐介 (JICA パプアニューギニア事務所長)
- (2) 計画管理 : 讚井一将 (JICA 経済基盤開発部 運輸交通・情報  
通信第二課)
- (3) 業務主任/橋梁計画 : 安井淳治(株式会社 長大)
- (4) 橋梁設計 I : 森 雅彦(株式会社 長大)
- (5) 環境社会配慮 : 黒木浩則(日本技術開発 株式会社)

## 2. 調査行程

2-1 第1次現地調査（平成20年2月27日～平成20年4月1日）

項目			団長	計画管理	業務主任/ 橋梁係	橋梁係 I	橋梁係 II	環境社会 配慮	施工計画 /積算	自然条件 調査 (水理)	自然条件 調査 (地形)			
年月日			喜多村	江上	安井	森	中村	黒木	森下	岡部	川辺			
1	2月27日	Wed			成田発				成田発		成田発			
2	2月28日	Thu			POM着, PM: JICA事務所				POM着, PM: JICA事務所		POM着, PM: JICA事務所			
3	2月29日	Fri			AM: 日本大使館, PM: DNPM				AM: 日本大使館, PM: DNPM		AM: 日本大使館, PM: DNPM			
4	3月1日	Sat			ブカ移動						ブカ移動			
5	3月2日	Sun			現地調査						現地調査			
6	3月3日	Mon			ABG協議				POM見送り		現地調査			
7	3月4日	Tue			現地調査	現地調査	現地調査				ラバウル移動			
8	3月5日	Wed				POM移動			成田発		成田発			
9	3月6日	Thu				情報収集			POM着	レイ移動	POM着	BO入管手続		
10	3月7日	Fri				DOW, DEC			DEC, DNPM DOW					
11	3月8日	Sat		成田発	POM移動	情報収集	資料収集	現地調査	資料収集		ブカ移動			
12	3月9日	Sun		POM着, 団内打合せ	団内打合せ		団内打合せ			団内打合せ				
13	3月10日	Mon	午前JICA事務所, 日本大使館 午後DNPM, DOW, ABG ミニッツ打合せ				DEC							
14	3月11日	Tue		午前 DOW, ABG ミニッツ打合せ				DOW		資料収集				
15	3月12日	Wed	午前 DNPM, DOW, ABG ミニッツ最終確認, 午後 DNPM, DOW, ABG ミニッツサイン			現地調査		ブカ移動		資料収集		現地調査		
16	3月13日	Thu		午前 日本大使館, 午後 JICA事務所 結果報告				ラバウル移動						
17	3月14日	Fri		成田着	ラバウル移動					ラバウル移動				
18	3月15日	Sat			ブカ移動				現地調査		ブカ移動			
19	3月16日	Sun			現地調査		現地調査							
20	3月17日	Mon								現地調査				
21	3月18日	Tue									ブカ移動			POM移動
22	3月19日	Wed												成田着
23	3月20日	Thu												
24	3月21日	Fri												
25	3月22日	Sat							POM着	現地調査	現地調査			
26	3月23日	Sun							資料整理					
27	3月24日	Mon												
28	3月25日	Tue							成田着					
29	3月26日	Wed						POM移動						
30	3月27日	Thu												
31	3月28日	Fri						POM移動	現地調査					
32	3月29日	Sat									POM移動			
33	3月30日	Sun							資料整理					
34	3月31日	Mon							午前 日本大使館, 午後 JICA					
35	4月1日	Tue							成田着					

移動
  ポートモレスビー
  現地
  ラバウル
  レイ

2-2 第2次現地調査（平成20年6月15日～平成20年6月26日）

項目			環境社会配 慮I 黒木	環境社会 配慮II 川辺
年月日				
1	Jun. 15	Sun.		成田発
2	Jun. 16	Mon.		POM着、大使館、JICA, DNPM
3	Jun. 17	Tue.		AusAID、DEC、DOW、
4	Jun. 18	Wed.		ブカ移動、ABG協議
5	Jun. 19	Thu.		現地調査
6	Jun. 20	Fri.		
7	Jun. 21	Sat.		
8	Jun. 22	Sun.		
9	Jun. 23	Mon.		
10	Jun. 24	Tue.		
11	Jun. 25	Wed.		
12	Jun. 26	Thu.		DNPM, DOW
13	Jun. 27	Fri.		日本大使館、JICA
14	Jun. 28	Sat.		成田着

2-3 概要説明調査（平成20年10月4日～平成20年10月11日）

項目			団長 喜多村	計画管理 讃井	業務主任/橋梁計画 安井	橋梁設計 I 森	環境社会配慮 黒木
年月日							
1	Oct. 4. '08	Sat.		成田～ケアンズ(翌日)			
2	Oct. 5. '08	Sun.		AM: ケアンズ～ポートモレスビー		成田～ケアンズ(翌日)	
3	Oct. 6. '08	Mon.		PM: JICA事務所・日本大使館 表敬挨拶、基本設計概要書提出、説明	AM: ケアンズ～ポートモレスビー、		
4	Oct. 7. '08	Tue.		国家計画モニタリング省 (DNPM)、公共事業賞 (DOW)、ブーゲンビル自治政府 (ABG): 基本設計概要書説明、協議議事録 (M/D案) について確認			
5	Oct. 8. '08	Wed.		国家計画モニタリング省 (DNPM)、公共事業賞 (DOW)、ブーゲンビル自治政府 (ABG): 協議議事録 (M/D案) を協議、最終M/D案作成			
6	Oct. 9. '08	Thu.		AM: 国家計画モニタリング省 (DNPM)、公共事業賞 (DOW)、ブーゲンビル自治政府 (ABG): M/D署名			
7	Oct. 10. '08	Fri.		ポートモレスビー～ケアンズ～成田	環境関係手続き確認、積算価格補足見積入手等		
8	Oct. 11. '08	Sat.			ポートモレスビー～ケアンズ～成田		
				移動		説明/協議	

### 3 関係者（面会者）リスト

(1) 在パプアニューギニア日本国大使館

西山 肇	特命全権大使
川田 一徳	参事官兼総領事
田辺 毅	一等書記官
大川 幸樹	一等書記官
藤村 武	一等書記官
伊藤 賢利	二等書記官

(2) JICA パプアニューギニア事務所

喜多村 裕介	所長
横田 隆浩	所員
Mr. Tony Ombo	現地所員
Mr. Albert Kopeap	現地所員

(3) 国家計画・モニタリング省(Department of National Planning and Monitoring : DNPM)

Mr. Mosilayola Kwayaila, Director, Aid Policy & Coordination Directorate  
Mr. Karl Sopol, Assistant Director Bilateral Branch  
Mr. kingsley Lope, Acting Director  
Mr. Robert Gondor, Senior Aid Coordinator Japan Desk  
Mr. Raimond Oliver, Aid Coordinator  
Ms. Jenny Tumun, Aid Coordinator  
Mr. Michel Serlzaeid, Aid Coordinator  
Mr. Nelson Kai, Senior Planner Transport  
Mr. Paul Iliia, Assistant Secretary Infrastructure  
Mr. Danny Storr, Assistant Director Provincial District Coordination  
小椋 享 企画調査員 (Project Formulation Advisor)  
Mr. Michio Serizawa 企画調査員 (Project Formulation Advisor)

(4) 公共事業省リスト(Department of Works : DOW)

Mr. Joel Luma, Secretary  
Mr. Eric Sikam, First Assistant Secretary  
Mr. Wilfred Peko, Assistant secretary  
Mr. William Willie Asigau, Environmental Officer  
Mr. Michaela Sirabis, Assistant Secretary of Survey and Lands Branch

- (5) 公共事業省ブカ事務所 (DOW Buka Office)  
Mr. Hillary Hangatsia, Provincial Works manager  
Mr. Patrick Matheson, Acting/Provincial Civil Engineer
- (6) ブーゲンビル自治州(Autonomous Bougainville Government : ABG)  
Mr. Raymond Masono, Chief Administration  
Mr. John Kolan, Chief Executive Officer-Technical Service  
Mr. Leslie Tseraha, CEO Planning  
Mr. Itamai Simeon, Civil Engineer  
Mr. Ephraim Evrunoni, Special Project Officer  
Mr. Sam Rangai, Chief Executive Officer (DPI)  
Mr. Gabriel Wayen, Division of Economic Service (DPI)  
Mr. Joe Ababa, Officer (DPI)
- (7) 環境保全省(Department of Environment and Conservation : DEC)  
Ms. Katrina Solien, Assistant Manager-EIA
- (8) 歳入庁(Internal Revenue Commission : IRC)  
Mr. William Saapak, Director Tariff & Trade
- (9) オーストラリア国際開発庁(Australian Agency for International Development : AusAID)  
Mr. Bob Willis, Director Autonomous Region of Bougainville

4. 討議議事録 (M/D)

4-1 第1回現地調査時

(平成20年3月12日)

**Minutes of Discussions  
on the Basic Design Study**

**on the Project for Construction of Bridges on Bougainville Coastal Trunk Road  
in the Independent State of Papua New Guinea**


Based on the results of the Preliminary Study, the Government of Japan decided to conduct a Basic Design Study on the Project for Construction of Bridges on Bougainville Coastal Trunk Road (hereinafter referred to as "the Project") and entrusted the study to the Japan International Cooperation Agency (hereinafter referred to as "JICA").

JICA sent to the Independent State of Papua New Guinea (hereinafter referred to as "PNG") the Basic Design Study Team (hereinafter referred to as "the Team"), which was headed by Mr. Yusuke Kitamura, Resident Representative of the JICA PNG Office, and is scheduled to stay in the country from February 28 to April 1, 2008.

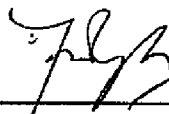
The Team held discussions with the officials concerned of the Government of PNG and conducted a field survey at the study area.

In the course of discussions and field survey, both sides confirmed the main items described in the attached sheets. The Team will proceed to further works and prepare the Basic Design Study Report.

Port Moresby, March 12, 2008



Yusuke Kitamura  
Leader  
Basic Design Study Team  
Japan International Cooperation Agency



Mosilayola Kwayaila  
Director, Aid Policy & Coordination Directorate  
Department of National Planning and Monitoring  
PNG



Raymond Masono  
Acting Chief Administrator  
Autonomous Bougainville Government  
PNG



Eric Sikam  
First Assistant Secretary (Technical Services)  
Department of Works  
PNG

## ATTACHMENT

### 1. Objective of the Project

The objective of the Project is to construct bridges and culverts on Bougainville Coastal Trunk Road, in order to support provincial security, secure economic development and provincial cohesion.

### 2. Project Site

The sites of the Project are on Bougainville Coastal Trunk Road between Kokopau and Arawa in Bougainville Autonomous Region, as shown in Annex-1.

### 3. Responsible and Implementing Organizations

3-1. The Responsible organization is the Department of National Planning and Monitoring (DNPM) of the Government of PNG. DNPM shall have the responsibility for the Project as a client when the Project is implemented, and also have the responsibility for coordinating Implementing Agencies.

3-2. The Implementing Agencies are the Department of Works (DOW) and the Autonomous Bougainville Government (ABG). DOW is responsible for the implementation of the Project and for maintenance after construction with support as required from ABG. Organization charts of DNPM, DOW and ABG are shown in Annex-2.

### 4. Items Requested by the Government of PNG

After discussions with the Team, the Project components were confirmed as below:

- Construction of bridges and culverts at fifteen river crossing places listed in Annex-1.

JICA will assess the appropriateness of the request and will recommend to the Government of Japan for approval.

### 5. Japan's Grant Aid Scheme

5-1. PNG side understands the Japan's Grant Aid Scheme and the necessary measures to be taken by the Government of PNG as explained by the Team and described in Annex- 3 and Annex-4 of the Minutes of Discussions signed by both parties on September 5, 2007.

5-2. PNG side explained to the Team that the necessary measures to be taken by PNG side should be conducted by each organization as shown in Annex-3.

### 6. Schedule of the Study

6-1. The consultants will proceed to further studies in PNG until April 1, 2008.

6-2. JICA will prepare the draft report in English and dispatch a mission in order to explain its contents in August 2008.

6-3. In case that the contents of the report are accepted in principle by the Government



of PNG, JICA will complete the final report and send it to the Government of PNG by the end of October 2008.

## 7. Environmental and Social Considerations

7-1. The Team explained the outline of the JICA Environmental and Social Considerations Guidelines (hereinafter referred to as "the JICA Guidelines") to PNG side. PNG side took the JICA Guidelines into consideration, and shall complete the necessary procedures.

7-2. Both sides confirmed that the Department of Environment and Conservation (DEC) categorized the Project as a Level 2 activity under the "Environment (Prescribed Activities) Regulation 2002" of the Government of PNG, as shown in Annex-4.

7-3. In accordance with the result of categorization, DOW shall prepare necessary documents with support of the Team, and submit the Environment Permit Application to DEC by the end of March 2008, in order to obtain an environment permit before the end of September 2008.

7-4. Both sides confirmed that basic understandings of the local residents for the Project were secured as the result of the stakeholder meetings for each project site held by ABG in September 2007. ABG shall hold stakeholder meetings again to explain the more specific impact including the area necessary for the Project through the Community Coordination Committees organized at each project site. The impact will be reported by the Team at the second field survey in June 2008.

7-5. PNG side shall acquire the consensus on the agreement for implementation of the Project through the stakeholder meetings, including the following articles by the end of July 2008, and report the results in writing to JICA PNG office by the same date.

(1) The stakeholders agree to the use of land necessary for the Project with conditions of the land acquisition procedures of the PNG national law.

(2) The local residents in the Project area will cooperate for the smooth implementation of the Project.

(3) In case any problem arise among local residents concerning the Project, the Community Coordination Committee members should hold meeting(s) and find out an effective solution in continuous communication with ABG and DOW.

## 8. Land Acquisition

ABG shall secure the necessary land for the Project. The land acquisition procedure shall be in accordance with the PNG national law and the expenses of the procedures and the compensation to the local residents should also be borne by ABG. ABG shall complete the land acquisition before the implementation of the Project.





## 9. Other Relevant Issues

9-1. PNG side proposed to organize the Project Coordination Group consisting of DNPM, DOW and ABG for smooth implementation of the Study and the Project. Both sides confirmed that the Project Coordination Group have a meeting again when the Team is dispatched to explain draft report in August 2008.

9-2. PNG side proposed to organize a steering committee, which shall consist of DNPM, DOW, ABG and Internal Revenue Commission (IRC), immediately after the approval of the Project by the Government of Japan, in order to coordinate concerned organizations for smooth implementation of the Project. Both sides confirmed that PNG side shall prepare the outline of the committee, including the purpose, objective and role, and submit it to JICA PNG office by the end of July.

9-3. PNG side confirmed that the following undertakings should be taken by PNG side at PNG side's expenses. The organization in charge for major undertaking is shown in Annex-3.

- Relocation of existing utilities (power, telecommunication lines, water lines, etc.), if necessary,
- Removal of existing bridges and culverts at the Project sites, if necessary,
- Securing and clearance of the temporary yard and land for detour,
- Securing of the site for borrow pit and disposal of waste,
- Maintaining the security of the personnel at the sites and yards for the Project, and
- Maintaining the security of Loloho and/or Kieta ports, in order to unload and stock the construction materials and equipment for the Project.

9-4. There is no overlap of similar support by other donors in the scope of the Project.

9-5. Since the Bougainville Coastal Trunk Road is a National Road, construction permission for the Project is not necessary.

9-6. DOW and ABG shall secure enough budget and personnel necessary for the maintenance of the bridges constructed by the Project.

9-7. PNG side shall submit the answers to the Questionnaire, which the Team handed to PNG side, by March 21, 2008.

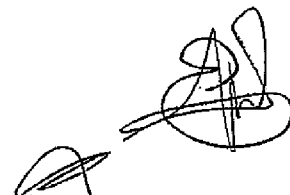

9-8. PNG side shall provide necessary number(s) of counterpart personnel to the Team during the period of the study in PNG.

Annex-1: Location Map and List of Requested Bridges

Annex-2: Organization Chart of DNPM, DOW and ABG

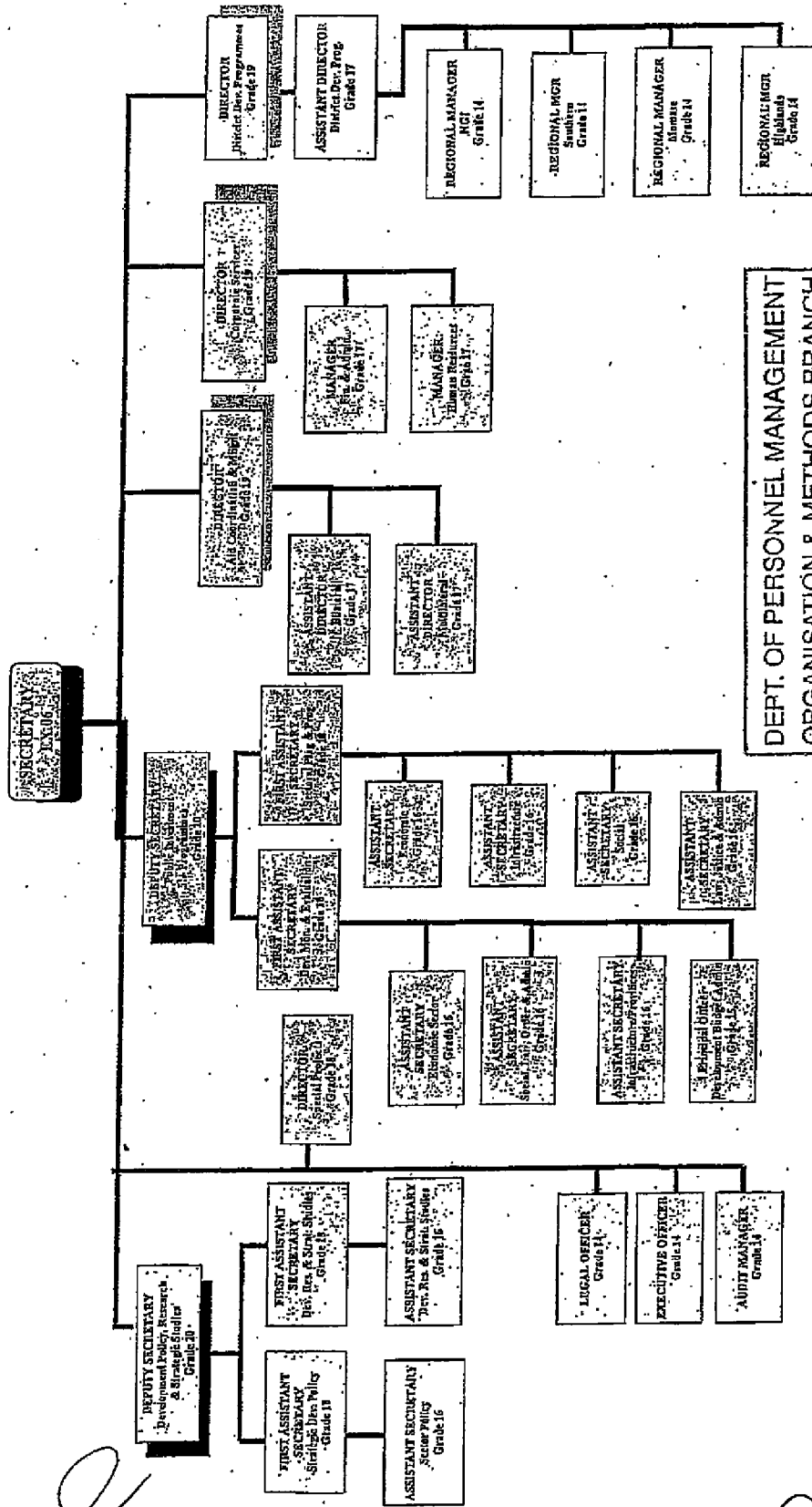
Annex-3: Major Undertaking to be taken by Each Government

Annex-4: Notice to Apply for an Environment Permit



**ORGANISATIONAL AND MANAGEMENT STRUCTURE**

**Department of National Planning and Monitoring**



DEPT. OF PERSONNEL MANAGEMENT  
 ORGANISATION & METHODS BRANCH  
 APPROVED ORG. STRUCTURE  
 DATE 10 / 08 / 06  
 SIGNATURE *[Signature]*

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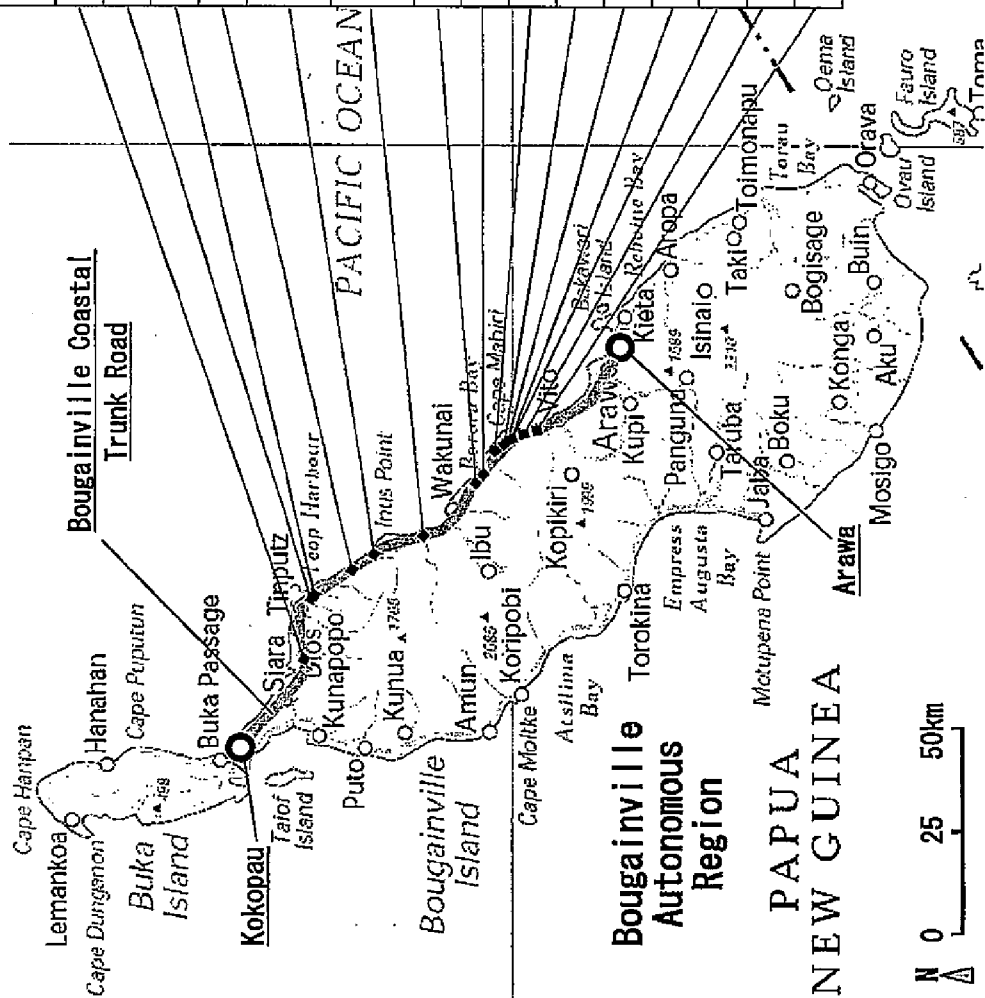
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List of Requested Bridges

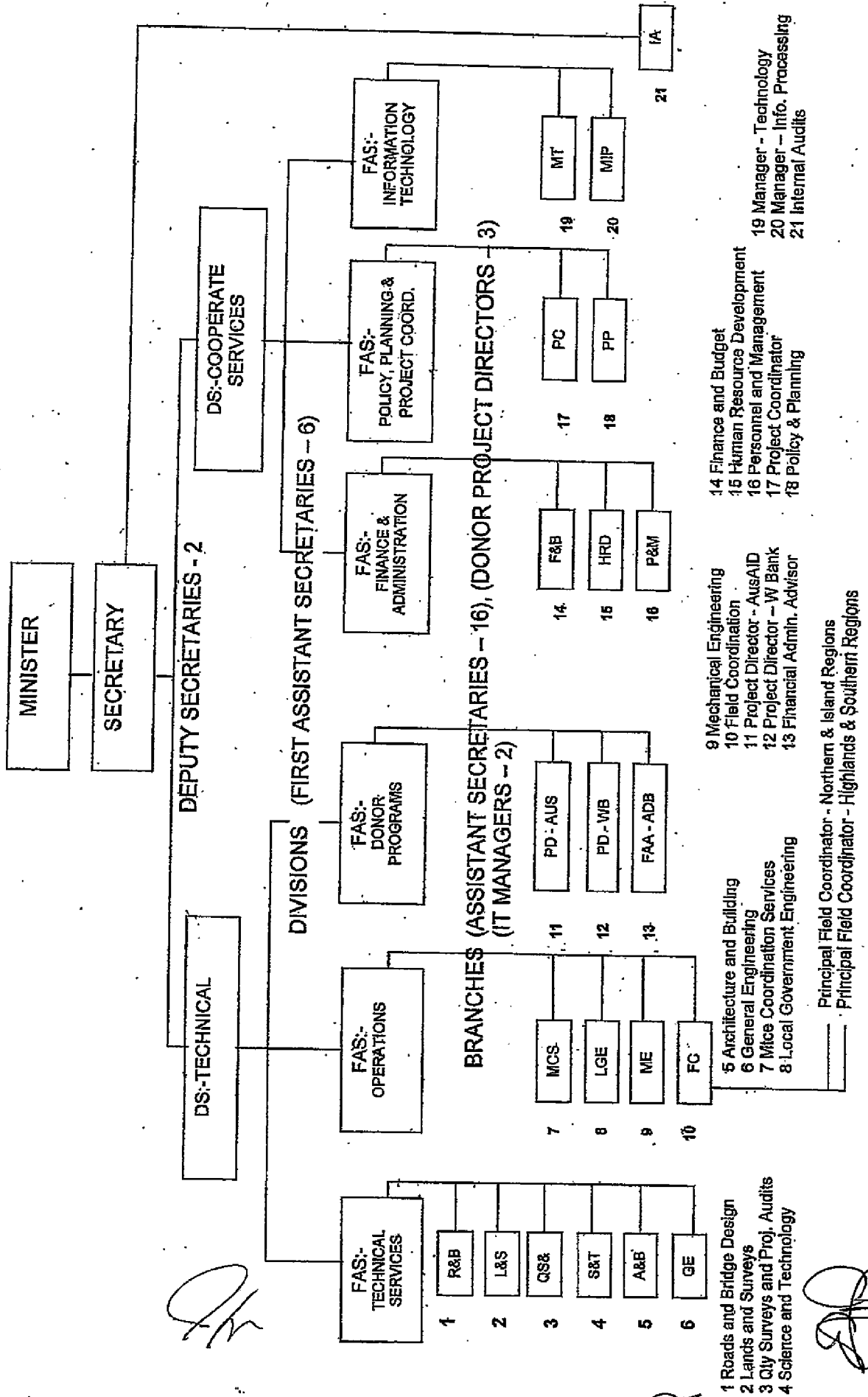
No. & Names of Bridges		Names In the Original Request
	Corrected Names	
35.	Rawa1	Rawa1
31.	Irung	Irung
30.	Warakapis	Tinputz
27.	Rotaovei	Rotaovei
24.	Kaskrus (Additional Request)	Kaskas (Not Requested)
19.	Ururua (Additional Request)	Asitavi (Not Requested)
14.	Malas	Teproi
12.	Korova	Felorovia
11.	Iraka	Ivaka
10.	Ratavi	Mad Water1
9.	Creepers	Mad Water2
8.	Pukarobi 2	Mad Water3
7.	Pukarobi 1	Mad Water4
4.	Bove	Vove
3.	Bakanovi	Vakanovi

Annex-1

Location Map of Requested Bridges

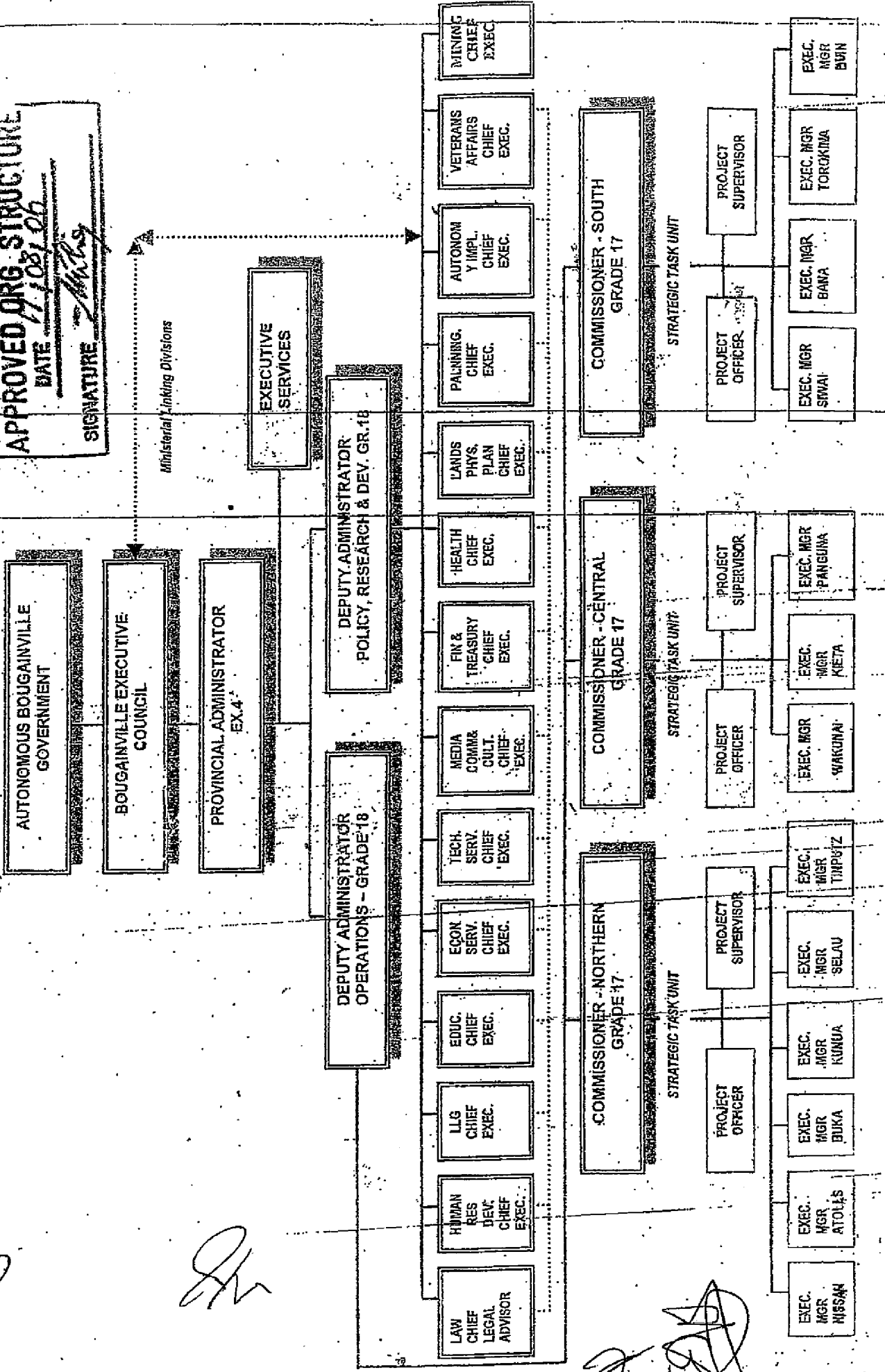


# DEPARTMENT OF WORKS TOP ORGANISATION STRUCTURE



**AUTONOMOUS BOUGAINVILLE ADMINISTRATION  
FUNCTIONAL AND MANAGEMENT STRUCTURE**

DEPT. OF PERSONNEL MANAGEMENT  
ORGANISATION DESIGN BRANCH  
**APPROVED ORG. STRUCTURE**  
DATE 17/08/2012  
SIGNATURE *[Signature]*



Ministerial Linking Divisions

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## Major Undertaking to be taken by Each Government

No.	General Items for Grant Aid Scheme	To be covered by Grant Aid	To be covered by Recipient Side		
			Organization in charge		
			DNPM	DOW	ABG
1	To secure land - Allocation of Budget				● ●
2	To clear, level and reclaim the site when needed - Allocation of Budget				● ●
3	To construct gates and fences in and around the site, if necessary				●
4	To bear the following commissions to the Japanese bank for banking services based upon the Banking Arrangement (B/A)				
	1) Advising commission of Authorization to Pay (A/P)		●		
	2) Payment commission		●		
5	To ensure prompt unloading and customs clearance at the port of disembarkation in recipient country				
	1) Marine and land transportation of the products from Japan to the recipient country	●			
	2) Tax exemption and custom clearance of the products at the port of disembarkation		●	●	
	3) Internal transportation from the port of disembarkation to the project site	●			
6	To accord Japanese nationals, whose services may be required in connection with the supply of the products and the services under the verified contract, such facilities as may be necessary for their entry into the recipient country and stay therein for the performance of their work.		●		
7	To exempt Japanese nationals from customs duties, internal taxes and other fiscal levies which may be imposed in the recipient country with respect to the supply of the products and services under the verified contracts		●		
8	To maintain and use properly and effectively the facilities constructed and equipment provided under the Grant Aid - Allocation of budget			●	● ●
9	To bear all the expenses, other than those to be borne by the Grant Aid, necessary for construction of the facilities as well as for the transportation and installation of the equipment			(●)	●

No.	Specific Items for the Project	To be covered by Grant Aid	To be covered by Recipient Side		
			Organization in charge		
			DNPM	DOW	ABG
10	Submission of Environment Permit Application to DEC - Payment of Application fee and Annual fee, if necessary			●	
11	Explanation of the Project to the stakeholders and acquisition of their consensus on the agreement for implementation of the Project				●
12	Relocation of existing utilities (power, telecommunication lines, water lines etc.), if necessary				●
13	Removal of existing bridges and culverts at the Project sites, if necessary			(●)	(●)
14	Securing and clearance of the temporary yard and land for detour				●
15	Securing of the site for borrow pit and disposal of waste				●
16	Maintaining the security of the personnel at the sites and yards for the Project				●
17	Maintaining the security of Loloho and/or Kieta ports, in order to unload and stock the construction materials and equipment for the Project				●
18	Maintenance of the bridges constructed by the Project - Allocation of Budget - Provision of Personnel			●	●

(●): Organization in charge within its authority



THE INDEPENDENT STATE OF PAPUA NEW GUINEA

NOTICE

Act, Sec. 50

Environment Act 2000

NOTICE TO APPLY FOR AN ENVIRONMENT PERMIT

TO: Department of Works

OF: PO Box 1108, Boroko, National Capital District.

Further to your notice of intention received on 1<sup>st</sup> October 2007 to carry out preparatory work in relation to the "Bridge Construction Project on Bougainville Trunk Road - from Buka to Arawa in North Solomons Province", please note that the proposal is categorized as a Level 2 (Category A) activity Under the Environment (Prescribed Activities) Regulations 2002.

In accordance with Section 60 of Environment Act 2000, you are required to apply for an Environmental Permit for the proposed activity. The application should consist of the following -

1. a completed Permit Application Form and a document containing the main submission, and
2. a Permit Application Fee of K100.00.

Attached is a copy of the Application Form and DEC Technical Guidelines for Water/Land Discharges, Noise Discharges & Air Discharges to assist you in completing and submitting your application.

Take note that the application should comply substantially with the DEC Technical Guidelines in terms of content before an application is lodged with the Director of Environment.

FAILURE TO COMPLY WITH REQUIREMENTS IN THE TECHNICAL GUIDELINES MAY RESULT IN REJECTION OF AN APPLICATION.

Dated: 12<sup>th</sup> October 2007

KELLY GAWI  
Acting Deputy Secretary  
Delegate of the  
Department of Environment and Conservation

encl.



4-2 第2回現地調査時

(平成20年6月24日)



**BOUGAINVILLE ADMINISTRATION**  
**DIVISION OF TECHNICAL SERVICE**  
**DIVISION OF LANDS & PHYSICAL PLANNING**

Telephone: (675) 973 9900

Facsimile : (675) 973 9797

PO Box 322

BUKA Autonomous Region Bougainville

Date: 24th June, 2008

Our Ref

Dear Mr. Yusuke KITAMURA

Representative of Japan International Cooperation Agency, Port Moresby

C.C.

Mr. Mosilayola KWAYAILA

Director, Department of National Planning and Monitoring

Mr. Eric SIKAM

First Assistant Secretary (Technical Service), Department of Works

Ms. Katrina SOLIEN

Acting Manager - EIA, Department of Environment and Conservation

**Re: THE PROJECT FOR CONSTRUCTION OF BRIDGES ON BOUGAINVILLE  
COASTAL TRUNK ROAD**

**Sub: Agreement for land acquisition and/or compensation**

Autonomous Bougainville Government (hereinafter referred to as "ABG") and Department of Works (hereinafter referred to as "DOW") held stakeholder meetings and obtained memorandum of agreements (hereinafter referred to as "MOA") for following objectives at RAWA 1 Bridge and Uruva Bridge at 19<sup>th</sup> and 23<sup>rd</sup> June 2008 with supports from JICA Study Team.

< Objectives of Stakeholder Meeting for the Project >

- a) To obtain stakeholder's consensus for implementation of the project
- b) To obtain stakeholder's agreement to the use of land necessary for the project with conditions of the land acquisition and/or compensation procedures of the Papua New Guinea national laws.
- c) To obtain consensus that in case any problems arise among local residents concerning the project, ABG, DOW and the Community Coordination Committee (hereinafter referred to as "CCC") members will hold meetings and find out an effective solution in continuous communication.



Additionally ABG will hold stakeholder meetings at remaining 13 bridge construction sites by the end of July to get agreement for above objectives.

It is expected that these meetings will be completed and submit MOA and minute of meeting by the end of July 2008.

Furthermore legal certificates\* for land acquisition and/or compensation such as Native Land Dealings (hereinafter referred to as "NLD") will be prepared by August 2009 ( before the implementation of the project).

A processes of land acquisition and compensation is attached in Annex-1 and law based compensation lists by properties are attached in Annex-2.

\*note) In 1970's, the right of way around each bridge on Bougainville Coastal Trunk Road was purchased from past land owners and declared by GoPNG. However these evidences such as NLD have been lost during the civil war in Bougainville Island.

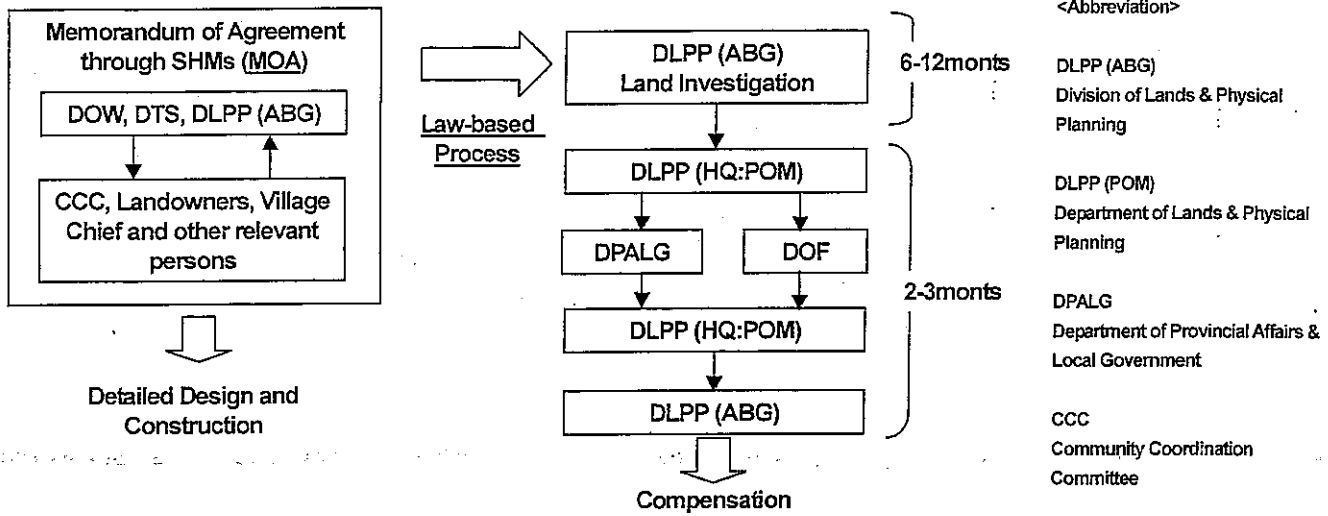
Yours faithfully

John KOLAN  
Administration Chief Executive Officer, Division of Technical Service

Andrew DOVARO  
Chief Executive Officer, Division of Lands and Physical Planning



## Annex-1 Law-based Process for Land Acquisition and Compensation

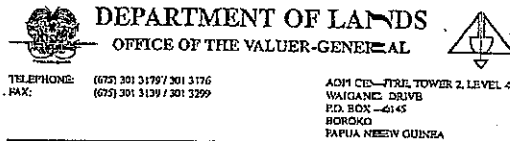


### Law-based Process for Land Acquisition

Source: JICA Study Team (based on interview with DLPP (Division of Lands & Physical Planning))



## Annex-2 Law based Compensation List



TELEPHONE: (675) 301 3199 / 301 3176  
FAX: (675) 301 3139 / 301 3299

AOM CEN—TIRL TOWER 2, LEVEL 4  
WAIGANI DRIVE  
P.O. BOX—6145  
BOROKO  
PAPUA NEW GUINEA

### VALUER-GENERAL

#### PRICE SCHEDULE FOR ACQUISITION OF TREES AND PLANTS ALL REGIONS

MARCH 2000

#### 1. INTRODUCTION

The values and prices in this schedule are to be considered as guidelines for general use as local conditions and scarcity/abundance will affect the value of a particular item.

Field officers are to exercise care when collecting and collating data that fairness to all parties prevails unconditionally. Any person or group aggrieved by a specific tree or plant price should write to the Valuer-General giving reasons why the price is contested.

If it is agreed by all parties concerned, then evaluation of trees and plants over large areas can be simplified by performing sample counts in defined areas and then extrapolating to reach an acquisition rate on a per hectare basis.

Where there is disagreement over the authenticity, importance, or extent of any sacred site the matter should be referred to the Valuer-General, who may in turn refer the matter to an appropriately qualified person or organisation for adjudication.

These guidelines are reviewed on an annual basis by a committee chaired by the Valuer-General with representatives from:

- (i) Government Departments - Mining, Petroleum and Energy, Provincial and Local-level Government Affairs, and Transport and Works;
- (ii) Statutory Authorities - Elcom, Telikom and the Papua New Guinea Forest Authority;
- (iii) PNG Chamber of Mines and Petroleum.

In conducting its review, the committee uses the CPI and other economic indicators as a reference where any increase is being considered.

#### 2. CLASSIFICATION OF TREES BY SIZE

##### 2.1 Forest and Other Large Trees (Category D) = 75% of value

For all naturally occurring trees that normally grow to a large size, the maturity will be determined by measurement of trunk diameter as follows:-

- (a) Trees with a diameter 6 centimetres to 15 centimetres shall be deemed to be small trees, and
- (b) Trees with a diameter 15 centimetres to 60 centimetres shall be deemed to be medium trees, and
- (c) Trees with diameter greater than 60 centimetres shall be deemed to be mature trees.

The trunk diameter measurement is to be made at a height of 2.00 metres above the ground level; and trees that do not reach a height of 2.00 metres shall not be the subject of compensation claims.

#### Cash Crop

##### 2.2 Tree Crops (Category A)

Tree crops such as citrus trees, coffee, cocoa, coconut palms, oil palms and rubber (which does not bear fruit but at a certain age is tapped) shall be assessed as follows:-

- (a) Trees less than 1 year old, or less than 6 centimetres diameter 1.00 metre above ground level, shall be deemed to be seedlings, and
- (b) Trees from seedling up to 2 years old shall be deemed to be small trees, and
- (c) Trees over the age of 2 years up to bearing stage shall be deemed to be medium trees, and
- (d) Trees that are fully grown and bearing fruit shall be deemed to be mature trees.
- (e) Coconut palm trees from 1 year up to 5 years shall be deemed to be small trees, and
- (f) Coconut palm trees over 5 years to bearing stage shall be deemed to be medium trees, and
- (g) Coconut palm trees that are fully grown and bearing shall be deemed to be mature trees.
- (h) Oil palm trees from 1-3 years shall be deemed to be small trees, and
- (i) Oil palm trees over 3 years up to bearing stage shall be deemed to be medium trees, and
- (j) Oil palm trees that are fully grown and bearing (over 7 years old) shall be deemed to be mature trees.

##### 2.3 Other Trees (Category B1) = 25% of value

Trees in Category B1 shall be assessed by mutual agreement between the parties concerned using the following guidelines:

- (a) Seedlings: planted or tended seedlings up to 6 months old.
- (b) Small trees: those trees between seedling and bearing stage.
- (c) Medium trees: those trees that have commenced to bear but are not fully mature.
- (d) Mature trees: those trees in full bearing.



### B2. Clump Plants and Trees

	Kina		
	Small	Medium	Large
Bamboo (Use As Building Material) <sup>(1)</sup>	5.00	10.00	20.00
Bamboo (Use As Cooking Pot) <sup>(1)</sup>	3.50	7.00	15.00
Bambon (Edible Shoots) <sup>(1)</sup>	3.50	7.00	15.00
Banana	5.00	10.00	20.00
Fern Plant (Edible Leaves)	0.40	0.80	1.50
Pitpit	0.80	1.50	3.00
Pitpit - Wild	0.10	0.20	0.30
Rattan Cane	1.00	2.50	5.00
Sago - Edible <sup>(2)</sup>	7.00	15.00	30.00
Sago - Non Edible <sup>(2)</sup>	5.00	10.00	20.00
Sugarcane	2.50	5.00	10.00
Tangets	0.20	0.50	1.00

Notes: Small, medium and large refer to the size of the clump.

(1) Where wild scrambling bamboo covers an area greater than 1 hectare, the value may be assessed on a kina per hectare basis. (see Category B3)

(2) Where sago palms grow wild or sago palms cover an area greater than 1 hectare, the value may be assessed on a kina per hectare basis. (see Category B3)

### B3. Plants and Trees by Area

Kunoi Grass	K30.00/hectare
Wild Bamboo (Scrambling or Small Clump)	K10.00/hectare
Watercress (including Similar Creeping Crops)	K2.00/m <sup>2</sup>
Wild Sago or Sago Covering Large Areas	K30.00/hectare

### 3.3 Category C - Edible Plants

#### C1. Single Plants

	Kina		
	Small	Medium	Mature
Aibika (Edible Leaves - Greens)	0.50	1.00	2.00
Bean (All Species)	0.20	0.50	1.00
Black Kumu (Edible Greens)	0.10	0.30	0.50
Broccoli	0.50	1.00	2.00
Cabbage (Chinese)	0.30	0.50	1.00
Cabbage (Round)	0.50	1.00	2.00
Capsicum	0.20	0.50	1.00
Carrot	0.20	0.50	1.00
Corn	0.20	0.50	1.00
Cauliflower	0.50	1.00	2.00
Cucumber	0.20	0.80	1.50
Egg Plant	0.20	0.80	1.50
Ginger	0.10	0.30	0.50
Lettuce	0.50	0.80	1.00
Onion (i) Spring	0.10	0.30	0.50
Onion (ii) Round	0.50	0.80	1.00
Peanut	0.10	0.30	0.50
Pineapple	0.50	1.50	3.00
Radish (Edible Root)	0.20	0.50	1.00
Soya Bean	0.20	0.30	0.50
Strawberry (Palpy Red Berry)	0.20	0.50	1.00
Taro	0.50	2.50	5.00
Taro Kongkong	0.40	2.00	4.00
Tomato	0.20	0.50	1.00
Yam	0.30	1.50	3.00

#### C2. Vines or Clump Plants

	Kina		
	Small	Medium	Mature
Cassava (Clump, Edible)	0.30	1.00	2.00
Ginger (Clump)	0.10	0.30	0.50
Passion Fruit (Vine)	0.20	0.50	1.00
Pepper Vines (Daka)	0.50	1.50	3.00
Pumpkin (Vine)	0.30	1.00	2.00
Water Melon (Vine)	0.30	1.00	2.00

Notes: Small, medium and large refer to the size of the clump or vine growth.

### C3. Mound Plants

	Kina		
	Small (<0.75m)	Medium (0.75-1.50m)	Large (>1.50m)
English Potato	1.00	2.00	4.00
Sweet Potato	1.00	3.00	6.00

Notes: Small, medium and large refer to the diameter of the mound.

### 3.4 Category D - Forest Trees

	Kina		
	Small	Medium	Mature
Hardwood (All Species)	5.00	9.00	18.00
Semi-Hardwood (All Species)	3.00	6.00	12.00
Lesser Known Timber Species	1.50	3.50	7.50
All Other Trees	0.50	1.50	3.00
Pine Tree	5.00	20.00	45.00
Canoe Tree <sup>(1)</sup>	10.00	50.00	100.00

Notes: (1) A canoe tree must be a tree customarily used as the principal timber for the construction of canoes within the area concerned. Any specific canoe tree must be within a realistic distance of the water body where the canoe is to be launched.

### 3.5 Category E - Miscellaneous

	Kina		
	Small	Medium	Large
Wild Fowl (Nesting Mound)	2.00	4.00	6.00
Man Made Fish Pond	K2/m <sup>2</sup>		
Ceremonial Grounds (i) 1-5 hectares	K1,200/hectare		
Ceremonial Grounds (ii) Over 5 hectares	K800/hectare		
Grave Site (Value Per Site) <sup>(1)</sup>	K100/unmarked, K200/marked grave site		
Sacred Site	K600/hectare		
River Gravel and Stone	In accordance with rates paid in that area by the Provincial Works Office		

Notes: (1) A grave site covers a single site or multiple graves together.

(平成20年10月9日)

MINUTES OF DISCUSSIONS  
ON THE BASIC DESIGN STUDY  
ON  
THE PROJECT FOR CONSTRUCTION OF BRIDGES  
ON BOUGAINVILLE COASTAL TRUNK ROAD  
IN THE INDEPENDENT STATE OF PAPUA NEW GUINEA  
(EXPLANATION ON DRAFT REPORT)

In March 2008, the Japan International Cooperation Agency (hereinafter referred to as "JICA") dispatched the Basic Design Study Team on the Project for Construction of Bridges on Bougainville Coastal Trunk Road (hereinafter referred to as "the Project") to the Independent State of Papua New Guinea (hereinafter referred to as "PNG"), and through discussions, field survey, and technical examination of the results in Japan, JICA prepared the draft report of the study.

In order to explain and to consult with the officials concerned of the Government of PNG on the components of the draft report, JICA sent to PNG the Basic Design Explanation Team (hereinafter referred to as "the Team" ), which was headed by Yusuke Kitamura, Resident Representative of JICA PNG Office, from October 6 to 10, 2008.

As a result of discussions, both sides confirmed the main items described in the attached sheets.

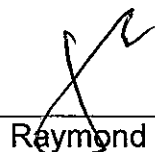
Port Moresby, October 9, 2008



Yusuke Kitamura  
Leader  
Basic Design Explanation Team  
Japan International Cooperation Agency  
Japan



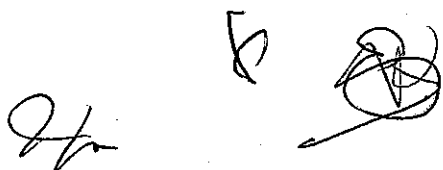
Kingsley Lore  
Acting Director  
Aid Policy & Coordination Directorate  
Department of National Planning and Monitoring  
PNG



Raymond Masono  
Acting Chief Administrator  
Autonomous Bougainville Government  
PNG



Eric Sikam  
First Assistant Secretary (Technical Services)  
Department of Works  
PNG



## ATTACHMENT

### 1. Components of the Draft Report

PNG side agreed and accepted in principle the contents of the Draft Report of the Basic Design Study explained by the Team.

### 2. Japan's Grant Aid Scheme

PNG side understands the Japan's Grant Aid scheme and the necessary measures to be taken by the Government of PNG as described in Annex-1 of the Minutes of Discussions and in Annex-3 and Annex-4 of the Minutes of Discussions signed on September 5, 2007.

### 3. Schedule of the Study

JICA will complete the Final Report in accordance with the confirmed items and send it to the Government of PNG by the end of November, 2008.

### 4. Other Relevant Issues

4.1. The Project Cost Estimation, as attached in Annex-2, is confidential and should never be duplicated or disclosed to any outside parties before the signing of all the contracts for the Project.

4.2. PNG side ensured that tax exemption for the Project shall be fulfilled in a timely manner, as a condition for the Japan's Grant Aid to be implemented.

4.3. Department of Works (hereinafter referred to as "DOW") already obtained Environment Permit for implementation of the Project as attached in Annex-3. DOW shall continue required activities for environmental and social consideration, such as mitigation measures and monitoring based on Environment Permit documents.

4.4. The following undertakings should be taken by the PNG side at its own expenses.

(1) PNG side shall maintain the security at relevant area for the Project including the construction sites and the Kieta port for the safety implementation of the Project during the construction.

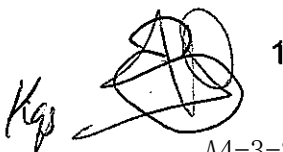
(2) Autonomous Bougainville Government (hereinafter referred to as "ABG") shall maintain and repair the existing road and the facilities including the causeway at Rawa-2 and Uruavi-2 for the smooth access to the construction sites.

(3) ABG shall remove the existing bailey bridge at Ururva before the beginning of construction.

(4) PNG side shall bear the banking commissions as a condition for the Japan's Grant Aid to be implemented. Department of National Planning and Monitoring (hereinafter referred to as "DNPM") should secure the sufficient budget to cover the following cost.

1) The commissions for the banking services based upon Banking Arrangement (B/A)

2) The advising commission of the Authorization to Pay (A/P).



4.5. Both sides confirmed to organize the Steering Committee immediately after the approval of the Project by the Government of Japan for smooth implementation of the Project. The outline of the Steering Committee is as follows.

(1) Purpose

- To coordinate for smooth implementation of the Project.

(2) Role

- To share the Project information through establishment of the liaison network among the members.
- To solve the issues that may arise in the course of the Project implementation.

(3) Member

The members of the Committee are shown in Annex-4.

DNPM plays the role of the chairmanship.

4.6. PNG side shall secure enough budget and personnel necessary for maintenance of the bridges constructed by the Project.

Annex-1: Major Undertakings to be taken by Each Government

Annex-2: Project Cost to be borne by Japan's Grant Aid

Annex-3: Environment Permit

Annex-4: Members of the Steering Committee



## Major Undertakings to be taken by Each Government

No.	General Items for Grant Aid Scheme	To be covered by Grant Aid	To be covered by Recipient Side		
			Organization in charge		
			DNPM	DOW	ABG
1	To secure land - Allocation of Budget				● ●
2	To clear, level and reclaim the site when needed - Allocation of Budget				● ●
3	To construct gates and fences in and around the site, if necessary				●
4	To bear the following commissions to the Japanese bank for banking services based upon the Banking Arrangement (B/A)				
	1) Advising commission of Authorization to Pay (A/P)		●		
	2) Payment commission		●		
5	To ensure prompt unloading and customs clearance at the port of disembarkation in recipient country				
	1) Marine and land transportation of the products from Japan to the recipient country	●			
	2) Tax exemption and custom clearance of the products at the port of disembarkation		●	●	
	3) Internal transportation from the port of disembarkation to the project site	●			
6	To accord Japanese nationals, whose services may be required in connection with the supply of the products and the services under the verified contract, such facilities as may be necessary for their entry into the recipient country and stay therein for the performance of their work.		●		
7	To exempt Japanese nationals from customs duties, internal taxes and other fiscal levies which may be imposed in the recipient country with respect to the supply of the products and services under the verified contracts		●		
8	To maintain and use properly and effectively the facilities constructed and equipment provided under the Grant Aid - Allocation of budget			● ●	● ●
9	To bear all the expenses, other than those to be borne by the Grant Aid, necessary for construction of the facilities as well as for the transportation and installation of the equipment			(●)	●

*J/ho*

*Ky*

No.	Specific Items for the Project	To be covered by Grant Aid	To be covered by Recipient Side		
			Organization in charge		
			DNPM	DOW	ABG
10	Submission of Environment Permit Application to DEC - Payment of Application fee and Annual fee, if necessary			● ●	
11	Explanation of the Project to the stakeholders and acquisition of their consensus on the agreement for implementation of the Project				●
12	Relocation of existing utilities (power, telecommunication lines, water lines etc.), if necessary				●
13	Removal of existing bridges and culverts at the Project sites, if necessary			(●)	(●)
14	Securing and clearance of the temporary yard and land for detour				●
15	Securing of the site for borrow pit and disposal of waste				●
16	Maintaining the security of the personnel at the sites and yards for the Project				●
17	Maintaining the security of Loloho and/or Kieta ports, in order to unload and stock the construction materials and equipment for the Project				●
18	Maintenance of the bridges constructed by the Project - Allocation of Budget - Provision of Personnel			● ● ●	● ● ●

(●): Organization in charge within its authority

*Jhr*

*J* 

## Project Cost to be Borne by Japan's Grant Aid

The total project cost necessary to implement the Project is estimated at 3,191.1 Million Yen. The costs to be borne by both governments, Japan and PNG, as described in the draft report of the Basic Design Study and respective details are estimated as follows on the conditions shown in (3) below.

**(1) Cost borne by the Government of Japan**

Total Cost : approximately 3,186.8 Million Yen

Item			Estimated Cost (Million Yen)
Facility	Bridge	Total	2981.8
		Substructure	864.7
		Superstructure	1371.7
		Revetment	357.8
		Approach road	387.6
Detailed Design /			52.8
Construction & Supervision			152.2

Notes:

The cost estimates in the above table are provisional and will be further examined by the Government of Japan for the approval of the Grant.

**(2) Cost borne by the Government of PNG**

Total Cost : approximately 102,905 Kina (Approximately 4.3 Million Yen)

- 1) Removal of the existing bridges      26,000 Kina (app. 1.1 Mil.Yen)
- 2) BA/AP      76,905 Kina (app. 3.2 Mil.Yen)

**(3) Conditions in Cost Estimate**

- 1) Time of Cost Estimate: April, 2008
- 2) Exchange Rate: 1 US Dollar = 110.44 Yen    1 Kina = 41.61 Yen
- 3) Construction Period: approximately 30 months
- 4) Cost estimate is implemented in accordance with the guideline of Japan's Grant Aid.

Handwritten signatures and initials in black ink, including a large stylized signature and several smaller initials.

# Environment Permit



THE INDEPENDENT STATE OF PAPUA NEW GUINEA

Environment Act 2000

Act No. 57 of 2000  
Reg. No. 1997

## ENVIRONMENT PERMIT

An Environment Permit is hereby issued under Section 65 of the Environment Act 2000

TO: Department of Works

OF: P.O. Box 1108, Boroko, National Capital District, Port Moresby

(a) to carry out works associated with construction or refurbishment of bridges at Bekarova, Bove, Pukarobi 1, Pukarobi 2, Creepers, Ratawi, Inaka, Koveva, Kalia, Urupia, Kaskiris, Retaovai, Wairikapi, Iung, and Rawa ("premises") along the Bougainville Coastal Trunk Road in the Autonomous Region of Bougainville.

(b) to discharge waste into the environment from the premises while carrying out a Level 2 (Category A) activity associated with construction or refurbishment of bridges which would result in discharge of waste into water or onto land in such a way that it results in the waste entering water.

The activities shall be carried out in accordance with the terms conditions of this permit.

Permit Number:	WD/E2A/17/1
Date of Issue:	7 <sup>th</sup> May 2009
Date of Commencement:	3 <sup>rd</sup> June 2008
Term of Permit:	Five (5) years
Date of Expiry:	2 <sup>nd</sup> June 2013

KELLY GAWI  
Director of Environment

## INTERPRETATIONS

**DEC:** mean the Department of Environment and Conservation

**Director/Director of Environment:** means the Secretary or the Head of the Department of Environment and Conservation. The term is used to ensure consistency with the designation provided in s. 16 of the Environment Act 2000 and its roles and functions under s. 16 of the Act.

**Domestic Wastewater:** means grey water and sewage.

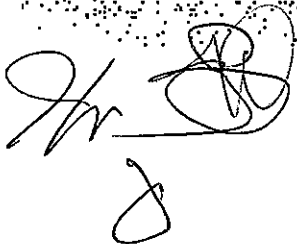
**Environment Act/the Act:** means the Environment Act 2000 (as amended) and any Environmental Policies and Regulations made thereunder.

**Permit:** means the Environment Permit issued under Section 65 of the Environment Act 2000. The permit authorizes the commencement of works and the discharge of wastes from the premises whilst carrying out works associated with construction or refurbishment of bridges.

**Permit Holder:** refers to the Department of Works

**Premises:** refers to the area within the locality of the bridges at Bakanovi, Bova, Pukarabi 1, Pukarabi 2, Creaspers, Ratavi, Iraka, Korova, Mala, Uinua, Kaskrus, Rotove, Wankapa, Iung, and Rawai ("premises") along the Bougainville Coastal Trunk Road in the Autonomous Region of Bougainville that are defined by the following grid reference - Location (1): refers to Bakanovi bridge located within 155°23'47.020"E and 6°05'38.142"S; Location (2): refers to Bova bridge located within 155°24'15.720"E and 6°04'05.616"S; Location (3): refers to Pukarabi 1 bridge located within 155°22'03.150"E and 6°00'12.348"S; Location (4): refers to Pukarabi 2 bridge located within 155°21'38.852"E and 5°59'44.832"S; Location (5): refers to Creaspers bridge located within 155°21'31.488"E and 5°59'28.530"S; Location (6): refers to Ratavi bridge located within 155°21'27.918"E and 5°59'18.544"S; Location (7): refers to Iraka bridge located within 155°19'42.678"E and 5°57'05.956"S; Location (8): refers to Korova bridge located within 155°19'09.918"E and 5°57'02.416"S; Location (9): refers to Mala bridge located within 155°18'50.004"E and 5°54'35.784"S; Location (10): refers to Uinua bridge located within 155°11'09.160"E and 6°51'33.180"S; Location (11): refers to Kaskrus bridge located within 155°09'48.988"E and 5°39'38.360"S; Location (12): refers to Rotove bridge located within 156°04'51.240"E and 5°37'00.252"S; Location (13): refers to Wankapa bridge located within 155°01'15.960"E and 6°33'57.660"S; Location (14): refers to Iung bridge located within 155°00'30.000"E and 5°33'38.124"S and Location (15): refers to Bakanovi bridge located within 154°54'46.992"E and 5°32'36.502"S

**Works:** means vegetation clearance, earth works, removal of old culvert debris and carrying out works associated with the refurbishment and construction of bridges within the premises.



## TERMS AND CONDITIONS OF ENVIRONMENT PERMIT

### Annual Charge

The annual charge under this Permit is = K1,020,00

This charge is based on the following fees -

- a) **Rainfall Runoff** runoff containing sediments construction phase = K1,000,00
- b) **Annual Fees** annual (administration) fee for Level 2A activity = K20,00

### Conditions

#### General

1. The Permit Holder shall carry out works associated with the refurbishment and construction of bridges in accordance with the plans and specifications in the environment permit application unless otherwise specified through a condition of this permit.
2. In the event of an inconsistency between the permit application and a condition of this permit, the condition of this permit will apply.

#### Works

##### Bridge Construction

3. The Permit Holder shall carry out works associated with the refurbishment and construction of 15 bridges along the Bougainville Coastal Trunk Road between Kokopau and Arara in the Bougainville Autonomous Region.

##### Waste Treatment Facilities

##### Septic Tank

4. The Permit Holder shall construct a septic tank with a soak-away trench not less than 100m from the nearest surface water for treatment of domestic wastewater.

##### Landfill

5. The Permit Holder shall construct a landfill not less than 100m from the nearest watercourse for disposal of solid wastes.

#### Operation

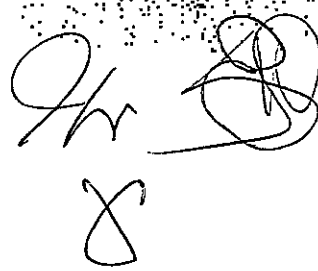
##### Erosion Control

6. The Permit Holder shall design and apply appropriate measures to prevent soil erosion and minimize sediment runoff into watercourses at the premises. The measures shall include but not limited to use of cut-off drains, velocity control techniques, sediments traps, ground cover (natural, e.g. grass growing or artificial, e.g. plastic sheets), sedimentation traps and limited vegetation clearing.

#### Waste Management

##### Wastewater

7. The Permit Holder shall ensure that all domestic wastewater from the premises are directed to the septic tank referred to in Condition 4 for treatment prior to disposal.
8. The Permit Holder shall employ waste minimization strategy (avoid, reduce, recycle, treatment, disposal) in managing the waste streams from the quarry.



Solid Waste

9. The Permit Holder shall ensure that all solid wastes are collected and disposed at the designated landfills.

Air Emission

10. The Permit Holder shall employ appropriate control measures to minimize aerial emissions produced by the machinery and equipment used for the bridge construction from the premises. Dust should be controlled using dust suppressants including water sprays.
11. The Permit Holder shall not generate offensive odour from the premises.

Noise

12. The Permit Holder shall ensure that noise levels from the premises are minimized through the use of appropriate noise control measures. These abatement measures may include noise barriers, attenuation of sound from vehicles and equipment, etc.

Runoff Control

13. The Permit Holder shall segregate rainfall runoff from the fuel and chemical storage areas used during the bridge construction by diverting clean runoff from these areas in order to avoid cross-contamination.

Waste Fuel Oil

14. The Permit Holder shall ensure that waste oil from the machinery and fuel storage facilities are reused and/or disposed by incineration and/or removed for reprocessing where appropriate.

Monitoring

15. The Permit Holder shall carry out regular checks on machinery and equipment used for quarrying to ensure that they are in good working condition so as to minimize noise and air emissions.
16. The Permit Holder shall carry out routine monitoring of air, noise and waste generation to detect non-compliance at early stages and apply corrective measures to minimize impacts.
17. The Permit Holder shall carry out regular checks on measures taken to minimize soil erosion and discharge of sediments (Condition 12) to ensure their treatment efficiency.

Rehabilitation

18. The Permit Holder shall perform land forming and re-vegetation activities at the end of the bridge rehabilitation and construction operation. All stockpile areas shall be rehabilitated and re-vegetated.

Reporting

19. The Permit Holder shall submit summary monitoring reports every three months and an Environmental Performance Report to the Director at the end of each calendar year or other reports as directed by the Director for evaluation and compliance. The reports may include but not limited to:
- a) Raw data (analyzed by certified laboratories) from monitoring programs;
  - b) Interpretation of raw data;
  - c) Evidence of non-compliance and reasons, and;
  - d) Status of compliance with the other conditions of the permit.
20. The Permit Holder shall notify the Director on any significant environmental incident that occurs in relation to the discharge of waste from the construction of the fifteen (15) bridges.

## Members of the Steering Committee

### Department of National Planning and Monitoring (DNPM)

Paul Enny	Director - Aid Policy & Coordination Directorate
Gregory Ume	Assistant Secretary - Infrastructure
Jenny Tumun	Aid Coordinator Japan Desk

### Department of Works (DOW)

Eric Sikam	First Assistant Secretary, Technical
Wilfred Peko	Assistant Secretary, Roads & Bridges

### Department of Foreign Affairs (DOFA)

Frank Mizinki	Assistant Director, Eco Cooperation
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### Internal Revenue Commission (IRC)

Garry Zufa	Assistant Commissioner, Customs
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### Autonomous Bougainville Government (ABG)

Raymond Masono	Acting Chief Administrator
John Kolan	Chief Executive Officer, Technical Services
Leslie Tseraha	Chief Executive Officer, Planning
Peter Nesatt	Assistant Commissioner, Police





## 5. 事業事前計画表（基本設計時）

1. 案件名
パプアニューギニア独立国 ブーゲンビル海岸幹線橋梁整備計画基本設計調査
2. 要請の背景（協力の必要性・位置付け）
<p>パプアニューギニア独立国（以下「パ」国という）は太平洋に位置し、国土面積 46.2 万km<sup>2</sup>、人口 619 万人を有する。金、銅、石油等の資源にも恵まれ 1975 年の独立以来、域内における中心的国家の一つである。ブーゲンビル島はニューギニア島の東方に位置し、面積 1.0 万km<sup>2</sup>、人口約 21 万人を有する火山島で、コブラやカカオの栽培、銅鉱業等が主な産業である。同島では 1988 年末に分離独立運動が起こり、ブーゲンビル独立派と「パ」国政府軍との間で武力衝突が繰り返された。2001 年には「ブーゲンビル平和合意」が署名され、武器回収・処分が進められるとともに、2005 年には自治選挙が実施され、ブーゲンビル自治州政府（ABG）が発足した。ようやく政情・治安は落ち着いたものの、分離独立運動の間に破壊された主要インフラの損傷は大きく、ブーゲンビル地域の生産活動・経済活動の復興にはインフラの復旧が不可欠である。</p> <p>「パ」国は、国家戦略として「中期開発戦略（2005-2010）」を定め、輸送インフラの復興と維持・管理を含む 7 つの支出優先項目への戦略的予算配分を目指すこととし、交通分野についてはインフラ新設を含む「国家運輸開発計画（2001-2010）」（NTDP）が策定された。しかしながら、政府予算は限られているため、既存施設の補修・維持管理に留まっているのが実情である。ABG は、「パ」国の計画と関連付けた「ブーゲンビル自治州政府開発戦略計画（2006-2010）」を策定し、住民生活の再建と社会経済の復興に向け、基礎的公共サービスの提供と基礎インフラの補修を進めており、復旧の途にある。</p> <p>本件対象橋梁が位置するブーゲンビル海岸幹線道路は、ブーゲンビル自治州政府が置かれているブカの対岸、ココパウとかつての州都アラワを結び、更に島南部に延びる主要幹線道路であり、同島の経済社会の復興・発展に不可欠な路線である。また、同幹線道路は「パ」国の NTDP において最重要国道の一つに位置づけられているとともに、ABG の開発戦略の最重要課題であるインフラ整備の最優先対象とされている。しかしながら、同幹線道路上には、橋梁あるいはカルバートが破損、または架橋されていない箇所が 15 箇所あり、そこでは河川部浅瀬の渡河を余儀なくされ、交通の障害となっている。「パ」国政府は、幹線道路上のこの 15 橋について無償資金協力の要請を行った。</p> <p>本無償協力案件は、その規模から「パ」国政府独自の予算により行うことは極めて困難である。しかし、本無償協力案件により 15 橋全てを整備することで、ブーゲンビル海岸幹線道路はその機能を発揮し、住民生活の安定と社会経済の復興に大きく寄与するものであり、本無償協力案件の整備効果は極めてものと高いといえる。</p>

### 3. プロジェクト全体計画概要

(1) プロジェクト全体計画の目標（裨益効果の範囲及び規模）

ココパウ、アラワ間の安全で安定した交通が確保される。

裨益範囲：ブーゲンビル島全域

裨益人口：約 211,000 人(2006 年)

(2) プロジェクト全体計画の成果

ア 15 橋すべてが恒久施設として整備される。

イ 洪水に抵抗できる取付道路、護岸が整備される。

ウ 路線全体の道路が安全走行可能な状態に維持される

(3) プロジェクト全体計画の主要活動

ア 渡河施設未設置箇所 15 箇所に恒久的な橋梁建設を行う。

イ 橋梁及び取付道路の盛土区間を保護するための護岸工、排水工、舗装工を実施する。

ウ 道路、橋梁及び交差河川の維持管理体制を整える。

(4) 投入（インプット）

ア 日本側（=本案件）：無償資金協力 31.98 億円

イ 「パ」国側：

・ 本無償資金協力案件の実施に係わる負担額 : 0.05 億円

・ 本無償資金協力案件対象施設の改修後の維持管理経費 : 0.10 億円

(年間換算)

(5) 実施体制

主管官庁：国家計画・モニタリング省（DNPM）

実施機関：公共事業省（DOW）

ブーゲンビル自治政府（ABG）

### 4. 無償資金協力案件の内容

(1) サイト

「パ」国ブーゲンビル島 海岸幹線道路ココパウ～アラワ間

(2) 概要

本無償資金協力により建設される施設は以下の 15 橋梁と各取付道路である。

No	Name	構造形式	橋長(m)	基礎工	摘要
1	Bakanovi	橋梁	75	杭基礎	
2	Bove	橋梁	20	杭基礎	
3	Pukarobi 1	橋梁	25	杭基礎	
4	Pukarobi 2	橋梁	50	杭基礎	
5	Creepers	橋梁	20	杭基礎	
6	Ratavi	橋梁	50	杭基礎	
7	Iraka	橋梁	75	杭基礎	
8	Korova	橋梁	20	杭基礎	
9	Malas	橋梁	20	杭基礎	
10	Ururva	橋梁	20	杭基礎	
11	Kaskrus	橋梁	25	直接基礎	河床直下より支持層（集塊岩あるいは、締まった砂礫層）が認められる
12	Rotaovei	橋梁	40	直接基礎	
13	Warakapis	橋梁	25	直接基礎	
14	Irung	橋梁	40	直接基礎	
15	Rawa 1	橋梁	40	直接基礎	

(3) 相手国側負担事項

- ・ 建設用地および工事用ヤードの確保
- ・ 工事用道路（迂回路）用地の確保
- ・ 既設橋梁の撤去（Ururva 橋）
- ・ 既設構造物の維持管理（Rawa2, Uruavi2）
- ・ B/A, A/P 開設費用

(4) 概算事業費

概算事業費 32.03 億円（無償資金協力 31.98 億円、「パ」国負担 0.05 億円）

(5) 工期

詳細設計、入札期間を含め約 37 ヶ月（予定）

(6) 貧困、ジェンダー、環境及び社会面の配慮

原住民の住居移転、用地買収が発生しないよう本無償資金協力により建設される施設（橋梁および取り付け道路）は、既存道路用地内（用地幅 30m）で構築する。各橋梁建設現場付近の地域住民による関係者会議（ステークホルダーミーティング）を開き、整備の内容を公開し、事業の実施に対する同意を書面で取り付けた。

5. 外部要因リスク（プロジェクト全体計画の目標達成に関して）

- ・ 「パ」国内の政情・治安が悪化しない。

- ・ 想定外の自然災害が発生しない。(施工時の大規模な洪水等)

#### 6. 過去の類似案件からの教訓の活用

特になし。

#### 7. プロジェクト全体計画の事後評価に係る提案

##### (1) プロジェクト全体計画の目標達成を示す成果指標

成果指標	2008年時点	施工完了後
河床走行の解消	15箇所河床を走行している。	河床走行箇所は、無くなる。
洪水時の待機時間	増水により年間30日の通行止めが生じている。	河川部での通行止めが解消される。
走行時間の短縮	ココパウ、アラワ間で5時間から6時間を要している。	走行時間が30分から1時間短縮される。
交通費の提言	特殊車両で人員輸送を行っているため、ココパウ、アラワ間で往復100キナ	車両の多様化で運賃が低減する。
農産物生産高	2006年の農産物生産高： カカオ(10.5t)、コプラ(12.4t)	輸送手段の改善で増加が見込まれる。
水難事故の解消	無理な河床横断による流失事故(年数回)、徒歩横断による水難事故	人間、車両とも水難事故は、解消される。
河床通行による水質汚濁	飲料水、洗濯水としての河川水に汚濁が生じている。	汚濁の発生が解消される。
河川環境破壊	コーズウェイの残骸が河川の流水阻害を起し、環境破壊の一因となっている。	河床整理により流水阻害が解消される。

##### (2) その他の成果指標

特になし

##### (3) 評価のタイミング

2012年3月(施設完成直後)

## 6 参考資料／入手資料リスト

番号	名称	形態	オリジナル・ コピー	発行機関	発行 年
1	Electoral Constituency Boundaries Review Report to the Transitional Consultative Council	図書	コピー	Autonomous Bougainville Government	2005
2	Aid Post Establishment and Operating Status	図書	コピー	Division of Health Administration of Bougainville	2007
3	Contractor's Registry Update	表	コピー	Department of Works	2007
4	JICA Questionnaires and Data/Information Required to the PNG Government	書類	コピー	Department of Works	2008
5	Buka Map (Sheet 9887) 1:100000	地図	オリジナル	National Mapping Bureau	-
6	Kunua Map (Sheet 9886) 1:100000	地図	オリジナル	National Mapping Bureau	-
7	Bagana Map (Sheet 9985) 1:100000	地図	オリジナル	National Mapping Bureau	-
8	Kieta Map (Sheet 1085) 1:100000	地図	オリジナル	National Mapping Bureau	-
9	Laruma Map (Sheet 9885) 1:100000	地図	オリジナル	National Mapping Bureau	-
10	Motupena Map (Sheet 9984) 1:100000	地図	オリジナル	National Mapping Bureau	-
11	Buin Map (Sheet 1084) 1:100000	地図	オリジナル	National Mapping Bureau	-
12	Tactical Pilotage Chart, Papua New Guinea, Solomon Islands (TPC M-14C) 1:500000	地図	オリジナル	National Mapping Bureau	-
13	Joint Operations Graphic (SB 56-8) 1:250000	地図	オリジナル	National Mapping Bureau	-

14	Joint Operations Graphic (SB 56-12) 1:250000	地図	オリジナル	National Mapping Bureau	-
15	Subdivision and rezoning of part U.A.L.407 & section5, Wakunai	図面	コピー	Department of Lands & Physical Planning	2007
16	Subdivision and rezoning of Arawa 3 sheets	図面	コピー	Department of Lands & Physical Planning	2007
17	Closure of road reserve, consolidation, resubdivision and rezoning of Buin township	図面	コピー	Department of Lands & Physical Planning	2007
18	Physical planning area of Wakunai	図面	コピー	Department of Lands & Physical Planning	2007
19	Milinch of Buin 1:50000	地図	コピー	Department of Lands & Physical Planning	-
20	Milinch of Kieta 1:50000	地図	コピー	Department of Lands & Physical Planning	-
21	Milinch of Buka 1:50000	地図	コピー	Department of Lands & Physical Planning	-
22	Milinch of Numa 1:50000	地図	コピー	Department of Lands & Physical Planning	-
23	Milinch of Aropa 1:50000	地図	コピー	Department of Lands & Physical Planning	-
24	Milinch of Puto 1:50000	地図	コピー	Department of Lands & Physical Planning	-
25	Milinch of Tepo 1:50000	地図	コピー	Department of Lands & Physical Planning	-
26	Climatic Tables for Papua new Guinea, Commonwealth Scientific and Industrial Research Organization, Australia 1975	図書	オリジナル	National Weather Service	1975
27	Number of Schools-Kokopau to Arawa	データ	コピー	ABG	2008
28	Autonomous Bougainville Region Population Projection	データ	コピー	ABG	-
29	Traffic Counts Arawa-Buka-Arawa	データ	コピー	AusAID	2007
30	キエタ気象観測所 月間ベース降雨量、 降雨日数、気温、相対湿度、日照時間	データ	コピー	National Weather Service	1979 ～ 1989

31	キエタ気象観測所 日雨量年表	データ	コピー	National Weather Service	1978 ～ 1989
32	キエタ気象観測所 年最大日雨量表	データ	コピー	National Weather Service	1973 ～ 1989
33	ブカ降雨観測所 日雨量年表	データ	コピー	National Weather Service	1986 ～ 1995