添付資料 1.　署名ミニッツ

Minutes of Discussions
on the Preliminary Study
on the Project for the Improvement of Road Maintenance Equipment
and Workshop Facilities
in the Independent State of Papua New Guinea

In response to a request from the Government of the Independent State of Papua New Guinea (hereinafter referred to as "PNG"), the Government of Japan decided to conduct a Preliminary Study on the Project for the Improvement of Road Maintenance Equipment and Workshop Facilities (hereinafter referred to as "the Project"), and entrusted the study to the Japan International Cooperation Agency (hereinafter referred to as "JICA").

JICA sent to PNG the Preliminary Study Team (hereinafter referred to as "the Team"), headed by Mr. Yusuke Kitamura, Resident Representative, JICA PNG Office, and is scheduled to stay in the country from February 7 to March 13, 2007.

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

In the course of the discussions and the field survey, both sides confirmed the main items described in the attached sheets.

Port Moresby, February 15, 2007

Yusuke Kitamura
Leader
Preliminary Study Team
JICA

Ulato Avei
Deputy Secretary
Department of National Planning and Monitoring
the Independent State of Papua New Guinea

Witnessed by

Roy Mumu
Deputy Secretary Technical
Department of Works
the Independent State of Papua New Guinea

ATTACHMENT

1. Objective of the Project

The objective of the Project is to contribute to development in the infrastructures in the PNG with providing with road maintenance equipments.

2. Project Site

The Project sites are in Lae of Morobe Province, Mount Hargen of Western Highlands Province, Wewak of East Sepik Province, and Kimbe of West New Britain Province, as shown in Annex-1.

3. Responsible and Implementing Organizations

- The responsible and implementing agency is Department of Works (DOW).
- The organization of DOW is shown in Annex -2.

4. Items Requested by the Government of PNG

As the result of discussions, the Project components were requested as shown in Annex-3.

JICA will assess the appropriateness of the above-mentioned components through the Preliminary Study and will report the findings to the Government of Japan.

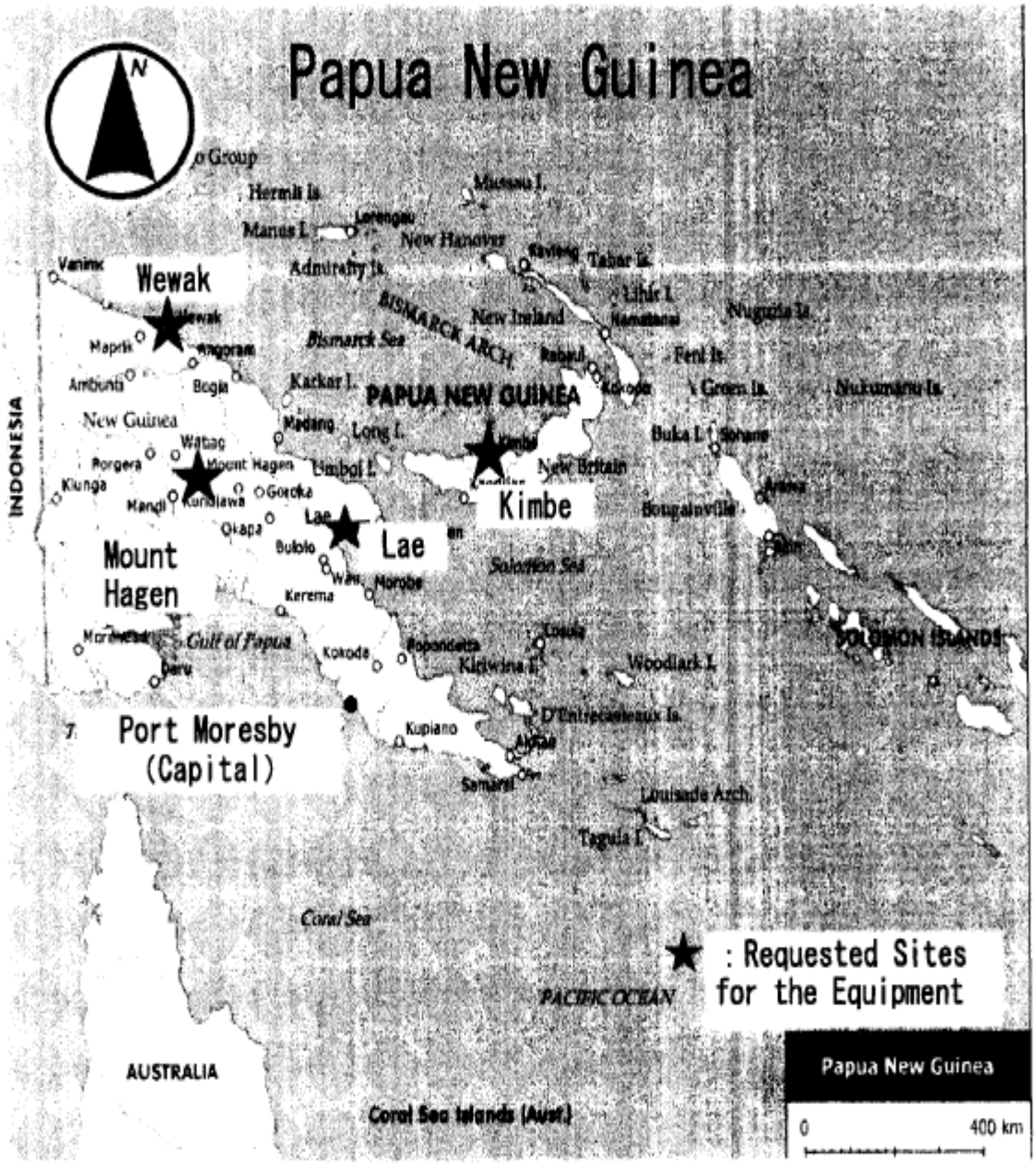
5. Japan's Grant Aid Scheme

The PNG side understands the Japan's Grant Aid scheme explained by the Team, as described in Annex-4.

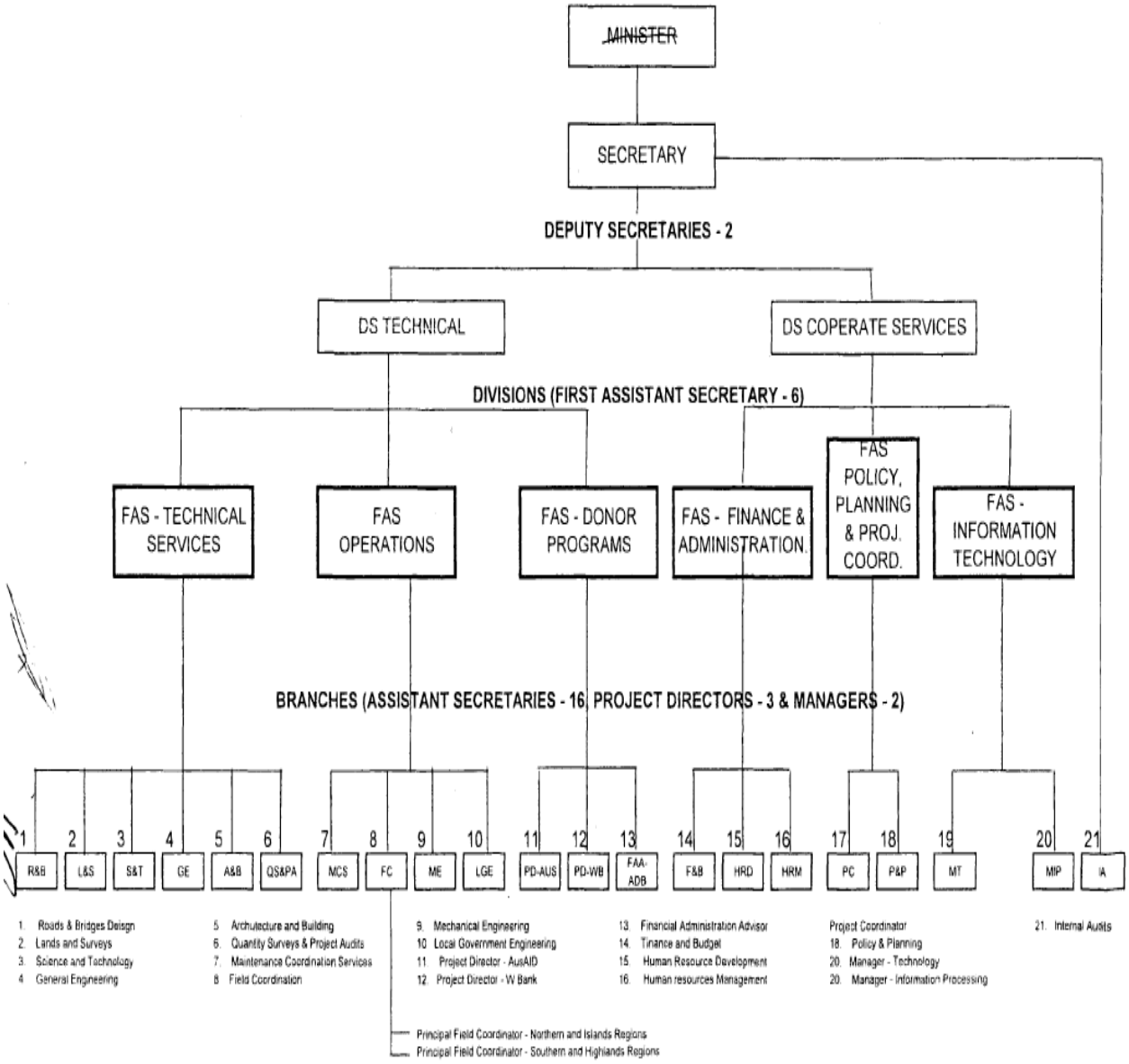
6. Further Schedule of the Study

The Team will proceed to further studies in Japan until the end of April, 2007. If the Project is deemed feasible as the result of the Preliminary Study, JICA will send the Basic Design Study Team.

Site Map for the Study



DEPARTMENT OF WORKS TOP ORGANISATION STRUCTURE



Annex - 2

Annex-3

The Items Requested by the Government of PNG

1. Road Maintenance Equipment

	Mount Hagen	Lae	Wewak	Kimbe	Number of Requested Items
Team Grading Unit					
Motor Grader	1	1	1	1	4
Wheel Loader	1	1	1	1	4
Vibratory Roller	1	1	1	1	4
Water Tank Truck	1	1	1	1	4
Dump Truck	2	2	2	2	8
Mobile Workshop	1	1	1	1	4
Team Restoration Unit					
Bulldozer	1	1	1	1	4
Excavator	1	1	1	1	4
Motor Grader	1	1	1	1	4
Dump Track	2	2	2	2	8
Total	**11**	**11**	**11**	**11**	**44**

2. Spare Parts for above-mentioned equipment

3. Equipment and tools for 4 workshops (Mount Hagen, Lae, Wewak, and Kimbe), and National Rebuilt Center in Lae.

JAPAN'S GRANT AID SCHEME

The Grant Aid scheme provides a recipient country with non-reimbursable funds to procure the facilities, equipment and services (engineering services and transportation of the products, etc.) for economic and social development of the country under principles in accordance with the relevant laws and regulations of Japan. The Grant Aid is not supplied through the donation of materials as such.

1. Grant Aid Procedures

Japan's Grant Aid Scheme is executed through the following procedures.

Application	(Request made by a recipient country)
Study	(Basic Design Study conducted by JICA)
Appraisal & Approval	(Appraisal by the Government of Japan and Approval by Cabinet)
Determination of Implementation	(The Notes exchanged between the Governments of Japan and the recipient country)

Firstly, the application or request for a Grant Aid project submitted by a recipient country is examined by the Government of Japan (the Ministry of Foreign Affairs) to determine whether or not it is eligible for Grant Aid. If the request is deemed appropriate, the Government of Japan assigns JICA (Japan International Cooperation Agency) to conduct a study on the request.

Secondly, JICA conducts the study (Basic Design Study), using Japanese consulting firms.

Thirdly, the Government of Japan appraises the project to see whether or not it is suitable for Japan's Grant Aid Scheme, based on the Basic Design Study report prepared by JICA, and the results are then submitted to the Cabinet for approval.

Fourthly, the project, once approved by the Cabinet, becomes official with the Exchange of Notes (E/N) signed by the Governments of Japan and the recipient country.

Finally, for the smooth implementation of the project, JICA assists the recipient country in such matters as preparing tenders, contracts and so on.

2. Basic Design Study

1) Contents of the Study

The aim of the Basic Design Study (hereinafter referred to as "the Study"), conducted by JICA on a requested project (hereinafter referred to as "the Project"), is to provide a basic document necessary for the appraisal of the Project by the Government of Japan. The contents of the Study are as follows:

1. Confirmation of the background, objectives, and benefits of the Project and also institutional capacity of agencies concerned of the recipient country necessary for the Project's implementation.
2. Evaluation of the appropriateness of the Project to be implemented under the Grant Aid Scheme from a technical, social and economic point of view;
3. Confirmation of items agreed upon by both parties concerning the basic concept of the Project.
4. Preparation of a basic design of the Project.
5. Estimation of cost of the Project.

The contents of the original request are not necessarily approved in their initial form as the contents of the Grant Aid project. The Basic Design of the Project is confirmed considering the guidelines of Japan's Grant Aid scheme.

The Government of Japan requests the Government of the recipient country to take whatever measures are necessary to ensure its self-reliance in the implementation of the Project. Such measures must be guaranteed even through they may fall outside of the jurisdiction of the organization in the recipient country actually implementing the Project. Therefore, the implementation of the Project is confirmed by all relevant organizations of the recipient country through the Minutes of Discussions.

2) Selection of Consultants

For smooth implementation of the Study, JICA uses registered consulting firms. JICA selects firms based on proposals submitted by interested firms. The firms selected carry out a Basic Design Study and write a report, based upon terms of reference set by JICA.

The consulting firms used for the Study are recommended by JICA to the recipient country to also work on the Project's implementation after the Exchange of Notes, in order to maintain technical consistency.

3. Japan's Grant Aid Scheme

1) Exchange of Notes (E/N)

Japan's Grant Aid is extended in accordance with the Notes exchanged by the two Governments concerned, in which the objectives of the project, period of execution, conditions and amount of the Grant Aid, etc., are confirmed.

2) "The period of the Grant Aid" means the one fiscal year which the Cabinet approves

the project for. Within the fiscal year, all procedure such as exchanging of the Notes, concluding contracts with consulting firms and contractors and final payment to them must be completed.

However, in case of delays in delivery, installation or construction due to unforeseen factors such as natural disaster, the period of the Grant Aid can be further extended for a maximum of one fiscal year at most by mutual agreement between the two Governments.

3) Under the Grant Aid, in principle, Japanese products and services including transport or those of the recipient country are to be purchased.

When the two Governments deem it necessary, the Grant Aid may be used for the purchase of the products or services of a third country.

However, the prime contractors, namely consulting, contracting and procurement firms, are limited to "Japanese nationals". (The term "Japanese nationals" means persons of Japanese nationality or Japanese corporations controlled by persons of Japanese nationality.)

4) Necessity of "Verification"

The Government of the recipient country or its designated authority will conclude contracts denominated in Japanese yen with Japanese nationals. Those contracts shall be verified by the Government of Japan. This "Verification" is deemed necessary to secure accountability of Japanese taxpayers.

5) Undertakings required to the Government of the recipient country

In the implementation of the Grant Aid Project, the recipient country is required to undertake such necessary measures as the following:

1. To secure land necessary for the sites of the Project and to clear, level and reclaim the land prior to commencement of the Project,
2. To provide facilities for the distribution of electricity, water supply and drainage and other incidental facilities in and around the sites,
3. To secure buildings prior to the procurement in case the installation of the equipment,
4. To ensure all the expense and prompt execution for unloading, customs clearance at the port of disembarkation and internal transportation of the products purchased under the Grant Aid,
5. To exempt Japanese nationals from customs duties, internal taxes and other fiscal levies which will be imposed in the recipient country with respect to the supply of the products and services under the verified contracts,
6. To accord Japanese nationals, whose services may be required in connection with supply of the products and services under the Verified contracts, such facilities as may be necessary for their entry into the recipient country and stay therein for the performance of their work.

6) "Proper Use"

The recipient country is required to operate and maintain the facilities constructed and equipment purchased under the Grant Aid properly and effectively and to assign staff necessary for this operation and maintenance as well as to bear all the expenses other than those covered by the Grant Aid.

7) "Re-export"

The products purchased under the Grant Aid should not be re-exported from the recipient country.

8) Banking Arrangement (B/A)

a) The Government of the recipient country or its designated authority should open an account in the name of the Government of the recipient country in a bank in Japan (hereinafter referred to as "the Bank"). The Government of Japan will execute the Grant Aid by making payments in Japanese yen to cover the obligations incurred by the Government of the recipient country or its designated authority under the verified contracts.

b) The payments will be made when payment requests are presented by the Bank to the Government of Japan under an Authorization to Pay (A/P) issued by the Government of recipient country or its designated authority.

9) Authorization to pay (A/P)

The Government of the recipient country should bear an advising commission of an Authorization to Pay and payment commissions to the Bank.

Major Undertaking to be taken by Each Government

No.	Items	To be covered by Grant Aid	To be covered by Recipient Side
1	To bear the following commissions to the Japanese bank for banking services based upon the B/A		
	1) Advising commission of A/P		●
	2) Payment commission		●
2	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		●
3	To accord Japanese nationals, whose services may be required in connection with the supply of the products and the services under the verified contact, such facilities as may be necessary for their entry into the recipient country and stay therein for the performance of their work.		●
4	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		●
5	To maintain and use properly and effectively the facilities constructed and equipment provided under the Grant Aid		●
6	To bear all the expenses, other than those to be borne by the Grant Aid, necessary for the transportation and installation of the equipment		●

(B/A: Banking Arrangement, A/P: Authorization to Pay)

添付資料 2.　質問票に対する回答　（道路維持管理に関して）

Questionnaires for DOW Province

No	Questionnaires	Answer
1.	**Organization of DOW Province & Budget Arrengement**	
1.1	(1) How is DOW province organized?　Do you have organization chart? Haw many staff is there here for the each section? (2) Financial situation and annual budget arrangements for road maintenance	
2.	**Present Situation of the roads which your office is responsible for**	
2.1	(1) Could you introduce to us roads including provincial roads which you are responsible for road maintenance and road rehabilitation and road improvement? 1) What is classification of the each road 2) Could you tell us location and length of the each road 3) Could you tell us present condition of the each road 4) Work kind of work (maintenance, rehabilitation or improvement) is done on the each road? 5) Where is on-going projects done by Donator's fund? 6) Equipment type and number of equipment necessary using for the each kind of work? 7) From where is equipment necessary provided?　PTB or private company (2) Could you tell us a road condition of the National Highway ? (3) Do you have inventory data of the road for which you are responsible? (4) Do you have provincial road map identified your work? (5) What is the problem in the work?	
3.	**Regarding Road Disaster**	
3.1	(1) What kind of road disaster is happened in this area? (2) Where is the place where the disaster often happens? (3) Judging from a past history, how many times a year does the disaster happen? Do you have any data? Photograph? (4) When road is blocked, about how many days does it take to recover? (5) What is the problem to maintain roads against the road disaster? (6) When disaster happened, what type of equipment is provided? (7) What is a prevention work against disaster?	
4.	**Situation of Contractor, Supplier in This Province**	
4.1	(1) Are there local and foreign contractor to construct and maintain roads in this province? How many contractors are there in this province? (2) Do they have construction equipment?	

Department of Works
Western Highlands Provincial Office

Box 167, MT. HAGEN, Western Highlands Province *PH: 542 1322/ 2915 & FAX: 542 1115*

FAX

To:	Mechanical Engineering Branch	**Fax. No:**	**File:**	
Attention:	AS (MEB),	324 1546	**No. of Pages:**	8 Incl. cover
Thru:			**Authorised by :**	PWM 12/03/07
Copy:				
From:	A/PWM – WHP		**Date:**	12/03/07

SUBJECT:	**ENCLOSED COMPLETED QUESTIONAIRES .**

Sir,

Find faxed herewith completed questionnaire sheets as requested through fax by the JICA Study Team.

Apologies for the delays.

Stanley W. Sopyare
Acting Provincial Works Manager

PRELIMINARY STUDY ON THE PROJECT FOR THE IMPROVEMENT OF ROAD MAINTENANCE EQUIPMENT AND WORKSHOP FCILITIES IN THE INDEPENDENT STATE OF PAPUA NEW GUINEA.

WESTERN HIGHLANDS PROVINCE.

ANSWERS TO QUESTIONAIRES.

No.	Questionares	Answers
1	**Organisation of DOW - WHP**	
1.1	• How is DOW organized? Do you have an organisation Chart?. • How many staff is there for each section?	• We have a PWM under which come the Branch heads for the different branches, eg. PTB, CIVIL, ARCHITECTURE & Building, Accounts & Administration, LGTS. • Yes, • PTB = 15, CIVIL = 29, ARCH & BUILD. = 12, FINANCE & ADMIN = 20, LGTS=34
2	**Road Condition of the Roads which your office is responsible for.**	
2.1	(1) Could you introduce to us roads including provincial roads which you are responsible for road maintenance and road rehabilitation and road improvement?	• We look after the National Highway NR07 apart from four (4 no.) National District & National Institutional Roads which come directly under DOW.
	(2) What is the classification of each road?	• 1 x National Route NR, & 1 x National District Road ND, 3 X National Institutional Road NI.
	(3) Could you tell us location and length of each road?	• NR 07 = 160km, NM3901 = 60km, NI3903 = 45km, NI3902 = 10km, NI3903 = 2km, .
	(4) Could you tell us present condition of each road?	• Present conditions are bad and needs funding for full maintenance.

Page 1 of 5

Cont'd.

No.	Questionaires	Answers
	(5) What kind of work (maintenance, rehabilitation or improvement is done on each road.	• Maintenance done on each road are; - Routine Maintenance - Emergency Maintenance, - Specific Maintenance,
	(6) Where is ongoing projects done by Donor's fund?	• On National Highway, Provincial Roads & District Roads.
	(7) Equipment type and number of equipment necessary using for each kind of work?	• Road Graders, (3 No.) • Rollers (3 No.) • F/E Loaders (3 No.) } Equipment required for a road upgrading & rehabilitation work • Dump Trucks (10m3 8 No.) • Excavator (3 No.) • Backhoe (2 No.)
	(8) From where is equipment necessary provided.. PTB or private hire.	• Currently from private hire. Previsouly PTB.
	(9) Could you tell us a road condition of the Highlands Highway & Enga Highway?	• Currently in good condition with few emergencies.
	(10) Do you have inventory data of the road for which you are responsible?	• Yes.
	(11) Do you have provincial road map identified your work?	• Yes.
	(12) What is the problem in the work?	• Lack of proper equipment to do works.
3	**Regarding Road Disaster.**	
	(1) What kind of road disaster is happened in this area?	• Washout of bridges & culverts due to floods. • Major land slips • Potholes on road pavements.
	(2) Where is the place where the disaster often happens?	• Mostly along the Highlands Highway.
	(3) Judging from past history, how many times a year does the disaster happen. Do you have any data/photograph.	• Three(3) times a year due to heavy rain/wet Weather/season..

Page 2 of 5

Cont'd.

No.	Questionaires	Answers
	(4) When road is blocked, about how many days does it take to recover?	• At least a week awaiting procurement of equipment & securing of funding.
	(5) What is the problem to maintain roads against the road disaster?	• Availability of equipment, funding & landowner problems.
	(6) When disaster happens what type of equipment is provided from PTB?	• Previously when PTB was operational earth moving equipment like loader, tipper trucks, excavator etc were provided to open up access. • Currently no equipment so nothing is provided by PTB.
	(7) What is prevention work against the disaster?	• Routine maintenance work type would assist prevent disaster.
4	**Situation of Contractor, Supplier in this Province.**	
	(1) Are there local and foreign contractors to construct and maintain roads in this province? How many contractors are there in this province?	• Yes. Currently we have a total of about five (5) local and foreign owned contractors here.
	(2) Do they have construction equipment?	• Yes, but rates are so high.
5	**Organization of the DOW Province & Financial Budget Situation.**	
5.1	Organisation Chart of DOW Province.	See attached.
5.2	Job Content and personnel organization of the above agencies for the road maintenance.	• Basically the Civil Engineering branch is directly involved in the infrastructure development of this province. • All other branch and agencies only serve as service agents serving the Civil

Page 3 of 5

		Engineering branch.
5.3	Financial Situation and annual budget arrangements for road maintenance including road maintenance equipment and repair equipment of PTB and NRC	• This section was compiled by PPM and sent to HQ already.
6	**Road Condition**	
2.1	Road condition data of national, provincial and district road maintained by DOW province (road length, carriageway width, pavement type, traffic volumes, bridge and other structures, road disaster)	This information can be obtained from RAMS at Maintenance Coordination Services (MCS), DOW HQ.
2.2	Ongoing and planned road and bridge development project (road construction, road rehabilitation, road routine maintenance, road disaster prevention work) as shown in Table 1.0	• Refer to Table 1.0 as filled out.
2.3	Road Map (1/5000,1/10,000./1/50,000	• Information can be obtained from RAMS at MCS -HQ
7	**Foreign Aid by other Donors and International Organistion concerning Road Sector.**	
7.1	Tendency of Foreign assistances (past, on-going and future plan) by international organization and donor, concerned road rehabilitation and road maintenance (donor name, outline of projects, implementation schedule, amount of assistance etc.	• Asian Development Bank (ADB) Currently ADB is funding most of the road construction and rehabilitation projects. Completed 3 x projects to sealed stage, 4 x are in the process of tendering & procurement.
8	**Situation of Contractor, Supplier and Dealer in Papua New Guinea.**	
	Local and foreign contractor, lease supplier related to road construction and maintenance, name of company, number of employees, job record, number of equipment, type of equipment, and amount of reception of an order.	• Road Construction equipment supplier in PNG include, CATERPILLAR, UMW, ELA MOTORS • Information relating to other information can be obtained from the above respective suppliers.

Page 4 of 5

DEPARTMENT OF WORKS

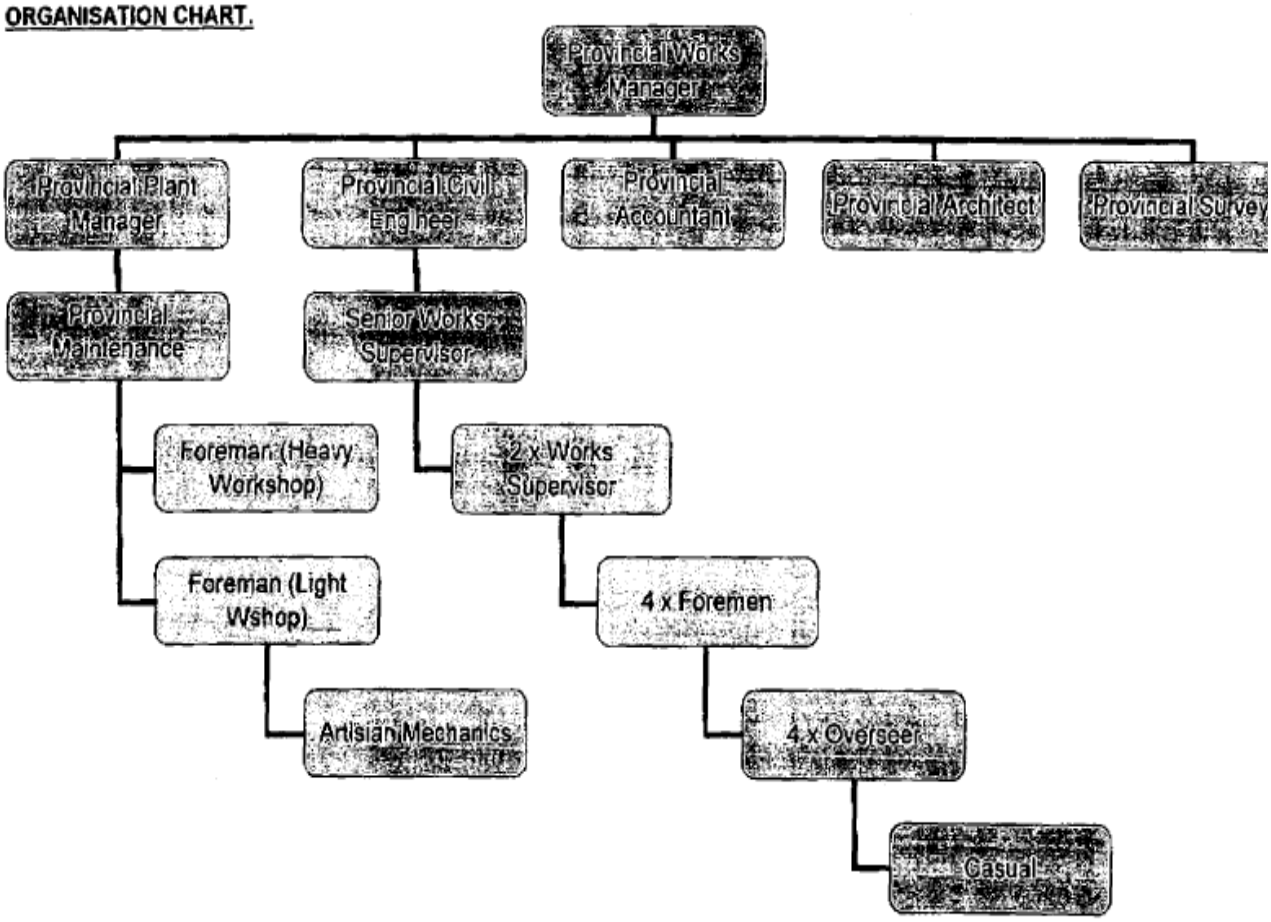
WESTERN HIGHLANDS PROVINCIAL OFFICE.

TABLE 1.0 : ON-GOING & PLANNED PROJECT MAINTAINED BY THE PTB PROVINCE & WORKSHOP.

Development Type		Project Name or Section	Project Description (*	Fund & Source (PGK)	Yearly Development Schedule				
					7	8	9	10	11
New	Roads & Bridges	1. Kua Bridge Construction Note: Currently no funding to construct new roads/bridges	Replacement of a 13 bay collapsed bailey bridge.	ADB K2mill.					
Improve-ment	Roads & Bridges	GoPNG Funded Projects 1. Hagen City Roads 2. Highlands Highway & Enga Highway	Pavement Repairs & Resealing. Pavement Repairs & Resealing.	ADB K2.7m PJV TCS					
Rehabil-itation or Periodic Maintenance	Roads & Bridges	1. Mt Hagen to Baiyer Rd Upgrading 2. Kotna to Banx Road Upgrading 3. Kindeng to Kondopina Rd Upgrading & sealing 4. Banz to Dona Rd Upgrading		ADB K30m ADB K29.6m ADB K10.5m ADB K20.5m					
Daily Routine Maintenance	Roads & Bridges	* Currently no funding under routine maintenance. * Priority is given only in emergency cases.		GoPNG varies.					
Road Disaster Prevention Work	Roads & Bridges	Nil							

DEPARTMENT OF WORKS - WESTERN HIGHLANDS PROVINCIAL OFFICE.

ORGANISATION CHART.



Note:

1. This Organisation chart shows the two main branches within the DOW establishment that interact with each other in implementing projects.
2. The other branches do not actively involve in the project implemetation process.

DEPARTMENT OF WORKS

PROVINCIAL OFFICE – EAST SEPIK PROVINCE

OFFICE OF THE PROVINCIAL WORKS MANAGER.

Date: 26 February, 2007
Our Reference:

P O Box 106, Wewak,
Phone. 856 2446, Fax. 856 2310
East Sepik Province
Papua New Guinea
Email. pnindivi@datec.net.pg

To. The JICA Team to Wewak

SUBJECT: **DOW EAST SEPIK PROVINCE PRELIMINAY STUDY**

We are very pleased and thankful of your trip to our DOW provincial establishment here in East Sepik Province to carry out your preliminary studies towards the Improvement of Road Maintenance Equipment and Workshop Facilities in East Sepik Province.

Please find attached information that was requested by the visiting team.

Yours faithfully

PAUL NINDIVI
Provincial Works Manager

cc. Mr. Hans Sarua : First Assistant Secretary – Operations
cc. Mr. Andrew Buna : Assistant Secretary – PTB

1.0 ROAD CONDITION OF ROADS WHICH DOW EAST SEPIK PROVINCE IS RESPONSIBLE.

DOW East Sepik Province is responsible for all the road net work in East Sepik Province and also road net work in Aitape/Lumi and Nuku Districts in West Sepik Province.

These roads are classified into the following as indicated below:

1.0 NATIONAL ROADS

Attached is the Summary of the East Sepik National roads.

National roads are also classified as follows:

a. National Highway.

The National Highways in East Sepik Province are:

- **Sepik Highway:**

  Sepik Higway: Start at: Passam/Angoram Junction- CH.0.00km
  Ends at: Kraitem(WSP) CH.276.8km
  Total sealed: 196.8km out of 276.8km is sealed.
  Unsealed section: Remaining 80km not yet sealed. First 55km is accessible but urgently needs regravelling and drainage works. The last 25km is currently inaccessible. This is mainly due to lack of Equipment to carry out rehabilitation Works.

  Land Slips : There are currently approximately 80 plus land Slips along the Sepik Highway which has made the Highway not safe for traveling public. This slips can be restored only if DOW had a stand by restoration unit.

- **Sepik Coastal Highway:**

  Sepik Coastal Highway: Start at: Angoram – CH.0.00 km
  Ends at: Ramo in Aitape(WSP) – CH. 364.9km
  Road condition : CH.00(Angoram) to CH.8.00km has been sealed.
  : From CH.8.00 to CH.20.00km Is currently being regravelled and will be sealed.
  : From CH.20.00km to CH.90km

is only graveled road(70km). This section needs continuity in executing maintenance in every 3 months. However this can not be done due to lack of equipments.

: From CH.90km to CH.138.2km is sealed(48.2km) and is in fair condition accept for several road slips and developing pot holes..

: From CH.138.2km to CH.364.9km(226.7km) is only graveled road. From CH.138.2km to 304.9km is fair condition and the remain 60km is inaccessible. This section have to be maintained in every 3 months. However this can not be done due to lack of equipment in this Province.

- **National District Road**

We have two National District Roads. There are as follows;

@ Kreer to Sil – 29km total length. 17km is sealed and 12km is graveled road. The 12km gravel road condition is fair still accessible but require proper rehabilitation. Some sealed sections needs repairing.

@ Hayfield to Pagwi – 48.0km total length. This road branches off the Sepik Highway and ends at the Sepik River. The First 18.00km starting from the Sepik River has been regravelled and is ready for sealing. DOW will be carrying out the sealing work. The remaining 30km is gravel road which the condition is fair but urgently require rehabilitation.

- **National Institutional Roads**

We have five National Institutional Roads. There are as follows:

@ Moem Barracks Road – 4.40km total length. This road section is sealed and road condition is good. Pot holes are gradually developing which have to be repaired by DOW.

@ Boram Ring Road – 2.15km total length. This road section is sealed

and road condition is good. Some sections require repairing. DOW will organize this repair work.

@ Boram Hospital – 0.55km total length. This road section is sealed and road condition is good. Some sections require repairing. DOW will organize repair work.

@ Kaindi Teachers College Road – 0.5km total length. This road Section is sealed and road condition is good.

@ Wom Memorial Park Road – 3.25km total length. This road section is sealed and road condition is good. Some sections require repairing.

2.0 PROVINCIAL ROADS

The Provincial Roads are classified as follows:

- Provincial Truck road
- Provincial Feeder road
- Provincial Access road
- Provincial Local Town road.

There are approximately 820km total road length of Provincial Roads in East Sepik Province. There are six(6) Districts in the Province and most the Provincial Roads in each Districts have been identified and are listed on the attached summary sheet.

Most of the Provincial Roads in each of these six(6) districts have not been maintained for the last 15 years and these roads are only accessible during dry weather. During wet weather these roads become impassable. Most of the vehicle owners have lost business because they could not afford the continuous high vehicle maintenance cost.

All these provincial roads in East Sepik Province required major rehabilitation works however our biggest problem we are currently faced with is that, we do not have enough construction equipment in the Province.

3.0 SITUATION OF CONTRACTOR, SUPPLIER IN EAST SEPIK PROVINCE.

In East Sepik Province we have only two small local contractors and 1 x foreign contractor. They are;

- Green Hill Investment Limited – Currently tied up on Pagwi road 18km regravelling & sealing project.

  List of Equipments they have: 1 x CAT Grader
  : 1 x D85 Komatsu Dozer
  : 2 x PC 200 Excavator
  : 1 x Water Truck
  : 1 x 2cum Dump Truck
  : 1 x 10 ton Drum Roller
  : 1 x front end loader
  : 3 x 10 cum Dump truck – Hino
  : 1 x 4cum Toyota tipper

- SBA Construction Limited – Currently tied up on the Angoram road 12km Regravelling and Sealing project as mentioned above.

  List of Equipments they have: 1 x Grader
  : 1 x D65 Komatsu Dozer
  : 1 x PC 200 Excavator
  : 1 x Water Truck
  : 2 x 10cum Dump Truck
  : 3 x 8cum Dump Truck
  : 1 x Drum Roller

FOREIGN CONTRACTOR

- Dekenai Construction Limited – This contractor's home base is Port Moresby. They are here only to carry Out a project(contract) which was Awarded them. The project is repair of emergency slips between Maprik and Warasikau along the Sepik Highway.

  Dekenai will demobilize back to Port Moresby as soon as they complete their contract.

  List of Equipments they have: 1 x Grader
  : 1 x D65 Komatsu Dozer
  : 2 x PC 200 Excavator
  : 1 x Water Truck
  : 5 x 10cum Dump Truck

: 4 x 8cum Dump Truck
: 1 x 10 ton Drum Roller
: 1 x Backhoe
: 1 x Low Loader
: 1 x crane truck

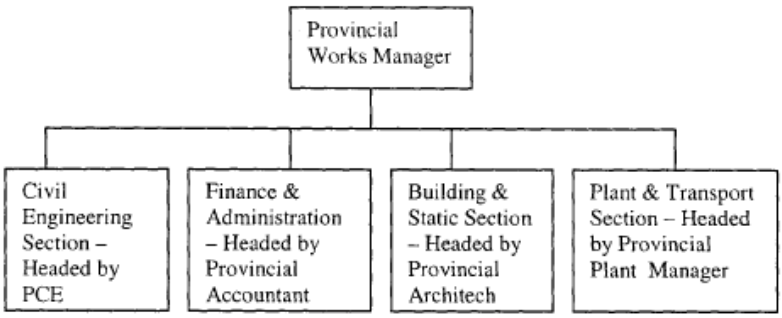
- **DOW LIST OF EQUIPMENT CURRENTLY IN EAST SEPIK PROVINCE.**

- 2 x D65 Komatsu Graders	: Both Working condition
- 1 x Loader	: Working condition
- 1 x 10 ton drum roller	: Working condition
- 1 x multi tyre roller	: Working condition
- 1 x JICA donated bitumen Spray truck	: Working condition
- 1 x AUSAID donated Bitumen spray truck	: Working condition
- 1 x Crushing Plant	: Working condition
- 1 x Komatsu Grader	: Working condition

4. ORGANIZATION OF DOW EAST SEPIK PROVINCE.

DOW East Sepik Province has a Provincial Works Manager and four(4) sections with specific responsibilities who reports to the Provincial Works Manager.

Shown below is the flow chart of DOW East Sepik Province organizational chart.



- **Civil Engineering Section – No of Staff**

- 1 x Section Head(Provincial civil engineer)
- 10 x Civil Engineers

- 9 x supervisors and foreman
- 7 x operators
- 23 x Casual employees

- **Finance and Administration. – No of staff**

  - 1x Provincial Accountant- Section Head
  - 1 x accounts clerk
  - 1 x examiner
  - 1 x certifying officer
  - 1 x data entry clerk
  - 1 x pay master
  - 1 x assistant pay master
  - 1 x staff and industrial officer
  - 1 x assistant industrial officer
  - 1 x staff clerk
  - 1 x register clerk
  - 1 x Key board operator.

- **Building and Static Section – No of staff**

  - 1 x Provincial Architect – Section Head
  - 4 x carpenter foreman/supervisor
  - 2 x electrician
  - 2 x plumber foreman/supervisor
  - 1 x welder foreman
  - 1 x refrigerator mechanic
  - 2 x painter foreman
  - 5 x casual carpenters

- **Plant and Transport Section – No of staff**

  - 1 x Provincial Plant Manager – Section Head
  - 1 x Provincial Operation Supervisor
  - 2 x operation officers
  - 1 x store man
  - 1 x plant inspector
  - 15 X mechanics (Heavyfitters/Light vehicle
  - mech/Welders/electrian).

THE PROJECT FOR THE IMPROVEMENT OF ROAD MAINTENANCE EQUIPMENT AND WORKSHOP FACILITIES IN THE INDEPENDENT STATE OF PAPUA NEW GUINEA.

ANSWERS TO QUEATIONAIRES REQUESTED BY JICA

1.0 Organisation Of Department Of Works in Morobe Province

All the sections within the Department of Works Provincial establishment come under the direct management of the Provincial Works Manager. These sections comprise the Finance & Administration, Civil Engineering Section, Plant & Transport Branch and the Architectural Branch (refer to Organisation Chart attached).

The most important of these sections is the Civil Engineering Section which is responsible for the regular maintenance of all the transport infrastructure assets such as roads bridges & wharves in the province. It is also responsible for Contract Administration for maintenance and construction contracts.

When the Plant & Transport Branch (PTB) has sufficient heavy machinery, the Civil Engineering Section hires these machines to carry out maintenance and construction activities. These activities include road maintenance, construction, emergency works such as flood repairs & landslide removal. However when there is no machine available from PTB, machines from private companies are hired to do these jobs for Department of Works. This is very expensive exercise because private companies charge very expensive hire rates and sometimes machines are not very reliable.

When the Civil Engineering Section needs a machine, the Provincial Civil Engineer discusses the requirement with PTB through the Operations office for availability of equipment and quotation. If machine is available, it is hired out for work. Invoices are then given to the Civil Engineering Section by PTB Operations office for amount of hours worked by a particular machine. Payment is then made to PTB for use of machine.

When equipment breaks down or has a problem, the matter is reported to PTB. The equipment is either repaired out on the job site if it is a minor repair or it is brought back to the workshop if it is a major repair.

Annual Funding is received from the Department of Finance through the Department of Works Headquarters in Pt. Moresby. Financial Allocations for Road Maintenance are then made to each province based on the budget prepared the previous year. Amount of money received depends on the length of road and condition of road in the province. Finance is released to the provinces on a quarterly basis.

Funds allocated to each province is used to pay for the hire of equipment and vehicles from PTB as well as fuel, lubricants, spare parts, wages, allowances and other supervision overhead administration costs. Spare parts are bought by the Civil Engineering Section because PTB does not receive sufficient funds for maintenance of vehicle and equipment.

Road maintenance budget for each year is normally around K2 million. However due to the financial constraints faced by the National Government, this amount of money has been decreasing over the last 10 years. The bulk of funding received annually now is

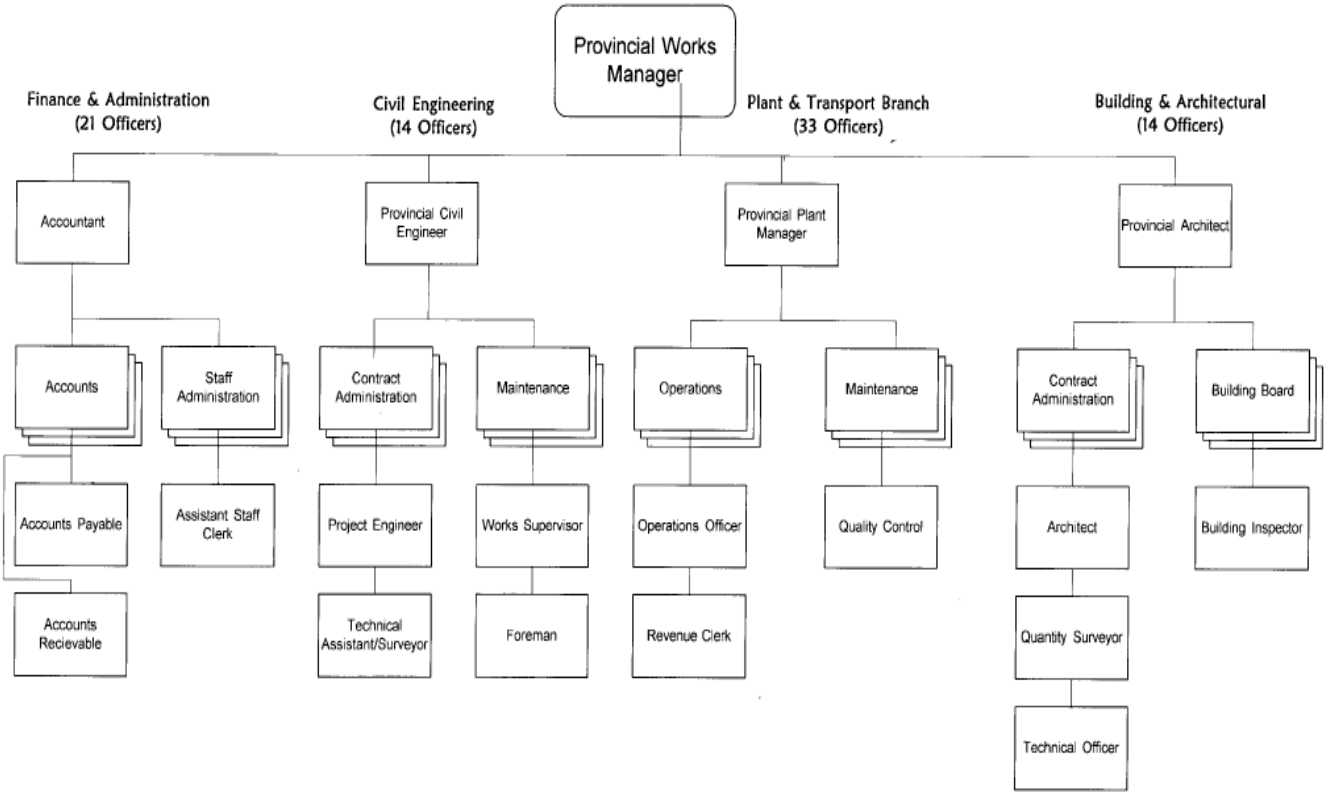
approximately K2.0 million and this is mainly for emergency work such as flood repairs, landslides etc. On emergency work the most needed equipment is Excavators & Dozers. Since PTB in Morobe does not have an Excavator, a lot of money is spent on hiring Excavators from private companies.

The majority of work done on road maintenance is patrol grading, spot gravelling, drainage cleaning, pothole patching and grass cutting. The majority of our roads are still gravel roads so team grading is very important in keeping the road surface in good trafficable condition. The essential equipment required here is Grader, Roller, Water Truck, Dump Truck and Front End Loader.

In Morobe Province the roads come under two broad categories known as National Roads and Provincial. The National Roads are funded and maintained by the National Government through the Department of Works whilst the Provincial Roads are maintained with funding from the Morobe Provincial Administration.

DEPARTMENT OF WORKS
MOROBE PROVINCE

2 March, 2007



2.0 Road Condition of the National Roads

The total numbers of roads are as tabulated below under Department of Works responsibility.

Road Name	Road Number	Sealed Length	Earth Length	Total Length	Present Condition	Current Work	Remarks
		Km	Km	Km			**Road Classification**
Highlands Highway	NR 007	162.35	0	162.35	Fair	Routine & Specific Maintenance	NR – National Road,
Wau Road	NR 004	106.00	22.58	128.58	Fair	Routine & Specific Maintenance	NM – National Main Road,
Ramu Highway	NR 008	30.29	0	30.29	Fair	No Work	
Aseki Road	NM 4201	0.00	85.93	85.93	Bad	Rehabilitation	ND – National District Road
Bukawa Road	ND 4201	9.50	24.44	35.94	Bad	No Work	
				443.09			

Notes on Provincial Roads

Roads listed on the next page are the responsibility of the Morobe Provincial Government but are sometimes maintained by DoW when requested to do so. All these Provincial roads are gravel roads, no bitumen surfacing.

Foreign AID by Other Donors

Currently road maintenance work funded by foreign aid donors comprises approximately 75% of the total work. There are four road maintenance contracts currently ongoing in Morobe Province as shown on table below.

No.	Name of Road	Type of Maintenance Work	Value of Contract	Donor
1	Highlands Highway (170km)	Routine, Periodic & Emergency Maintenance Contract	K17.8 million	AusAID
2	9 Mile Junction to Bulolo	Routine & Specific Maintenance Contract	K 9.9 million	AusAID
3	Gumi Junction to Okinaiwa	Specific & Emergency Maintenance Contract	K 5.7 million	World Bank (70%) & GoPNG (30%)
4	Helsbach to Pindiu	Specific & Emergency Maintenance Contract	K 2.3 million	World Bank (70%) & GoPNG (30%)

Type & Number of Equipment necessary for different types of Maintenance Work

Types of Maintenance				
Routine Maintenance	**Periodic Maintenance**	**Specific Maintenance**	**Rehabilitation**	**Disaster /Emergency**
Labour (manpower)M Wacker Packer, Vibrating Plate, Pedestrian Roller, Motor Grader, Vibratory Roller, Water Truck, Dump Truck, Front End Loader	Front End Loader, Dump Truck, Motor Grader, Water Truck, Vibrating Roller	Motor Grader, Vibrating Roller, Water Truck, Dump Truck, Front End Loader, Excavator, Backhoe	Bull Dozer, Excavator, Motor Grader, Vibrating Roller, Front End Loader, Dump Truck,	Dozer, Excavator, Backhoe, Dump Trucks, Motor Grader

3.0 Road Disaster & Emergency Situation

3.1 Types of disaster that's happened in this province are;

- River flood & road wash out,
- Landslide
- Bridge collapse

3.2 River flooding and road washouts occur mostly on Highlands Highway and Wau Road, currently most disaster is often taking place at Kumalu River along the Wau Road.

3.3 The Kumalu River floods almost every month form previous experience.

3.4 When the road is blocked by the river flooding it takes about 2 days to clear the road and recover traffic. It takes longer time to repair road because we have to look for heavy machines from private companies.

3.5 The major problem we encounter on doing work on disaster area is securing enough machines to do the repair job.

3.6 When disaster happens, quite often PTB does not have the right machine available. PTB has only one dozer in Morobe Province and if that dozer is working another job it cannot be used for the disaster repair job. Most of the time (90%) we have to hire machines from private contractors to do disaster repairs on roads.

3.7 Prevention Work Against Disaster. There is not much we can do in preventing disasters from happening except to excavate river channels to prevent sediment build up under bridges. Also we dig proper drainage structures to divert water away from the road to prevent damage during heavy rains.

4.0 Contractor / Supplier in Morobe Province

There are approximately three (3) foreign owned private road maintenance contractors and two (2) locally owned road maintenance contractors in the province so there is a total of five road maintenance contractors in the province. But there are problems associated with them. Problems include;

- Some are very old machines and are defective machines
- Not enough machines
- Machines engaged on other jobs

Apart from the above road maintenance contractors, there are other smaller private companies specialised in hiring out of heavy machinery for road maintenance. They do not have sufficient equipment all the time too. Their service back up is not satisfactory either.

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添付資料3　道路災害現場写真（2006年，DOW州事務所撮影）

現地写真（東セピック州の道路災害と対策）

ｾﾋﾟｯｸ･ﾊｲｳｪｲ冠水防止の為のハガマ川の河川改修

ｾﾋﾟｯｸ･ﾊｲｳｪｲの地すべり亀裂

ｾﾋﾟｯｸ･ﾊｲｳｪｲのワウサウア付近の洪水

ｾﾋﾟｯｸ･ﾊｲｳｪｲの土砂崩壊

ｾﾋﾟｯｸ･ﾊｲｳｪｲ路面の沈下と滑り亀裂

セピック河による路側の洗掘

ｾﾋﾟｯｸ･ﾊｲｳｪｲの斜面崩壊

降雨の後のｾﾋﾟｯｸ･ﾊｲｳｪｲの土砂路面

現地写真（モロベ州の道路災害と対策）

ワウ道路途中で河川洗掘によって道路が崩壊

ワウ道路にかかる橋梁の洪水による橋台の崩壊

ブロロ河氾濫によるワウ道路の道路崩壊

ワウ道路のワウ - ブロロ間にある管渠のアウトレットの崩壊

ワウ道路のキロロ橋の布団籠による護岸工

斜面崩落によりブロックされたワウ道路

斜面崩壊によりブロックされたワウ道路

ブロロ河の洗掘によるワウ道路崩壊

現地写真（西ニューブリテン州の道路災害と対策）

ﾆｭｰﾌﾞﾘﾃﾝ・ﾊｲｳｪｲ上の橋梁復旧作業

ﾆｭｰﾌﾞﾘﾃﾝ・ﾊｲｳｪｲの橋梁崩壊箇所で住民が仮橋を渡る

ﾆｭｰﾌﾞﾘﾃﾝ・ﾊｲｳｪｲの流失道路の仮道づくり

洪水冠水で荒廃したﾆｭｰﾌﾞﾘﾃﾝ・ﾊｲｳｪｲ

ﾆｭｰﾌﾞﾘﾃﾝ・ﾊｲｳｪｲ上の橋台の流失した橋梁

添付資料 4　PTB の既存建設機材の状況

2007/3/16

Motor Grader (Move)

Item	Manufacture	Model	Serial No	Date of Acquistio	Location	Date of Acquistion	Condition	Location	
1	Komatsu	GD623-A1	3009	1998	N Solomon		Rc		11-B-0260
2	Komatsu	GD623-A1	30107	1989	Western				11-B-0263
3	Komatsu	GD623-A1	30109	1989	Gulf				11-B-0265
4	Komatsu	GD623-A1	30110	1999	NRC		Rc		11-B-0264
5	Komatsu	GD623-A1	30148	1989	Mine Bay				11-B-0267
6	Komatsu	GD623-A1	30153	1995	Morobe		Rc	Lae	11-B-0270
7	Komatsu	GD623-A1	30170	1990	Central			Kupiano	11-B-0272
8	Komatsu	GD623-A1	30372	1995	Gulf	Donated			11-B-0286
9	Komatsu	GD623-A1	30373	1995	East Sepik	Donated			11-B-0288
10	Komatsu	GD623-A1	30408	1995	E New Bri	Donated			11-B-0290
11	Komatsu	GD623-A1	30421	1996	Manus				11-B-0291
12	Komatsu	GD623-A1	30422	1995	Morobe	Donated		Lae	11-B-0293
13	Komatsu	GD623-A1	30423	1995	South HL	Donated			11-B-0292
14	Komatsu	GD623-A1	301437	1989	Enga				11-B-0269
15	Komatsu	GD623-A1	(33552)	1997	Enga		Rc		11-B-0262
16	Komatsu	GD621R-1	10059	1998	East Sepik		Rc		11-B-9278
17	Komatsu	GD621R-1	10094	1991	Oro				11-B-0282
18	Komatsu	GD621R-1	10097	1991	Madang				11-B-0277
19	Komatsu	GD621R-1	10188	1984	W New Bri			Kimbe	11-B-9285
20	Komatsu	GD621R-1	107481	1999	West HL				11-B-0273
21	Komatsu	GD621R-1	112341	1991	Central			Kwikila	11-B-0283
22	Komatsu	GD621R-1	N/A	1998	Chibu		Rc		11-B-0289
23	Komatsu	GD605R-1	31886	1981	Central				11-B-0254

Down

1	Komatsu	GD623-A1	30058	1988	Manus		XX		11-B-0258
2	Komatsu	GD623-A1	30065	1988	West Sepik		XX		11-B-0261
3	Komatsu	GD623-A1	30086	1989	Oro		XX		11-B-0259
4	Komatsu	GD623-A1	30149	1989	Manus		XX		11-B-0268
5	Komatsu	GD623-A1	30169	1990	Morobe		XX		11-B-0271
6	Komatsu	GD621R-1	10061	1990	W New Bri		XX		11-B-0275
7	Komatsu	GD621R-1	10070	1994	NRC		XX		11-B-0281
8	Komatsu	GD621R-1	10096	1999	NRC		XX		11-B-0279
9	Komatsu	GD621R-1	118419	1994	Gulf		XX		11-B-0284
10	Komatsu	GD605R-1	31372	1981	Central		XX	Kupiano	11-B-0245
11	Komatsu	GD605R-1	31566	1981	Central		XX	Kupiano	11-B-0247

	2004	2007	
Move	23	22	Units
Down	14	11	Units
Total	37	33	Units

Over 12 Year
Donated by JICA

Bulldozer(Move)

Item	Manufacture	Model	Serial No	Date of Acquistio	Location	Date of Acquistion	Condition	Location	
1	Komatsu	D65E-8	29041	1988	NCD				21-B-9006
2	Komatsu	D65E-8	47080	1989	Oro				21-B-0127
3	Komatsu	D65E-8	47136		Western				21-B-9132
4	Komatsu	D65E-8	43819	1990	Central				21-B-0135
5	Komatsu	D65E-8	45816	1993	West Sepik				21-B-9120
6	Komatsu	D65E-8	46658	1988	South HL				21-B-0123
7	Komatsu	D65E-8	47136	1990	Madang				21-B-0133
8	Komatsu	D65E-8	475043	1989	NRC				21-B-0129
9	Komatsu	D65E-12	61835	1995	Gulf	Donated			21-B-0140
10	Komatsu	D65E-12	2111111	1995	East Sepik	Donated			21-B-0141
11	Cat	D6H	556	1994	W New Bri				21-B-0138
12	Cat	D6H	4YF05588	1995	Manus				21-B-0139
13	Komatsu	D37E-2	2247	1989	Enga				21-A-0070
14	Komatsu	D37E-2	2524	1991	Western				21-A-0074
15	Komatsu	D37E-2	2525	1991	Oro				21-A-0073
16	Komatsu	D37E-2	3346	1994	Enga				21-A-0077

Front End Loader (Move)

Item	Manufacture	Model	Serial No	Date of Acquistio	Location	Date of Acquistion	Condition	Location	
1	Ford	555	202796	1995	NRC				12-A-0241
2	Ford	555C	A404837	1989	Western				12-A-0249
3	Ford	DF550	8378569	1980	Western				12-A-0198

Down

1	Ford	555C	A415066	1991	New Ilelamd		▲	NRC	12-A-0264
2	Ford	555	201176	1985	West Sepik		XX		12-A-0232
3	Ford	555	203027		West Sepik		XX		12-A-0259

	2004	2007		Over 12 Year
Move	3	3	Units	
Down	3	3	Units	
Total	6	6	Units	

Dozer Shovel(Down)

Item	Manufacture	Model	Serial No	Date of Acquistio	Location	Date of Acquistion	Condition	Location	
1	Komatsu	D31S-17	32980	1986	Gulf		XX		12-A-0231

	2004	2007	
Move	0	0	Units
Down	1	1	Units
Total	1	1	Units

Tire Roller (Move)

Item	Manufacture	Model	Serial No	Date of Acquistio	Location	Date of Acquistion	Condition	Location	
1		C530A	A91C-33958	1982	Central				19-F-0032
2	Ingesol Rand	PT125R	148507	1997	W New Bri				19-F-0033

Down

1	Ingesol Rand	PT125R	148503	1997	East Sepik				19-G-0065

	2004	2007		Over 12 Year
Move	3	2	Units	
Down	0	1	Units	
Total	3	3	Units	

Excavator (Move)

Item	Manufacture	Model	Serial No	Date of Acquistio	Location	Date of Acquistion	Condition	Location	
1	Komatsu	PC200-G	84488	1994	West Sepik				12-A-0276

Down

2	Komatsu	PC200-6	85407	1994	South HL		XXNRC		21-A-0076

	2004	2007	
Move	1	1	Units
Down	1	1	Units
Total	2	2	Units

Over 10 Year

Dump Truck (Move)

Item	Manufacture	Model	Serial No	Date of Acquistio	Location	Date of Acquistion	Condition	Location	
1	Toyota	DA110	117099	1988	Central				22-W-1438
2	Toyota	DA110	117102	1988	Central				22-W-1437
3	Toyota	DA110	118409		Central		Re		22-W-1560
4	Toyota	DA110	119381	1993	Gulf				22-E-0840
5	Hino	FM176L	10011	1990	New Ilelamd				22-E-0866
6	Hino	FM176L	10021	1999	Manus		Re		22-E-0864
7	Hino	FM176L	13187	1989	Enga				22-E-0854
8	Hino	FM176L	7613011	1990	Chibu				22-E-0857
9	Isuzu 6x6	FTS12F	3600019	1995	South HL		Re		22-E-0852
10	Isuzu 6x6	FTS12F	3600018	1995	South HL		Re		22-E-0853
11	Isuzu 6x6	HTW-113	30000001	1992	Enga				22-E-0856
12	Isuzu 6x6	HTW-113	30000002	1992	South HL				22-E-0850
13	Isuzu 6x6	HTW-113	30000003	1992	South HL				22-E-0851
14	Isuzu 6x6	HTW-11K	30000007	1992	Oro				22-E-0847
15	Isuzu 6x6	HTW-11K	30000008	1992	Oro				22-E-0849
16	Isuzu	HTW-113	36000020	1995	West Sepik		Re		22-E-0863
17	Isuzu	HTW-113	36000024	1990	Gulf				22-E-0838
18	Isuzu	HTW-113	30000026	1990	Central				22-E-0844
19	Isuzu	HTW-113	30000053	1990	Central				22-E-0842
20	Isuzu	HTW-113	36000055	1990	Gulf				22-E-0839
21	Isuzu	HTW-113	30000059	1990	Central			Kupiano	22-E-0843
22	Isuzu	HTW-113	30000060	1990	Western				22-E-0837
23	Isuzu 6x6	HTW-11K	30000062	1990	Oro				22-E-0845
24	Isuzu	HTW-113	30000064	1990	Central				22-E-0841
25	Isuzu 6x6	HTW-113	30000092	1992	Enga				22-E-0855
26	Nissan	TWA52L	5360	1989	Madang				22-E-0860
27	Nissan	TWA52L	5361	1989	Madang				22-E-0861
28	Nissan	TWA52L	5392	1990	Oro				22-E-0846

Down

1	Hino	FM176L	10017	1990	East Sepik		XX		22-E-0862
2	Hino	FM176L	10022	1999	Manus		XX		22-E-0865
3	Hino	FM176L	13193	1989	E New Bri		XX		22-E-0867
4	Isuzu 6x6	HTW-11K	3000010	1992	Oro		XX		22-E-0848
5	Nissan	TWA52L	5122	1998	NRC		▲		22-E-0872
6	Nissan	TWA52L	5364	1989	W New Bri		XX	Kimbe	22-E-0871
7	Nissan	TWA52L	5500	1988	W New Bri		XX	Kimbe	22-E-0870

	2004	2007	
Move	25	28	Units
Down	9	7	Units
Total	34	35	Units

Over 12 Year

Vibration Roller (Move)

Item	Manufacture	Model	Serial No	Date of Acquistio	Location	Date of Acquistion	Condition	Location	
1	Dynapac	CA15	673346	1991	Central			Kwikila	19-G-0038
2	Dynapac	CA25	44886543		Chibu				19-G-9014
3	Dynapac	CA25			Madang				19-G-9007
4	Dynapac	CA251D	21200456	1996	South HL	AUSAID			19-G-067
5	Komatsu	JV100A-1	10410	1991	New Ilelamd				19-G-0058
6	Komatsu	JV100A-1	10411	1998	E New Bri				19-G-0057
7	Komatsu	JV100A-1	10418		West Sepik				19-G-0061
8	Ingesol Rand	SD100D	4561	1995	Gulf	Donated			19-G-0064
9	Ingesol Rand	SD100D	147885	1995	East Sepik	Donated		Angoram	19-G-0066
10	Ingesol Land	SP48	B0-730	1989	Mine Bay				19-G-0046
11	Ingesol Rand	SP48	6172		NRC				19-G-0044
12	Ingesol Rand	SP48DD	6176	1989	Western				19-G-0049
13	Ingesol Rand	SP48DD	5047921	1989	Oro				19-G-0047
14	Ingesol Rand	SP48DD	36096	1989	Morobe			Lae	19-G-0048
15	Ingesol Rand	SP48DD	8130	1992	Madang				19-G-0063
16	Ingesol Rand	SP48DD	6465P	1998	Manus				19-G-0054
17	Ingesol Rand	SP48DD	44341980	1989	N Solomon				19-G-0050
18	Ingesol Rand	DD22	8248575	1992	Central				19-G-0062
19	Pasific	RP16	2013	1996	South HL	AUSAID			19-G-069

Down

1	Komatsu	JV100A-1	10404	1997	NRC		▲		19-G-0056
2	Dynapac	CA25	2755-F17	1991	Morobe		XX		19-G-9025
3	Dynapac	CA25	44633013	1996	West Sepik		XX		19-G-9029
4	Dynapac	CA25	9035572	1998	E New Bri		XX		19-G-9013
5	Ingesol Rand	SD100	7382	1997	NRC		XX		19-G-0059
6	Ingesol Rand	SP48DD	77780	1989	W New Bri		XX		19-G-0052
7	Pasific	RP16	800	1985	Morobe		XX		19-G-0036
8	Pacific	RP16	1826	1992	W New Bri		XX		19-G-9093

	2004	2007	
Move	17	19	Units
Down	7	8	Units
Total	24	27	Units

Over 12 Year
Donated by JICA

Excavator (Move)

Item	Manufacture	Model	Serial No	Date of Acquistio	Location	Date of Acquistion	Condition	Location	
1	Komatsu	PC200-G	84488	1994	West Sepik				12-A-0276

Down

2	Komatsu	PC200-6	85407	1994	South HL		XXNRC		21-A-0076

	2004	2007	
Move	1	1	Units
Down	1	1	Units
Total	2	2	Units

Over 10 Year

Dump Truck (Move)

Item	Manufacture	Model	Serial No	Date of Acquistio	Location	Date of Acquistion	Condition	Location	
1	Toyota	DA110	117099	1988	Central				22-W-1438
2	Toyota	DA110	117102	1988	Central				22-W-1437
3	Toyota	DA110	118409		Central		Rc		22-W-1560
4	Toyota	DA110	119381	1993	Gulf				22-E-0840
5	Hino	FM176L	10011	1990	New Ilelamd				22-E-0866
6	Hino	FM176L	10021	1999	Manus		Rc		22-E-0864
7	Hino	FM176L	13187	1989	Enga				22-E-0854
8	Hino	FM176L	7613011	1990	Chibu				22-E-0857
9	Isuzu 6x6	FTS12F	3600019	1995	South HL		Rc		22-E-0852
10	Isuzu 6x6	FTS12F	3600018	1995	South HL		Rc		22-E-0853
11	Isuzu 6x6	HTW-113	30000001	1992	Enga				22-E-0856
12	Isuzu 6x6	HTW-113	30000002	1992	South HL				22-E-0850
13	Isuzu 6x6	HTW-113	30000003	1992	South HL				22-E-0851
14	Isuzu 6x6	HTW-11K	30000007	1992	Oro				22-E-0847
15	Isuzu 6x6	HTW-11K	30000008	1992	Oro				22-E-0849
16	Isuzu	HTW-113	36000020	1995	West Sepik		Rc		22-E-0863
17	Isuzu	HTW-113	36000024	1990	Gulf				22-E-0838
18	Isuzu	HTW-113	30000026	1990	Central				22-E-0844
19	Isuzu	HTW-113	30000053	1990	Central				22-E-0842
20	Isuzu	HTW-113	36000055	1990	Gulf				22-E-0839
21	Isuzu	HTW-113	30000059	1990	Central			Kupiano	22-E-0843
22	Isuzu	HTW-113	30000060	1990	Western				22-E-0837
23	Isuzu 6x6	HTW-11K	30000062	1990	Oro				22-E-0845
24	Isuzu	HTW-113	30000064	1990	Central				22-E-0841
25	Isuzu 6x6	HTW-113	30000092	1992	Enga				22-E-0855
26	Nissan	TWA52L	5360	1989	Madang				22-E-0860
27	Nissan	TWA52L	5361	1989	Madang				22-E-0861
28	Nissan	TWA52L	5392	1990	Oro				22-E-0846

Down

1	Hino	FM176L	10017	1990	East Sepik		XX		22-E-0862
2	Hino	FM176L	10022	1999	Manus		XX		22-E-0865
3	Hino	FM176L	13193	1989	E New Bri		XX		22-E-0867
4	Isuzu 6x6	HTW-11K	3000010	1992	Oro		XX		22-E-0848
5	Nissan	TWA52L	5122	1998	NRC		▲		22-E-0872
6	Nissan	TWA52L	5364	1989	W New Bri		XX	Kimbe	22-E-0871
7	Nissan	TWA52L	5500	1988	W New Bri		XX	Kimbe	22-E-0870

	2004	2007	
Move	25	28	Units
Down	9	7	Units
Total	34	35	Units

Over 12 Year

Asphalt Distributer (Move)

Item	Manufacture	Model	Serial No	Date of Acquistio	Location	Date of Acquistion	Condition	Location	
1	Nissan	CPB14H	14234	1997	East Sepik	Donated(JICA)			18-C-0036
2	Nissan/Hanta	CPB14H	14235	1997	New Ilelamd	Donated(JICA)			18-C-1727
3	Technic	TS1000	195	1986	Western				18-C-0061
4	Matthews	72-S-S-02		1985	W New Bri				18-C-0057

Down

1	Hino/Hanta	FM176K	12438	1991	W New Bri		▲	Kimbe	18-C-1521

	2004	2007	
Move	6	4	Units
Down	0	1	Units
Total	6	5	Units

Over 10 Year

Water Tanker (Move)

Item	Manufacture	Model	Serial No	Date of Acquistio	Location	Date of Acquistion	Condition	Location	
1	Nissan	CPB87	7392	1995	East Sepik	Donated			22-W-1730
2	Nissan	CPB87GHS	7391	1995	Gulf	Donated			22-W-1728
3	Toyota	DA110	118181	1990	N Solomon				22-W-1533
4	Toyota	DA110	118849	1991	W New Bri				22-W-1593
5	Toyota	DA110	119211	1997	E New Bri				22-W-1640
6	Toyota	DA110	119374	1994	West Sepik				22-W-1713
7	Toyota	DA110-3	18311	1991	Oro				22-W-1573
8	Toyota	DA110-3	118526	1991	Manus				22-W-1590
9	Toyota	DA115-3	106975	1999	N Solomon				22-W-1748
10	Toyota	DA116	27945		West HL				22-W-1726
11	Toyota	DA116	111022	1994	East HL				22-W-1665
12	Toyota	DA116	118828	1991	East Sepik				22-W-1588
13	Toyota	DA116	119372	1993	Mine Bay				22-W-1707
14	Toyota	DA116	119578	1994	South HL				22-W-1671

	2004	2007	
Move	16	14	Units
Down	0	0	Units
Total	16	14	Units

Over 12 Year
Donated by JIC

Crane (Move)

Item	Manufacture	Model	Serial No	Date of Acquistio	Location	Date of Acquistion	Condition	Location	
1	Hino	FM3HNK	10874		East HL				04-B0039

Down

1	Hino	FMSHMX	1D879	1996	W New Bri		▲	Kimbe	04-B-0040
2	Ford	6600	329467	1979	East Sepik		X	Kimbe	04-B-0025
3	Isuzu	TS-100L	21105	1981	New Ilelamd		XX		04-B-0032

	2004	2007	
Move	3	1	Units
Down	2	3	Units
Total	5	4	Units

Over 12 Year

Trailer (Move)

Item	Manufacture	Model	Serial No	Date of Acquistio	Location	Date of Acquistion	Condition	Location	
1	Kenworth	C500R	409240	1997	Manus				22-K-9023
2	M/Benz	2638	WDB6593	1996	South HL	AUSAID		NRC	22-K-0024

Down

1	Kenworth	C500	407164	1984	Madang		▲	Kimbe	22-K-0022

	2004	2007	
Move	3	2	Units
Down	0	1	Units
Total	3	3	Units

Over 12 Year

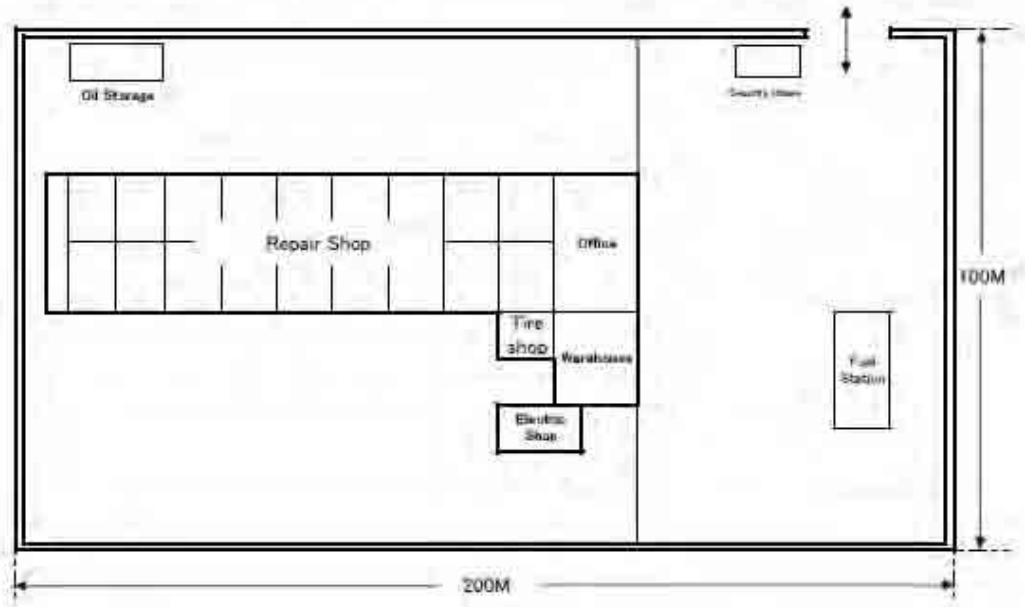
Truck (Move)

Item	Manufacture	Model	Serial No	Date of Acquistio	Location	Date of Acquistion	Condition	Location	
1	Toyota	DA116-3	118410	1991	Madang				22-W-1567
2	Nissan	CWA45	147	1985	South HL				18-C-1293

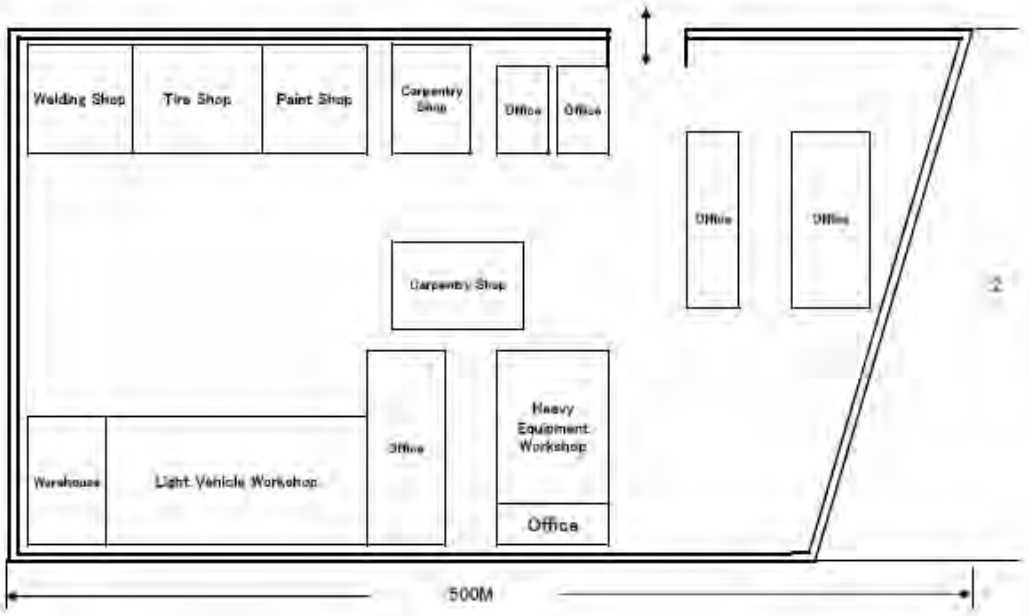
Over 12 Year

添付資料 5.　ワークショップと NRC の見取り図

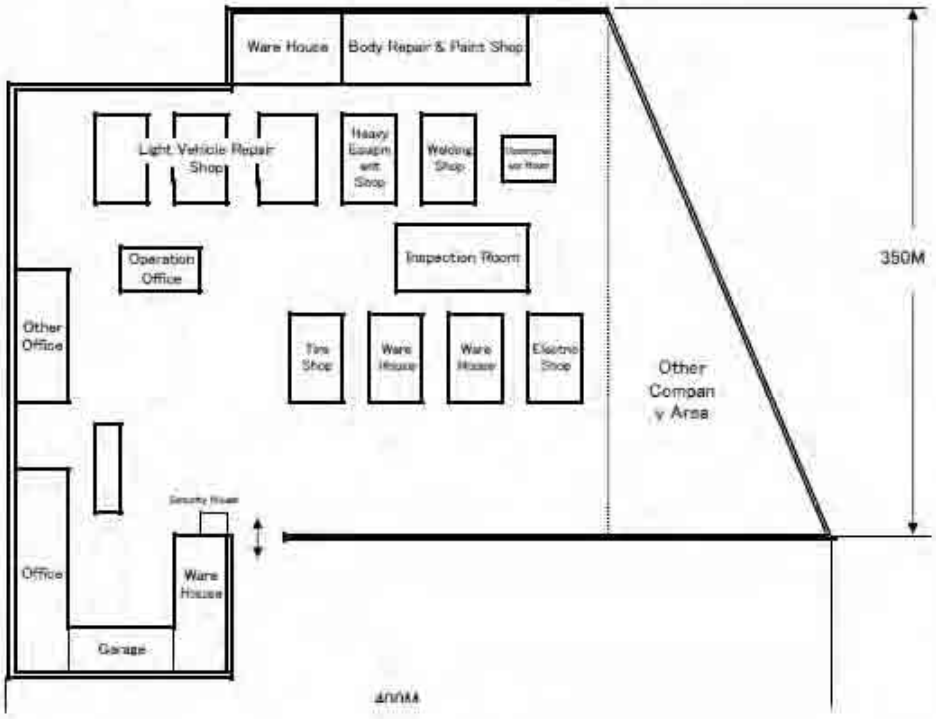
Outline For Workshop In WEAKU



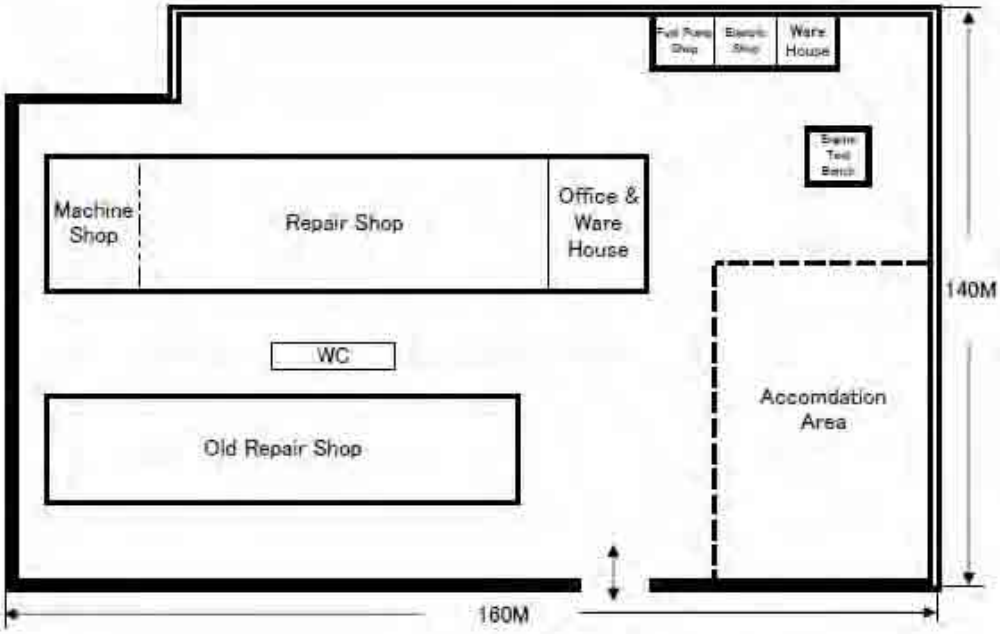
Outline For Workshop In Mount Hargen



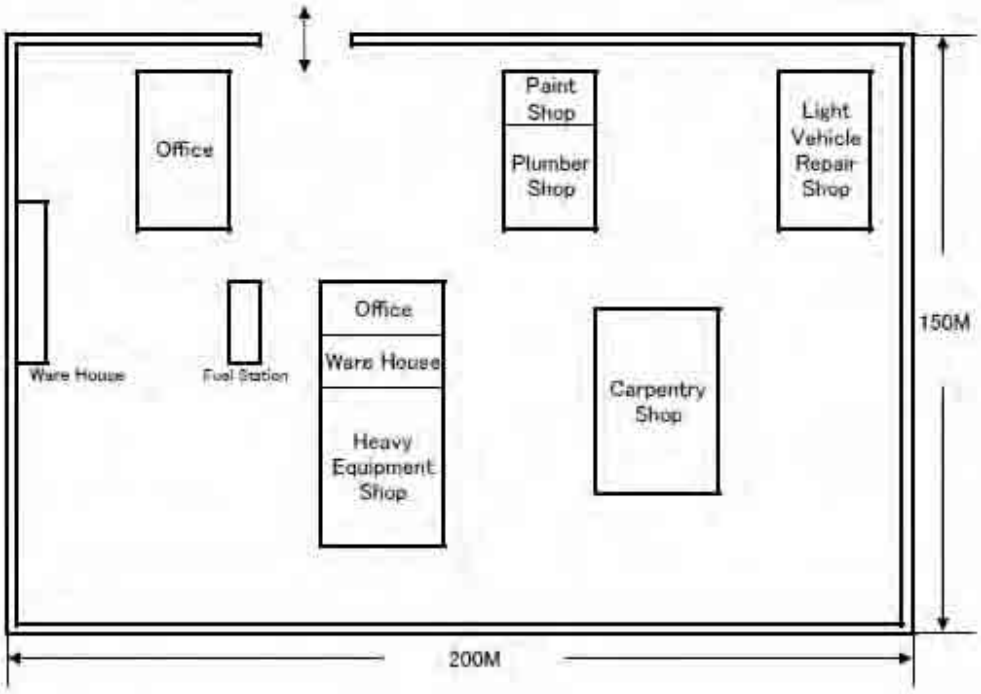
Outline For Workshop In Lae



Outline For NRC In Lae



Outline For Work Shop In Kinbe



添付資料６　要請機材の経費に関して

１　要請機材の管理費用

要請機材を納入した後にかかる概算費用は別表 Estimate Cost of Equipment-2 である。オペレーター費用を除く総額は 1,988,459.84Kina となる。部品に関してはある程度が機材と同時に供与される可能性があるが、少なくとも交換用潤滑油と燃料は必要となる。1 年稼動するに当たっては潤滑油 96,512Kina と燃料費 1,644,240Kina として 1,740,752Kina は最低限必要となる。

表と積算条件

１　稼働時間

当初建設機械の稼動時間は 1 年間、430 時間との情報（国建協報告）もあったが、実際の 1 年の稼働時間は建機で 1,200 時間（Vibration Roller 除く）車輌の走行距離は 12,000ｋｍであった。

２　価格

オイル、燃料に関しては 2007 年 2 月時の現地市場価格。建機（コマツ）の部品価格は現地コマツのディラーである、UMW 社より聞き取りを行ったものである。車輌に関してはいすゞ自動車の日本国内市場価格を参考にした。

３　メンテナンス及び消耗品

メンテナンスの時期はメーカーが推奨する時期、項目とした。また、消耗品に関しては現地聞き取り情報を参考に積算した。

４　その他

新機材導入した場合、1～3 年はメンテナンスと点検を確実に実施していれば、積算表にあるような経費で済む。ただし、推測しがたい過剰作業による破損（タイヤ等）や事故修理費用は、この表には含まれていない。また、作業現場の特性によっては、消耗部品の消費量も変わってくる。

５　表に関して

Estimation Cost of Equipment-1 は要請機材の各、物品の積算表（１～４）

Estimation Cost of Equipment-2 はオイル、部品、燃料費積算表

Estimation Cost of Equipment-3 は総額費用

以上

Estimation Cost of Equipment – 1

* *Motor Grader*

GD623-1
100hMx12M 1,200hY

	Parts Name	Parts Number	① Maintenance Time(hour)	② Number of Maintenance	③ Q'ty per Unit	②x③ Q'ty per year	④ Unit Price (Kina)	②x③x④ Amount (Kina)
Oil	Engine Oil	#30	250	4	38	152	16	2,432.00
	Transmission	#30	500	2	36	72	16	1,152.00
	Hyd Oil	#10W	1,000	1	200	1	16	16.00
	Final Drive	#90	1,000	1	30	1	16	16.00
							Total A	3,616.00
Parts	Cartridge(Oil Filter)	6134-51-5121	250	4	1	4	41.33	165.32
	Cartridge(Fuel Filter	600-311-8293	500	2	1	2	55.96	111.92
	Cartridge(Transmiss	23B-16-11310	500	2	1	2	46.74	93.48
	Element Assy(Air)	6114-80-7101	500	2	1	2	321.2	642.40
	Element(H/D)	07063-01054	1,000	1	1	1	67.04	67.04
	V-Belt	04121-22263	2,000	0	1	0	205.76	0.00
	Edge	232-70-12143	250	4	2	8	364.14	2,913.12
	Bit,end	232-70-52180	250	4	2	8	218.15	1,745.20
	Bolt	232-70-12450	250	4	36	144	7.63	1,098.72
	Bolt	232-70-12460	250	4	4	16	9	144.00
	Nut	232-70-12480	250	4	36	144	6.45	928.80
	Washer	01643-31645	250	4	36	144	1.5	216.00
							Total B	8,126.00

Deasel Fuel

Engine Power	1 Working Hour	2 Consumption	1 x 2 = 3 Fuel Volume	4 Fuel Price	3 x 4 (Kina)	
155hp	1,200h/y	12L/h	14,400L/y	3	Total C	43,200.00

*燃料消費は建設機械損料積算資料より

Tota 1 Unit A+B+C 54,942.00

* *Bulldozer*

D65E-12
100hMx12M 1,200hY

	Parts Name	Parts Number	① Maintenance Time(hour)	② Number of Maintenance	③ Q'ty per Unit	②x③ Q'ty per year	④ Unit Price (Kina)	②x③x④ Amount (Kina)
Oil	Engine Oil	#30	250	4	38	152	16	2,432.00
	Power Train	#30	500	2	48	96	16	1,536.00
	Hydraulic Oil	#10W	2,000	0	55	0	16	0.00
	Final Drive	#30	1,000	1	48	48	16	768.00
							Total A	4,736.00
Parts	Cartridge(Oil Filter)	6136-51-5121	250	4	1	4	41.33	165.32
	Cartridge(Fuel Filter	600-311-8293	500	2	1	2	55.96	111.92
	Corrosion Resistor	600-411-1151	1,000	1	1	1	108	108.00
	Cartridge(Transmiss	07063-01054	250	4	1	4	49.24	196.96
	Element Assy	600-182-8110	500	2	1	2	450.58	901.16
	Element(H/D)	07063-01100	2,000	0	1	0	99.3	0.00
	V-Belt	04121-22272	2,000	0	1	0	233.08	0.00
	Edge	130-920-2180W	500	2	2	4	649.54	2,598.16
	Bit,end	175-71-22272W	500	2	1	2	1204.68	2,409.36
	Bit,end	175-71-22282W	500	2	1	2	1204.68	2,409.36
	Bolt	02090-11270	250	4	28	112	8.98	1,005.76
	Teeth	14X-27-15112	1,000	1	18	18	145.95	2,627.10
	Bolt	154-27-12320	1,000	1	54	54	9.52	514.08
	Nut	01803-02228	1,000	1	54	54	7.4	399.60
							Total B	13,446.78

Deasel Fuel

Engine Power	1 Working Hour	2 Consumption	1 x 2 = 3 Fuel Volume	4 Fuel Price	3 x 4 (Kina)	
180hp	1,200h/y	27L/h	32,400L/y	3	Total C	97,200.00

*燃料消費は建設機械損料積算資料より

Tota Unit A+B+C 18,182.78

* *Excavator*

PC200-6

100hMx12M 1,200hY

	Parts Name	Parts Number	① Maintenance Time(hour)	② Number of Maintenance	③ Q'ty per Unit	②x③ Q'ty per year	④ Unit Price (Kina)	②x③x④ Amount (Kina)
Oil	Engine Oil	#30	250	4	23	92	16	1,472.00
	Hydraulic Oil	#10W	1,000	1	166	166	16	2,656.00
							Total A	4,128.00
Parts	Cartridge(Oil Filter)	600-211-5241	250	4	1	4	38.52	154.08
	Cartridge(Fuel Filter	600-311-8221	500	2	1	2	33.52	67.04
	Element Assy	600-181-6820	1,000	1	1	1	298.82	298.82
	Element(H/D)	07063-01210	500	2	1	2	100.68	201.36
	V-Belt	04121-21744	2,000	0	0	0	149	0.00
	Tooth	205-70-19570	250	4	5	20	156.8	3,136.00
	Side Cutter	205-70-74180	250	4	1	4	807.2	3,228.80
	Side Cutter	205-70-74190	250	4	1	4	807.2	3,228.80
	Pin	09244-02496	250	2	5	10	46.84	468.40
	Bolt	176-32-11210	250	4	8	32	8.22	263.04
	Nut	01803-02430	250	4	8	32	9.28	296.96
							Total B	11,343.30

Deasel Fuel

Engine Power	1 Working Hour	2 Consumption	1 x 2 = 3 Fuel Volume	4 Fuel Price	3 x 4 (Kina)	
128hp	1,200h/y	18L/h	21,600L/y	3	Total C	64,800.00

*燃料消費は建設機械損料積算資料より

Tota Unit A+B+C 15,471.3

* *Wheel Loader*

WA250-3

100hMx12M 1,200hY

	Parts Name	Parts Number	① Maintenance Time(hour)	② Number of Maintenance	③ Q'ty per Unit	②x③ Q'ty per year	④ Unit Price (Kina)	②x③x④ Amount (Kina)
Oil	Engine Oil	#30	250	4	22	88	16	1,408.00
	Transmission	#10W	1,000	1	30	30	16	480.00
	Hyd Oil	#10W	2,000	0	64	0	16	0.00
	Diff & Axle	AX80	1,000	1	24	24	16	384.00
							Total A	2,272.00
Parts	Cartridge(Oil Filter)	6136-51-5121	250	4	1	4	42.04	168.16
	V-Belt	6732-81-3480	2,000	0	1	0	174.36	0.00
	Cartridge(Fuel Filter	600-311-8292	500	2	1	2	41.04	82.08
	Cartridge(Transmiss	714-07-28710	1,000	1	1	1	182.68	182.68
	Element Assy	600-182-3200	1,000	1	1	1	434.48	434.48
	Cartridge(Corrosion)	600-411-1190	1,000	1	1	1	128.6	128.60
	Element(H/D)	07063-01142	1,000	1	1	1	72.16	72.16
	Tooth	419-70-13114	250	4	6	24	527.2	12,652.80
	Bolt	02090-11695	250	4	14	56	13.08	732.48
	Bolt	419-70-13150	250	4	2	8	20.44	163.52
	Nut	09218-12523	250	4	14	56	6.76	378.56
	Nut	02290-11625	250	4	2	8	9.04	72.32
							Total B	15,067.84

Deasel Fuel

Engine Power	1 Working Hour	2 Consumption	1 x 2 = 3 Fuel Volume	4 Fuel Price	3 x 4 (Kina)	
130hp	1,200h/y	16L/h	19,200L/y	3	Total C	57,600.00

*燃料消費は建設機械損料積算資料より

Tota Unit A+B+C 17,339.84

* *Vibration Roller*

JV100
40hMx12M 480hY

	Parts Name	Parts Number	① Maintenance Time(hour)	② Number of Maintenance	③ Q'ty per Unit	②x③ Q'ty per year	④ Unit Price (Kina)	②x③x④ Amount (Kina)
Oil	Engine Oil	#30	250	1	30	30	16	480.00
	Hydraulic Oil	#10W	1,000	0	85	0	16	0.00
	Diff	#90	1,000	0	15	0	16	0.00
							Total A	480.00
Parts	Cartridge(Oil Filter)	6136-51-5120	250	1	1	1	42.04	42.04
	Cartridge(Fuel Filter	6136-71-6120	500	0	1	0	45.22	0.00
	Cartridge	600-411-1010	1,000	0	1	0	74.72	0.00
	Element	600-181-2300	1,000	0	1	0	155.04	0.00
	V-Belt	04121-21761	2,000	0	1	0	190.84	0.00
	Element(H/D)	273-60-13160	1,000	0	1	0	165.88	0.00
							Total B	42.04

Deasel Fuel

Engine Power	1 Working Hour	2 Consumption	1 x 2 = 3 Fuel Volume	4 Fuel Price	3 x 4 (Kina)	
130hp	1,200h/y	15L/h	7,200L/y	3	Total C	21,600.00

*燃料消費は建設機械損料積算資料より

Tota Unit A+B+C 522.04

* *Water Tanker*

FSR 6,000L
1,000kmx12M 12,000kmY

	Parts Name	Parts Number	① Maintenance Time(Kms)	② Number of Maintenance	③ Q'ty per Unit	②x③ Q'ty per year	④ Unit Price (Kina)	②x③x④ Amount (Kina)
Oil	Engine Oil	#30	5,000	2	30	60	16	960.00
	Transmission	#90	20,000	0	0	0	16	0.00
	Diff	#90	20,000	0	15	0	16	0.00
							Total A	960.00
Parts	Cartridge(Oil Filter)	8-97371-337-0	5,000	2	1	2	55	110.00
	Cartridge(Fuel Filter	8-94394-079-2	5,000	2	1	2	65	130.00
	V-Belt	1-13671-194-0	20,000	0	1	0	110	0.00
	Element Assy	1-14215-111-0	5,000	2	1	2	340	680.00
							Total B	920.00

Deasel Fuel

Engine Power	1 Trip Meter	2 Consumption	1 x 2 = 3 Fuel Volume	4 Fuel Price	3 x 4 (Kina)	
200hp	12,000km/y	13L/h	5,200L/y	3	Total C	15,600.00

30km/h=13L/h

Tota Unit A+B+C 1,880.00

* *Dump Truck*

FSR 8ton
1,000kmx12M 12,000kmY

	Parts Name	Parts Number	① Maintenance Time(Kms)	② Number of Maintenance	③ Q'ty per Unit	②x③ Q'ty per year	④ Unit Price (Kina)	②x③x④ Amount (Kina)
Oil	Engine Oil	#30	5,000	2	30	60	16	960.00
	Transmission	#90	20,000	0	0	0	16	0.00
	Diff	#90	20,000	0	15	0	16	0.00
							Total A	960.00
Parts	Cartridge(Oil Filter)	8-97371-337-0	5,000	2	1	2	55	110.00
	Cartridge(Fuel Filter	8-94394-079-2	5,000	2	1	2	65	130.00
	V-Belt	1-13671-194-0	20,000	0	1	0	110	0.00
	Element Assy	1-14215-111-0	5,000	2	1	2	340	680.00
							Total B	920.00

Deasel Fuel

Engine Power	1 Trip Meter	2 Consumption	1 x 2 = 3 Fuel Volume	4 Fuel Price	3 x 4 (Kina)	
200hp	12,000km/y	13L/h	5,200L/y	3	Total C	15,600.00

30km/h=13L/h

Tota Unit A+B+C 1,880.00

* *Mobile Workshop*

FTS 8ton
300kmx12M 3,600kmY

	Parts Name	Parts Number	① Maintenance Time(Kms)	② Number of Maintenance	③ Q'ty per Unit	②x③ Q'ty per year	④ Unit Price (Kina)	②x③x④ Amount (Kina)
Oil	Engine Oil	#30	5,000	1	30	30	16	480.00
	Transmission	#90	20,000	0	0	0	16	0.00
	Diff	#90	30,000	0	80	0	16	0.00
							Total A	480.00

Parts	Cartridge(Oil Filter)	8-97371-337-0	20,000	0	15	0	16	0.00
	Cartridge(Fuel Filter	8-94394-079-2	5,000	1	1	1	60	60.00
	V-Belt	1-13671-194-0	5,000	1	1	1	35	35.00
	Element Assy		5,000	2	1	2	340	680.00
	Maintanin for Facility and Tools		1 Set					400.00
							Total B	1,175.00

Deasel Fuel

Engine Power	1 Trip Meter	2 Consumption	1 x 2 = 3 Fuel Volume	4 Fuel Price	3 x 4 (Kina)	
200hp	3,600km/y	13L/h	1,820L/y	3	Total C	5,460.00

30km/h=13L/h

Tota Unit A+B+C 1,655.00

注意: Mobile Workshopは1年を経過してもメンテナンス時期とならないが、稼動が1年を超えるためにメンテナンスを実施する仮定とした。

: Maintenance for Facility and Toolsの費用としては、Mobile Workshopに搭載された、発電機、コンプレッサーのメンテナンス費用が含まれています。

Estimation Cost of Equipment – 2
(Each Part Estimate)

* Oil

	Description	Model	Unit ①	Oil 1 Year ②	Total ①x②
1	Motor Grader	GD623-1	8	3,616.00	28,928.00
2	Bulldozer	D65E-12	4	4,736.00	18,944.00
3	Excavator	PC200-6	4	4,128.00	16,512.00
4	Wheel Loader	WA250-3	4	2,272.00	9,088.00
5	Vibration Roller	JV-100-1	4	480.00	1,920.00
6	Water Tanker	FSR	4	960.00	3,840.00
7	Dump Truck	FSR	16	960.00	15,360.00
8	M-Workshop	FTS	4	480.00	1,920.00
		Total Units	48		96,512.00

* Parts

	Description	Model	Unit ①	Parts 1 Year ③	Total ①x③
1	Motor Grader	GD623-1	8	8,126.00	65,008.00
2	Bulldozer	D65E-12	4	13,446.78	53,787.12
3	Excavator	PC200-6	4	11,343.30	45,373.20
4	Wheel Loader	WA250-3	4	15,067.84	60,271.36
5	Vibration Roller	JV-100-1	4	42.04	168.16
6	Water Tanker	FSR	4	920.00	3,680.00
7	Dump Truck	FSR	16	920.00	14,720.00
8	M-Workshop	FTS	4	1,175.00	4,700.00
		Total Units	48		247,707.84

* Fuel

	Description	Model	Unit ①	Fuel 1 Year ④	Total ①x④
1	Motor Grader	GD623-1	8	43,200.00	345,600.00
2	Bulldozer	D65E-12	4	97,200.00	388,800.00
3	Excavator	PC200-6	4	64,800.00	259,200.00
4	Wheel Loader	WA250-3	4	57,600.00	230,400.00
5	Vibration Roller	JV-100-1	4	21,600.00	86,400.00
6	Water Tanker	FSR	4	15,600.00	62,400.00
7	Dump Truck	FSR	16	15,600.00	249,600.00
8	M-Workshop	FTS	4	5,460.00	21,840.00
		Total Units	48		1,644,240.00

Grand Total 1,988,459.84

Estimation Cost of Equipment – 3

	Description	Model	Unit ①	Oil 1 Year ②	Parts 1 Year ③	Fuel 1 Year ④	Unit Price ②+③+④=⑤	Total(Kina) ①x⑤
1	Motor Grader	GD623-1	8	3,616.00	8,126.00	43,200.00	54,942.00	439,536.00
2	Bulldozer	D65E-12	4	4,736.00	13,446.78	97,200.00	115,382.78	461,531.12
3	Excavator	PC200-6	4	4,128.00	11,343.30	64,800.00	80,271.30	321,085.20
4	Wheel Loader	WA250-3	4	2,272.00	15,067.84	57,600.00	74,939.84	299,759.36
5	Vibration Roller	JV-100-1	4	480.00	42.04	21,600.00	22,122.04	88,488.16
6	Water Tanker	FSR	4	960.00	920.00	15,600.00	17,480.00	69,920.00
7	Dump Truck	FSR	16	960.00	920.00	15,600.00	17,480.00	279,680.00
8	M-Workshop	FTS	4	480.00	1,175.00	5,460.00	7,115.00	28,460.00
		Total Units	48				Gland Total	1,988,459.84

Estimation Cost of Operator

Person	Salary	Month	Total (Kina)
48	700	12	403,200

添付資料７　資料収集リスト

番号	資料の名称	発行年	型版	形態	頁数	原本ｺﾋﾟｰ	部数	収集先(発行機関)
1	Review of National Transport Development Plan 2001-2010 volume1＆2　Department of Transport	2005	A4	製本	50	原本	1	DOW
2	National Transport Development Transport Development Plan 2006～2010 volume 1 Department of Transport	2005	A4	製本	50	原本	1	DOW
3	National Transport Development Transport Development Plan 2006～2010 volume 2 Department of Transport	2005	A4	製本	50	原本	1	DOW
4	Road Status Report 2004	2004	A4	製本	53	原本	1	DOW
5	Tyranny of the Terrain Transport in Papua New Guinea	2005	A4	製本	70	原本	1	PCH
6	Geomorphology of Papua New Guinea	2000	A4	製本	150	製本	1	Ernst
7	Papua New Guinea Atlas	2003	A4	製本	100	製本	1	Oxford
8	Road Maintenance Specifications	2006	A5	製本	150	ｺﾋﾟｰ	1	DOW
9	パプアニューギニア国地方道路建設整備機材改善計画	1999	A4	製本	50	ｺﾋﾟｰ	1	国建協