

Tentative requested equipment component

List of the equipment

The delivery point of the equipment shall be respective project sites (Maunglaw for Rakhin State and Hpa-An for Kayin State)

1. Road and Bridge Construction Project in Rakhine State

Priority : A = 1st, B=2nd

No.	Name of Equipment	Specification	Quantity	Unit	Road Construction	Bridge Construction	Priority
1	Motor Grader	Engine output: (approx.) 150 kW, Blade length: (approx.) 4 m, with scarifier Operation weight: (approx.) 14 ton	1	No.	O		A
2	Wheel Loader	Engine output: (approx.) 120 kW, Bucket capacity: (approx.) 2.7 m ³ , Operation Weight: (approx.) 14 ton, Max Dumping Clearance: (approx.) 3 m ROPS cab	1	No.	O		A
3	Bulldozer (crawler)	Operation Weight: (approx.) 25 ton, Engine Output:(approx.) 170 kW Straight Tilt Dozer and Multi-blank Ripper ROPS cab	1	No.	O	O	A
5	Sheep foot Compactor	Operation Weight: (approx.) 14 ton Padfoot drum with removable smooth drum Engine output:(approx.) 80 kW Vibration Power: (approx.) 245 kN (25,000 kgf)	1	No.	O		A
6	Excavator (Crawler)	Bucket capacity: (Approx.) 1.5m ³ Max. Digging Depth: more than 6 m Operation Weight: (approx.) 30 ton Engine Output:(approx.) 170 kW	2	No.	O	O	A
7	Water Bowser (Tanker)	1600~2400 Gal. (7,000~10,000 lit.) Engine output:(approx.) 200 kW Drive System: 6 x 4, GVW: Max. 23 ton	1	No.	O		B
8	Dump truck	Max. payload: 14 ton Engine Output: (approx.) 300 kW	15	No.	O		A
9	Bitumen Sprayer Truck (Bitumen Distributor)	Capacity: 3000~4000 lit. With sub-engine for asphalt pump Diesel Fuel Burner and Heater Splay width: (approx.) 3.7 m Engine output(carrier): (approx.)115 kW Engine output(sub-engine): (approx.)10 kW	1	No.	O		A
10	Asphalt Kettle	Tank capacity :3000~4000 lit. Direct heating type with heat tube and diesel fuel burner Electric hoist for asphalt drum Electric asphalt transfer pump with heater Generator 3 φ, 415 V, 50 Hz, 20 kVA	1	No.	O		B
11	Chip-spreader	Self-propelled tail-gate type, Mounted on the dump truck vessel Hopper :0.3 m ³ (approx.) Spreading width:1.6~2.4 m (approx.) Power source:4 cycle, air-cooled petrol engine Engine output:4.0 kW	1	No.	O		A
12	Boom Truck (Cab-back Crane)	Max. Lifting capacity: 5 ton Telescopic boom crane Carrier: 10 ton payload, 6x4 cargo truck Engine output:(approx.) 240 kW	1	No.	O	O	B
13	Low bed Semi-trailer (with Tractor Head) (Tractor Head)	Max. Payload: 30 ton, Rear loading type Two Axle, 16 tires/Two axle, 8 tires Brake: Air Brake, Suspension: Multi-leaf spring Cab over type, 6x4 drive system Engine output:(approx.) 350 kW Payload (Fifth wheel) :(approx.) 20 ton Suspension: Multi-leaf spring with trunnion shaft Brake:Air Brake	1	No.	O	O	A
14	Mobile Workshop	4x4, cargo truck, with telescopic boom 3 (t) crane and equipment and tools necessary to carry out service for construction machines Payload: (approx.) 7~10 ton Engine output: (approx.) 165 kW	1	No.	O	O	A
15	Inspection Vehicle	4 x 4, Double Cab Pickup, Diesel Engine, Engine output:(approx.) 78 kW	1	No.	O	O	B
16	Plate Compactor	Weight:40~60 kg Centrifugal force:6~10 kN Vibrating plate size :(approx.) 550 x 350 (mm) Engine output:(approx.) 2.0~3.0 kW	3	No.	O	O	B

2.Road and Bridge Construction Project in Kayin State

Priority : A = 1st, B=2nd

No.	Name of Equipment	Specification	Quantity	Unit	Road Construction	Bridge Construction	Priority
1	Motor Grader	Engine output: (approx.) 150 kW, Blade length: (approx.) 4 m, with scarifier Operation weight: (approx.) 14 ton	2	No.	O		A
2	Wheel Loader	Engine output: (approx.) 120 kW , Bucket capacity: (approx.) 2.7 m ³ , Operation Weight: (approx.) 14 ton, Max Dumping Clearance: (approx.) 3 m ROPS cab	2	No.	O		A
3	Bulldozer (crawler)	Operation Weight: (approx.) 25 ton, Engine Output:(approx.) 170 kW, Straight Tilt Dozer and Multi-shank Ripper ROPS cab	2	No.	O	O	A
5	Sheep foot Compactor	Operation Weight: (approx.) 14 ton Padfoot drum with removable smooth drum Engine output:(approx.) 80 kW Vibration Power: (approx.) 245 kN (25,000 kgf)	2	No.	O		A
6	Excavator (crawler)	Bucket capacity: (Approx.) 1.5m ³ Max. Digging Depth: more than 6 m Operation Weight: (approx.) 30 ton Engine Output:(approx.) 170 kW	2	No.	O	O	A
7	Water Bowser (Tanker)	1600~2400 Gal. (7,000~10,000 lit.) Engine output:(approx.) 200 kW Drive System: 6 x 4, GVW: Max. 23 ton	4	No.	O		B
8	Dump truck	Max. payload: 14 ton Engine Output: (approx.) 300 kW	20	No.	O		A
9	Bitumen Sprayer Truck (Bitumen Distributor)	Capacity: 3000~4000 lit. with sub-engine for asphalt pump Diesel Fuel Burner and Heater Splay width: (approx.) 3.7 m Engine output(carrier): (approx.)115 kW	3	No.	O		A
10	Asphalt Kettle	Tank capacity :3000~4000 lit. Direct heating type with heat tube and diesel fuel burner Electric hoist for asphalt drum Electric asphalt transfer pump with heater Generator 3 ϕ , 415 V, 50 Hz, 20 kVA	1	No.	O		B
11	Chip-spreader	Self-propelled tail-gate type, Mounted on the dump truck vessel Hopper :0.3 (m ³) (approx.) Spreading width:1.6~2.4(m) (approx.) Power source:4 cycle, air-cooled petrol engine Engine output:4.0 kW	3	No.	O		A
12	Generator	Diesel Engine Driven, 415/240 V, 50 Hz, 150 KVA	2	No.	O	O	B
13	Inspection Vehicle	4 x4, Double Cab Pickup , Diesel Engine, Engine output:(approx.) 78 kW	1	No.	O	O	B
14	Rough Terrain Crane	30 ton, Telescopic boom Engine output:(approx.) 200 kW	1	No.	O	O	A
15	Boom Truck (Cab-back Crane)	Max. Lifting capacity: 5 ton Telescopic boom Carrier: 10 ton payload, 6x4 cargo truck Engine output:(approx.) 240 kW	1	No.	O	O	A
16	Low bed Semi-trailer (with Tractor Head) (Tractor Head)	Max. Payload: 30 ton , Rear loading type Two Axle, 16 tires/Two axle, 8 tires Brake:Air Brake, Suspension: Multi-leaf spring Cab over type, 6x4 drive system Engine output: (approx.) 350 kW Payload (Fifth wheel) : (approx.) 20 ton Brake: Air Brake	1	No.	O	O	A
17	Mobile Workshop	4x4, cargo truck, with telescopic boom 3 ton crane and equipment and tools necessary to carry out service for construction machines Payload: (approx.) 7~10 ton Engine output: (approx.) 165 kW	1	No.	O	O	A
18	Plate Compactor	Weight:40~60 (kg) Centrifugal force:6~10 kN Vibrating plate size : (approx.) 550 x 350 (mm) Engine output: (approx.) 2.0~3.0 kW	5	No.	O	O	B

JAPAN'S GRANT AID

The Government of Japan (hereinafter referred to as “the GOJ”) is implementing the organizational reforms to improve the quality of ODA operations, and as a part of this realignment, a new JICA law was entered into effect on October 1, 2008. Based on this law and the decision of the GOJ, JICA has become the executing agency of the Grant Aid for General Projects, for Fisheries and for Cultural Cooperation, etc.

The Grant Aid is non-reimbursable fund provided to a recipient country to procure the facilities, equipment and services (engineering services and transportation of the products, etc.) for its economic and social development 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

The Japanese Grant Aid is supplied through following procedures :

- Preparatory Survey
 - The Survey conducted by JICA
- Appraisal & Approval
 - Appraisal by the GOJ and JICA, and Approval by the Japanese Cabinet
- Authority for Determining Implementation
 - The Notes exchanged between the GOJ and a recipient country
- Grant Agreement (hereinafter referred to as “the G/A”)
 - Agreement concluded between JICA and a recipient country
- Implementation
 - Implementation of the Project on the basis of the G/A

2. Preparatory Survey

(1) Contents of the Survey

The aim of the preparatory Survey is to provide a basic document necessary for the appraisal of the Project made by the GOJ and JICA. The contents of the Survey are as follows:

- Confirmation of the background, objectives, and benefits of the Project and also institutional capacity of relevant agencies of the recipient country necessary for the implementation of the Project.
- Evaluation of the appropriateness of the Project to be implemented under the Grant Aid scheme from a technical, financial, social and economic point of view.
- Confirmation of items agreed between both parties concerning the basic concept of the Project.
- Preparation of a outline design of the Project.

- Estimation of costs of the Project.

The contents of the original request by the recipient country are not necessarily approved in their initial form as the contents of the Grant Aid project. The Outline Design of the Project is confirmed based on the guidelines of the Japan's Grant Aid scheme.

JICA requests the Government of the recipient country to take whatever measures necessary to achieve its self-reliance in the implementation of the Project. Such measures must be guaranteed even though they may fall outside of the jurisdiction of the organization of the recipient country which actually implements the Project. Therefore, the implementation of the Project is confirmed by all relevant organizations of the recipient country based on the Minutes of Discussions.

(2) Selection of Consultants

For smooth implementation of the Survey, JICA employs (a) registered consulting firm(s). JICA selects (a) firm(s) based on proposals submitted by interested firms.

(3) Result of the Survey

JICA reviews the Report on the results of the Survey and recommends the GOJ to appraise the implementation of the Project after confirming the appropriateness of the Project.

3. Japan's Grant Aid Scheme

(1) The E/N and the G/A

After the Project is approved by the Cabinet of Japan, the Exchange of Notes(hereinafter referred to as "the E/N") will be signed between the GOJ and the Government of the recipient country to make a pledge for assistance, which is followed by the conclusion of the G/A between JICA and the Government of the recipient country to define the necessary articles to implement the Project, such as payment conditions, responsibilities of the Government of the recipient country, and procurement conditions.

(2) Selection of Consultants

In order to maintain technical consistency, the consulting firm(s) which conducted the Survey will be recommended by JICA to the recipient country to continue to work on the Project's implementation after the E/N and the G/A.

(3) Eligible source country

Under the Japanese Grant Aid, in principle, Japanese products and services including transport or those of the recipient country are to be purchased. When JICA and the Government of the recipient country or its designated authority 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, constructing and procurement firms, and the prime consulting firm are limited to "Japanese nationals".

(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 JICA. This "Verification" is deemed necessary to fulfill accountability to Japanese taxpayers.

(5) Major undertakings to be taken by 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 Annex.

(6) "Proper Use"

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

(7) "Export and Re-export"

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

(8) Banking Arrangements (B/A)

a) The Government of the recipient country or its designated authority should open an account under the name of the Government of the recipient country in a bank in Japan (hereinafter referred to as "the Bank"). JICA 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 JICA under an Authorization to Pay (A/P) issued by the Government of the recipient country or its designated authority.

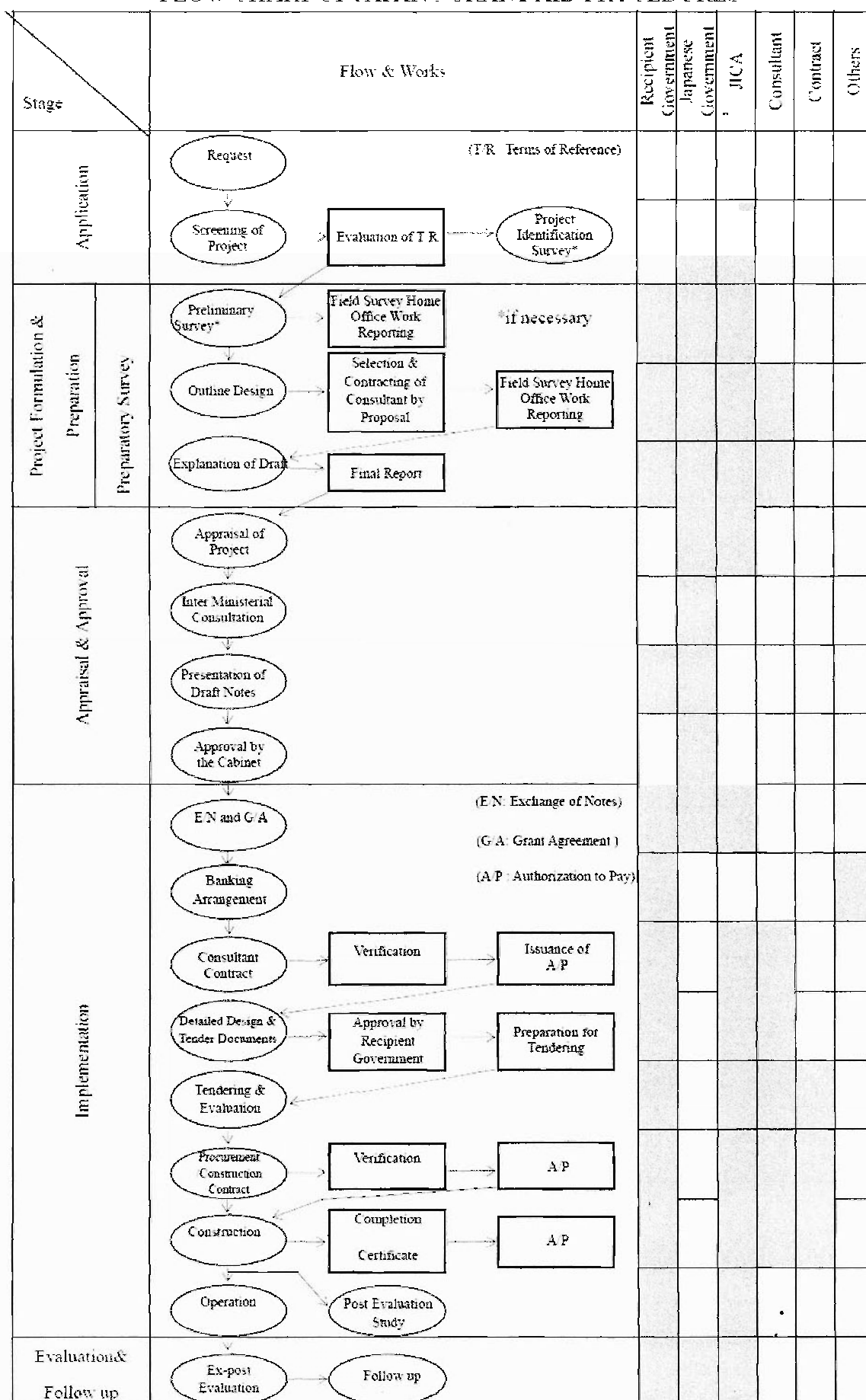
(9) Authorization to Pay (A/P)

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

(10) Social and Environmental Considerations

A recipient country must carefully consider social and environmental impacts by the Project and must comply with the environmental regulations of the recipient country and JICA guidelines for environmental and social considerations.

FLOW CHART OF JAPAN's GRANT AID PROCEDURES



Major Undertakings to be taken by Each Government

No.	Items	To be covered by Grant Aid	To be covered by Recipient Side
1	To ensure prompt unloading and customs clearance of the products at ports of disembarkation in the recipient country and to assist internal transportation of the products		
	1) Marine (Air) 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 (delivery point)	•	
2	To ensure that customs duties, internal taxes and other fiscal levies which may be imposed in the recipient country with respect to the purchase of the products and the services be borne by the Authority without using the Grant		•
3	To accord Japanese nationals whose services may be required in connection with the supply of the products and the services such facilities as may be necessary for their entry into the recipient country and stay therein for the performance of their work		•
4	To ensure that the products be maintained and used properly and effectively for the implementation of the Project		•
5	To bear all the expenses, other than those covered by the Grant, necessary for the implementation of the Project		•
6	To bear the following commissions paid to the Japanese bank for banking services based upon the B/A		
	1) Advising commission of A/P		•
	2) Payment commission		•

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

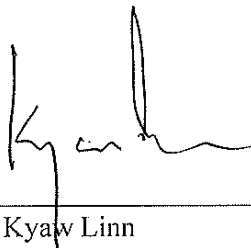
MINUTES OF DISCUSSIONS
ON THE PREPARATORY SURVEY
ON THE PROJECT FOR PROVISION
OF ROAD CONSTRUCTION AND MAINTENANCE EQUIPMENT
IN RAKHINE AND KAYIN STATE
(SECONDARY SURVEY)

In July 2012, the Japan International Cooperation Agency (hereinafter referred to as "JICA") conducted the Preparatory Survey (hereinafter referred to as "the last survey") on the Project for Provision of Road Construction and Maintenance Equipment in Rakhine and Kayin State (hereinafter referred to as "the Project") in the Republic of the Union of Myanmar (hereinafter referred to as "Myanmar"), and JICA is conducting technical examination of the results of the surveys in Japan.

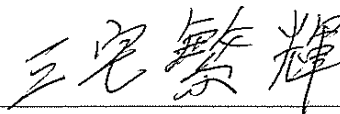
In order to explain and to consult with the concerned officials of the Government of Myanmar about the progress of the study, JICA sent Myanmar the Secondary Preparatory Survey Team (hereinafter referred to as "the Team"), which was headed by Mr. Shigeki MIYAKE, Director, Transportation and ICT Division 2, Economic Infrastructure Department, JICA, from October 23rd to 27th, 2012.

As a result of discussion, both sides confirmed the main items described in the attachment.

Nay Pyi Taw, October 24th, 2012



U Kyaw Linn
Managing Director
Public Works
Ministry of Construction
The Republic of the Union of Myanmar



Mr. Shigeki MIYAKE
Leader
Preparatory Survey Team
Japan International Cooperation Agency

ATTACHMENT

1. Target State of the Project

Both sides confirmed that the procurement of equipment for Rakhine State was eliminated from the scope of the project, due to unstable situation for the Project supervision and usage situation monitoring of the equipment procured by the Project.

2. Project Title

The Team proposed to change the title of the Project from “the Project for Provision of Road Construction and Maintenance Equipment in Rakhine and Kayin State” to “the Project for Provision of Road Construction and Maintenance Equipment in Kayin State” in connection with the change of the target state of the Project. The Myanmar side agreed about the revised title of the Project.

3. Project Component

The Team explained to the Myanmar side that the tentative Project components as shown in ANNEX 1 and 2 are prepared by the Team as a result of the first field survey. The Team also explained that the tentative components as well as cost estimation have been studying in Japan, and the final components will be given in a draft final report. The Myanmar side agreed with the tentative Project components and Team’s explanations.

4. Others

Myanmar side requested the Team that the Pilot Project of road construction for the Soft Component shall be started from the end of September, 2014 to avoid heavy rainy season in Kayin State.



List of the Equipment

Road and Bridge Construction Project in Kayin State (delivery point: Hpa-An)

No.	Name of Equipment	Specification	Quantity	Unit	Road Construction	Bridge Construction
1	Bulldozer (crawler)	Operation Weight: (approx.) 25-22 ton, Engine Output:(approx.) 150 kW, Straight Tilt Dozer and Multi-shank Ripper ROPS cab	2	No.	O	O
2	Excavator (crawler)	Bucket capacity: (Approx.) 0.8m ³ Max. Digging Depth: more than 6 m Operation Weight: (approx.) 19-21 ton Engine Output:(approx.) 100 kW	2	No.	O	O
3	Wheel Loader	Engine output: (approx.) 120 kW , Bucket capacity: (approx.) 2.7 m ³ , Operation Weight: (approx.) 16 ton, Max Dumping Clearance: (approx.) 3 m ROPS cab	2	No.	O	
4	Motor Grader	Engine output: (approx.) 130 kW, Blade length: (approx.) 4 m, with scarifier Operation weight: (approx.) 14 ton	2	No.	O	
5	Sheep foot Compactor	Operation Weight: (approx.) 13 ton Padfoot drum with removable smooth drum Engine output:(approx.) 80 kW Vibration Power: (approx.) 245 kN (25,000 kgf)	2	No.	O	
6	Plate Compactor	Weight: 50~60 (kg) Centrifugal force: 6~10 kN Vibrating plate size : (approx.) 550 × 350 (mm) Engine output: (approx.) 2.0~3.0 kW	5	No.	O	O
7	Asphalt Kettle	Tank capacity : 3000~4000 lit. Direct heating type with heat tube and diesel fuel burner Electric hoist for asphalt drum <u>Electric asphalt transfer pump with heater</u>	1	No.	O	
8	Bitumen Sprayer Truck (Bitumen Distributor)	Capacity: 3000~4000 lit. with sub-engine for asphalt pump Diesel Fuel Burner and Heater Splay width: (approx.) 3.7 m	3	No.	O	
9	Chip-spreader	Self-propelled tail-gate type, Mounted on the dump truck vessel Hopper : 0.3 (m ³) (approx.) Spreading width : 1.6~2.4(m)(approx.) Power source: 4 cycle, air-cooled petrol engine Engine output: 4.0 kW	3	No.	O	
10	Rough Terrain Crane	30 ton, Telescopic boom Engine output:(approx.) 200 kW	1	No.	O	O
11	Dump truck	Max. payload: 14 ton Engine Output: (approx.) 300 kW	20	No.	O	
12	Water Bowser (Tanker)	1600~2400 Gal. (7,000~10,000 lit.) Engine output:(approx.) 200 kW Drive System: 6 x 4 GVW: Max. 23 ton	4	No.	O	
13	Boom Truck (Cab-back Crane)	Max. Lifting capacity: 3 ton Telescopic boom Carrier: 10 ton payload, 6x4 cargo truck Engine output:(approx.) 240 kW	1	No.	O	O
14	Low bed Semi-trailer (with Tractor Head) (Tractor Head)	Max. Payload: 30 ton , Rear loading type Two Axle, 16 tires/Two axle, 8 tires Brake : Air Brake, Suspension: Multi-leaf spring Cab over type, 6x4 drive system Engine output: (approx.) 350 kW Payload (Fifth wheel) : (approx.) 20 ton Brake: Air Brake	1	No.	O	O
15	Mobile Workshop	4x4, cargo truck, with telescopic boom 3 ton crane and equipment and tools necessary to carry out service for construction machines Payload: (approx.) 7~10 ton Engine output: (approx.) 165 kW	1	No.	O	O
16	Inspection Vehicle	4 x4, Double Cab Pickup , Diesel Engine, Engine output:(approx.) 78 kW	1	No.	O	O
17	Generator	Diesel Engine Driven, 415/240 V, 50 Hz, 150 KVA	2	No.	O	O
18	Equipment and Software for Ledger Management System	Desktop Computer (3units) , OS Windows Database Software for Windows	1	set	-	-

Outline of Soft Component

1. Objective

Japanese consultant is going to support to introduce a Ledger Management System to improve PW staff's capability so that equipment provided by Japanese Grant Aid, PW's existing equipment and their spare parts can be efficiently managed and maintained.

2. Main Activity

- Instruction for operation of the Ledger Management System at Mayangone Mechanical Equipment Compound and PW Hpa-An Office.
- Pilot project of approximately 200m-road construction from Waboetaw. All the equipment to be provided under the Project shall be utilized for the Pilot project.

3. Participants

Around 30 staffs who belong to following or related section,

- Staff of management section and maintenance section at Mechanical Equipment Compound in Mayangone
- Staff of management section and maintenance section at PW Hpa-An Office

4. Equipment

- Desktop Computer and Database Software

5. Tentative Schedule

			2014					
			May	Jun	Jul	Aug	Sep	Oct
Implementation Schedule of Provision of Construction Equipment					▼ Handing over of Equipment			▼ Completion of Project
Soft Component	Instruction for Ledger Management System	Mayangone			▼ Instruction		Evaluation and Follow-up	
		Hpa-An			▼ Instruction		Evaluation and Follow-up	
	Pilot Project of Road Construction					Preparation	Implementation	

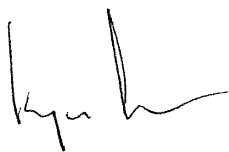
MINUTES OF MEETING
ON THE PREPARATORY SURVEY
ON THE PROJECT FOR PROVISION
OF ROAD CONSTRUCTION AND MAINTENANCE EQUIPMENT
IN KAYIN STATE
(EXPLANATION ON DRAFT FINAL REPORT)

In July and October 2012, the Japan International Cooperation Agency (hereinafter referred to as "JICA") dispatched a study team (hereinafter referred to as "the Previous Team") on the Project for Provision of Road Construction and Maintenance Equipment in Kayin State (hereinafter referred to as "the Project") in the Republic of the Union of Myanmar (hereinafter referred to as "Myanmar"), and through discussions, field surveys and technical examination of the results of the surveys in Japan, JICA prepared a Draft Final Report of the Outline Design.

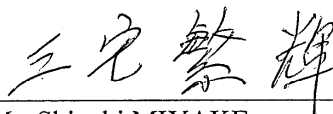
In order to explain and to consult with the concerned officials of the Government of Myanmar about the component of the Draft Final Report, JICA sent Myanmar the Preparatory Survey Team for Draft Final Report Explanation (hereinafter referred to as "the Team"), which was headed by Mr. Shigeki MIYAKE, Director, Transportation and ICT Division 2, Economic Infrastructure Department, JICA, from December 8th to 18th, 2012.

As a result of discussion, both sides confirmed the main items described in the attachment.

Nay Pyi Taw, December 12th, 2012



U Kyaw Linn
Managing Director
Public Works
Ministry of Construction
The Republic of the Union of Myanmar



Mr. Shigeki MIYAKE
Leader
Preparatory Survey Team
Japan International Cooperation Agency

ATTACHMENT

1. Project Components

After the explanation of the contents of Draft Final Report by the Team, the Myanmar side and the Japanese side agreed the project components included in it.

2. Japan's Grant Aid Scheme

The Myanmar side understood the Japan's Grant Aid scheme and the necessary measures to be taken by the recipient country as explained by the Team and described in Annex-2 and Annex-3 of the Minutes of Discussions signed by both sides on July 18th, 2012.

3. Schedule of the Study

JICA will complete the final report and send it to the Government of Myanmar by the end of March, 2013.

4. Project Cost

The Myanmar side was informed that the Project cost should not exceed the upper limit of amount agreed on in E/N and G/A and understood that the Project Cost Estimate attached as Annex is not final and is subject to change by the result of examination through revision of the Outline Design.

5. Implementation plan of construction

Both sides confirmed that the road and bridge construction of the target section, Phapun – Kamamaung – Waboetaw road (approximately 146 km), should be completed by the end of fiscal year 2018. The Myanmar side agreed to provide necessary budget and personnel for the construction work.

6. Request of increasing the number of dump trucks

The Myanmar side required to procure as many as dump trucks by the balance of budget borne by the tendering, if any. The Team replied, as for the general grant aid project, it is difficult to apply the balance of budget for additional procurement. However the Team will convey the Myanmar's request to the Japanese authorities.

Project Cost Estimate

This cost estimate is provisional and would be further examined by the Government of Japan for the approval of the Grant Aid.

1. Cost to be borne by the Japanese side:

This Page is closed due to the confidentiality.

2. Cost to be borne by Myanmar side:

- | | | |
|---|---------------|----------------|
| - Road and bridge construction cost of the target section | Approximately | USD 32 million |
| - Bank commission for B/A and A/P | Approximately | USD 9,600 |

3. Cost to be borne by Myanmar side for Operation and Maintenance (every year)

- | | | |
|---------------------------|---------------|------------------|
| - Fuel cost for operation | Approximately | USD 400 thousand |
| - Maintenance cost | Approximately | USD 250 thousand |

4. Conditions for estimate

- (1) Time of estimate: August 2012
- (2) Foreign exchange rate: USD 1.00 = JPY 81.06
- (3) Others:

The above estimate was carried out in accordance with relevant rules and the guideline of Japan's Grant Aid.

APPENDIX 5

SOFT COMPONENT (TECHNICAL ASSISTANCE) PLAN

The Project for
Provision of Road Construction and Maintenance Equipment
in Kayin State

Soft Component (Technical Assistance) Plan

September 2012

Yachiyo Engineering Co., Ltd.

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1. Background of the Soft Component

The Project for Provision of Road Construction and Maintenance Equipment in Kayin State (hereafter called the Project) has the objective of improving the standard of living for the residents of Kayin State, where development has been comparatively slow compared to the rest of Myanmar, and it intends to procure construction and maintenance equipment necessary for conducting works on roads and bridges that are targeted by state plans under the direct management of the implementing agency (Public Works, Ministry of Construction).

The existing road construction and maintenance equipment in Kayin State is centrally controlled by the Mechanical Equipment Compound (Mayangone Township in Yangon) of Public Works, Ministry of Construction. From here, equipment is allocated to states including Kayin under the Compound's jurisdiction. The Mechanical Equipment Compound also controls spare parts for equipment. Although the Compound conducts actual control, its ledgers are paper-based and there are numerous problems in the system, for example, due to the complicated procedure for deleting equipment from the ledger, equipment is discarded in the Compound yard until this is completed.

In these circumstances, in order for the construction and maintenance equipment procured in the Project to be operated and maintained efficiently, it is vital for the local implementing agency to reinforce its control system for equipment and spare parts. Guidance on the initial operation and management of the procured equipment will be implemented as part of the equipment procurement work, however, through implementing the Soft Component aimed at strengthening the above equipment control system, contribution can be made towards realizing the appropriate control of not only the Project equipment but also existing equipment and spare parts.

Moreover, in the Soft Component, in addition to reinforcement of the equipment control system, pilot construction and maintenance works will be executed on sections of the road targeted for work in Kayin State. Since it is intended to conduct explanations on the basic performance of equipment and instruction of basic operations and maintenance in the guidance on the initial operation and management of the procured equipment following the delivery and assembly of the procured equipment, it will be possible for the local side to acquire practical technology for operating and controlling equipment via the pilot work and to practically utilize the equipment control system within the pilot work. In doing so, the Project will deepen the level of proficiency of local personnel in procedures and methods so that they can efficiently operate the system on an ongoing basis.

2. Soft Component Objectives

In light of the above background, the following objectives are set with a view to realizing the effects and sustainability of the Project.

- Fully utilize the performance of the Project equipment in executing road construction and

maintenance works, and place the Project equipment under efficient operation and maintenance together with existing equipment and spare parts.

3. Soft Component Outputs

The direct outputs that will be achieved on completion of the Soft Component are as stated below.

- Output 1: A system that enables employees of Mayangone Township Mechanical Equipment Compound to administer the operating conditions of the Project equipment and stock conditions of spare parts is constructed.
- Output 2: Employees of Kayin State Public Works Department can grasp the operating conditions of equipment assigned to the stock yard and works sites as well as the need and urgency of maintenance, and through establishment of a systematic control setup with the Mechanical Equipment Compound, they can promptly respond to equipment failures.
- Output 3: The road construction and maintenance management capability of the employees of Kayin State Public Works Department is improved; moreover, higher quality roads are constructed and maintained due to the execution performance of the Project equipment.

4. Method for confirming Achievement of Outputs

In order to confirm the level of achievement of the Soft Component outputs in the Project, confirmation items will be set as follows according to each output. When it comes to confirming the level of achievement, evaluation will be conducted through implementing before and after questionnaires of the personnel targeted by the Soft Component.

Output	Items for Confirming Level of Achievement
Output 1: A system that enables employees of Mayangone Township Mechanical Equipment Compound to administer the operating conditions of the Project equipment and stock conditions of spare parts is constructed.	1. Can the operating conditions and stock conditions of the Project equipment and spare parts be grasped? 2. Are ledger control methods and procedures that utilize a database understood, and can accurate data control be implemented? 3. Can procurement plans for storing the appropriate quantity of spare parts be understood? 4. Based on the Project equipment control methods, can the conditions of allocation and operation be controlled through listing the existing equipment owned by Kayin State? 5. Have personnel learned the ability to expand the scope of control to existing owned equipment under their jurisdiction?
Output 2: Employees of Kayin State Public Works Department can grasp the operating conditions of equipment assigned to the stock yard and works sites as well as the need and urgency of maintenance, and through establishment of a systematic control setup with the Mechanical Equipment Compound, they can promptly respond to equipment failures.	1. Can the operating conditions and stock conditions of the Project equipment and spare parts be grasped? 2. Are ledger control methods and procedures that utilize a database understood, and can accurate data control be implemented? 3. Do personnel understand the importance of and implement regular reporting on equipment control conditions to the Mechanical Equipment Compound? 4. Based on the Project equipment control methods, can the conditions of allocation and operation be controlled through listing the existing equipment owned by Kayin State?
Output 3: The road construction and maintenance management	1. Can the Project equipment be safely and appropriately operated on works sites?

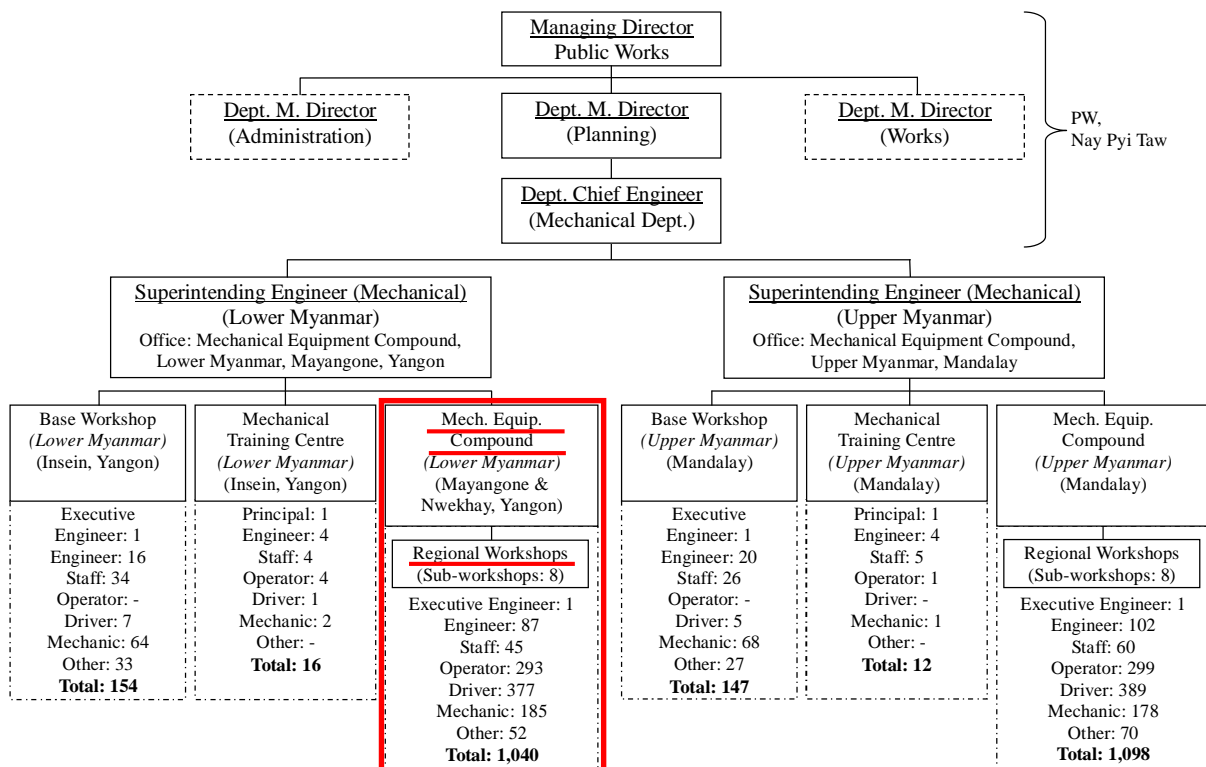
capability of the employees of Kayin State Public Works Department is improved; moreover, higher quality roads are constructed and maintained as a result of the execution performance of the Project equipment.	2. Can works that fully realize the functions and performance of the Project equipment be executed?
	3. Can works materials be procured according to the design documents and specifications, and can works be executed according to the execution plans?

5. Soft Component Activities (Plan of Inputs)

(1) Contents of Activities

Targeting the Lower Myanmar Machine Department of Public Works (PW), which administers construction and maintenance equipment allocated to Kayin State (see Figure 5-1), the Soft Component will be implemented for equipment control personnel and maintenance personnel, etc. of the Mechanical Equipment Compound in Mayangone Township in Yangon and its subordinate sub-workshop in PW Kayin State Office. Here, concerning organization of the Mechanical Equipment Compound, departments (equipment control department, maintenance department, etc.) are not arranged so that responsible areas of work are clearly defined; rather, the Superintendent Engineer who supervises the organization allocates work to a number of supervisors under his control. For example, the representative of PW Kayin State Office is the Superintendent Engineer and the office is called the Superintendent Engineer's Office, and personnel in charge of equipment control and maintenance activities are assigned within that. In view of such an organization, when it comes to implementing the Soft Component, personnel in charge of equipment control and maintenance activities under the command of the Mechanical Equipment Compound Superintendent Engineer and Kayin State Office Superintendent Engineer will be ordered to take part in the training.

Figure 5-1 Organization Chart of Machine Department



Note: The Mechanical Department, Lower Myanmar, has 8 Sub-workshops as shown above, and the Sub-workshop which is located at the PW Superintendent Engineer's Office in Kayin State is the one of them.

The Soft Component will be implemented under direct support by the contracted consultant, and the contents of activities for realizing the outputs of the Soft Component are as indicated below.

1) Activities regarding Output 1

(a) Necessary technology and line of work

Equipment ledger system controllers and mechanics

(b) Technical level

Current technical level	Required technical level
Since stock control of owned equipment and spare parts is based on paper, it is difficult to acquire necessary information, and the system isn't efficient.	Through effectively utilizing the database via PC, easily manage the store entry and issue conditions of equipment and spare parts, and efficiently plan the maintenance cycles of equipment and procurement periods of spare parts, etc.

(c) Target personnel

Responsible personnel at the Central Mechanical Equipment Compound and responsible employees of Kayin State (approximately 30 persons in total)

※Since it will be effective for both central and local personnel to participate in both trainings, concerned employees of Kayin State will be required to participate in Mechanical Equipment Compound training. Similarly, responsible personnel at the Mechanical Equipment Compound will be required to participate in training conducted in Kayin State.

(d) Implementation method

Venue	Mechanical Equipment Compound (Mayangone Township in Yangon)
Implementation period	First time: Practical guidance 0.6 months (12 activity days, 2 travel days, 4 rest days) Second time: Evaluation and follow-up 0.3 months (5 activity days, 2 travel days, 2 rest days)
Utilized training materials	- Construction and maintenance equipment operating record manual (operating log) - Construction and maintenance equipment operation and maintenance manual (spare parts control ledger)
Practical training equipment	- Desktop PCs: 3 units - Control database (general-purpose software): 1 set ※ As software, FileMaker, which offers excellent controllability, is recommended for procurement.
Contents of activities	<u>First time:</u> Introduce the Project equipment and spare parts ledger control database and conduct training according to the above two manuals in order to impart know-how on operating the control system. Training will be implemented before delivering the Project equipment, and the main training contents will be as follows:

- Outline explanation of database software and orientation: 0.5 days
- Data inputting of equipment specifications (makers, models, suppliers, registration numbers, etc.) : 2days
- Equipment operating conditions and stock entry/exit control: 2 days
- Stock control of spare parts and expendable items: 2 days
- Periodic inspection and maintenance implementation planning: 2 days
(Compile implementation plans based on operating hours or running distance, etc.)
- Periodic inspection and maintenance implementation recording: 2 days
- Reflection of periodic reports from local offices under jurisdiction in the system, and centralized control of the allocation and operation of equipment under jurisdiction (in this Soft Component, targeting equipment procured for Kayin State in the Project) : 1 day
- Follow-up of the above activities by the target personnel themselves: 0.5 days

Sample of Database

Following completion of the first training at the Mechanical Equipment Compound, two out of the three PCs will be left at the Mechanical Equipment Compound and the remaining PC will be allocated to the PW Kayin State Office.

Second time:

Personnel will utilize the know-how they acquired in the first training to confirm and evaluate database usage. In particular, in future since it will be necessary to expand administration from the Project equipment to all the equipment held by the Mechanical Equipment Compound, evaluation will be conducted and follow-up will be performed where necessary to ensure that the Compound can independently utilize the system.

The activities in Myanmar will last five days, i.e. three days for evaluation and two days for follow-up.

2) Activities regarding Output 2

(a) Necessary technology and line of work

Equipment ledger system controllers and mechanics

(b) Technical level

Current technical level	Required technical level
Some of the allocated equipment isn't operating due to breakdown or deterioration, however, basic maintenance equipment is inadequate, and provision of spare parts from the Mechanical Equipment Compound tends to be delayed. As a result, it is difficult to implement appropriate maintenance or conduct prompt repairs when failures occur.	Appropriately implement routine basic maintenance through making use of the mobile workshop procured in the Project. Also, utilize the PC database to control the operating conditions of allocated equipment and make periodic reports to the Mechanical Equipment Compound.

(c) Target personnel

Responsible personnel at the central Mechanical Equipment Compound and responsible employees of Kayin State (approximately 30 persons in total)

(d) Implementation method

Venue	PW Kayin State Office
Implementation period	First time: Practical guidance 0.6 months (12 activity days, 2 travel days, 4 rest days) Second time: Evaluation and follow-up 0.2 months (3 activity days, 2 travel days, 1 rest day)
Utilized training materials	- Construction and maintenance equipment operating record manual (operating log) - Construction and maintenance equipment operation and maintenance manual (spare parts control ledger)
Practical training equipment	- Desktop PC: 1 unit - Control database (general-purpose software): 1 set ※ Equipment that has been transferred from the Mechanical Equipment Compound will be utilized for the above.
Contents of activities	<u>First time:</u> Introduce the Project equipment and spare parts ledger control database and conduct training according to the above two manuals in order to impart know-how on operating the control system. In the Soft Component, since pilot works will be implemented on a section of the targeted roads in Kayin State, the allocation of Project equipment to this site will be treated as a case study. Training will be implemented before delivering the Project equipment, and the main training contents will be as follows: - Orientation: 0.5 days

	<ul style="list-style-type: none"> - Equipment operating conditions and stock entry/exit control: 2 days - Stock control of spare parts and expendable items: 2 days - Control of equipment fuel and oil consumption levels: 1 day - Periodic inspection and maintenance implementation planning: 3 days (Compile implementation plans based on operating hours or running distance, etc.) - Periodic inspection and maintenance implementation recording: 2 days - Periodic reporting on Project equipment allocation conditions, operating conditions and maintenance recording, etc. to the Mechanical Equipment Compound in Mayangone Township in Yangon: 1 day - Follow-up of the above activities by the target personnel themselves: 0.5 days <p><u>Second time:</u></p> <p>Personnel will utilize the know-how they acquired in the first training to confirm and evaluate database usage.</p> <p>Also, support will be offered for listing the equipment allocated to Kayin State in the control system. This support will target not only the Project equipment but also all equipment in the state that is controlled by the system. Evaluation and, where necessary, follow-up will be conducted with a view to enabling PW Kayin State Office to independently utilize the system. However, in Kayin State, since there are still areas that have public order issues, the list compilation work in the Soft Component will be conducted only where feasible according to the public order situation.</p> <p>The activities in Myanmar will last three days, i.e. two days for evaluation and one day for follow-up.</p>
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3) Activities regarding Output 3

(a) Necessary technology and line of work

Road engineers, equipment operators


(b) Technical level

Current technical level	Required technical level
Existing equipment can be utilized to implement road paving works.	Through efficiently utilizing the latest equipment procured in the Project, it will be possible to construct and maintain high-quality roads.

(c) Target personnel

Road engineers and equipment operators in Kayin State

(d) Implementation method

Implementation site	Out of the roads targeted for construction and maintenance in Kayin State, a section of approximately 200 km starting from the origin point of Waboetaw.
Implementation period	First time: 0.5 months (pilot work preparation) Second time: 1.5 months (guidance on pilot work)
Utilized training materials	- Paving execution manual
Practical training equipment	- Project procured equipment
Contents of activities	<p><u>First time:</u></p> <p>In order to smoothly start the pilot work, hold discussions with personnel of the PW (implementing agency) and confirm conditions regarding budget, execution planning and works materials procurement.</p> <p><u>Second time:</u></p> <p>Conduct the following technical guidance via the pilot work:</p> <ul style="list-style-type: none"> - Efficient introduction of equipment according to work processes and site conditions - Operation control geared to realizing the execution performance of Project equipment according to site conditions - Appropriate reporting to PW Kayin State on equipment conditions  <p>Site of Pilot Work</p>

(2) Implementation Resources

1) Japan side

The human resources to be dispatched by the Japanese side in order to implement the Soft Component, the period of dispatch and the major contents of activities are described below.

Responsible field	Number of people	Period (M/M)	Major contents of activities
Equipment Planning (Japanese engineer)	1	1 : 1.2M/M 2 : 0.5M/M Total : 1.7M/M	First time: Guidance on ledger control system training Second time: Confirmation and evaluation of conditions of system utilization
Road Planning (Japanese engineer)	1	1 : 0.5M/M 2 : 1.5M/M Total : 2.0M/M	First time: Pilot work preparation Second time: Technical guidance on pilot work
Interpreter/Assistant-1 (Myanmarese)	1	1 : 1.2M/M 2 : 0.5M/M Total : 1.7M/M	Interpreting and assistance for Japanese engineers in charge of equipment planning
Interpreter/Assitant-2 (Myanmarese)	1	1 : 0.5M/M 2 : 1.5M/M Total : 2.0M/M	Interpreting and assistance for Japanese engineers in charge of road planning

2) Myanmar side

The human resources to be recruited by the Myanmar side in order to implement the Soft Component are described below.

Responsible field	Number of people	Period
Equipment control	Around 30 persons	1 : 1.2 months 2 : 0.5 month Total : 1.7 months
Works supervisors, road engineers, operators	Appropriately recruit according to the type of pilot works	1 : 0.5 month (except operators) 2 : 1.5months Total : 2.0 months

(3) Types of Outputs

1) Japanese side

- Construction and maintenance equipment operating record manual (operating log)
- Construction and maintenance equipment operation and maintenance manual (spare parts control ledger)

2) Japanese side and Myanmar side

- Operation flow of the ledger control system prepared in the training

(The operating flow including the periodic reporting setup between the central and local levels will be jointly created).

6. Procurement Method for Soft Component Implementation Resources

For implementing the Soft Component, from the viewpoint of utilizing database ledger control in order to strengthen the setup on the side of the implementing agency, it is considered more appropriate to utilize Japanese engineers rather than local resources. The reasons are as follows: ① Since computerized ledger control for managing diverse construction and maintenance equipment like that to be procured in the Project is not well disseminated in Myanmar, it will be impossible for local resources to conduct the necessary work; and ② Since it is likely that most of the Project equipment will be procured from Japanese makers, Japanese engineers will have the best know-how for operating and controlling it. Therefore, it will be appropriate for the contracted consultant to directly implement the Soft Component.

7. Implementation Schedule of Soft Component

The implementation schedule of Soft Component is as follows.

			2014						
			Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
Procurement Schedule of Grant Aid				Equipment Inspection, Delivery				Project Completion	
Soft Component	Training of Database Ledger Control System	Mechanical Equipment Compound, Mayangone		Output 1				Output 1	
		PW Office in Hpa-an, Kayin State		Output 2				Output 2	
	Preparation of Pilot Construction				Output 3				
	Implementation of Pilot Construction						Output 3		
	Report			Progress Report (To PW)	Progress Report (To JICA)		Final Report (To PW)	Completion Report (To JICA)	

※ May to October is a rainy season in Myanmar.

8. Types of Outputs

The outputs to be created in the Soft Component are as follows:

- Construction and maintenance equipment operating record manual (operating log)
- Construction and maintenance equipment operation and maintenance manual (spare parts control ledger)
- Paving execution manual
- Soft Component completion report

The completion report will include the following outputs:

- Record of activities, for example, photographs of works, etc.
- The above-mentioned manuals and system operation flow
- Results of the before and after questionnaire implemented with respect to employees of the Myanmarese implementing agency
- Final Report to be submitted to the client

9. Soft Component Cost Estimation

The cost for Soft Component is not disclosed.

10. Obligations of Myanmar Side

In order to achieve the objectives of the Soft Component, in addition to the outputs of implementation, the following items will need to be implemented as the obligations of Myanmar side:

- To ensure the ongoing operation of the control system established under the Soft Component, disseminate and horizontally extend within the organization the technologies and control methods that have been learned.
- Utilizing the Project equipment, advance construction and maintenance of the target roads without delay, and utilize the control system in order to efficiently operate and maintain the roads.
- In order to appropriately conduct operation and maintenance utilizing the control system, secure the necessary budget to maintain the Project equipment and procure additional spare parts.

APPENDIX 6

REFERENCES

Basic information of Project Site

Village Trac	Township	District	# of population	# of ethnic composition				# of Households	# of Family	# of Schools			# of City hall	# of Health Center	
				Karen	Mon	Burma	Shan	Others		Primary	Over primary*	High school		Main H/C	Sub-H/C
Meizime	Hpa-An	Hpa-An	2,118	2,118	0	0	0	0	293	1	1	0	0	0	2
Da Gaung Bo	Hpa-An	Hpa-An	2,787	2,787	0	0	0	0	499	5	0	1	0	0	1
Woot Gyi	Hpa-An	Hpa-An	644	644	0	0	0	0	109	2	0	0	0	0	0
Kyoan Ma Thwg	Hpa-An	Hpa-An	1,036	1,036	0	0	0	0	190	204	2	0	0	0	0
Ta Dar Oo	Hpa-An	Hpa-An	1,453	1,453	0	0	0	0	223	223	1	0	0	0	1
Kyauk Ta Loan	Hpa-An	Hpa-An	3,611	3,611	0	0	0	0	677	677	1	0	0	0	1
Bingee	Hpa-An	Hpa-An	1,859	1,773**	0	0	0	0	331	0	0	0	0	0	0
Sub-Total			13,508	13,422	0	0	0	0	1,973	12	1	3	0	0	5
Ah Hmat 4	Kamamaung	Phapun	2,580	2,444	123	0	13	0	245	0	1	0	0	0	1
Ah Hmat 3	Kamamaung	Phapun	4,960	2,697	78	246	174	1,765	590	1	1	0	0	0	1
War Kaw Kyae	Kamamaung	Phapun	2,375	2,375	0	0	0	0	315	5	0	0	0	0	1
Ka Taing Tei	Kamamaung	Phapun	4,497	2,676	0	76	976	769	485	490	3	0	0	1	1
Yay Bw	Kamamaung	Phapun	4,780	4,780	0	0	0	0	651	658	1	3	0	0	0
Yat Kwak 2	Phapun	Phapun	1,167						240	227**	1	0	0	1	0
Me Thalut	Phapun	Phapun	1,205						227	239	0	0	1	0	1
Ta Kum Daing	Phapun	Phapun	1,950						300	304	1	0	0	0	0
Wai San	Phapun	Phapun	935						188	197	1	0	0	0	0
Ma Htaw	Phapun	Phapun	2,885						333	333	2	0	0	0	0
Sub-Total			27,334	14,972	201	322	1,163	2,534	3,574	15	4	5	1	2	5
Total			40,842	26,394	201	322	1,163	2,534	10,155	27	5	8	1	2	10

*1: More 86 people other than Karen might be in the village tract

*2: The number of family must be same or more. It is expected the wrong data.

*3: We couldn't obtain these data.

*4: It is run by volunteer for those who can not study junior high school for some reason.