

2.2.4 IMPLEMENTATION PLAN

2.2.4.1 IMPLEMENTATION POLICY

The basic concepts for implementation of the Project are as follows;

- ✓ On reaching an agreement and signing of the Exchange of Note by both Governments of Japan and Malawi, the Project will be implemented in accordance with the guideline of Japan's Grant Aid.
- ✓ The Ministry of Local Government and Rural Development (MLGRD) and Blantyre City Assembly (BCA) are responsible for the Project Implementation.
- ✓ Assistance in tendering and construction supervision will be undertaken by Japanese consulting firm in accordance with a contract between the MLGRD and Consultant.
- ✓ A Japanese pre-qualified tender who has been awarded the contract by the MLGRD will undertake the implementation of the Project.

Main concepts for the implementation are as follows;

- ✓ Materials and labor for the project are procured in Malawi as much as possible. If required qualities and capacities are not enough, materials and labor can be procured effectively from third countries and/or Japan.
- ✓ Implementation method and schedule for the Project shall be planned on the basis of local meteorological, topographic and geological conditions as well as any natural conditions affected by the construction works.
- ✓ General and easy method without specific equipment and technology shall be planned.
- ✓ Appropriate standards and specifications for construction shall be proposed, and site organizations of both the contractor and consultant shall be arranged to comply to above-mentioned standards and specifications.
- ✓ Facilities to strictly secure safety for construction staff and third parties shall be installed. Especially, educative training on environment and anti-AIDS/HIV shall be carried out.
- ✓ Protection against water pollution and flooding by the implementation and installation and operation of asphalt plants, quarry sites and borrow pits shall be done in order to preserve environment. Construction waste shall be treated and/or dumped in a proper site specified by the Government of Malawi.

2.2.4.2 IMPLEMENTATION CONDITIONS

Construction plan and method shall be prepared in order to secure the safety of the construction staff and the third parties first of all, and they shall be selected to consider preservation of environment for the road users and the road side residents.

Present Road Conditions

The project road has been damaged due to recent increase of traffic volume. The project road is the main trunk road in Blantyre city. Severe traffic jam occurs during the peak hours in the morning and evening. Especially the point from Section-3 (4-lane) to Section-4 (2-lane) is bottleneck of traffic flow because of decreasing number of lanes. There are a lot of pedestrian walks on carriageway and their bad condition is also one of the reasons of traffic jam. Therefore, safety and traffic management for road users and mitigation measures of environment for road side residents shall be considered in line with the construction planning.

Present Road Side Facility Conditions

The Project is intending to improve the urban collector road. The Project road is an important residential road for Blantyre citizens, and the road has functions of main artery of distribution for Malawian people as a main trunk road. Right of way of the proposed roads is secured to minimize adverse impacts by widening of the road. Therefore complete road blocks shall be avoided during the construction stage by necessary accessibilities to all road users and residents as a first priority. At Section-4, new 2-lanes shall be constructed first then existing road shall be improved later for preservation of traffic flow. It is necessary for road side residents to consider environmental care. Basically major works shall be carried out only during daytime. Night works shall not be done so as not to disturb the sleep of the residents.

Climate and natural Conditions

Blantyre City is located at an elevation of around 1,200m above sea level. There are two seasons; relatively cool dry season (April to November) and warm rainy season (December to March). Landform is highland characterized by soft-rock as well as soft soils. Implementation shall be constructed during the total eight month long dry season. Pavement works shall be implemented with enough spans since the works will be hampered by rain.

Safety Management for Road Side Residents, Road Users, and Construction Personnel

During the construction stage, temporary carriageway shall be laid next to sidewalk, therefore enough safety consideration shall be required.

① Safety for Road Side Residents;

- ✓ Construction yards will be clearly separated and off-limited from general public by using security facilities.
- ✓ Prevention measures to the heavy machine drivers and operators shall be carried out through periodical traffic and construction safety education.

② Safety Management for Construction Personnel;

- ✓ Guard persons will be provided to avoid collision between heavy machines and ordinary vehicles, pedestrians, and bicycles

Consideration for Environment;

- ✓ Debris and waste from removal of the existing pavement shall be done in proper manner to mitigate the environmental adverse impacts
- ✓ Selection of borrow pits will be made upon consultation with relevant authorities, and at the location with the least negative impacts to the environment
- ✓ Construction methods causing vibration and noise shall be avoided during early morning and night time
- ✓ Dust control measures shall be carried by spraying water promptly
- ✓ Provision of information and educative training on labor safety, public health (malaria, sex related disease, AIDS/HIV, etc), natural environment preservation measures shall be conducted for the construction work forces

2.2.4.3 SCOPE OF WORK

Undertakings of both governments of Japan and Malawi are listed in Table 2.2-6.

Table 2.2-6 Undertakings of both Governments

Items	Contents	Undertaken by		Remarks
		Japan	Malawi	
Procurement of Materials & Equipments	Procurement & Transportation	O		
	In-land transportation Clearance		O	
Preparation Works	Lands & Right of Way Acquisitions		O	Including Spaces for Site Office, Stockyard, Work Shop, etc.
	Relocation of Encroached Kiosks and Other Facilities		O	
	Provision of Borrow Pits & Quarry Sites		O	
	Provision of Waste Disposal Areas		O	
	Other Works	O		
Relocation & Removal of various Obstacles	Relocation of Underground & Aerial Obstacles		O	
Main Works	Road Improvement Works	O		

2.2.4.4 CONSULTANT SUPERVISION

A Japanese consultant will carry out detailed design, assistance in tendering and construction supervision in accordance with the consultant contract agreement by both Governments of Malawi and the Consultant.

(1) Detailed Design Services

The following services shall be carried out as the Detailed Design Services by the Consultant:

- ✓ To confirm the contents of the Project with the Implementing Agencies in Malawi through discussions, detailed designs, and field investigations
- ✓ To review the detailed design and drawings, wherever necessary

- ✓ To review the procurement plan and project cost estimate, wherever necessary

Period for the Detailed Design Service will be as follows:

- ✓ 2.5 months from verification of agreement of detailed design.

(2) Tender Related Services

The following services shall be carried out as the Tender Related Services in the period from tender notice to construction contract by the Consultant;

- ✓ Preparation of Tender Documents (shall be done in line with above-mentioned Detailed Design Services)
- ✓ Tender Notice
- ✓ Pre-Qualification
- ✓ Tendering
- ✓ Tender Evaluation
- ✓ Contract Facilitation

Period for the Tendering Related Services will be as follows;

- ✓ 2.5 months from verification of agreement of detailed design

(3) Construction Supervision Services

The following services shall be carried out during Construction Supervision to be executed by the Contractor according to the contract and implementation plan by the Consultant. Major items are as follows:

- ✓ Inspections and Approvals of the Site Surveys
- ✓ Inspections and Approvals of the Construction Plans
- ✓ Quality Control
- ✓ Progress Control
- ✓ Measurement of the Works
- ✓ Inspection of the Safety Aspects
- ✓ Final Inspection and Delivery

The Consultant will provide a Permanent Supervising Engineer. During the construction, the Consultant will coordinate with the officer-in-charge for work safety management of the Contractor to prevent any accidents at the site in advance.

2.2.4.5 QUALITY CONTROL PALN

Quality control plans for concrete works and earth & pavement works are shown in Table 2.2-7 and Table 2.2-8, respectively;

Table 2.2-7 Quality Control Plan for Concrete Works

Item	Test Item	Test Method (Specification)	Frequency of Tests
Cement	Physical Property Test	AASHTO M85	Once before trial mix; thence once in every 500m ³ of concrete or when material is changed
Fine Aggregate	Physical Property Test	AASHTO M6	Once before trial mix; thence once in every 500m ³ or when material source is changed*
	Sieve Analysis	AASHTO T27	Once a month
Course Aggregate	Physical Property Test	AASHTO M80	Once before trial mix; thence once in every 500m ³ or when material source is changed*
	Sieve Analysis	AASHTO T27	Once a month
Water	Quality Test	AASHTO T26	Once before trail mix
Concrete	Slump Test	AASHTO T119	Twice a day
	Air Content Test	AASHTO T121	Twice a day
	Compressive Strength Test	AASHTO T22	6 specimens in each concreting. In case of large amount in each concreting, 6 specimens in every 75 m ³ (3 for 7-day strength and 3 for 28-day strength)
	Temperature Test	—	Twice a day
	Salinity Test	—	Twice a day

*Note: Data from the supplier shall be confirmed

Table 2.2-8 Quality Control Plan for Earth & Pavement Works

Item	Test Item	Test Method (Specification)	Frequency of Tests
Embankment	Field Density Test	AASHTO T191	Once every 500 m ³
Subgrade & Base Course	Filed Compaction Test	AASHTO T180	Once every 1,000 m ³
	Field Density Test	AASHTO T191	Twice every 1,000 m ²
Asphalt Concrete (Surface & Binder Course)	Temperature of Asphalt Mixture	Temperatures while Carrying, Coating and Rolling	5 times a day
	Abrasion Test of Aggregate	AASHTO T96	Once every 1,500, and when material is changed*

*Note; Data from the supplier shall be confirmed

2.2.4.6 PROCUREMENT PLAN

(1) Procurement Plan for Construction Materials

All construction materials necessary for the Project such as asphalt mixtures, sands, aggregates, crushed stones, ready-mixed concretes (including site production) and lumbers are usually available in Malawian markets either locally or through imports.

The procurement policies for major materials are as follows;

- ✓ Procurement in Malawi when materials are available in domestic markets,
- ✓ Procurement by importing from Japan and/or third countries when materials are not available in Malawi. The exporting countries will be decided by taking quality, price, availability and supply period into consideration.

Procurement plan for major materials and equipment are shown in Table 2.2-9 and Table 2.2-10.

Table 2.2-9 Procurement Plan for Major Materials

Item	Procured from			Remarks
	Malawi	Japan	Third Country	
Materials for Structures				
Crushed Stone (including for Footing)	v			
Cement	v			
Sand (for Concrete)	v			
Sub-grade Material	v			
Ready Mixed Concrete	v			
Crushed Stone (for Asphalt Mixture)	v			
Asphalt Mixture	v			
Re-bar ; D9 ~ D32 mm	v			
Admixture (for Concrete)	v			
Rubble (for Wet Masonry)	v			
RC Pipe ; D = 600 ~ 1,500 mm	v			
Traffic Light	v			
Traffic Signs	v			
Raised Marker	v			
Plywood	v			
Timber (for Support) & Log (for Scaffold)	v			
Electric Welding Rod	v			
Fuel & Lubrication	v			
Oxygen & Acetylene	v			
Gas Cutter	v			

(2) Procurement Plan for Equipment

Procurement policies for equipment are as follows;

- ✓ Equipment required for the Project will be available in Malawi
- ✓ Equipment owned by local contractors will be hired or leased.

Table 2.2-10 Procurement Plan for Major Equipments

Equipment	Size	Lease / Procurement	Procured from			Reason of Procurement	Transport Route
			Malawi	Japan	Third Country		
Backhoe	0.28m ³	Lease	v				
Backhoe	0.50m ³	Lease	v				
Backhoe	0.80m ³	Lease	v				
Bulldozer	15t	Lease	v				
Bulldozer	21t	Lease	v				
Motor Grader	3.7m	Lease	v				
Road Roller	10-12t	Lease	v				
Tire Roller	8-20t	Lease	v				
Vibration Roller	3-5t	Lease	v				
Wheel Loader	2.4m ³	Lease	v				
Wheel Loader	3.1m ³	Lease	v				
Asphalt Finisher	2.4-4.5m	Lease	v				
Sprinkler Truck	6.0kl	Lease	v				
Dump Truck	10t	Lease	v				
Truck Crane	20t	Lease	v				
Trailer Truck	20t	Lease	v				
Trailer Truck	35t	Lease	v				
Generator	15kVA	Lease	v				
Generator	35kVA	Lease	v				
Generator	100kVA	Lease	v				
Generator	250kVA	Lease	v				
Submersible Pump	150mm	Lease	v				
Submersible Pump	100mm	Lease	v				
Compressor	5m ³ /min	Lease	v				
Concrete Mixer	0.4-0.6m ³	Lease	v				

2.2.4.7 IMPLEMENTATION SCHEDULE

Implementation schedule for detailed design, tender arrangement, and execution of the Project is shown in Table 2.2-11.

Table 2.2-11 Implementation Schedule

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27		
Detailed Design	■ (Site Investigation)																												
	■ (Design in Japan)																												
			■ (Tendering)																			<u>(Total 5.0months)</u>							
Site Execution	■ (Preparatory Work)																												
		■ (Earth Work)																											
		■ (Main Line Work)																											
			■ (Road Facility Work)																										
				■ (Drainage)																									
		■ (Footpath/ Access Way Work)																											
								■ (Structure Work)																					
													■ (Cleaning)																
																						<u>(Total 12.5months)</u>							

2.2.4.8 MONITORING PLAN

This Project is existing road improvement.

Improvement of existing road is necessary because of present traffic volume and future traffic volume. Monitoring Plan should be implemented for Environmental influence by this project. Items for this monitoring should be discussed with BCA, and necessary items should be extracted and implemented by BCA during each phase (before construction, during construction and operation stage).

Table 2.2-12 Environmental Monitoring Form

Items	Contents of the monitoring
Involuntary Resettlement	<ul style="list-style-type: none"> ● To confirm that the minutes of understanding which is considered the compensation for the reallocation was made on the involuntary resettlement. ● To confirm that the address of the relocation was secured ● To confirm that the involuntary was lived as well as before the resettlement
Air Pollution	<ul style="list-style-type: none"> ● To confirm the measure to the dust that the resident people along the site may claim
Noise and Vibration	<ul style="list-style-type: none"> ● To confirm the measure to the noise that the resident people along the site may claim ● To confirm the measure to the vibration that the resident people along the site may claim

Note: The items of the monitoring plan were picked up from the items which will be affected with further impact in the scoping table.

2.3 OBLIGATIONS OF RECIPIENT COUNTRY

The Government of Malawi will undertake the following measures on condition that the Grant Aid by Government of Japan is extended to the Project;

- ✓ To provide data and information necessary for the Project
- ✓ To secure the land necessary for the execution of the Project, such as the land for construction works, stock yards, work shop, field offices, and others
- ✓ To provide borrow pits, quarry sites and waste disposal areas
- ✓ To bear commissions to the bank in Japan for its banking service in connection with the Project
- ✓ To ensure prompt tax exemption, customs clearance, and effective inland transportations of materials and equipment
- ✓ To exempt Japanese nationals engaged in the Project from any customs duties for the supply of products and services necessary for the Project
- ✓ To accord Japanese nationals necessary legal rights for their entry and stay in Malawi
- ✓ To provide all necessary permission, licenses and certificates for the implementation of the Project (construction permission by MLGRD, traffic control permission, detour permission, construction permission in river, earthwork permission etc.)

- ✓ To relocate all obstruction structures such as electric poles and wires, telephone poles and cables, water pipes, sewer pipes, billboards and signboards, etc. in the Project road.
- ✓ To arrange proper use and effective maintenance of the road after the completion of the project
- ✓ To coordinate and solve any issues related to the Project that may be raised from residents and/or third parties
- ✓ To bear all the expenses, other than covered by the Japanese Grant Aid, agreed and necessary for the Project
- ✓ To secure safety of the construction site

2.4 PROJECT OPERATION PLAN

2.4.1 ORGANIZATION FOR ROAD MANAGEMENT AND MAINTENANCE

Road management and maintenance after the project is under the responsibility of engineering services department of Blantyre City Assembly (BCA).

Road division under the engineering services department of BCA has 6 members, and has 4 subsections (Limbe, Blantyre, Ndireanole, Soche) which undertake road management and maintenance. Each subsection has around 25 temporary staffs. But large repair works are implemented by outsourcing. Regarding road repair work for the project, there is no technical difficulty for necessary maintenance works. It is evaluated that current organization can manage and maintain the project road.

2.4.2 ROAD MAINTENANCE PLAN

Necessary road maintenance works are as follows:

Periodical maintenance

- ✓ Routine inspection and cleaning of side ditches, culverts, supplemental facilities, etc.

Ad-hoc maintenance

- ✓ Repair for damaged parts, such as ceiling and patching pavement, repainting road markings, and any other damaged parts

2.4.3 PRESENT ROAD MAINTENANCE CONDITIONS AND RECOMMENDATIONS

Recent road management and maintenance conditions are observed as follows;

- ✓ Routine inspection and periodical maintenance are relatively good operation especially road cleaning
- ✓ Repair of pavement of carriageway is in relatively good operation, but repair of shoulder and slope is not enough

To achieve effective results of the Project and sustain good conditions of the road facilities, it is important to manage and maintain road facilities adequately by keeping in good condition the pavements and other supplemental facilities and extending their life spans, so the following recommendations are proposed:

- ✓ To check facilities regularly for controlling their conditions
- ✓ To clean up facilities, especially drainage
- ✓ To secure necessary budget for maintenance

2.5 PROJECT COST ESTIMATION

2.5.1 INITIAL COST ESTIMATION

(1) Cost borne by the Government of the Republic of Malawi

- ✓ Total Cost : 5.1 Million MK
(Approximately 3.5 Million Japanese Yen)
- ✓ Utility Relocation Cost : 4.4 Million MK (Approx. 3.0 M. Yen)
- ✓ Bank Commission : 0.7 Million MK (Approx. 0.5 M. Yen)

(2) Conditions in Cost Estimate

- ✓ Time of Cost Estimation : November 2009
- ✓ Exchange Rate : 1 United States Dollar = 95.03 Yen
- ✓ Construction Period : As shown in the Implementation Schedule
- ✓ Other Condition : Cost estimate is implemented in accordance with the guideline of Japan's Grant Aid

2.5.2 OPERATION AND MAINTENANCE COST

Blantyre City Assembly (BCA) is in charge of maintenance for the road rehabilitated by the Project.

Annual maintenance cost necessary for the road is estimated at 6,630 Thousand MK (Approximately US\$ 48,000). Details are shown in Table 2.5-1.

Table 2.5-1 Maintenance Work and Annual Cost

✓ Routine Inspection

(unit: Malawian Kwacha)

Facility	Inspection Item	Frequency	No. of Staff	Equipment	Quantity	Unit Price	Cost
Pavement Shoulder/slope Road marking Drainage	Crack, deformation, pothole, etc.	12 times a year	2 persons	Scoop, hammer, sickle, barricade, pick-up truck	24 man-day / year	12,920 /day	310,000
	Rainwater erosion & collapse, etc. Injury, deformation, stain, splitting Damage and obstruction	1 day each time			12 veh-day/ year =96 hours/year (8 hours/day)	15,000 /hour	1,440,000
						Total	1,750,000

✓ Daily Maintenance Work

Facility	Inspection Item	Frequency	No. of Staff	Equipment	Quantity	Unit Price	Cost
Cleaning Drainage Pavement Shoulder Road marking	Cleaning soil, obstacles	4 times a year	5 persons	Scoop, hammer, sickle, barricade, Pick-up truck (2 units)	100 man-day / year	15,000 /day	1,500,000
	Cutting grass, cleaning Cleaning	5 days each time			8 veh-day/ year (64 hours/day)	20,320 /hours-day	1,300,000
						Total	2,800,000

4,550,000

✓ Repair

Facility	Repair Item	Frequency	Unit Price (per Year, per km)	Road length
Pavement Shoulder/slope Drainage Road attached facilities Structure	Patching pothole Repairing damaged part Repairing damaged part Repairing damaged part Repairing damaged part	1 times / 5 years	167,400 45,900 149,000 68,800 45,900	4.36 km
		1 times / 5 years		
		1 times / 2 years		
		1 times / 5 years		
		1 times / 5 years		
		1 times / 10 years		
Total			477,000	2,080,000

6,630,000

2.6 OTHER RELEVANT ISSUES

It is mention in item 2.2.4.3 and 2.3 for undertaking of Malawi side. The item will be influenced for execution of the project, it is necessary to shift occupation thing (gate and fence etc) in Right of Way area by implementation plan before the Invitation to bid for the project. BCA has held stakeholder meeting so as to reach a consensus for relocation among landlords. And BCA has already paid compensation for relocation to six landlords until August 2008 except the residence, so the possessor will be required effort to shift objects by themselves.

CHAPTER3 PROJECT EVALUATION AND RECOMMENDATION

3.1 PROJECT EFFECT

The direct and indirect effects brought by the project are tabulated in the table 3.1-1.

Table 3.1-1 Direct/Indirect Effect by the Implementation of the Project

Current Status and Challenges	Countermeasures in the project	Direct effect / Improvement	Indirect effect / Improvement
<p>The numbers of traffic lane is 4~2~4. Traffic congestion is serious in 2-lane. The condition of no sidewalk lead to difficulties for commuter by walking and bicycle.</p>	<p>Widening of road (The numbers of traffic lane should be increased from 2 to 4-lane).</p>	<ul style="list-style-type: none"> ● Travel time at off peak hour will be shorten from present level of 7 minutes to 5 minutes on 4.36 km of Section-3 to 5 and at peak hour will be shorten from present level of 17 minutes to 12 minutes. ● Average moving speed will be improved from present speed of 36 km/hour to 55 km/hour. ● Maintenance cost of road rehabilitation will be reduced from present cost of 14.00 million MK / year to 6.63 million MK / year ● Since sidewalk will be constructed, traffic for pedestrian and bicycle will be more safe and comfortable. 	<ul style="list-style-type: none"> ● The measure of effective traffic and physical distribution will be offered, access of infrastructure for inhabitation life will be improved, so the activation of social and economic action will be contributed. ● The number of maintenance route for public bus and mini-bus will be increased, so the comfortable way will be improved and the frequency of service will be increased, therefore the mobility of inhabitant will be improved. ● The drainage facilities will be maintained, so the rainwater will be drained quickly on the road, and the time of pavement damage will be restrained. ● The reaction time of emergency traffic will be shorted for improvement of subject routes, and the security of region will be contributed for improvement of street lights. ● The numbers of traffic lane should be increased from 2 to 4-lane at section-4, and the turning left will be prohibited for improvement of center separator, so the number of traffic accident in crossing will be contributed.

3.2 RECOMMENDATION

To fully secure and sustain the Project effects, Malawian side shall execute the following issues.

- (1) Maintenance should be well carried out. Cleaning of drainage facilities is very critical so as to prevent early deterioration of the road. The maintenance for pipe drain is not enough in the present conditions, cleaning for pipe drain should be done in particular.
- (2) Road maintenance budget should be secured in accordance with the long-run program for operation and maintenance. In addition, capacity development should be carried out as well.

[Appendices]

1. Member List of Study Team.....	A1-1
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6. Minutes of Stake Holder Meeting and EIA Certificate Letter	A6-1
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1. Member List of the Study Team

(1) Preparatory Survey (26/10/2009 ~ 19/11/2009)

Mr. Akihiko Hoshino	Team Leader	Chief Representative, JICA Malawi Office
Mr. Tsuyoshi Yamajuku	Chief Consultant/ Traffic Plan	Katahira & Engineers International
Mr. Yasushi Aoki	Road Design	Katahira & Engineers International
Mr. Kazuyuki Hiraoka	Construction Plan/ Cost Estimation	Katahira & Engineers International

(2) Explanation of Draft Report (15/2/2010 ~26/2/2010)

Mr. Akihiko Hoshino	Team Leader	Chief Representative, JICA Malawi Office
Mr. Tsuyoshi Yamajuku	Chief Consultant/ Traffic Plan	Katahira & Engineers International
Mr. Yasushi Aoki	Road Design	Katahira & Engineers International

2. Survey Schedule

(1) Preparatory Survey (26/10/2009 ~ 19/11/2009)

Schedule of the Preparatory Survey for the Project for Improvement of Blantyre City Roads

Name			Mr.Akihiko HOSHINO	Mr.Tsuyoshi YAMAJUKU	Mr.Yasushi AOKI	Mr.Kazuyuki HIRAOKA	Mr.Shinji YAMAGUCHI
Position			Team Leader, Deputy Chief Representative (JICA Malawi office)	Chief Consultant / Traffic Planning Engr. (Katahira & Engineers International)	Road Design Engr. (Katahira & Engineers International)	Construction Planning/ Cost Estimate Engr. (Katahira & Engineers International)	Natural Condition Survey Engr. (Katahira & Engineers International)
No.	Date	Day					
1	26-Oct-09	Mon		Tokyo(16:20,CX521) → Hong Kong(20:35/23:45,CX749) → Johannesburg (6:35)			(AM) Nairobi→Lilongwe (PM)Survey Preparation
2	27-Oct-09	Tue		(AM) Johannesburg(10:00,SA170) → Lilongwe(12:25) , (PM) visit to JICA			(AM)Survey Preparation (PM)visit to JICA
3	28-Oct-09	Wed	(AM)visit to EOJ , (PM)visit to MLGRD	(AM)visit to EOJ (PM)visit to MLGRD	(AM)Contract with Local Consultant (PM)visit to MLGRD	(AM)visit to EOJ (PM)visit to MLGRD	(AM) Contract Nego with Local Consultant (PM) Meeting with Local Consultant
4	29-Oct-09	Thu		(AM) Lilongwe → Blantyre , (PM)visit to BCA			(AM) Lilongwe→Blantyre (PM) Site Survey
5	30-Oct-09	Fri		(AM) Conference to BCA (PM) Site Survey			Site Survey
6	31-Oct-09	Sat		Site Survey			
7	01-Nov-09	Sun	Lilongwe → Blantyre	Site Survey			
8	02-Nov-09	Mon	(AM)Conference to MLGRD/BCA	(AM)Conference to MLGRD/BCA, Signing of MD (PM) Site Survey			Supervising sub-contractor
9	03-Nov-09	Tue	Blantyre →Lilongwe	(AM) Technical Discussion with BCA (PM) Site Inspection with BCA		(AM) Technical Discussion with BCA (PM) Site Survey	Supervising sub-contractor
10	04-Nov-09	Wed		Site Survey	(AM) Site Survey (PM) Study of Basic Design	Site Survey	Supervising sub-contractor
11	05-Nov-09	Thu		Study of Local Contractor	(AM) Site Survey (PM) Study of Basic Design	Site Survey	Supervising sub-contractor
12	06-Nov-09	Fri		Reports Preparation	(AM) Site Survey (PM) Study of Basic Design	(AM) Site Survey (PM) Study of Construction Planning	Supervising sub-contractor
13	07-Nov-09	Sat		Reports Preparation	(AM) Site Survey (PM) Study of Basic Design	Procurement Survey	Supervising sub-contractor
14	08-Nov-09	Sun		Conference of Investigation team			Supervising sub-contractor
15	09-Nov-09	Mon		Conference to BCA about Technical Note, EIA			Supervising sub-contractor
16	10-Nov-09	Tue		(AM) Conference of BCA about EIA (PM)	(AM) Conference BCA (PM) Study of Basic Design	(AM) Conference of BCA about EIA (PM) Procurement Survey	Travel Speed Survey Supervising Sub-con.
17	11-Nov-09	Wed		(AM) Site Survey (PM) Conference BCA	(AM) Site Survey (PM) Conference BCA	(AM) Procurement Survey (PM) Conference BCA	Site Survey
18	12-Nov-09	Thu		(AM) Reports Preparation (PM) Signing of Technical Note	(AM) Preparation of Technical Note (PM) Signing of Technical Note	(AM) Reports Preparation (PM) Signing of Technical Note	Study of Survey report
19	13-Nov-09	Fri		Reports Preparation			Study of Survey report
20	14-Nov-09	Sat		Reports Preparation			
21	15-Nov-09	Sun		Blantyre → Lilongwe			
22	16-Nov-09	Mon	(AM) Conference of EU, Report to JICA , (PM) Conference of World Bank, Report to EOJ				Follow-up of Drawing
23	17-Nov-09	Tue		Lilongwe(13:15,SA171) → Johannesburg (15:45)			Follow-up of Drawing
24	18-Nov-09	Wed		Johannesburg (12:35,CX748) → Hong Kong(7:05/9:05,CX504) → Tokyo (14:05)			Blantyre → Lilongwe → Nairobi
25	19-Nov-09	Thu					

EOJ:Embassy of Japan

MLGRD:Ministry of Local Government and Rural Development

BCA:Blantyre City Assemy

(2) Explanation of Draft Report (15/2/2010 ~26/2/2010)

DBD Schedule of Outline Design Survey Team for Blantyre Project (15, Feb, 2010–26, Feb, 2010)

Name			Mr.Akihiko HOSHINO	Mr.Tsuyoshi YAMAJUKU	Mr.Yasushi AOKI
Position			Team Leader, Deputy Chief Representative (JICA Malawi office)	Chief Consultant / Traffic Planning Engr. (Katahira & Engineers International)	Road Design Engr. (Katahira & Engineers International)
No.	Date	Day			
1	15-Feb-10	Mon		Tokyo(16:20,CX521) → Hong Kong(20:35/23:45,CX749) → Johannesburg (6:35)	
2	16-Feb-10	Tue		(AM) Johannesburg(10:00,SA170) → Lilongwe(12:25) (PM) visit to JICA	
3	17-Feb-10	Wed		(AM)visit to EOJ , (PM)visit to MLGRD	
4	18-Feb-10	Thu		(AM) Lilongwe → Blantyre , (PM)visit to BCA	
5	19-Feb-10	Fri		Conference to MLGRD/BCA	
6	20-Feb-10	Sat		Site Survery	
7	21-Feb-10	Sun	Lilongwe→Blantyre , Conference of Investigation team	Conference of Invetigation team	
8	22-Feb-10	Mon	(AM) Signing of MD , (PM) Blantyre→ Lilongwe		
9	23-Feb-10	Tue	(AM) Report to MLGRD , (PM) Report to JICA, EOJ		
10	24-Feb-10	Wed		Lilongwe(10:35,KQ722) →Lusaka(11:45/13:20,SA63)→ Johannesburg (15:25)	
11	25-Feb-10	Thu		Johannesburg (12:35,CX748) → Hong Kong(7:05/9:05,CX504) → Tokyo (14:05)	
12	26-Feb-10	Fri			

EOJ:Embassy of Japan

MLGRD:Ministry of Local Government and Rural Development

BCA:Blantyre City Assemby

3. List of Parties Concerned in Malawi

Ministry of Local Government and Rural Development: MLGRD	
Mr. Patrick H. Kabambe	Principal Secretary for Local Government
Blantyre City Assembly: BCA	
Dr. Lester Bandawe	Chief Executive
Eng Kenneth L. A. Kantwela	Director of Engineering Services Department
Mr. Robert I. Kawiya	Director of Parks, Recreation & Environment Affairs
Mr. A. W. D. Chanza	Director of Administration Department
Mr. P. T. Chisoni	Acting Director of Health Department
Mr. S. M. Kuyeli	Assistant Director of Engineering Department
Mr. S. P. Mitini-Nkhoma	Assistant Director of Parks & Recreation Department
Mr. N. Nanguwo	Town Planning Department
Mr. B. E. F. Nsitu	Town Planning Department
Mrs. N. Mkandawire	Engineering Service Department
Mr. S. Yiwombe	Engineering Service Department
Mr. C. Kachiswe	Engineering Service Department
European Union: EU	
Mr. Jocelin Cornet	Head of the Infrastructure Section
World Bank: WB	
Ms. Chrissie Kamwendo	Operations Officer
Mr. Samson Kwalingana	Research Analyst
Embassy of Japan in Malawi	
Mr. Motoyoshi Noro	Ambassador of Japan
Mr. Hiroshi Matsumoto	Deputy Chief of Mission Counselor
Mr. Shinichi Ogawa	First Secretary
JICA Malawi Office	
Mr. Shinji Obuchi	Resident Representative
Mr. Akihiko Hoshino	Deputy Resident Representative
Mr. Akihira Sano	Project Formulation Advisor
Mr. Kapalamula Godfrey	Senior Programme Officer

4. Minutes of Discussions (M/D)

(1) Preparatory Survey

**MINUTES OF DISCUSSIONS
ON THE PREPARATORY SURVEY
ON THE PROJECT FOR IMPROVEMENT OF BLANTYRE CITY ROADS
IN THE REPUBLIC OF MALAWI**

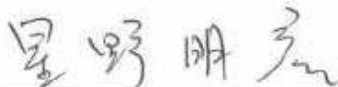
Referring to the results of the Basic Design Study conducted from November, 2006 to May, 2007, the Government of Japan decided to conduct a Preparatory Survey (hereinafter referred to as "the Survey") on the project for the Improvement of Blantyre City Roads in the Republic of Malawi (hereinafter referred to as "the Project") and entrusted the survey to the Japan International Cooperation Agency (hereinafter referred to as "JICA").

JICA sent to the Republic of Malawi (hereinafter referred to as "Malawi") the Preparatory Survey Team (hereinafter referred to as "the Team", which is headed by Mr. Akihiko HOSHINO, Deputy Chief Representative of JICA Malawi Office, and is scheduled to stay in the country from October 27 to November 17, 2009.

The Team held discussions with the officials concerned of the Government of Malawi and conducted a field survey at the Project sites.

In the course of discussions and field survey, both parties confirmed the main items described on the attached sheets. The Team will proceed with further works and prepare the Preparatory Survey Report.

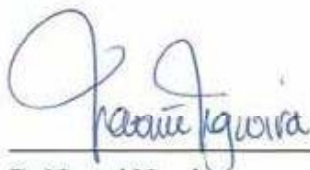
Lilongwe, November 2, 2009



Akihiko Hoshino
Leader
Preparatory Survey Team
Japan International Cooperation Agency
Japan



Dr. Lycester Bandawe
Chief Executive
Blantyre City Assembly
The Republic of Malawi



Dr. Naomi Ngwira
Secretary to the Treasury
Ministry of Finance
The Republic of Malawi



Patrick Kabambe
Principal Secretary
Ministry of Local Government and
Rural Development
The Republic of Malawi

ATTACHMENT

1. Objective of the Preparatory Survey

The objective of the Project is to confirm the road section of the phase 2 and to conduct the site survey and collect necessary data to examine outline design, construction schedule and cost estimation on this Project.

2. Site of the road

Both sides confirmed that the site of the road for the Project shall be 4.36km for both the Chipembere Highway from Chichiri Roundabout (RA) to Stanbic IC and the Livingstone Avenue from Stanbic IC to Illovo RA in the Blantyre City in Malawi. The section shall be divided as Section-3 (2.75km) from Chichiri RA to Yianikis RA, Section-4 (0.72km) from Yianikis RA to Standard Bank IC, and Section-5 (0.89km) from Standard Bank IC to Illovo RA.

3. Project Site

The site of the Project is shown in Annex-1.

4. Responsible and Implementing Agency

4-1. The Responsible Ministry is Ministry of Local Government and Rural Development. Its organization chart is shown in Annex-2.

4-2. The Implementing Agency is Blantyre City Assembly (BCA). Its organization chart is shown in Annex-3.

5. Items requested by the Government of Malawi

- Widening of the existing roads from 2-lane to 3-lane for the section-4,
- Rehabilitation of existing roads and service roads,
- Improvement of 3 roundabout intersections (Maselema, Yianikis, Illovo intersections)
- Improvement of the drainage system along the roads,
- Installation of bus lay bye (5 points),
- Installation of pedestrian walkway,
- Installation of kerb stones,
- Installation of traffic signs and road markings,
- Installation of street lights,
- Installation of pedestrian crossings (at school, college, hospital and shopping centers), and
- Training of staff in the management and maintenance of the infrastructure.

JICA will assess the appropriateness of the request and will report its findings to the Government of Japan.

6. Japan's Grant Aid Scheme

 -2-

6-1. The Malawian side understands the Japan's Grant Aid scheme (for General Project) explained by the Team, as described in Annex-4 and Annex-5.

6-2. The Malawian side will take the necessary measures, as described in Annex-6, for smooth implementation of the Project, as a condition for the Japanese Grant Aid to be implemented.

7. JICA Guidelines for Environmental and Social Considerations

7-1. The Malawian side recognized that the current JICA Guidelines for Environmental and Social Considerations (2004) would be applied in order to confirm whether the Project would be conducted with the adequate environmental and social considerations even though the New Guidelines will be issued.

7-2. The EIA report for Phase 1 and Phase 2 was certified on May, 2007. Both sides confirmed that the certification is still effective on this Project.

8. Schedule of the Study

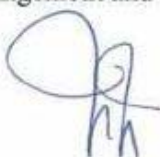

8-1. JICA will prepare the draft report in English and dispatch a mission in order to explain its contents around February, 2010.

8-2. In case that the contents of the report are accepted in principle by the Government of Malawi, JICA will complete the final report and send it to the Government of Malawi by May, 2010.

9. Other Relevant Issues

9-1. Both sides agreed that the following undertakings would not have been changed by the Minutes of Discussions on "the Basic Design Study on the Project for the Improvement of Blantyre City Roads in the Republic of Malawi" which are signed on November 24, 2006 and on April 18, 2007.

- Improvement and/or repair of existing utilities (power lines, telecommunication lines, water lines, etc.), if necessary.
- Necessary arrangement for vehicles to make detour or set up a diversion at necessary sections in consultation with contractor.
- Necessary arrangement for the tax exemption of import materials and equipment and timely refunding for the exemption of VAT for purchase of local products and services.
- Clearance of the site.
- Securing of site for disposal of waste.
- Maintaining the security at the sites for the Project.
- Public relations and dealing with any complaints raised by affected persons.
- Identification of underground utilities located within the site and exemption of contractor's responsibility in case of occurrence of any damage against unidentified utilities.
- Coordination to relevant agencies regarding traffic control during construction.
- Necessary arrangement and assistance for issuing of VISA for concerned persons.

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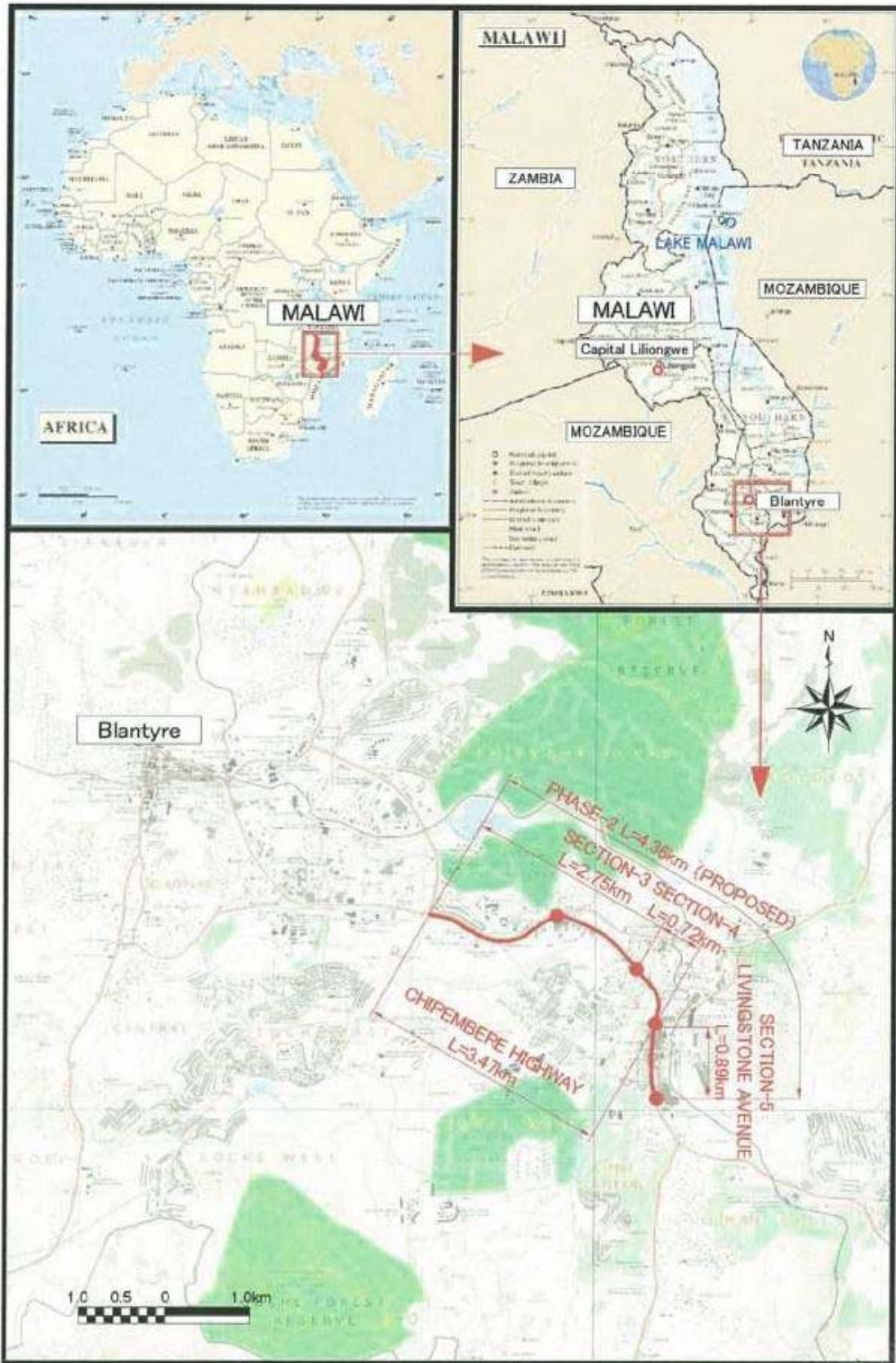
- Annex-1 Project Site
- Annex-2 Organization chart (Ministry of Local Government and Rural Development)
- Annex-3 Organization chart (BCA)
- Annex-4 Japan's Grant Aid
- Annex-5 Flow Chart of Japan's Grant Aid Procedures
- Annex-6 Major Undertakings to be taken by Each Government

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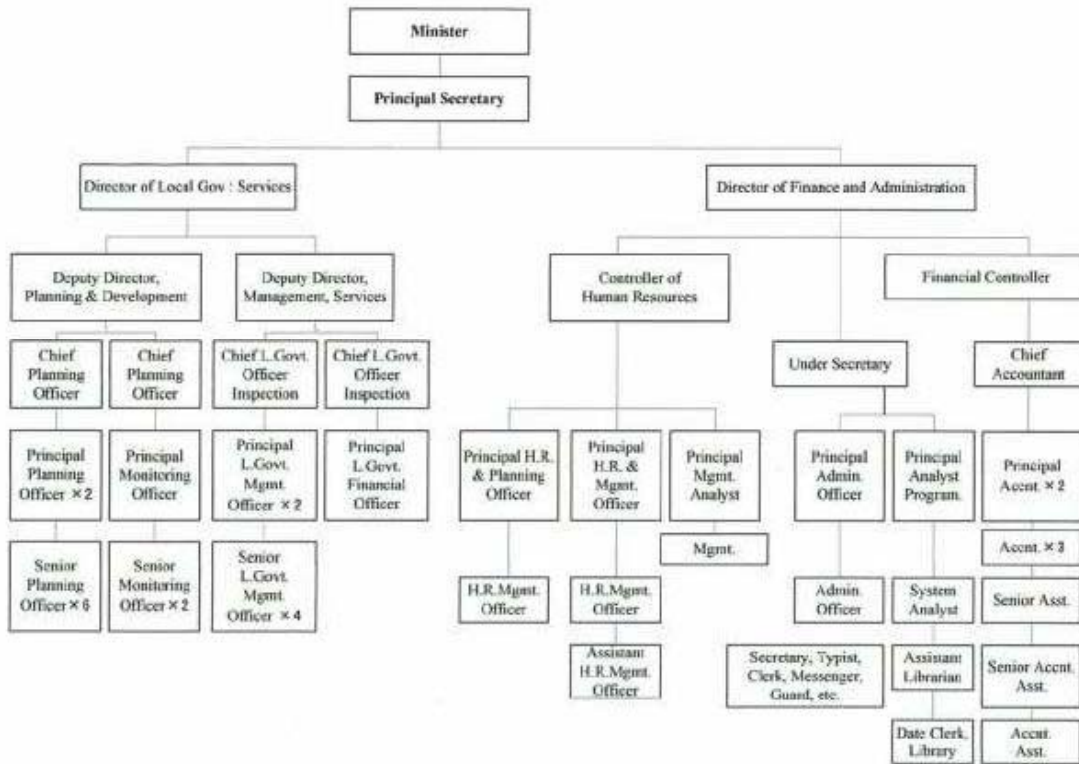
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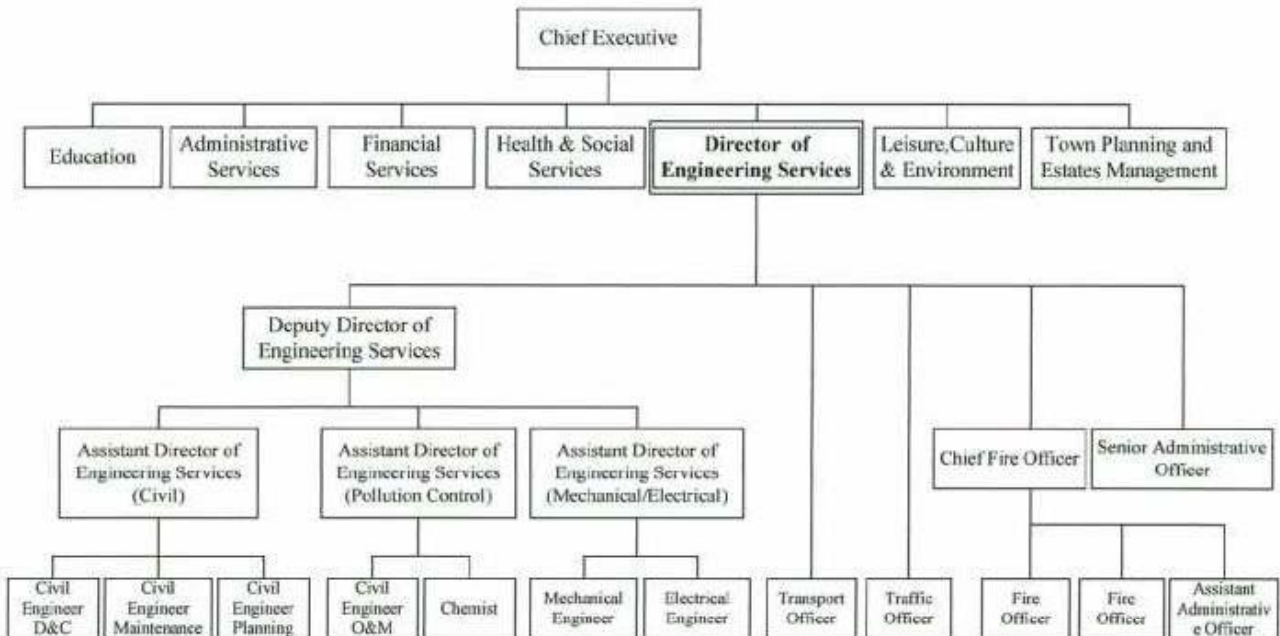
Project Site

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Annex-2 Organization Chart of Ministry of Local Government and Rural Development



Annex-3 Organization Chart of Blantyre City Assembly



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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 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



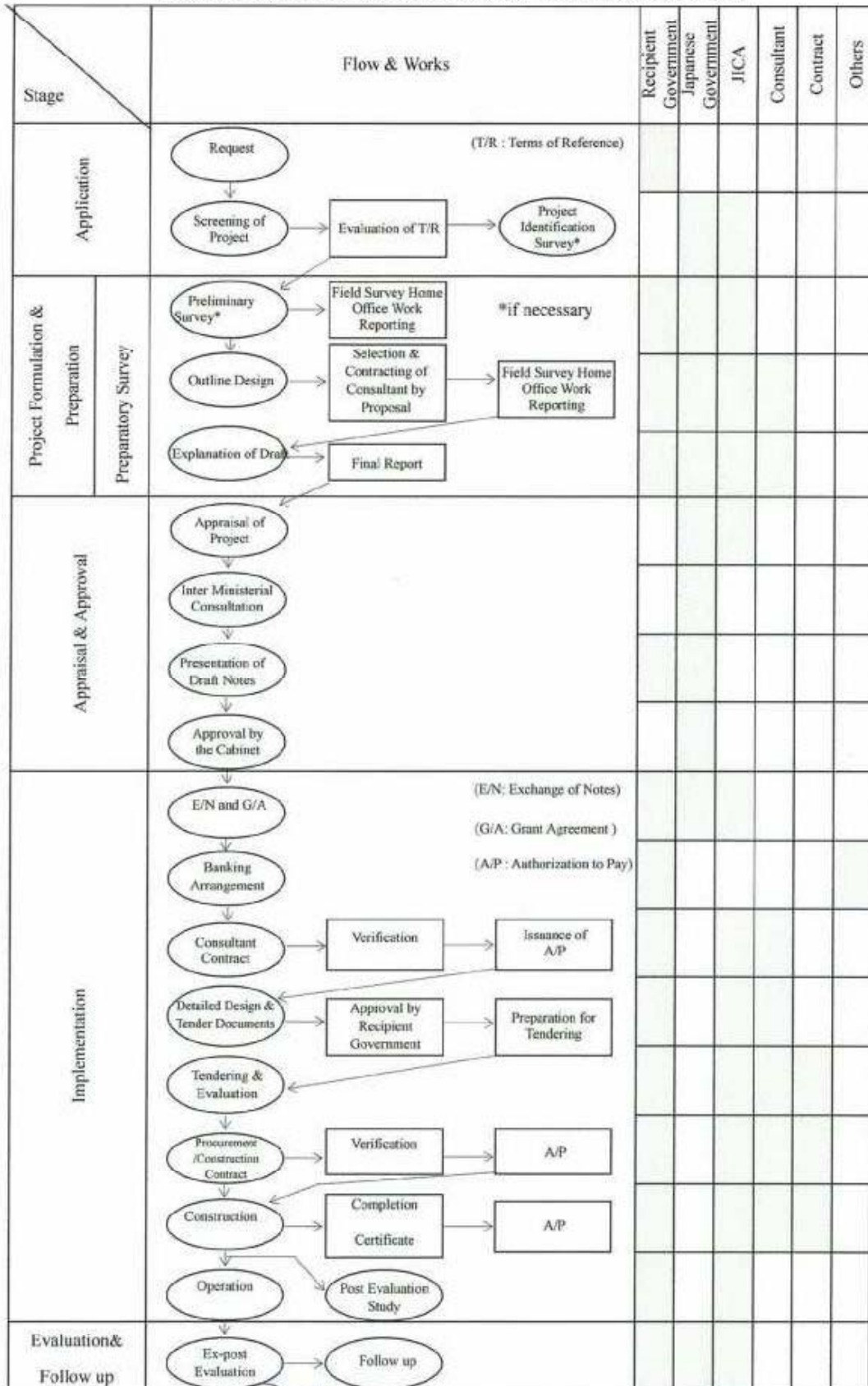
commissions paid to the Bank.

(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 socio-environmental guidelines.

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FLOW CHART OF JAPAN'S GRANT AID PROCEDURES



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Major Undertakings to be taken by Each Government

No.	Items	To be covered by Grant Aid	To be covered by Recipient Side
1	to secure lots of land necessary for the implementation of the Project and to clear the sites;		●
2	To ensure prompt customs clearance of the products and to assist internal transportation of the products in the recipient country		
	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	(●)	(●)
3	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		●
4	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		●
5	To ensure that the Facilities be maintained and used properly and effectively for the implementation of the Project		●
6	To bear all the expenses, other than those covered by the Grant, necessary for the implementation of the Project		●
7	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		●
8	To give due environmental and social consideration in the implementation of the Project.		●

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






(2) Explanation on Draft Report

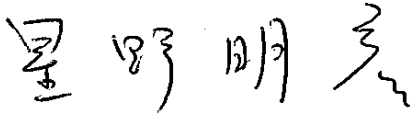
**MINUTES OF DISCUSSIONS
ON THE PREPARATORY SURVEY
ON THE PROJECT FOR IMPROVEMENT OF BLANTYRE CITY ROADS
IN THE REPUBLIC OF MALAWI
(Explanation on Draft Final Report)**

From October to November 2009, the Japan International Cooperation Agency (hereinafter referred to as "JICA") dispatched the Preparatory Survey Team on the "Project for Improvement of Blantyre City Roads" (hereinafter referred to as "the Project") to the Republic of Malawi (hereinafter referred to as "Malawi"), and through discussions with Malawian side, field survey, and technical examination of the results in Japan, JICA prepared the draft outline design report of the survey.

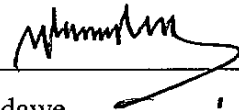
In order to explain and to consult with the officials concerned of the Government of Malawi on the components of the draft report, JICA sent to Malawi the Outline Design Explanation Team (hereinafter referred to as "the Team"), headed by Mr. Akihiko Hoshino, Deputy Chief Representative, JICA Malawi Office, from February 16 to 24, 2010.

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

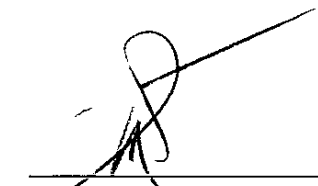
Lilongwe, February 22, 2010



Akihiko Hoshino
Leader
Preparatory Survey Team
Japan International Cooperation Agency
Japan



Dr. Lycester Bandawe
Chief Executive
Blantyre City Assembly
The Republic of Malawi



Peter Simbani
Director for Debt and Aid
Ministry of Finance
The Republic of Malawi



Patrick Kabambe
Principal Secretary
Ministry of Local Government and
Rural Development
The Republic of Malawi

ATTACHMENT

1. Components of the Draft Report

1-1. The Malawian side agreed and accepted in principle the components of the draft report of the Outline Design Study explained by the Team.

1-2. With regard to the widening of the existing road for the section 4, it was envisaged that the previous plan was to widen it from 2 lanes to 3 lanes. However, Malawian side requested that the section 4 should be widened to 4 lanes from the point of the traffic volume after the previous field survey. The Japanese side analyzed the necessity and relevance of widening to 4 lanes and found out that it was essential to widen it due to the large scale of the traffic volume, traffic safety, the variation of the congestion factors from the past basic design and the avoidance of the resettlement by narrowing the width of the walkway.

2. Japan's Grant Aid scheme

Malawian side understood the Japan's Grant Aid scheme and the necessary measures to be taken by the Government of Malawi as described in Minutes of Discussions signed on November 2, 2009.

3. Schedule of the Study

JICA will complete the final report in accordance with the confirmed items and send it to the Government of Malawi by the end of May, 2010.

4. Cost Estimation

Both sides agreed that the Project Cost Estimation as attached in Annex-1 which is confidential should never be duplicated or released to any third parties before the signing of all the Contract(s) for the Project.

5. Other Relevant Issues

5-1. Both sides agreed that the Malawian side will arrange the budget allocation for land

acquisition, clearance of related housing and facilities, compensation for the Project Affected Persons (PAPs) and relocation of existing utilities before the Invitation To Bid for the Project.

5-2. Malawian side confirmed to implement the necessary works taken by the Malawian side at their own expenses based on the Minutes of Discussions signed on November 2, 2009.

- Annex-1 Project Cost Estimation
- Annex-2 Environmental Checklist
- Annex-3 Environmental Monitoring Form

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Cost Estimation of the Project

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due to the confidentiality.

Environmental Checklist: 15. Roads and Railways (1)

Category	Environmental Item	Main Check Items	Confirmation of Environmental Considerations
1 Permits and Explanation	(1) EIA and Environmental Permits	① Have EIA reports been officially completed? ② Have EIA reports been approved by authorities of the host country's government? ③ Have EIA reports been unconditionally approved? If conditions are imposed on the approval of EIA reports, are the conditions satisfied? ④ In addition to the above approvals, have other required environmental permits been obtained from the appropriate regulatory authorities of the host country's government?	① The EIA reports have been completed. ② The EIA reports were approved to Environmental Affairs Department on 9th May, 2007. ③ The conditions are imposed to plant new roadside tree if it is necessary to cut existing roadside tree. ④ The permissions of borrow pits from local governments are required. The permissions have not been obtained yet.
	(2) Explanation to the Public	① Are contents of the project and the potential impacts adequately explained to the public based on appropriate procedures, including information disclosure? Is understanding obtained from the public? ② Are proper responses made to comments from the public and regulatory authorities?	① The public consultation was conducted at the preliminary study stage in January 2007. The general agreement of the local people have been obtained. ② The interview survey to the local people was conducted at the preparatory study stage in January 2007. The results were reflected in the mitigation.
2 Mitigation Measures	(1) Air Quality	① Is there a possibility that air pollutants emitted from various sources, such as vehicle traffic will affect ambient air quality? Does ambient air quality comply with the country's ambient air quality standards? ② Where industrial areas already exist near the route, is there a possibility that the project will make air pollution worse?	①② There are nothing of the observation data for air quality. The level of air pollution was not so high on site survey.
	(2) Water Quality	① Is there a possibility that soil runoff from the bare lands resulting from earthmoving activities, such as cutting and filling will cause water quality degradation in downstream water areas? ② Is there a possibility that surface runoff from roads will contaminate water sources, such as groundwater? ③ Do effluents from various facilities, such as stations and parking areas/service areas comply with the country's effluent standards and ambient water quality standards? Is there a possibility that the effluents will cause areas that do not comply with the country's ambient water quality standards?	① Turbid water will generate in the construction works. There are no intake facilities in and down the site. ② Impact on water resources of runoff from road surface will not occur. ③ Effluent areas will comply with the effluent standards.
	(3) Noise and Vibration	① Do noise and vibrations from vehicle and train traffic comply with the country's standards?	① Serious noise and vibration will not occur because of the limited traffic volume.

Environmental Checklist: 15. Roads and Railways (2)

Category	Environmental Item	Main Check Items	Confirmation of Environmental Considerations
3 Natural Environment	(1) Protected Areas	<p>① Is the project site located in protected areas designated by the country's laws or international treaties and conventions? Is there a possibility that the project will affect the protected areas?</p>	<p>① There are no protected areas in and around the site.</p>
	(2) Ecosystem	<p>① Does the project site encompass primeval forests, tropical rain forests, ecologically valuable habitats (e.g., coral reefs, mangroves, or tidal flats)?</p> <p>② Does the project site encompass the protected habitats of endangered species designated by the country's laws or international treaties and conventions?</p> <p>③ If significant ecological impacts are anticipated, are adequate protection measures taken to reduce the impacts on the ecosystem?</p> <p>④ Are adequate protection measures taken to prevent impacts, such as disruption of migration routes, habitat fragmentation, and traffic accident of wildlife and livestock?</p> <p>⑤ Is there a possibility that installation of roads will cause impacts, such as destruction of forest, poaching, desertification, reduction in wetland areas, and disturbance of ecosystems due to introduction of exotic (non-native invasive) species and pests? Are adequate measures for preventing such impacts considered?</p> <p>⑥ In cases where the project site is located at undeveloped areas, is there a possibility that the new development will result in extensive loss of natural environments?</p>	<p>① There are no ecological valuable habitats in and around the site.</p> <p>② The habitats of endangered species have not been identified in and around the site.</p> <p>③ Significant ecological impact will not occur.</p> <p>④ Migration animals crossing the site have not been identified.</p> <p>⑤⑥ The new road will not cause destruction of forest because of reconstruction of existing road.</p>
	(3) Hydrology	<p>① Is there a possibility that alteration of topographic features and installation of structures, such as tunnels will adversely affect surface water and groundwater flows?</p>	<p>① Impact on surface and ground water will not occur.</p>
	(4) Topography and Geology	<p>① Is there a soft ground on the route that may cause slope failures or landslides? Are adequate measures considered to prevent slope failures or landslides, where needed?</p> <p>② Is there a possibility that civil works, such as cutting and filling will cause slope failures or landslides? Are adequate measures considered to prevent slope failures or landslides?</p> <p>③ Is there a possibility that soil runoff will result from cut and fill areas, waste soil disposal sites, and borrow sites? Are adequate measures taken to prevent soil runoff?</p>	<p>①② There are no slope failures or landslides in and around the site.</p> <p>③ Serious soil runoff will not occur.</p>

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Environmental Checklist: 15. Roads and Railways (3)

Category	Environmental Item	Main Check Items	Confirmation of Environmental Considerations
4 Social Environment	(1) Resettlement	<p>① Is involuntary resettlement caused by project implementation? If involuntary resettlement is caused, are efforts made to minimize the impacts caused by the resettlement?</p> <p>② Is adequate explanation on relocation and compensation given to affected persons prior to resettlement?</p> <p>③ Is the resettlement plan, including proper compensation, restoration of livelihoods and living standards developed based on socioeconomic studies on resettlement?</p> <p>④ Does the resettlement plan pay particular attention to vulnerable groups or persons, including women, children, the elderly, people below the poverty line, ethnic minorities, and indigenous people?</p> <p>⑤ Are agreements with the affected persons obtained prior to resettlement?</p> <p>⑥ Is the organizational framework established to properly implement resettlement? Are the capacity and budget secured to implement the plan?</p> <p>⑦ Is a plan developed to monitor the impacts of resettlement?</p>	<p>① Removal of total six fences and gates will be required.</p> <p>② The local government have conducted the explanation to the local people and paid the compensation in August 2008.</p> <p>③ It was confirmed the compensation exceed the market price of land. Shops and vendors around existing road will be able to continue their business after the improvement of the road.</p> <p>④⑤⑥⑦ No resettlement will be required. The local government will negotiate with the owners of fences and gates that are subject to monetary compensation.</p>
	(2) Living and Livelihood	<p>① Where roads or railways are newly installed, is there a possibility that the project will affect the existing means of transportation and the associated workers? Is there a possibility that the project will cause significant impacts, such as extensive alteration of existing land uses, changes in sources of livelihood, or unemployment? Are adequate measures considered for preventing these impacts?</p> <p>② Is there a possibility that the project will adversely affect the living conditions of inhabitants other than the affected inhabitants? Are adequate measures considered to reduce the impacts, if necessary?</p> <p>③ Is there a possibility that diseases, including communicable diseases, such as HIV will be introduced due to immigration of workers associated with the project? Are adequate considerations given to public health, if necessary?</p> <p>④ Is there a possibility that the project will adversely affect road traffic in the surrounding areas (e.g., by causing increases in traffic congestion and traffic accidents)?</p> <p>⑤ Is there a possibility that roads and railways will impede the movement of inhabitants?</p> <p>⑥ Is there a possibility that structures associated with roads (such as bridges) will cause a sun shading and radio interference?</p>	<p>①②③④⑤ The new road will not cause significant impacts on livelihood of the local people and road traffic because of the improvement of existing road. Shops and vendors around existing road will be able to continue their business after the completion.</p> <p>⑥ Impact on sun shading and radio interference will not occur.</p>
	(3) Heritage	<p>① Is there a possibility that the project will damage the local archeological, historical, cultural, and religious heritage sites? Are adequate measures considered to protect these sites in accordance with the country's laws?</p>	<p>① There are no heritage in and around the site.</p>
	(4) Landscape	<p>① Is there a possibility that the project will adversely affect the local landscape? Are necessary measures taken?</p>	<p>① There are no special landscape areas in and around the site.</p>

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Environmental Checklist: 15. Roads and Railways (4)

Category	Environmental Item	Main Check Items	Confirmation of Environmental Considerations
4 Social Environment	(5) Ethnic Minorities and Indigenous People	<p>① Where ethnic minorities and indigenous peoples are living in the rights-of-way, are considerations given to reduce the impacts on culture and lifestyle of ethnic minorities and indigenous people?</p> <p>② Does the project comply with the country's laws for rights of ethnic minorities and indigenous people?</p>	<p>①② The site is not an area where ethnic minorities and indigenous people having unique culture and lifestyle are living.</p>
	(1) Impacts during Construction	<p>① Are adequate measures considered to reduce impacts during construction (e.g., noise, vibrations, turbid water, dust, exhaust gases, and wastes)?</p> <p>② If construction activities adversely affect the natural environment (ecosystem), are adequate measures considered to reduce impacts?</p> <p>③ If construction activities adversely affect the social environment, are adequate measures considered to reduce impacts?</p> <p>④ If necessary, is health and safety education (e.g., traffic safety, public health) provided for project personnel, including workers?</p>	<p>①②③④ To mitigate environmental impacts during construction phase, the environmental management plan (EMP) is formulated in the EIA report. The contractor should practice the EMP.</p>
5 Others	(2) Monitoring	<p>① Does the proponent develop and implement monitoring program for the environmental items that are considered to have potential impacts?</p> <p>② Are the items, methods and frequencies included in the monitoring program judged to be appropriate?</p> <p>③ Does the proponent establish an adequate monitoring framework (organization, personnel, equipment, and adequate budget to sustain the monitoring framework)?</p> <p>④ Are any regulatory requirements pertaining to the monitoring report system identified, such as the format and frequency of reports from the proponent to the regulatory authorities?</p>	<p>①②③④ To manage environmental impacts during construction phase, the environmental monitoring plan is formulated in the EIA report. The supervision consultant should establish the monitoring plan.</p>
	6 Note	<p>① Where necessary, pertinent items described in the Forestry Projects checklist should also be checked (e.g., projects including large areas of deforestation).</p> <p>② Where necessary, pertinent items described in the Power Transmission and Distribution Lines checklist should also be checked (e.g., projects including installation of power transmission lines and/or electric distribution facilities).</p> <p>① If necessary, the impacts to transboundary or global issues should be confirmed, if necessary (e.g., the project includes factors that may cause problems, such as transboundary waste treatment, acid rain, destruction of the ozone layer, or global warming).</p>	

1) Regarding the term "Country's Standards" mentioned in the above table, in the event that environmental standards in the country where the project is located diverge significantly from international standards, appropriate environmental considerations are made, if necessary.
 In cases where local environmental regulations are yet to be established in some areas, considerations should be made based on comparisons with appropriate standards of other countries (including Japan's experience).

2) Environmental checklist provides general environmental items to be checked. It may be necessary to add or delete an item taking into account the characteristics of the project and the particular circumstances of the country and locality in which it is located.

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Environmental Monitoring Form

Items	Contents of the monitoring
Involuntary Resettlement	<ul style="list-style-type: none"> ● To confirm that the minutes of understanding which is considered the compensation for the reallocation was made on the involuntary resettlement. ● To confirm that the address of the relocation was secured ● To confirm that the involuntary was lived as well as before the resettlement
Air Pollution	<ul style="list-style-type: none"> ● To confirm the measure to the dust that the resident people along the site may claim
Noise and Vibration	<ul style="list-style-type: none"> ● To confirm the measure to the noise that the resident people along the site may claim ● To confirm the measure to the vibration that the resident people along the site may claim

Note: The items of the monitoring plan were picked up from the items which will be affected with further impact in the scoping table.