

資料—1 調査団員氏名・所属

(1) 現地調査団団員リスト

氏名	担当	所属先・職位
星野明彦	総括	JICA マラウイ事務所次長
後藤隆寛	計画管理	JICA 経済基盤開発部 運輸交通・情報通信グループ
中川輝雄	業務主任/ 道路維持管理計画	セントラルコンサルタント (株) 海外部 技師長
多田一正	橋梁設計 I	エンジニアリング経済企画 (株)
植田信一	橋梁設計 II	セントラルコンサルタント (株) 海外部 橋梁グループ 技術主任
横山 昇	自然条件調査 (測量・地質)	(株) 地球システム科学 防災マネジメント事業部 次長
渡辺幹治	環境社会配慮	(株ソーワコンサルタント)
梅野 順	河道特性/水文	セントラルコンサルタント (株) 海外部
白鳥正裕	施工・調達計画/積算	セントラルコンサルタント (株)
豊崎真也	道路設計	セントラルコンサルタント (株) 海外部 道路グループ 技術主任
仁平正人	業務調整	セントラルコンサルタント (株) 業務課

(2) 概略設計概要説明調査団団員リスト

氏名	担当	所属先・職位
小淵伸司	総括	JICA マラウイ事務所 所長
横井博行	協力企画	JICA 経済基盤開発部 運輸交通・情報通信グループ
中川輝雄	業務主任/ 道路維持管理計画	セントラルコンサルタント (株) 海外部 技師長
多田一正	橋梁設計 I	エンジニアリング経済企画 (株)

資料—2 調査行程

(1) 現地調査行程表

日程	月	日	曜日	総括	計画管理	業務主任	橋梁設計Ⅰ	橋梁設計Ⅱ	自然条件	河流水文	施工・積算	環境社会配慮	業務調整	道路設計
				星野明彦	後藤隆寛	中川輝雄	多田一正	植田信一	横山 昇	梅野 翔	白鳥正祐	渡辺幹治 (自社補強)	仁平正人 (自社補強)	豊崎真也 (自社補強)
2	23	月												
3	24	火												
4	25	水												
5	26	木												リロングエ着
6	27	金												
7	28	土												
8	1	日												
9	2	月			リロングエ着 ⇒ムズ									リロングエ ⇒ヨハネス
10	3	火												ヨハネス⇒
11	4	水												⇒香港⇒成田
12	5	木												
13	6	金												
14	7	土			資料収集、団内ミーティング			リロングエ⇒ムズ			資料収集			リロングエ⇒ ヨハネス
15	8	日			資料整理			測量/土質/交通量調査			資料整理			ヨハネス⇒
16	9	月			MD協議			〃			MD協議			⇒香港⇒成田
17	10	火			〃			〃			〃			
18	11	水			MD署名、大使館、事務所報告			〃			MD署名、大使館、事務所報告			
19	12	木			リロングエ⇒ ヨハネス	資料収集		〃			資料収集			リロングエ⇒ ヨハネス
20	13	金			ヨハネス⇒香港	リロングエ⇒ムズ		〃			〃			ヨハネス ⇒香港
21	14	土			香港⇒成田	サイト調査		〃			〃			香港⇒成田
22	15	日				サイト調査 ムズ⇒リロングエ		団内ミーティング他		リロングエ⇒ ムズ	調査調査			
23	16	月	3			資料収集		測量/土質調査		サイト調査	〃			
24	17	火				〃		〃		〃	〃			
25	18	水				〃		〃		〃	リロングエ⇒ ダルエスサラーム			
26	19	木				〃		〃		〃	調査調査			
27	20	金				〃		〃		〃	〃			
28	21	土				〃		〃		〃	〃			
29	22	日						団内ミーティング他		ムズ⇒ リロングエ	ダルエスサラーム⇒ ヨハネスブルグ			
30	23	月				資料収集		土質調査		資料収集	調査調査			
31	24	火				〃		〃		〃	〃			
32	25	水				〃		〃		〃	〃			
33	26	木				〃		〃		〃	〃			
34	27	金				資料収集	報告書作成	〃		〃	〃			
35	28	土				〃	〃	〃		〃	〃			ヨハネス⇒ リロングエ
36	29	日						団内ミーティング他						
37	30	月				資料収集	報告書作成	土質調査		資料収集	資料収集			
38	31	火				〃	リロングエ⇒ ヨハネス	〃		〃	〃			
39	1	水				報告書作成	ヨハネス⇒ 香港	〃		報告書作成	〃			
40	2	木				〃	香港⇒成田	〃		〃	〃			
41	3	金				JICA、EOI報告		〃		JICA、EOI報告	〃			
42	4	土				報告書作成		〃		報告書作成	〃			
43	5	日				リロングエ⇒ ヨハネス		〃		リロングエ⇒ ヨハネス	資料整理			
44	6	月				ヨハネス⇒ 香港		〃		ヨハネス⇒ 香港	資料収集			
45	7	火				香港⇒成田		〃		香港⇒成田	〃			
46	8	水	4					〃		〃	〃			
47	9	木						〃		〃	〃			
48	10	金						〃		〃	〃			報告書作成
49	11	土						〃		〃	〃			〃
50	12	日						ムズ⇒リロングエ						リロングエ⇒ ヨハネス
51	13	月						土質調査打ち合わせ						ヨハネス
52	14	火						リロングエ⇒ヨハネス						〃
53	15	水						ヨハネス⇒香港						ヨハネス⇒香港
54	16	木						香港⇒成田						香港⇒成田

(2) 概略設計概要説明調査行程表

日程	月	日	曜日	総括	協力企画	業務主任	橋梁設計 I
				小淵伸司	横井博行	中川輝雄	多田一正
1	8	7	金		14:05 リロングェ着 16:00JICA マラウイ事務所打ち合わせ		
2		8	土		現地視察 (既存ルクル橋)		
3		9	日		ムズズ→リロングェ		
4		10	月		9:00-10:30 概略設計概要説明 (MOTPI&RA)		
5		11	火		10:00-11:30 ミニッツ協議 (MOTPI&RA)		
6		12	水		10:00 ミニッツ署名 (MOTPI、RA、Ministry of Finance) 15:00 在マラウイ日本大使館報告 16:30 JICA マラウイ事務所報告		
7		13	木		リロングェ 14:55→ヨハネスブルグ 17:25		
8		14	金		ヨハネスブルグ 16:30→		
9		15	土		→12:05 香港 15:10→成田着 20:20		

資料—3 関係者（面会者）リスト

(1) 運輸・公共事業省 Ministry of Transport and Public Infrastructure(MOTPI)

Mr.Francis B Chinsinga 次官
Mr.Collins K Kumangirana 道路局長

(2) 道路公社 Road Authority(RA)

Mr.Paul J Kulemeka 総裁
Mr.Placid Kasakatira 計画設計局長
Mr.Benjamin C Kapoteza 建設局長
Mr.Adrian Mthini 維持管理局長
Mr.Wi Chihana 建設技術者
Mr.Okendeni Kondowe 道路計画技術者
Mr.Peter Makwinja 環境計画専門家
Mr.Francis Dimu 道路データ管理者

<Regional Office-North>

Mr.Mac Leod Phiri 北部地域技術者
Mr.Dominic Mwafulirwa 維持管理技術者
Mr.T Muwasinga 道路技術者

(3) 環境局 Environmental Affairs Department(EAD)

Ms.Juwo Sibale 環境専門家

(4) エネルギー局 Department of Energy Affairs

Mr.Lewis B. Mhango エネルギー局長

(5) エネルギー規制公社 Malawi Energy Regulatory Authority(MERA)

Mr.Welton D.Saiwa 技術部長
Mr.Wilfred Z.Kasakula 上級技術者

(6) 財務省 Ministry of Finance

Mr.Lukes Kalilombe 筆頭エコノミスト
Mr.Davie Wirima 部長代理

(7) アフリカ開発銀行 African Development Bank (AfDB)

Mr.Benson B.Nkhoma インフラ専門家

(8) 道路基金公社 Roads Fund Administration (RFD)

Mr.Francis Haiya 監査室長
Mr.Ezra Dzoole 総務部長

(9) 鉱山局 Department of Mines

Mr.Ellason S. Kaseko 鉱山局長

(10) 在マラウイ国日本大使館

小川伸一 一等書記官
松本 洋 参事官
三森たか子 専門調査員

(11) JICA マラウイ事務所

小淵伸司 所長
星野明彦 次長
高樋俊介 所員
斉藤大輔 所員
Kapalamula Godfrey Senior Programme Officer

資料—4 討議議事録 (M/D)

(1) 現地調査時

**MINUTES OF DISCUSSIONS
ON THE PREPARATORY SURVEY
ON THE PROJECT FOR REPLACEMENT OF SOUTH RUKURU BRIDGE
ON THE MAIN ROAD M001
IN THE REPUBLIC OF MALAWI**

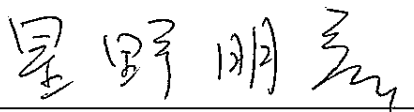
Based on the results of the Preliminary Study, the Government of Japan decided to conduct a Preparatory Survey on the Project for Replacement of South Rukuru Bridge on the Main Road M001 (hereinafter referred to as “the Project”) and entrusted the survey to Japan International Cooperation Agency (hereinafter referred to as “JICA”).

JICA sent to the Republic of Malawi (hereinafter referred to as “Malawi”) the Preparatory Survey Team for the Field Survey (hereinafter referred to as “the Team”), which is headed by Mr. Akihiko Hoshino, Deputy Resident Representative of JICA Malawi Office, and is scheduled to stay in the country from February 23rd, 2009 to April 14th, 2009.

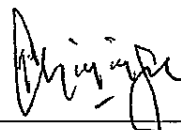
The Team held discussions with the officials concerned of the Government of Malawi and conducted a field survey at the Project site.

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

Lilongwe, March 11, 2009



Akihiko Hoshino
Leader
Preparatory Survey Team
Japan International Cooperation Agency



Francis B. Chinsinga
Principal Secretary 1
Ministry of Transport and Public Works
The Republic of Malawi



Paul J. Kulemeka
Chief Executive Officer
Roads Authority
The Republic of Malawi



Randson P. Mwadiwa
Secretary to the Treasury
Ministry of Finance
The Republic of Malawi

ATTACHMENT

1. Project Title

Both sides agreed that the title of the Project is “The Project for Replacement of South Rukuru Bridge on the Main Road M001”.

2. Objective of the Project

The objective of the Project is to improve the smooth flow and safety of transport on the Main Road M001 through the replacement of the South Rukuru Bridge.

3. Project Site

The South Rukuru Bridge is in Rumphu District (Northern Malawi) and is on the Bwengu – Chiweta section of the Main Road M001. The site of the Project is shown in Annex-1.

4. Responsible and Implementing Organizations

4-1.The responsible Ministry of the Project is the Ministry of Transport and Public Works. The organization chart of the responsible Ministry is shown in Annex-2.

4-2.The implementing organization of the Project is the Roads Authority. The organization chart of the implementing organization is shown in Annex-3.

5. Items requested by the Government of Malawi

After discussions with the Team, both sides confirmed that the items requested by the Malawian side are as follows;

5-1.Components

- Construction of reinforced concrete bridge with double lane
- Bank protection
- Construction of approach roads
- Pedestrian walkway
- Removal of stones and driftwoods before the construction

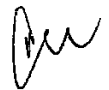
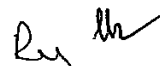
5-2.Technical matters

5-2-1.Both sides agreed that the Japanese side is responsible for removal of stones and driftwoods at the proposed bridge construction area before commencement of construction.

5-2-2.Both sides agreed that the location of the new bridge is downstream by approximately 15 to 20m from the existing bridge

5-2-3.Both sides agreed that the vertical height of the new bridge is approximately 2m

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higher than the height of the existing bridge
5-2-4.Lay-bys at the side of the new access road

Details of the location and contents of design are shown in Annex-4.

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

6. Japan's Grant Aid Scheme

6-1.The Malawian side understands the Japan's Grant Aid Scheme and necessary measures to be taken by the Government of Malawi. The Team explained the procedures for the Project described in 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.Malawian side recognized that the current JICA Guidelines for Environmental and Social Considerations (2004) and Malawi EIA Guidelines (1997) would be applied in order to ensure that the Project meets environmental and social considerations even though JICA is still formulating new Guidelines.

7-2. The Malawian side agreed to get basic agreement from the Project Affected Persons (PAPs) including land owners regarding the Project, and to arrange the budget allocation for land acquisition, resettlement and compensation for PAPs before August, 2009, in case any PAPs would be identified at the Project site.

7-3. In terms of the environmental consideration process required by Environmental Affairs Department (EAD), both sides agreed that the Malawian side is responsible for final permission from National Environmental Committee of this Project before the end of August, 2009 subject to submission of EIA report by the end of April, 2009.

8. Schedule of the Study

8-1.The Team will proceed with further studies in Malawi until April 14th, 2009.

8-2.JICA will prepare the draft report in English and dispatch a mission in order to explain its contents around August, 2009.

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8-3.If 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 December, 2009.

9. Other Relevant Issues

9-1.Both sides agreed that the Malawian side shall secure the land necessary for the Project in due course as stipulated in the Land Acquisition Act of Malawi by the end of August, 2009.

9-2.Both sides agreed that the following undertakings shall be taken by the Malawian side at their own expenses;

- Budget allocation for the tax exemption of imported materials,
- To secure temporary yard(s),
- To facilitate access to borrow pit(s) and quarry site(s),
- To facilitate access to site(s) for waste disposal,
- To maintain the security in the Project area including police patrol,
- To maintain the timber deck of the existing bridge in good condition during construction of the new bridge,
- To be responsible for maintenance of the completed bridge, and
- To dismantle the existing timber bridge and remove piers immediately after completion of the new bridge.

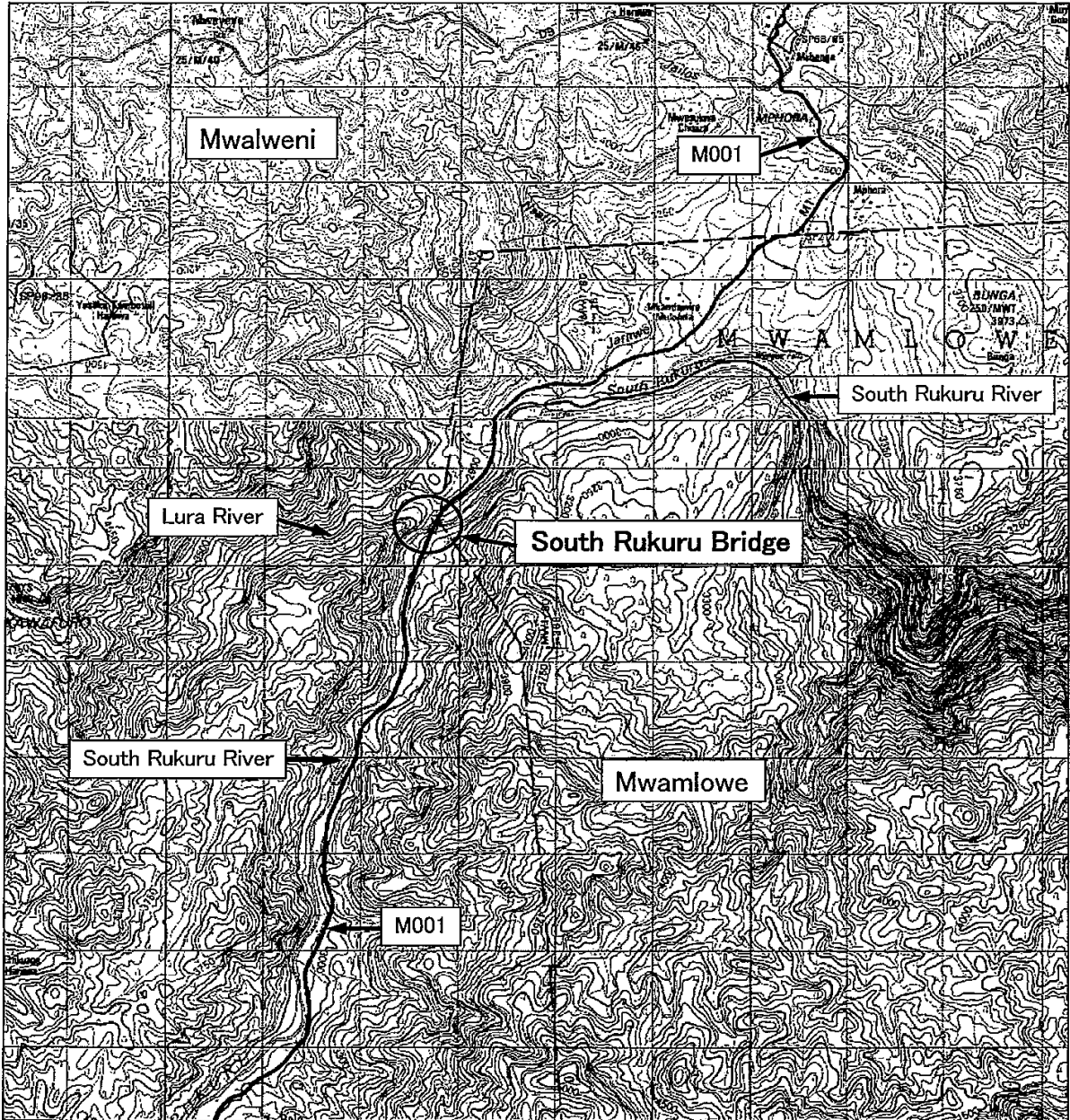
9-3.The Malawian side shall secure enough budget and personnel necessary for the operation and maintenance of the facilities implemented by the Project, including the periodical maintenance work after the completion of the Project.

9-4.The Team raised the concerns that the river condition at the Project site might be affected by Lower Fufu Hydropower Project.

The Malawian side will take necessary measures for Lower Fufu Hydropower Project in order to avoid the negative impact on the Project.

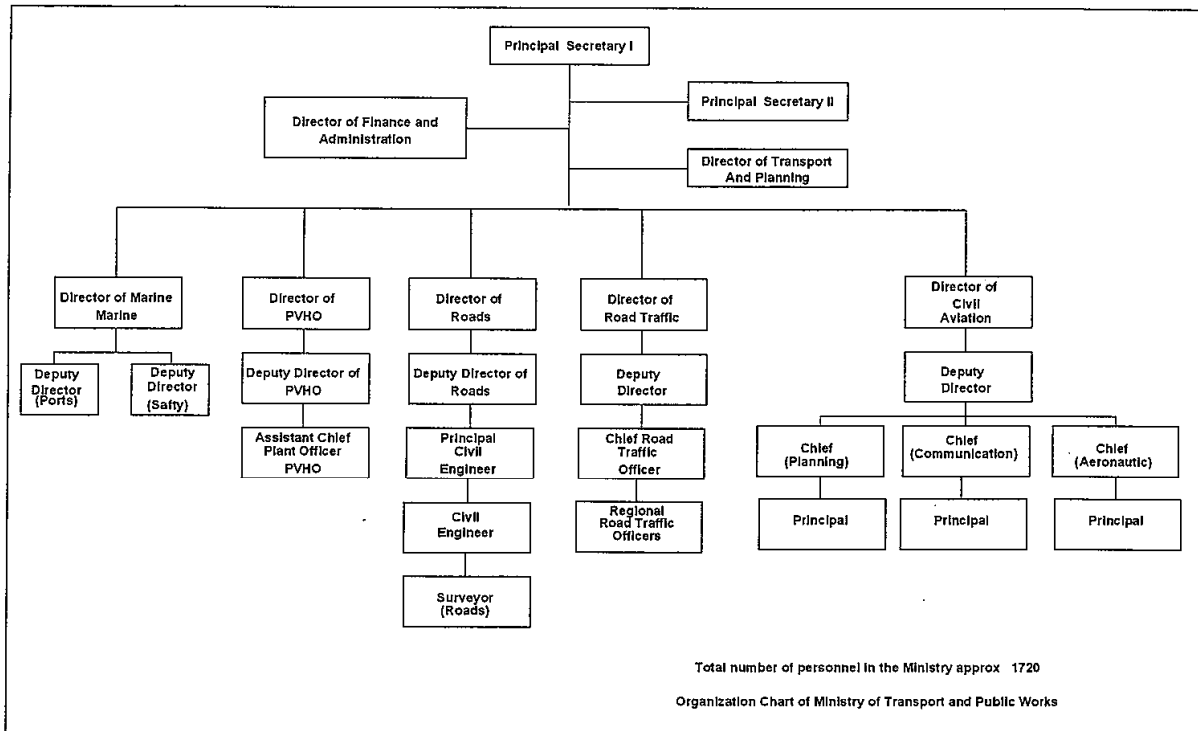
The Malawian side confirmed that the maximum water supply level is 838 meters.

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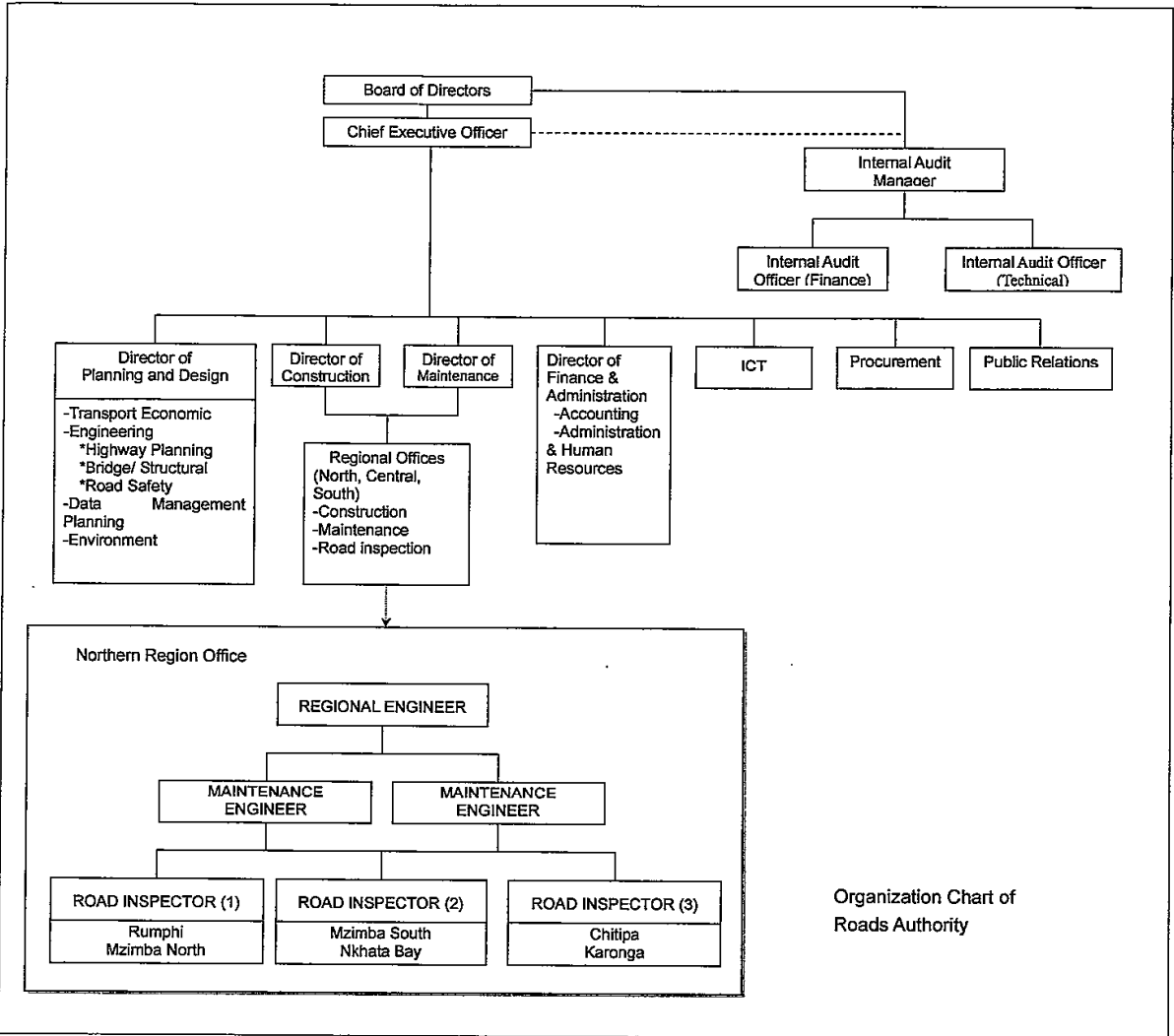


Project Site

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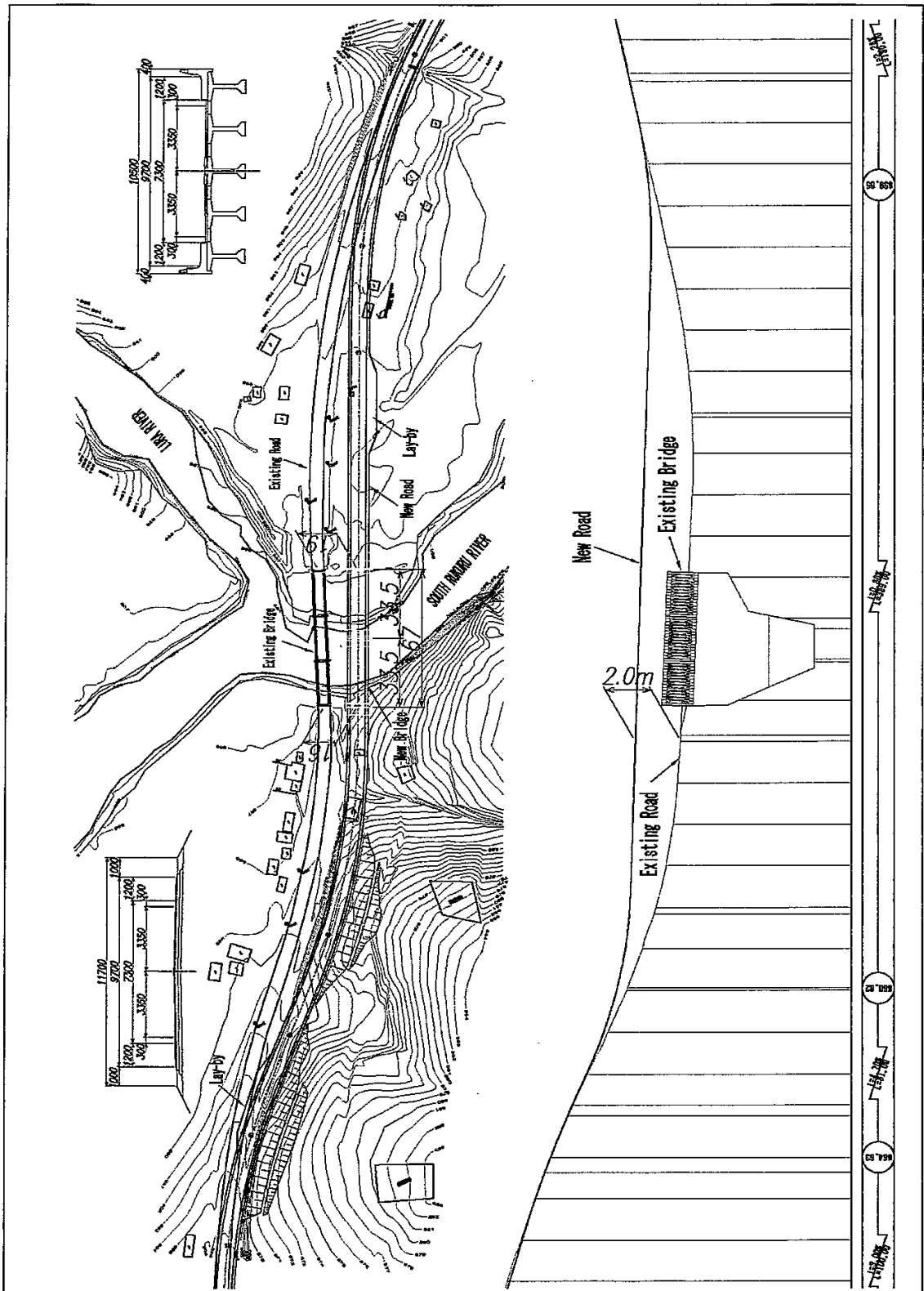


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Organization Chart of Roads Authority

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Revised

JAPAN'S GRANT AID

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

1. Grant Aid Procedures

Japan's Grant Aid scheme is executed through the following procedures:

Survey	(Preparatory Survey (hereinafter referred to as "the Survey) conducted by JICA)
Appraisal & Approval	(Appraisal by the Government of Japan (hereinafter referred to as "the GOJ"), and Approval by the Cabinet)
Determination of Implementation	(The Notes exchanged between the GOJ and a recipient country)
Implementation	(Implementation on the basis of the Grant Agreement (hereinafter referred to as "the G/A") concluded between JICA and a recipient country)

Firstly, JICA conducts the Survey using (a) Japanese consulting firm(s).

Secondly, the GOJ appraises the project to see whether or not it is suitable for Japan's Grant Aid Scheme, based on the Survey report prepared by JICA, and the results are then submitted to the Cabinet for approval.

Thirdly, the project, once approved by the Cabinet, becomes official with the Exchange of Notes (hereinafter referred to as "the E/N") signed by the GOJ and the recipient country.

Finally, for the implementation of the project, JICA and the Government of the recipient country conclude the G/A to make payment of the grant and assist in such matters as preparing tenders, contracts and so on.

2. Preparatory Survey

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be signed between the GOJ and the Government of the recipient country to make a plea 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) Eligible source country

Under the 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". (The term "Japanese nationals" means persons of Japanese nationality or Japanese corporations controlled by persons of Japanese nationality.)

(3) Necessity of "Verification"

The Government of 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 secure accountability to Japanese taxpayers.

(4) 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

(5) "Proper Use"

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

(6) "Export and Re-export"

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

(7) Banking Arrangements (B/A)

- a) The Government of the recipient country or its designated authority should open an

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account in 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.

(8) Authorization to Pay (A/P)

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

(9) Social and Environmental Considerations

The recipient country must ensure the social and environmental considerations for the Project and must follow the environmental regulation of the recipient country and JICA socio-environmental guideline

(End)

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 land		●
2	To clear, level and reclaim the site when needed		●
3	Relocation, improvement and/or repair of existing utilities(power lines, telecommunication lines, water lines, etc.), if necessary		●
4	To bear the following commissions to a bank of Japan for the banking services based upon the B/A		
	1) Advising commission of A/P		●
	2) Payment commission		●
5	To ensure prompt unloading and customs clearance at the port of disembarkation in 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	●	
6	To accord Japanese nationals whose services may be required in connection with the supply of the products and the services under the verified contract such facilities as may be necessary for their entry into the recipient country and stay therein for the performance of their work		●
7	To exempt Japanese nationals from customs duties, internal taxes and other fiscal levies which may be imposed in the recipient country with respect to the supply of the products and services under the verified contract		●
8	To maintain and use properly and effectively the facilities constructed and equipment provided under the Grant Aid		●
9	To bear all the expenses, other than those to be borne by the Grant Aid, necessary for the transportation and installation of the equipment		●

(B/A: Banking Arrangement, A/P: Authorization to pay, N/A: Not Applicable)

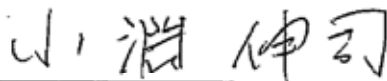
**MINUTES OF DISCUSSIONS
ON THE BASIC DESIGN STUDY
ON THE PROJECT FOR REPLACEMENT OF SOUTH RUKURU BRIDGE
ON THE MAIN ROAD M001
IN THE REPUBLIC OF MALAWI
(Explanation on Draft Basic Design Report)**

From February to April 2009, the Japan International Cooperation Agency (hereinafter referred to as "JICA") dispatched the Basic Design Study Team on the "Project for Replacement of South Rukuru Bridge on the Main Road M001" (hereinafter referred to as "the Project") to the Republic of Malawi (hereinafter referred to as "Malawi"), and through discussions with Malawi side, field survey, and technical examination of the results in Japan, JICA prepared the draft basic design report of the study.

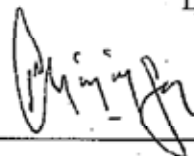
In order to explain and to consult with the officials concerned of the Government of Malawi on the components of the draft report, JICA sent to Malawi the Basic Design Explanation Team (hereinafter referred to as "the Team"), headed by Mr. Shinji Obuchi, Chief Representative, JICA Malawi Office, from August 7 to 12, 2009.

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

Lilongwe, August 12, 2009



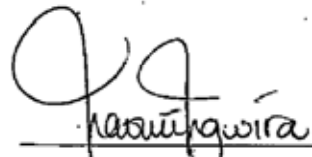
Shinji Obuchi
Leader
Basic Design Explanation Team
Japan International Cooperation Agency



Francis B. Chinsinga
Principal Secretary I
Ministry of Transport and Public Infrastructure
The Republic of Malawi



Paul J. Kulemeka
Chief Executive Officer
Roads Authority
The Republic of Malawi



Dr. Naomi Ngwira
Director for Debt and Aid
Ministry of Finance
The Republic of Malawi

ATTACHMENT

1. Components of the Draft Report

The Malawian side agreed and accepted in principle the components of the draft report of the Basic Design Study explained by the Team. As the result of the Study, the proposed alignment of the new South Rukuru Bridge is shown in Annex-1.

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 March 11, 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 December, 2009.

4. Cost Estimation

Both sides agreed that the Project Cost Estimation as attached in Annex-2 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. The Team confirmed that the Malawian side will hold the National Council for the Environment meeting, which is the final board for the endorsement of the Environmental Impact Assessment (EIA), and get EIA certificate by the end of August, 2009. As soon as the certificate is issued, it should be sent to the Embassy of Japan/JICA Malawi office.

5-2. Both sides agreed that the Malawian side will arrange the budget allocation for land

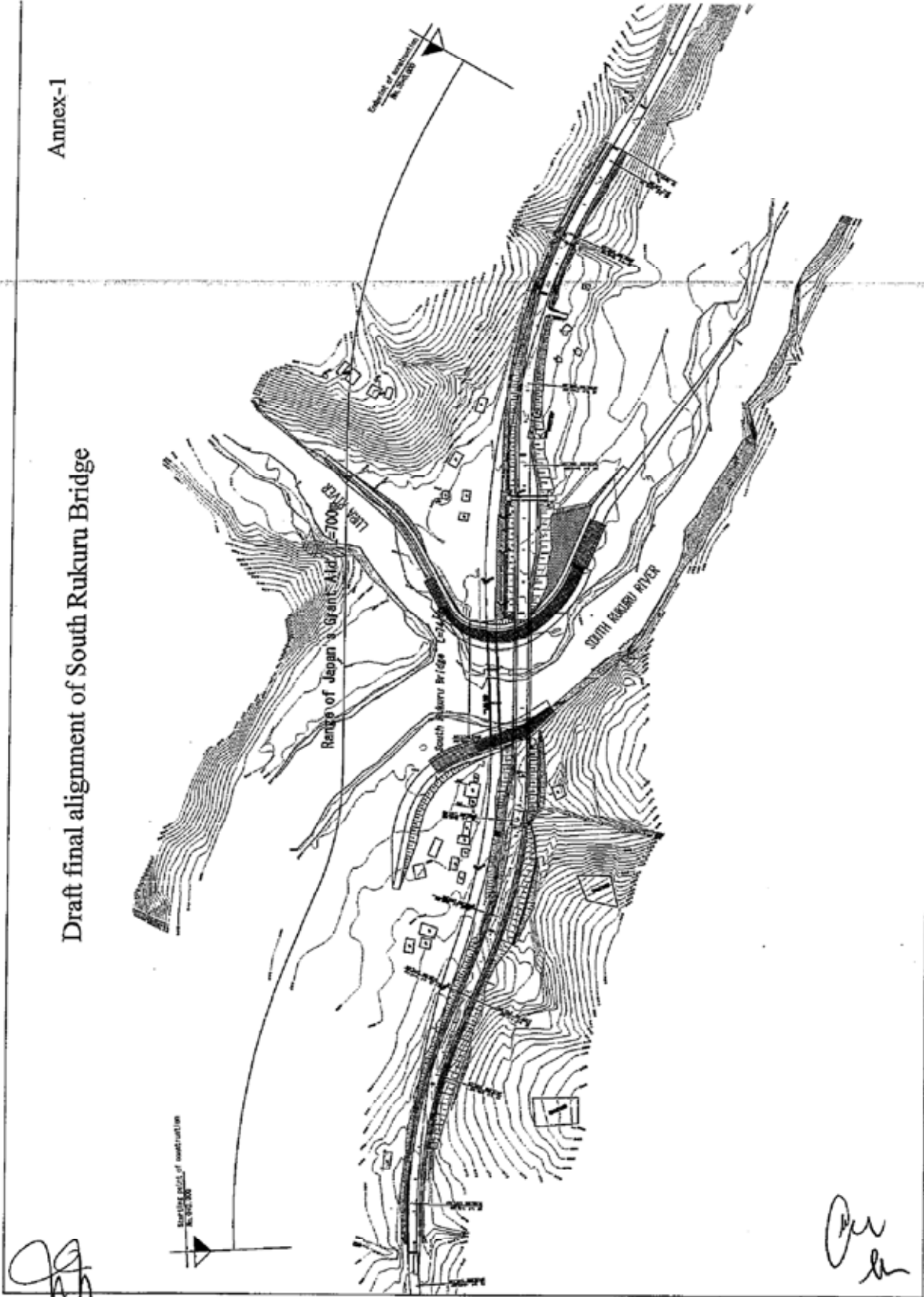
acquisition and clearance of related housing and compensation for the Project Affected Persons (PAPs) right after getting the EIA certificate.

5-3. Both sides agreed that the Malawian side shall obtain basic agreement signed by the PAPs by the end of August, 2009. ~~As soon as the agreement is obtained, it should be sent to the Embassy of Japan/JICA Malawi office~~

5-4. Malawian side confirmed to implement the necessary work taken by the Malawian side at their own expenses based on the Minutes of Discussions signed on March 11, 2009.

- Annex-1 Draft final alignment of South Rukuru Bridge
- Annex-2 Project Cost Estimation
- Annex-3 Environmental Checklist

Draft final alignment of South Rukuru Bridge



Environmental Checklist:

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 report has been completed. ② The EIA report was submitted to Environmental Affairs Department (EAD) on June 22, 2009. EAD held the Technical Committee on the Environment (TCE) on July 3, 2009. Based on the results of the TCE, the revised EIA report was submitted to EAD on August 4, 2009. If the report is endorsed by the National Council for the Environment, the certificate will be issued by the end of August, 2009. ③ The license of quarrying sites and borrow pits should be obtained from Ministry of Mines, Energy and Environment by the Contractor after an EIA certificate is issued.
	(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 September 2008. The general agreement of the local people have been obtained. Under the EIA report review, this report will be opened to the public. ② The interview survey to the local people was conducted at the preparatory study stage in March 2009. 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?	① The project site was located in mountain region far from urban area. Serious air pollution will not occur because of the limited traffic volume.
	(2) Water Quality	① Is there a possibility that soil runoff from the bare lands remaining 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 from parking 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.
3 Natural Environment	(1) Protected Areas	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?	① There are no protected areas in site around the site.

Environmental Checklist

Category	Environmental Item	Main Check Items	Confirmation of Environmental Considerations
<p>3 Natural Environment</p>	<p>(2) Ecosystem</p>	<p>① Does the project site encompass primary forests, tropical rain forests, ecologically valuable habitats (e.g., coral reefs, mangroves, or tidal flats)? ② Does the project site encompass the protected habitats of endangered species designated by the country's laws or international treaties and conventions? ③ If significant ecological impacts are anticipated, are adequate protection measures taken to reduce the impacts on the ecosystem? ④ Are adequate protection measures taken to prevent impacts, such as disruption of migration routes, habitat fragmentation, and traffic accident of wildlife and livestock? 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? 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. ② The habitats of endangered species have not been identified in and down the site. ③ Significant ecological impact will not occur. ④ Migration fish species running up through the site have not been identified. ⑤ The new bridge will not cause destruction of forest and poaching because of reconstruction of existing bridge.</p>
	<p>(3) Hydrology</p>	<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>
	<p>(4) Topography and Geology</p>	<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? 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? 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>① ② There are no slope failures or landslides in and around the site. ③ Serious soil runoff will not occur.</p>

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Category	Environmental Item	Main Check Items	Confirmation of Environmental Considerations
<p>4 Social Environment</p>	<p>(1) Resettlement</p>	<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 peoples?</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 four houses or berris without residents will be required.</p> <p>② The local government have conducted the explanation to the local people and estimation of the compensation.</p> <p>③ Shops and vendors around existing bridge will be able to continue their business after the completion.</p> <p>④⑤⑥⑦ Any resettlement will not be required. The local government will negotiate with the owners of houses, barns, agricultural land and trees that are objects for monetary compensation.</p>
	<p>(2) Living and Livelihood</p>	<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 cause 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 bridge will not cause significant impacts on livelihood of the local people and road traffic because of reconstruction of existing bridge. Shops and vendors around existing bridge will be able to continue their business after the completion.</p> <p>⑥ Impact on sun shading and radio interference will not occur.</p>
	<p>(3) Heritage</p>	<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>
	<p>(4) Landscape</p>	<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>

Environmental Checklist

Category	Environmental Item	Main Check Items	Confirmation of Environmental Considerations
4 Social Environment	(5) Ethnic Minorities and Indigenous Peoples	<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 peoples?</p> <p>② Does the project comply with the country's laws for rights of ethnic minorities and indigenous peoples?</p>	<p>①② This site is not area where ethnic minorities and indigenous people's living 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 (EMAP) is formulated in the EIA report. The contractor should practice the BMP.</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 supervisor consultant should establish the monitoring plan.</p>
6 Note	Reference to Checklist of Other Sectors	<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>	
	Note on Using Environmental Checklist	<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.