

MINUTES OF MEETING OF THE TECHNICAL SUB-COMMITTEE ON THE KAZUNGULA BRIDGE PROJECT: FEASIBILITY STUDY, 9TH OCTOBER 2000
LONGACRES LODGE, LUSAKA ZAMBIA

ZAMBIA DELEGATION

No.	Name	Designation/Organization	Tel/Fax
1.	Mr. J. D. Mwila	Director of Roads, Leader of Delegation, Chairman	
2.	Mr. Nason Balashi	Principal Engineer, Road Department	253088
3.	Mr. Samson M. Matonka	Principal Immigration Officer,	251305
4.	Ms. Bupe Kaonga	Assistant Director, Ministry of Works and Supply	252321/ 254108
5.	Mr. Chola Katanga	Officer-In-Charge, Livingstone Police	321655
6.	Mr. Chilumba N. Chipepo	Environmental Officer, Roads Department	250003
7.	Mr. Stephen Malubila	Provincial Road Engineer, Southern Province	324097
8.	Mr. Natan Jere	Chief Architect, Buildings Department	251916
9.	Mr. M. Daka	Projects Manager, Zambia Revenue Authority	237335 / 229220
10.	D. P. Zulu	Acting Senior Transport Economist, Ministry of Communications and Transport	251444
11.	Likando Mutakela	Executive Engineer, Roads Department	241765

BOTSWANA DELEGATION

No.	Name	Designation/Organization	Tel/Fax
1.	Andrew Nkaro	Acting Director, Roads Department, Leader of Delegation, Co-Chairperson	313511 / 314278
2.	M. Mahupela	Major, Botswana Defence Force	
3.	B. A. Majola	Assistant C. I. O. Immigration	307969
4.	B. P. Matenge	District Officer (Devt.)	650346 / 650247
5.	Judith Nwako	Principal Roads Engineer Roads Department	313511 / 314278
6.	P. G. Alpajora	Bridge Engineer	313511 / 314278

ZIMBABWE DELEGATION

No.	Name	Designation/Organization	Tel/ Fax
1.	Mr. N. Kudenga	Director of Roads, Leader of Delegation	263-4-700817 263-4 -726726
2.	Mr. D. Musana	Chief Engineer Bridges, Roads Department	263-4-708863

JICA STUDY TEAM

No.	Name	Designation/Organization	Tel/Fax
1.	K. Enomoto	Team Leader	241766
2.	Takao Inami	Highway Engineer	241766
3.	Minako Sato	Environmentalist	241766
4.	Atsushi Morioka	Border Facility Planner	241766
5.	Masaaki Tatsumi	Bridge Engineer(Sub- Structure)	241766
6.	Greg Hookey	Hydrology/Hydraulics	241766
7.	Sion Haworth	Traffic Engineer	241766
8.	K. Matsuda	Economist	241766
9.	S. Watanabe	Cost Estimator	241766

JICA- ZAMBIA

No.	Name	Designation/Organization	Tel/Fax
1	Osamu Tanabe	Assistant Res. Representative	
2	M. Takeuchi	Transport Policy Advisor, Ministry of Communication & Transport	



Agenda

- 1) Welcoming remarks by Zambia
 - 2) Remarks by Botswana
 - 3) Remarks by Zimbabwe
 - 4) Remarks by Namibia
 - 5) Remarks by JICA
 - 6) Adoption of the Agenda
 - 7) Presentation of Papers
- i) Major subjects of discussion
- Hydrological Survey and Analysis
 - Traffic Survey and Analysis
 - Basic Policies and Planning Conditions
 - Formation of Design Criteria
 - Selection of Route and Bridge Type
 - Alternative Study of Road Alignment
 - Border Control Facilities
 - Environmental Procedures
 - Others
- ii) Preparation of Technical Notes: Reminders of Importance

Adoption of the Agenda

The agenda was adopted as presented.

1.0 Welcome Remarks by Chairperson

The Chairman welcomed everybody to Zambia and wished them a pleasant stay and requested that everybody introduces themselves.

He said this was the first Technical Sub-Committee meeting and highlighted the importance of the sub-committee meeting to the Countries represented. He was happy with the good response from JICA to fund the feasibility study.

2.0 Remarks from Botswana

The delegation leader said they were happy to be in Lusaka to discuss the progress being made by the JICA Study Team. He acknowledged Zimbabwe's active participation in the project and looked forward to a consultative discussion. He was happy with the progress being with the Feasibility Study.

3.0 Remarks by Zimbabwe

The delegation leader thanked Zambia for the warm welcome to Lusaka. He emphasised the importance of the bridge construction, which would create a link from Matebeleland Province in Zimbabwe to the Southern Province of Zambia. He further said that in future the officials from the department of National Parks would attend meetings. The Kazungula area falls under the National Parks in Zimbabwe.

4.0 Remarks by JICA Study Team

The JICA Study Team leader said that since the commencement of the Study they have done surveys and have output based on surveys and observations and appreciated the opportunity to explain. A detailed report would be done at the presentation of the Interim Report.

5.0 Presentation of Papers and Discussions

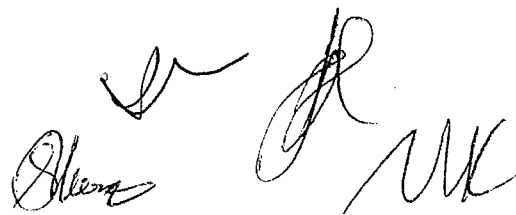
5.1. Hydrological survey and analysis:

The importance of the survey was to be able to establish flood discharges and flood levels. This information was to help to determine the bridge level and also establish the influence of the bridge construction on the velocities of water flow and scour. The design flood level has been adopted as 100 years return period with 20 years return period for navigation clearance.

5.2 Traffic survey and analysis

A lot of existing data was used and this was complimented with field surveys. The following items were explained:

- 5.2.1 Traffic model built for southern africa
- 5.2.2 Model validated for year 2000
- 5.2.3 Traffic growth estimated for forecast year 2015
- 5.2.4 Traffic forecast made for Kalongola, Katima Mulilo, Kazungula, Victoria Falls and Chirundu
- 5.2.5 Traffic will not increase at Kazungula unless ferry operations improved at Kazungula even with improved ferry.
- 5.2.6 Traffic growth will be limited.
- 5.2.7 Range of traffic (AADT) at Kazungula was 276-459 vehicles per day.



The JICA Study Team explained that the benefits introduced in the progress report were partial and further study on economic benefits would be analysed in the next stage.

6.0 Basic Policies and Planning Conditions of Road and Bridge

The following conditions were presented by the JICA Study Team:

- 6.1.1 The design speed of 80 km/hr for the Kazungula bridge and its approach roads was proposed.
- 6.1.2 The geometrical design standards to be applied were explained and confirmed.
- 6.1.3 Vertical navigational clearance of 8.0m consisting of ferry boat height (7.6m) and additional margin (0.4m) and horizontal navigational clearance of 50m.
- 6.1.4 Typical cross-section for bridge is 11.0m consisting of 1.0x2 (side walk) + 1.00x2 (shoulder) + 3.5x2 (carriage way); and for road embankment is 12.0m consisting of 0.50x2 (soft shoulder) + 2.0x2 (shoulder) + 3.5x2 (carriage way).
- 6.1.5 The design conditions of the bridge is basically in accordance with the British Standards (BS 5400). For the design live load HB 37.5 units was proposed and confirmed.
- 6.1.6 Design seismic coefficient of 0.10 was proposed and agreed.
- 6.1.7 Design temperature for concrete structure is 5 °C to 35 °C for the whole structure and difference between members is 5 °C.
- 6.1.8 The horizontal alignment of the bridge and approach roads were presented and confirmed.

7.0 Selection of Route and Bridge

JICA Study Team proposed the following route and bridge types:

- 7.1 Route C was selected among the three alternative routes after consideration of the conditions of the site.
- 7.2 From the eight bridge types available, two bridge types were proposed namely:
 - 7.2.1 PC. – Box Girder (Ls = 220m); Ls means span length
 - 7.2.2 PC – Extra dosed (Ls = 220m); Ls means span length
- 7.3 The two proposed types were selected in consideration of the following conditions:
 - 7.3.1 minimum required bridge span length



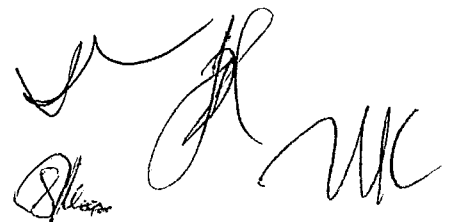
- 7.3.2 hydrological condition of the river
- 7.3.3 required bridge opening (total bridge length)
- 7.3.4 construction of the number of piers in the river

8.0 Border Control Facilities

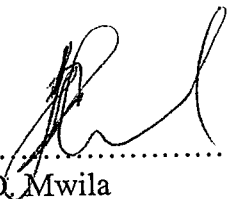
- 8.1 One-stop border system, basic design concept and separated type of border posts were described. While the meeting appreciated the issue of stop-border system, it was resolved that members be given time to study the issue further. In the meantime, the study should progress as planned.
- 8.2 Environmental issues in terms of location of border posts will have to be verified by the members, although the proposed location will not have much effect on the environment.

9.0 Environmental Procedures

- 9.1 The JICA Study Team explained the procedure of the Environmental Impact Assessment followed and the progress made
- 9.2 JICA Study Team was requested to examine the environment of the site in both Zimbabwe and Namibia sides.
- 9.3 JICA Study Team requested the Zimbabwean Government to provide a contact person for environmental information.
- 9.4 JICA Study Team would be assisted by Zambia to collect necessary environmental information in Namibia.

Handwritten signatures and initials in black ink, including a large signature and the initials 'MK'.

Signed:



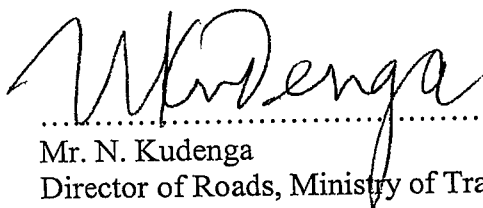
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Mr. J. D. Mwila

Director of Roads, Ministry of Works and Supply – Zambia



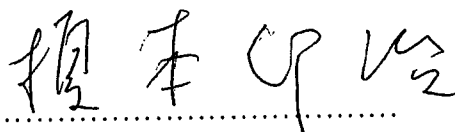
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Mr. Andrew Nkaro

Acting Director of Roads, Ministry of Works Transport and Communications – Botswana



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Mr. N. Kudenga

Director of Roads, Ministry of Transport and Communications – Zimbabwe



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Mr. K. Enomoto

Team Leader, JICA Study Team

Date:

This 9th day of OCTOBER, 2000

At:

LUSAKA, ZAMBIA

