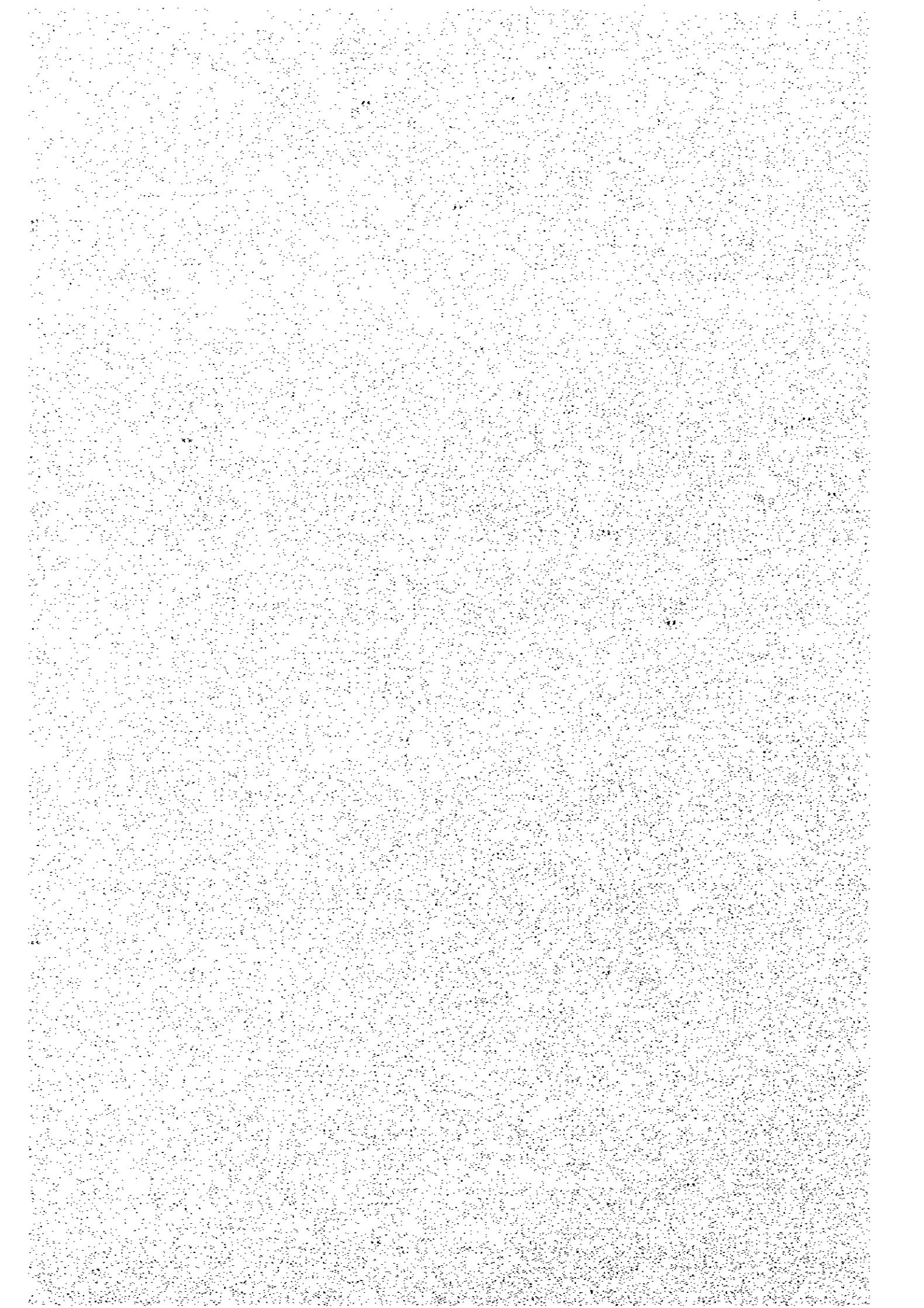


付 属 資 料

- ① TOR (Zambia 国)
- ② TOR (Zimbabwe 国)
- ③ S/W
- ④ M/M
- ⑤ 収集資料リスト



① TOR (Zambia 国)

All communications should be addressed
to the Permanent Secretary
Telephone: LUSAKA 250856/251346/251365



In reply please quote:
No.

REPUBLIC OF ZAMBIA

OFFICE OF THE PRESIDENT

PLANNING AND DEVELOPMENT CO-OPERATION
NATIONALIST/MBITA ROAD
P.O. BOX 50268
LUSAKA

NCDP/101/7/69

9th July, 1996

H.E. The Ambassador,
Embassy of Japan,
LUSAKA.

Attn: Mr. H. SHIMADA

DEVELOPMENT STUDY FOR CHIRUNDU BRIDGE RECONSTRUCTION
PROJECT

I have the honour to submit herewith for your kind consideration, the project document/terms of reference in support of our request for a development study on the construction of the New Chirundu Bridge.


The main objectives of the proposed study are:-

- a) To determine design criteria to satisfy international traffic loads, especially for SADC member states.
- b) To determine ground conditions by means of borehole drilling and core sampling.
- c) To determine a suitable type of bridge, including design of the bridge.
- d) to estimate cost of construction.

The construction of the new bridge is justified by the fact that the existing suspension bridge which was built in 1939 is no longer adequate to meet the increased traffic volumes.

Sir, your kind consideration of this request will be greatly appreciated.

Yours sincerely,



WALUBITA IMAKANDO,
PRINCIPAL ECONOMIST (ETC),
for/PERMANENT SECRETARY,
BUDGET AND ECONOMIC AFFAIRS,
MINISTRY OF FINANCE AND ECONOMIC PLANNING.

ZAMBIA

CHIRUNDU BRIDGE RECONSTRUCTION PROJECT

Project Digest

(1) Project Title

The Construction of the New Chirundu Bridge

(2) Location (Maps are attached hereto)

At Chirundu, Zambia/Zimbabwe

(3) Implementing Agency

Name of the Agency:

Roads Department, the Ministry of Works and Supply

Number of the Staff of the Agency (on a category basis)

Civil Engineers - 24

Mechanical Engineers - 1

Material (Laboratory)
Engineers - 2

Inspectors - 45

Foreman and Plant
Operators - 49

Clerical Officers - 23

Others - 35

Budget allocated to the Agency

	BUDGET (US\$)	
MAIN DIVISION	ACTUAL 1993/1994	APPROPRIATION 1994/1995
Administration	1,454,000	1,020,000
Construction	50,948,000	55,555,000
Maintenance	9,439,000	10,759,000
Planning & Design	119,000,000	77,700,000
TOTAL	61,960,000	67,414,700

Exchange rate: 1US\$ = ZK500 for budget 1993/1994

" : 1US\$ = ZK700 " " 1994/1995

- Organisation Chart

Copy of Organisation chart attached.

(4) Justification of the Project

- Present Condition of the Sector

Zambia's road sector comprises the following types of roads - international trunk, main, district and rural roads, branch and estate roads. In summary, there are approximately 3,120 km of trunk roads, 4,050 km of main roads, and about 29,600 km of district and rural roads in the country. About 6,480 km (17%) are paved, 8,360km (23%) have a gravel riding surface, and 21,900km (60%) are earth roads.

Traffic volume survey at counting point 66B located at 500 metres east of T1/T2 junction on Chirundu road is summarised as follows:-

YEAR	LIGHT VEHICLES	BUSES	SINGLE TRUCK	ARTICULATED TRUCK	TOTAL
1990	266	8	67	104	445
1991	253	7	49	112	421
1992 1993	Counting not Carried out				
1994	329	13	39	76	457
1995 (August)	542	31	62	130	765

- Sectoral development policy of the national/local government

The Public Investment Programme (PIP) gives higher priority to maintenance and rehabilitation of the existing road infrastructure in Zambia. Of great importance is the network identified by the Southern African Development Community (SADC) as contributing to the development of the region.

- Problems to be Solved in the Sector

No specific problem related to the sector itself is identified. The difficulty is in the shortage of funds to execute large scale projects like this.

- Outline of The Project

The Project is intended to provide a new 2-lane bridge across Zambezi River where the international trunk road of Beira (Mozambique) - Harare (Zimbabwe) - Lusaka - Lubumbashi (Zaire) crosses.

- Purpose (Short-Term Objective) of the Project

The existing suspension bridge (The Otto Beit Bridge) was built in 1939. The bridge was built and has been maintained very well but the traffic load the designer assumed then was not as large as what is using the bridge today. Due to this, the regulations now at the Otto Beit Bridge allow only one truck on the bridge at a time. The cycle time of a truck crossing the river being some 4 minutes, the capacity of the bridge is about 200 trucks a day. The short term objective of the Project is to provide a modern 2 lane bridge that allow free traffic of trucks and other vehicles.

- **Goal (Long-Term Objective) of the Project**

Investments and policies for transport and communication sectors in the Southern African region are being adapted to the changing conditions that are being brought about by recent political and economic developments in the region. The prospective emergence of a post-apartheid South Africa as a full trading partner with other SADC countries in the North, especially Zambia, will bring about many opportunities for intra-regional trade. Chirundu bridge, therefore, being on one of the ten major corridors in the SADC region, will play a significant role in the promotion of the movement of intra-regional and international trade cargo. Additionally, Chirundu bridge will continue to serve as a major link of main industrial commercial and population centres in Zambia to Zimbabwe, South Africa and Mozambique.

- **Prospective Beneficiaries**

As the bridge will form a vital part of the roads network of SADC countries, the beneficiaries are the populace of all the SADC member countries.

- **The Project's priority in the National Development Plan/Public Investment Programme**

Zambia rates Chirundu Bridge reconstruction as a high priority.

(5) **Desirable or Scheduled Time of the Commencement of the Project**

The bridge shall be built as soon as possible. In fact, it should have been built now so that the existing bridge will not act as a bottle neck when the traffic increases as a result of the peace in Mozambique and increased trades among SADC countries now that South Africa has joined SADC. There is more traffic from South Africa into Zambia through Zimbabwe.

(6) **Expected Funding Source and/or Assistance(including external origin)**

No attempt to secure funding for building a new bridge has been sought so far because such an attempt was discouraged due to too high a construction cost.

(7) **Other Relevant Project**

The Chirundu Bridge is an important part of the SADC regional network which together with the Kafue Bridge plays a very significant role in transit traffic.

2. TERMS OF REFERENCE OF THE PROPOSED STUDY

(1) Necessity/Justification of the Study

The new Chirundu Bridge will have a span of about 400 metres. A large bridge of this size naturally require physical studies such as boreholes to determine the ground structure, depth of the river, meteorological conditions, determination of current and future traffic etc.

The Bridge will be an important part of SADC regional road network. As such, a study must be carried out to sound out the economical impact the Bridge will give to the trade activities of SADC member countries.

A technical study of SADC countries in respect of design criteria must be also carried out so that the bridge will satisfy the international traffic loads of today and future.

(2) Necessity/Justification of the Japanese Technical Cooperation

The Government of Japan has over the years extended assistance to the Basic Infrastructure and basic Human Needs to assist the Republic of Zambia for her socio-economic development. At present, Japan is the most advanced country in the world in building extremely large bridges. It is considered advantageous to have Japanese Technical Cooperation because of the these reasons.

(3) Objectives of the Study

The objectives of the proposed study are:-

- (a) To determine design criteria to satisfy international traffic loads, inter alia, that of SADC member countries.
- (b) To determine ground conditions by means of bore hole drilling and core sampling.
- (c) To determine a suitable type of the bridge including brief design of the bridge.
- (d) To estimate approximate cost of construction.

(4) Area To Be Covered By The Study

The SADC region is the area to be covered by the Study on a wider scale, and Chirundu Bridge site for local investigations.

(5) Scope Of The Study

The scope of the proposed study is:

- (a) Determination of development of SADC member countries
- (b) Determination of population projections of SADC member countries
- (c) Determination of the use of the Mozambiquan Port of Beira and South African Ports in future
- (d) Determination of future traffic demand for the bridge
- (e) Determination of highway design capacity for the bridge
- (f) Considerations affecting the type and design of the bridge
- (g) Determination of ground conditions by means of test bore holes and sampling of cores
- (i) Topographic survey of the proposed site for the Bridge
- (j) Considerations on alternative Bridge types
- (k) Considerations on border facilities?
- (l) Consideration on approach roads
- (m) Brief design of the proposed bridge including border facility areas and approach roads
- (n) Cost estimate for construction
- (o) Compiling of a report

(6) Study Schedule

Study in SADC countries	-	2 months
Study of the existing bridge	-	1 month
Study in Tokyo	-	1 month
Study at the site including test bore holes	-	3 months
Provision of draft report in Tokyo	-	3 months
Discussions with Ministry in Lusaka	-	1 month
Completion of the report in Tokyo	-	1 months
		Total 12 months

(7) Expected Major Outputs Of The Study

An inception report shall be submitted within 2 weeks of awarding of the proposed study agreement to a consultant company.

A preliminary report shall be submitted by the 5th month.

A draft report shall be submitted by the 11th month.

A final report and recommendations shall be submitted at end of the study agreement.

(8) Request Of The Study To Other Donor Agencies , if any

No request has been given to other donor agencies

(9) Other Relevant Information, if any

There is no particular information

- (4) Project components which requires special considerations for women (such as gender difference, women specific role, women's participation), if any
Not Applicable
- (5) Anticipated impacts on women caused by the Project, if any
Not applicable
- (6) Poverty reduction components of the Project, if any
The Project will contribute to reducing poverty of the populace of the nations going to benefit from it through increased trades both external and regional in SADC member countries.
- (7) Any constraints against the low income people caused by the Project.
Not applicable
5. Undertakings of the Government of Zambia in order to facilitate a smooth and efficient conduct of the Study, the Government of Zambia shall take necessary measures:-
- (1) To secure the safety of the Study Team
 - (2) To permit the members of the Study Team to enter, leave and sojourn in Zambia in connection with their assignment therein, and exempt them from alien registration requirement and consular fees.
 - (3) To exempt the Study Team from taxes, duties and any other charges on equipment, machinery and other materials brought into and out of Zambia for the conduct of the Study.
 - (4) To exempt the Study Team from income tax and charges of any kind imposed on or in connection with any emoluments or allowance paid to the members of the Study Team for their services in connection with the implementation of the Study.
 - (5) To provide necessary facilities to the Study Team for remittance as well as utilization of the funds introduced in Zambia from Japan in connection with the implementation of the Study.
 - (6) To secure permission or entry into private properties or restricted areas for the conduct of the Study

- (7) To secure permission for the Study to take all data, document and necessary materials related to the Study out of Zambia to Japan.
 - (8) To provide medical services as needed. Its expenses will be chargeable to members of the Study Team.
6. The Government of Zambia shall bear claims, if any arises against member(s) of the Japanese Study Team resulting from, occurring in the course of or otherwise connected with the discharge of their duties in the implementation of the Study, except when such claims arise from gross negligence or willful misconduct on the part of the member of the Study Team.
 7. The Roads Department shall act as counterpart agency to the Japanese Study Team and also as coordinating body in relation with other Governmental And Non Governmental Organisations concerned for the smooth implementation of the Study.

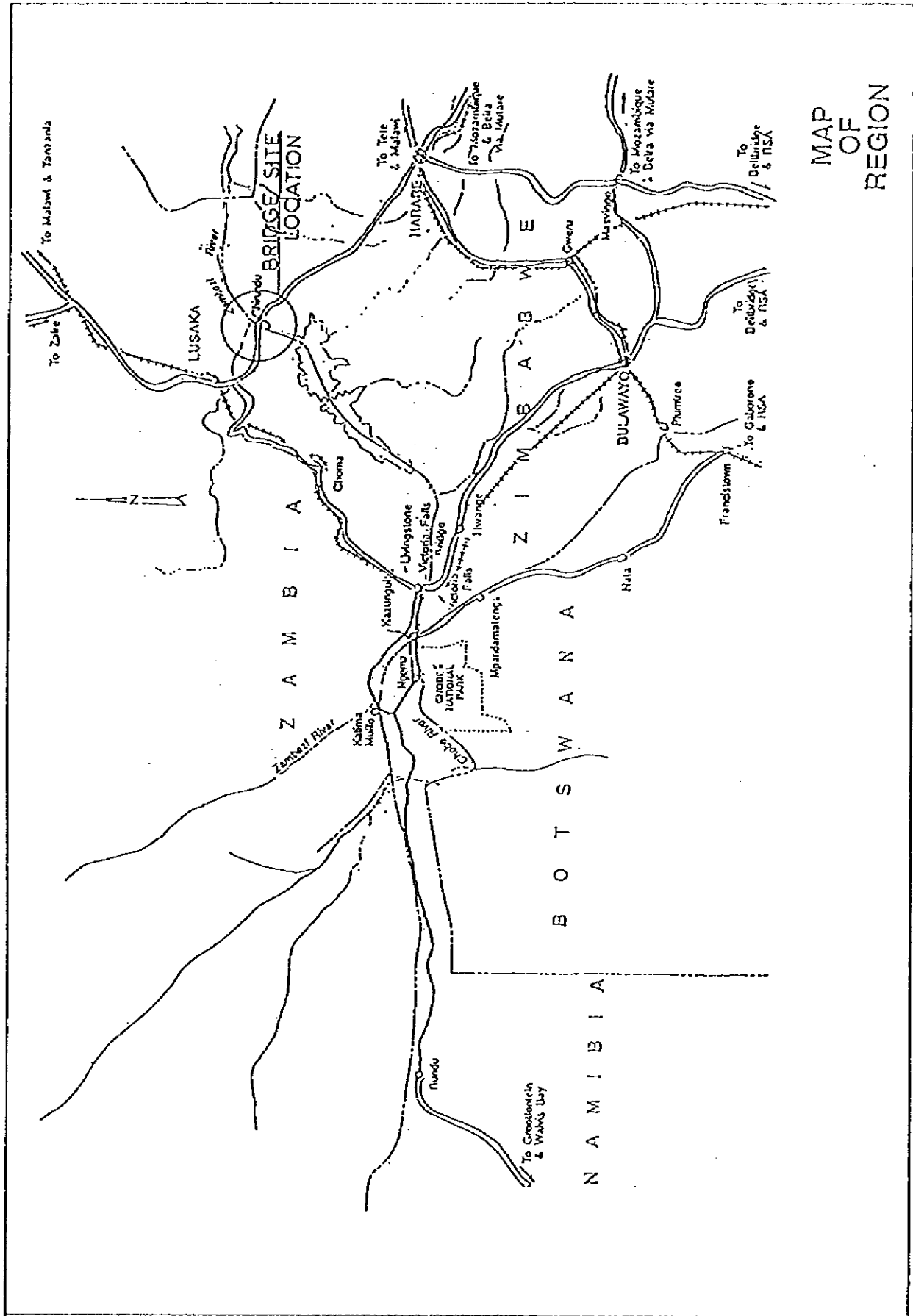
The Government of Zambia assured that the matters referred in this form will be ensured for a smooth conduct of the Development Study by the Japanese Study Team.

Date: 22/9/95



J. D. Mwila,
Titled: Acting Director of Roads,
MINISTRY OF WORKS AND SUPPLY

On behalf of the Government of Zambia



MAP OF REGION

ROAD HEADQUARTERS (1992)

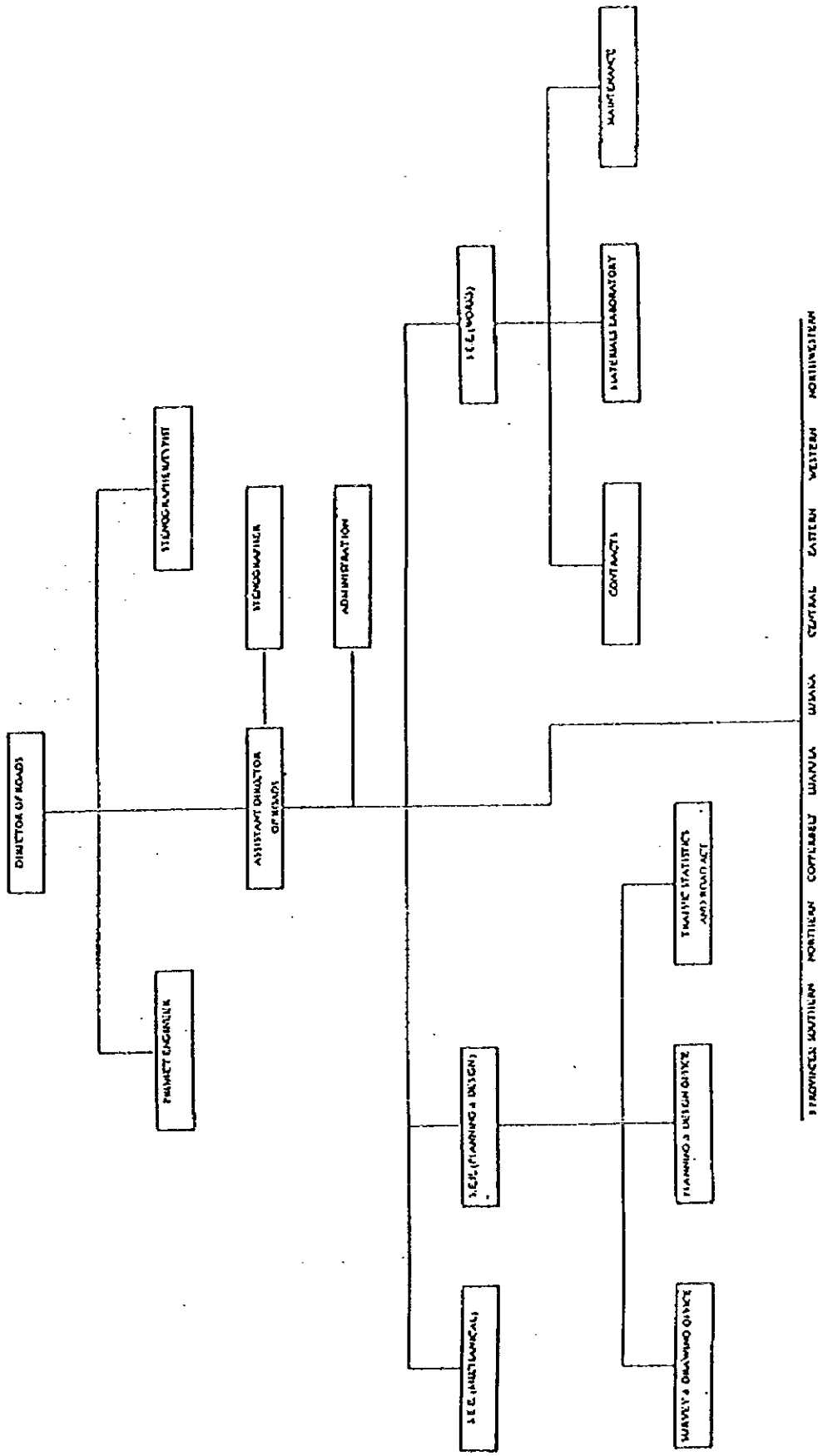


FIG 4.2

② TOR (Zimbabwe 国)

TERMS OF REFERENCE
FOR
APPLICATION FOR THE
TECHNICAL COOPERATION (DEVELOPMENT STUDY)
BY THE GOVERNMENT OF JAPAN



SEPTEMBER 1995

MINISTRY OF TRANSPORT AND ENERGY

DEPARTMENT OF STATE ROADS

1. PROJECT DIGEST

1.1 Project Title: THE CONSTRUCTION OFF A NEW BRIDGE ON THE ZAMBEZI RIVER AT CHIRUNDU

1.2 Location: The Chirundu Bridge is situated on the Harare-Lusaka Road (350km from Harare) and crosses the Zambezi River to the north of Zimbabwe and to the south of Zambia. Please see attached map.

1.3 Implementing Agency:

1.3.1 Name of the Agency: Department of State Roads (Ministry of Transport and Energy).

1.3.2 Number of the Staff of the Agency: Engineers & Technicians = 215

Administration = 1084

1.3.3 Budget allocated to the Agency: Z\$ 79.0 Million for ongoing capital projects.

Z\$180.0 Million for maintenance.

1.3.4 Organisation Chart attached. Please see attached Annexure I.

1.4 Justification of the Project

1.4.1 Present conditions of the sector.

The Ministry of transport & Energy recognises the role of good roads and bridges in the country's economic and social development and up to now, commendable progress has been made in the construction and rehabilitation of roads. Population and national growth since 1980 have exerted pressures on the standard of the road network required to meet the diverse needs of the road users.

From the early 1980's, the expansion of the State Roads was accepted as the policy whose objective was to redress the imbalance in the standard and distribution of the State Roads. From 1987 to date the emphasis has been extended to cover the

rehabilitation of many sections of the primary road network and bridges that have exceeded their design lives and are very badly distressed resulting in unacceptably high vehicle operating costs.

To this end, the Government of Zimbabwe wishes to study the feasibility of building a new bridge across the Zambezi River at Chirundu border post to replace the single lane Otto-Beit Bridge which was built in 1939.

1.4.2 Sectoral development policy of the National Government.

The main emphasis, following the roads development policy as highlighted in the transport sector objectives (Second 5 year National Development Plan), is economically viable road and bridge projects which will result in

- a) Expansion of the State Road Network countrywide for the development of all potentially economic areas based on a fair share allocation of construction funds to the different regions of the country.
- b) Removal of existing transport system constraints by upgrading viable road and bridge facilities that inter-connect State trunk roads so serving the users better than the existing discontinuous services.
- c) Provision of services to planned substantial investments in other sectors of the economy i.e. inter sectorial development related access roads.
- d) Protection of investment on the existing road and bridge network most of which has or is about to exceed the design lives and is already in need of rehabilitation or reconstruction since they can no longer cope with the current heavy traffic volumes.

1.4.3 Problems to be solved in the sector

The sector is characterised by the uneven geographic distribution of infrastructure in as far as most of the surfaced roads are concentrated in major mining and commercial agricultural areas. Some of the existing wide mat state roads are very heavily trafficked and the pavements have already exhausted their structural bearing

capacity. Because of the large traffic volumes and the severity of the distress, reseals and asphalt concrete overlays are inadequate and major rehabilitation/construction initiatives are often required.

The easing of tension in the Southern African Development Community (SADC) region has brought about a greater movement of goods across borders, and Chirundu Bridge is the busiest border post between Zimbabwe and Zambia.

With regards to the project under these Terms of Reference, no specific problem related to the sector itself is identified. The difficulty is in the shortage of funds to execute large-scale projects like this.

1.4.4 Outline of the project

The project is intended to provide reliable crossing of the Zambezi River at Chirundu, that can cope with increased traffic.

1.4.5 Purpose (short-term objective) of the project

The existing suspension bridge (The Otto Beit Bridge) was built in 1939. The bridge is very well built and maintained but the traffic load the designer assumed then was not as large as what is required today. Due to this, the regulations now at the Otto Beit Bridge allow only one truck at a time. The cycle time of a truck crossing the river being 4 minutes, the capacity of the bridge is about 200 trucks a day. The short term objective of the project is to provide a modern 2 carriageway bridge that allow free traffic flow of trucks and other vehicles.

1.4.6 Goal (long-term objective) of the project

The existing bridge is situated on the extension of the Beira Corridor starting from the Port of Beira in Mozambique. The Corridor and the roads that continue therefrom were busily used as the lifelines to the land-locked countries such as Zaire, Zambia, Zimbabwe and Malawi. During the time of strife in Mozambique, the Beira Corridor was closed and the land-locked countries were forced to use other ports such as Durban in South Africa and Dar-es-Salaam in Tanzania. With the advent of peace in Mozambique, the number of traffic using road originating from the Port of Beira is increasing.

From 1996, the number of traffic is expected to increase sharply as the damaged part of the Beira Corridor road being re-built now under EU financing is expected to be completed then. If the existing bridge is left as it is without having a new bridge next to it, the increased traffic cannot be handled in the crossing of the Zambezi River at Chirundu. The long-term objective of the project is to provide a reliable network of roads between Zimbabwe and Zambia which is vital to the development of SADC countries.

1.4.7 Prospective beneficiaries

As the bridge forms a vital transport link in the SADC countries, the beneficiaries are the populace of all the SADC member states.

1.4.8 The Project's priority in the National Development Plan/Public Investment Program.

Since the Chirundu Bridge is located at the common border of Zambia and Zimbabwe it was accorded a high regional priority rather than a national priority. The technical Working Group of the Southern African Transport and Communications Commission has identified the constraints to efficient cross border transport in the region and came up with proposals to improve the crossing over the Zambezi River. This includes the Chirundu Bridge.

1.5 Desirable or scheduled time of the commencement of the Project.

The bridge shall be built as soon as possible. In fact, it should have been built now so that the existing bridge will not act as a bottle-neck when the traffic increases as a result of the peace in Mozambique and increased trade among SADC countries including Zimbabwe and Zambia.

1.6 Expected funding source and/or assistance (including external origin)

No attempt to secure funds for building the new bridge has been sought so far because such attempt was discouraged by the inherent high construction costs.

1.7 Other relevant Project, if any

The Chirundu bridge being an important part of the overall network of roads in SADC member countries, any roads and bridges in the network are relevant to this project.

2 TERMS OF REFERENCE OF THE PROPOSED STUDIES

2.1 Necessity/Justification of the Study

The New Chirundu Bridge will have a span of about 400 metres. A large bridge of this size naturally requires physical studies such as bore holes to determine the ground structure, depth of the river, meteorological conditions, determination of current and future traffic, etc.

The Bridge will be an important part of the SADC regional trunk road network. As such, a study must be carried out to sound out the economical impact the Bridge will give to the trade activities of SADC member countries.

A technical study of SADC countries in respect of design criteria must also be carried out so that the bridge satisfies the traffic loads of today and the future.

2.2 Necessity/Justification of the Japanese Technical Cooperation

At present, Japan is the most advanced country in the world in building extremely large bridges. It is considered advantageous to have Japanese Technical Cooperation because of this reason.

2.3. Objectives of the study

The objectives of the proposed study are:

- (a) to determine design criteria to satisfy international traffic loads, inter alia, that of SADC member countries.
- (b) a physical study shall also be continued to determine ground conditions by means of bore hole drilling and core sampling.
- (c) to determine a suitable type of bridge including brief design of the bridge.
- (d) to estimate the approximate cost of construction.

2.4 Area to be covered by the Study

SADC member countries is the area to be covered by the study by large and Chirundu Bridge site for local investigations.

2.5 Scope of the Study

The scope of the proposed study is:

- (a) determination of development of SADC member countries
- (b) determination of population projections of SADC member countries
- (c) determination of the use of the Port of Beira in the future
- (d) determination of future traffic demand for the Bridge
- (e) determination of highway design capacity for the Bridge
- (f) considerations affecting the type and design of a new bridge
- (g) determination of ground conditions by means of test bore holes and sampling of cores
- (h) topographic survey of proposed site for the Bridge
- (i) considerations on alternative bridge types
- (j) consideration on border facilities
- (k) consideration on approach roads

- (l) brief design of the proposed bridge including border facility areas and approach roads
- (m) cost estimate for construction
- (n) compilation of a report

2.6 Study Schedule

Study in SADC member countries:	2 months
Study of the existing bridge:	1 month
Study in Tokyo:	1 month
Study at the site including test bore holes	3 months
Provision of draft report in Tokyo	3 months
Discussions with Ministry in Harare	1 month
Completion of the report in Tokyo	1 month

	12 months

2.7 Expected Major Outputs of the Study

An inception report shall be submitted within 2 weeks of awarding of the proposed study agreement to a consultant company.

A preliminary report shall be submitted at the 5th month.

A draft report shall be submitted at the eleventh month.

A final report and recommendations shall be submitted at the end of the study agreement.

2.8 Request of the Study to other donor agencies, if any

No request has been given to other donor agencies.

2.9 Other Relevant Information; if any

There is no particular information.

3. FACILITIES AND INFORMATION FOR THE STUDY TEAM

3.1 Assignment of Counterpart Personnel of the Implementing Agency for the Study

The Government may attach to the Consultant, junior professional staff and the Consultant shall provide for the appropriate training and instruction of the professional personnel so assigned to him. The Consultant will be required to include in his proposal details of how this training shall be effected including in the costs for the costs of the training.

3.2 Available Data, Information, Documents, Maps, etc. related to the Study

The Client will provide:

- a) all available reports of previous studies and design manuals;
- b) all available and relevant traffic counts and origin and destination surveys;
- c) all cost information in the possession of the Government for all modes of transport;
- d) relevant standard Department of State Roads drawings.
- e) any other relevant information in the possession of Department of State Roads.

3.3 Information on the Security Conditions in the Study Area

The security situation in both Zambia and Zimbabwe and Chirundu itself is very calm.

4 GLOBAL ISSUES (ENVIRONMENT, WOMEN IN DEVELOPMENT, POVERTY)

4.1 Environmental Components (such as pollution control, water supply, sewage, environmental management, forestry, biodiversity) of the Project, if any

Environmental matters shall be looked into in the proposed study, however, construction of a new bridge near the existing one will not cause significant adverse effects.

4.2 Anticipated Environmental impacts (both natural and social) by the Project, if any

Not applicable.

4.3 Women as Main Beneficiaries or not

Not applicable.

4.4 Project Components which require special considerations for Women (such as gender difference, women specific role, women's participation), if any

Not applicable.

4.5 Anticipated Impacts on Women caused by the Project

Nil

4.6 Poverty Reduction components of the Project, if any

A reliable bridge at Chirundu will ease the traffic crossing the Zambezi River thereby stimulating the economy of the SADC member countries. This will result in increased employment and reduced poverty.

4.7 Any Constraints against the low-income caused by the Project
Not applicable.

5 UNDERTAKINGS OF THE GOVERNMENT OF ZIMBABWE

In order to facilitate a smooth and efficient conduct of the study, the Government of Zimbabwe shall take necessary measures to:-

- 5.1 secure the safety of the study team;
- 5.2 permit the members of the study team to enter, leave and sojourn in Zimbabwe in connection with their assignments therein, and exempt them from alien registration requirement and consular fees;
- 5.3 exempt the study team from taxes, duties and any other charges on equipment, machinery and other materials brought into and out of Zimbabwe for the conduct of the study;
- 5.4 exempt the study team from income tax and charges of any kind imposed on or in connection with any emoluments or allowances paid to the members of the study team for their services in connection with the implementation of the study;
- 5.5 provide necessary facilities to the study team for remittance as well as utilisation of the funds introduced in Zimbabwe from Japan in connection with the implementation of the study;
- 5.6 secure permission or entry into private properties or restricted areas for the conduct of the study;
- 5.7 secure permission for the study team to take all data, documents and necessary materials related to the study out of Zimbabwe to Japan; and
- 5.8 provide medical services as needed. Its expenses will be chargeable to members of the study team.

6. The Government of Zimbabwe shall bear claims, if any arise¹⁰ against member(s) of the Japanese Study Team resulting from, occurring in the course of or otherwise connected with the discharge of their duties in the implementation of the Study, except when such claims arise from gross negligence or wilful misconduct on the part of the member of the Study Team.
7. The Department of State Roads shall act as counterpart agency to the Japanese Study Team and also coordinating body in relation with other governmental and non governmental organisations concerned for the smooth implementation of the Study. The Government will provide the Consultant with the data and service outlined herein. The Consultant shall be responsible, however, for the analysis and interpretation of all data received and for the conclusions and recommendations in his reports.

The Government of Zimbabwe assured that the matters referred to in this form will be ensured for a smooth conduct of the Development Study by the Japanese Study Team.

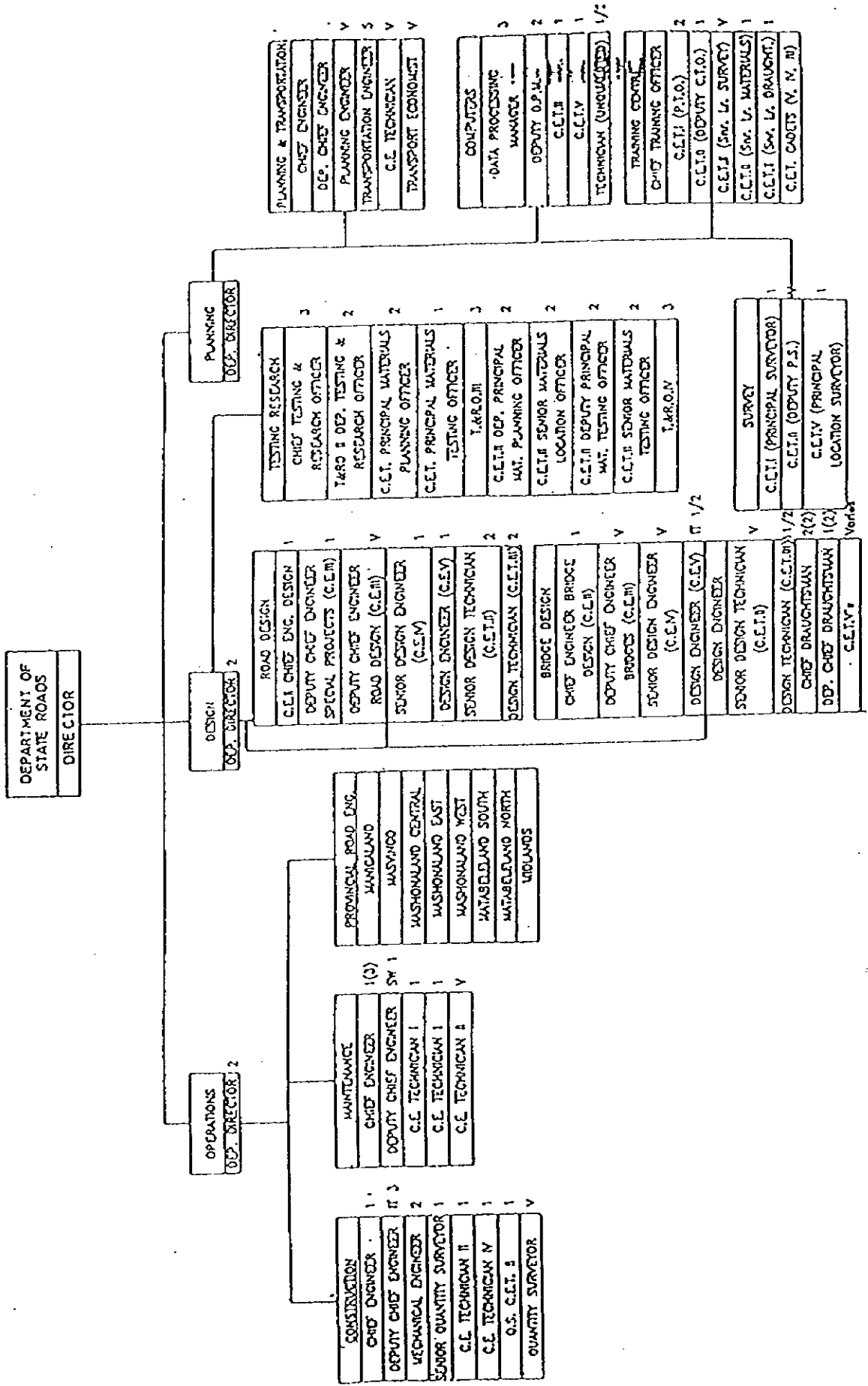
Signed: _____

Title: _____

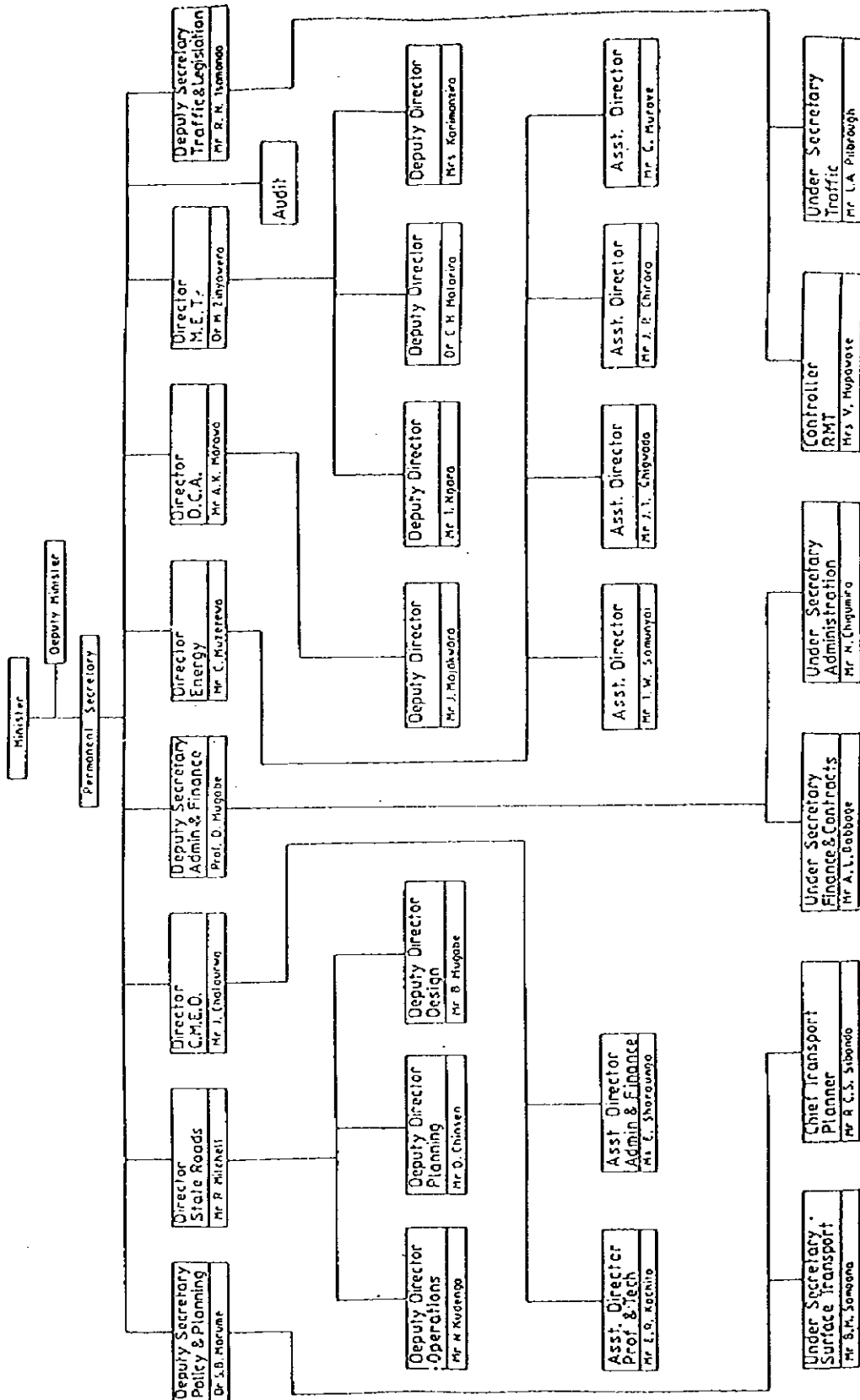
On behalf of the Government of Zimbabwe

Date: _____

DEPARTMENT OF STATE ROADS ORGANOGRAM



MINISTRY OF TRANSPORT & ENERGY



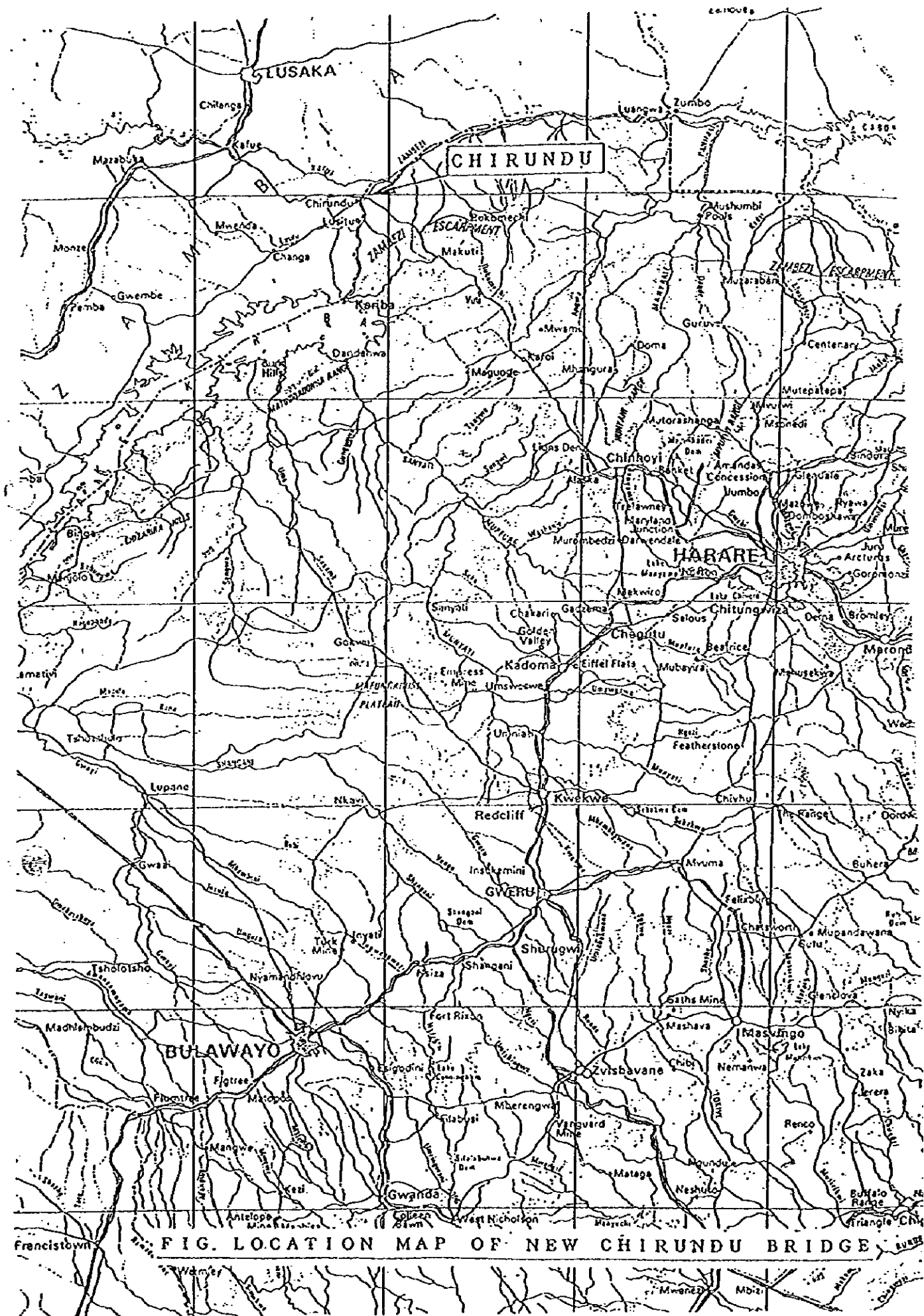


FIG. LOCATION MAP OF NEW CHIRUNDU BRIDGE

SCHEDULE FOR CHIRUNDO BRIDGE, CHIRUNDO, ZIMBABWE/ZAMBIA

SCHEDULE	1995	1996	1997	1998	1999	2000
Approval by Govt of Japan	=====					
Engineer Contract		===				
Detailed Design		=====				
Tender Provision			===			
Tender				=====		
Tender Evaluation				===		
Awarding of Contract				===		
Construction					=====	

COST ESTIMATE: CONSTRUCTION OF CHIRUNDO BRIDGE, ZIMBABWE/ZAMBIA

Description	Unit	Quantity	Rate	
A. ENGINEERING FEE				
Design & Provision of Document				120,000,000
Supervision				80,000,000
Total:				200,000,000
B. CONSTRUCTION COST				
Mobilization	Sum	1		100,000,000
Contractor's Camp	Sum	1		50,000,000
Engineer's Camp	Sum	1		30,000,000
Cut & fill	m ³	30,000	800	24,000,000
Bridge 11.5 m x 450 m	m ²	5,173	500,000	2,586,500,000
Side ditch	m	2,000	3,000	6,000,000
Crushed stone subbase	m ³	1,200	3,500	4,200,000
Crushed stone base	m ³	900	4,000	3,600,000
Hot-mix asphalt pavement	m ²	6,000	2,000	12,000,000
Signboard	No.	10	40,000	400,000
Road marking	m	1,800	300	540,000
Others	Sum	1		10,000,000
Total:				2,827,240,000
C. CONTINGENCY				302,724,000
TOTAL OF A., B. & C.:				Y 3,329,964,000

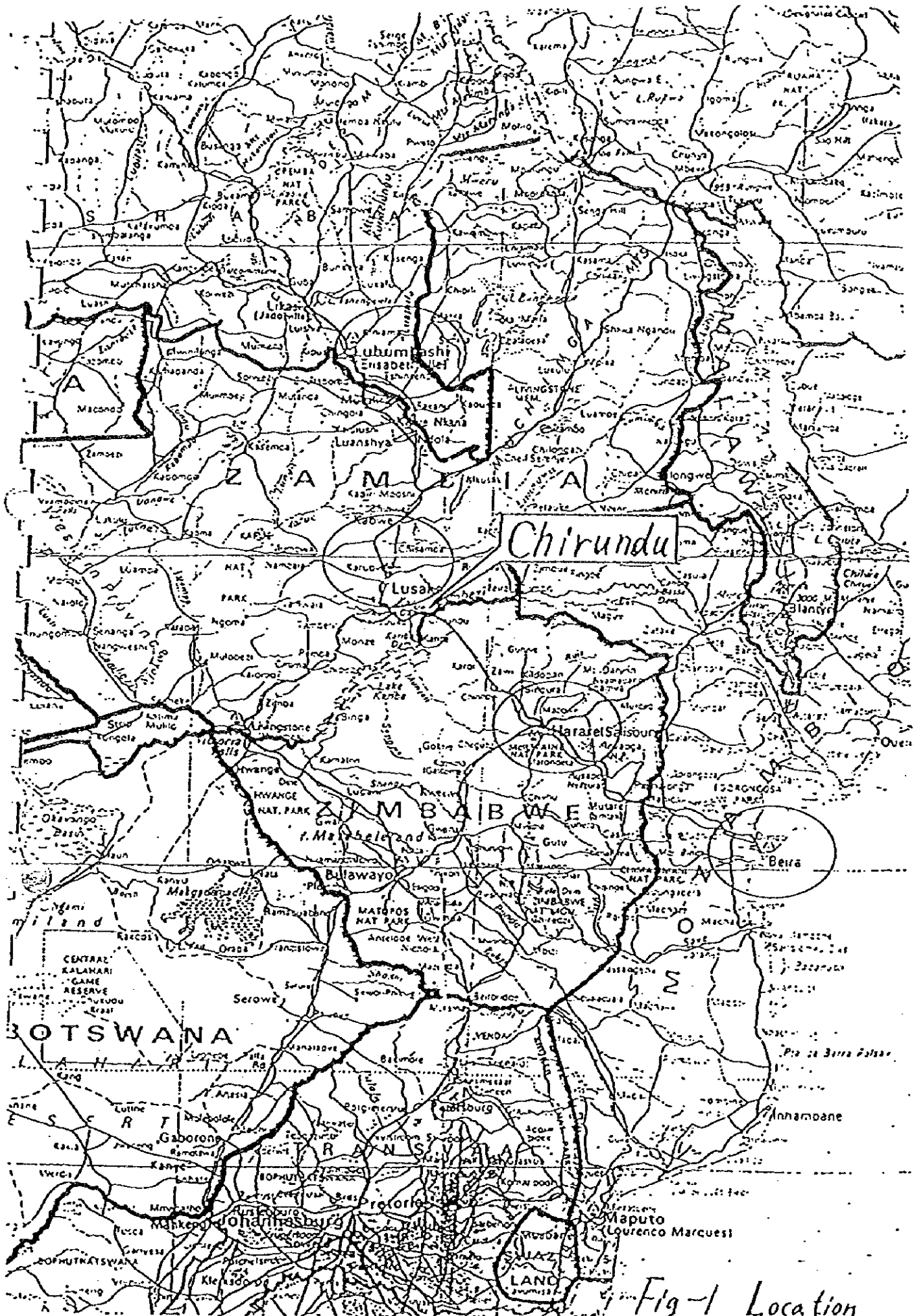


Fig-1 Location

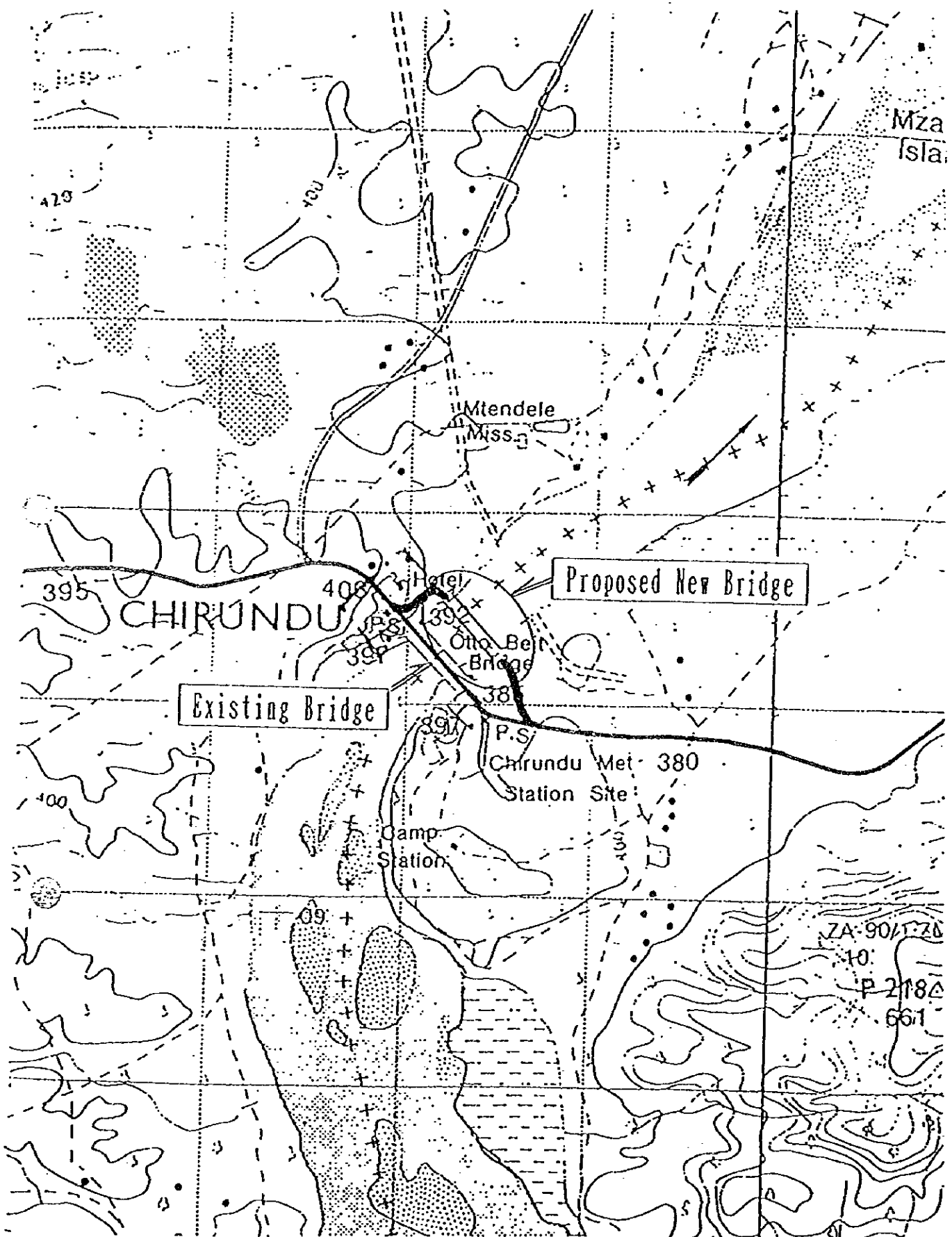
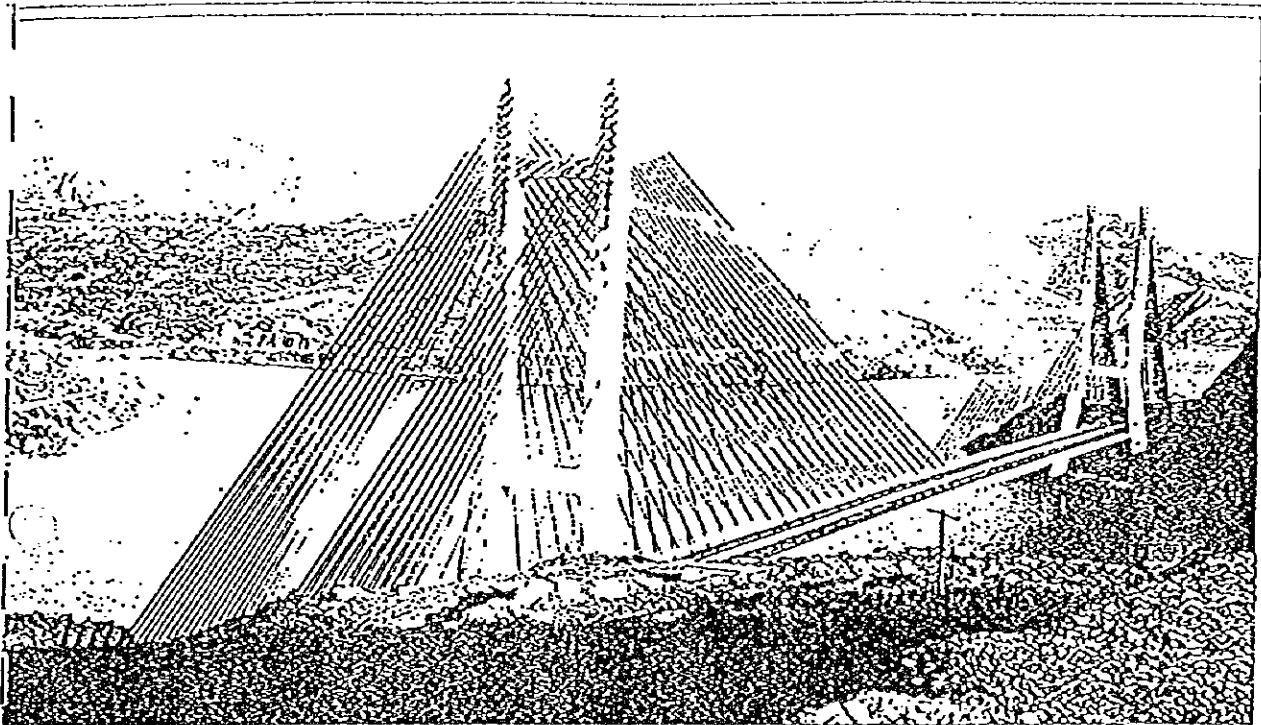
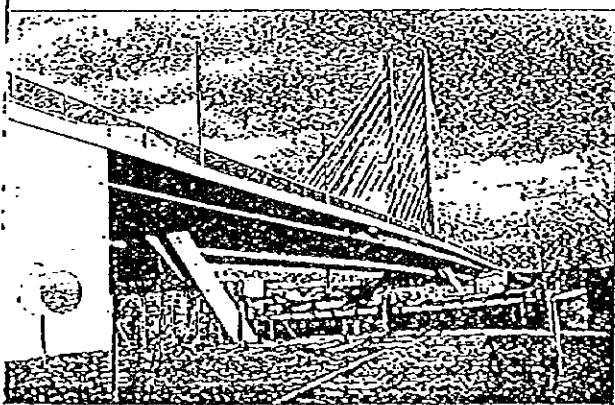


Fig-2 Location of Proposed New Bridge

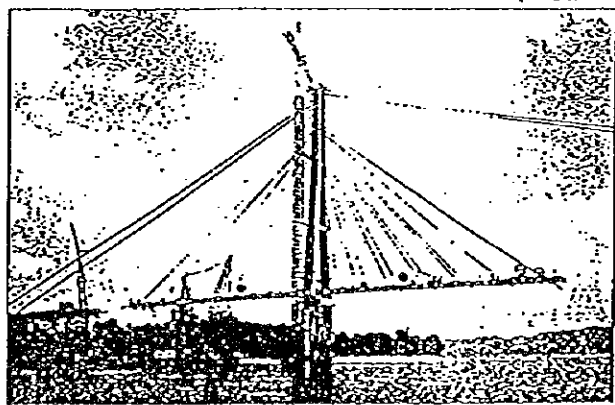
CABLE STAY BRIDGES BUILT IN THE WORLD



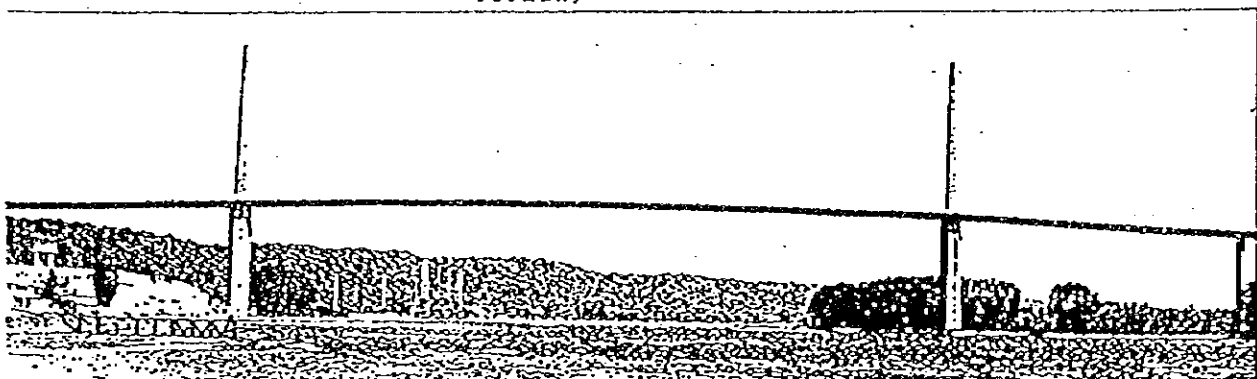
Spain



Germany



USA



France

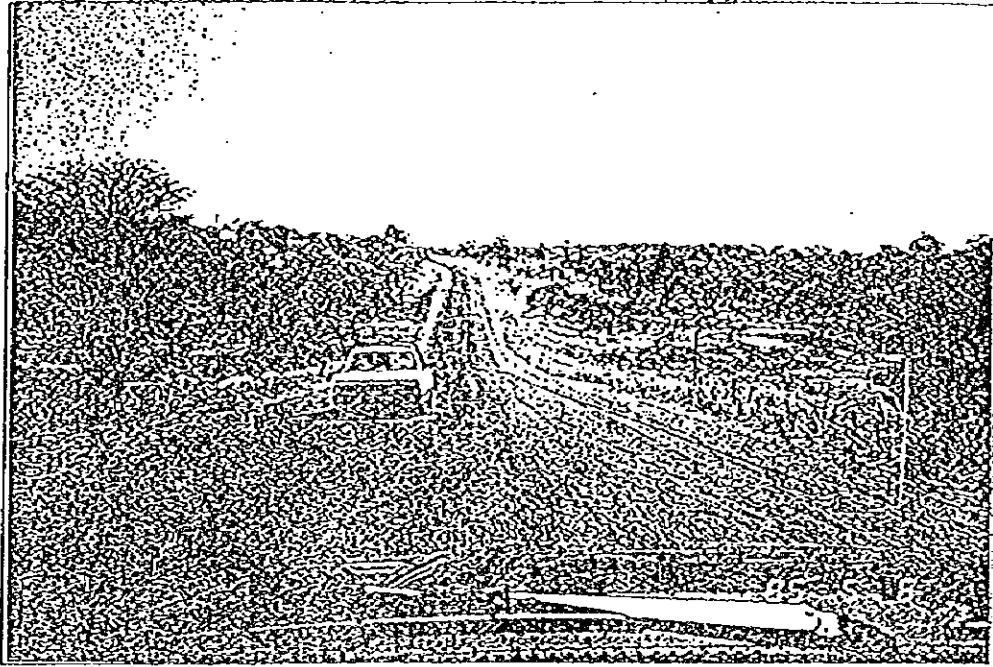


Photo 01: Paved international truck road in Zambia side of Otto Beit Bridge



Photo 02: View of Otto Beit Bridge from down-stream Zambia side.

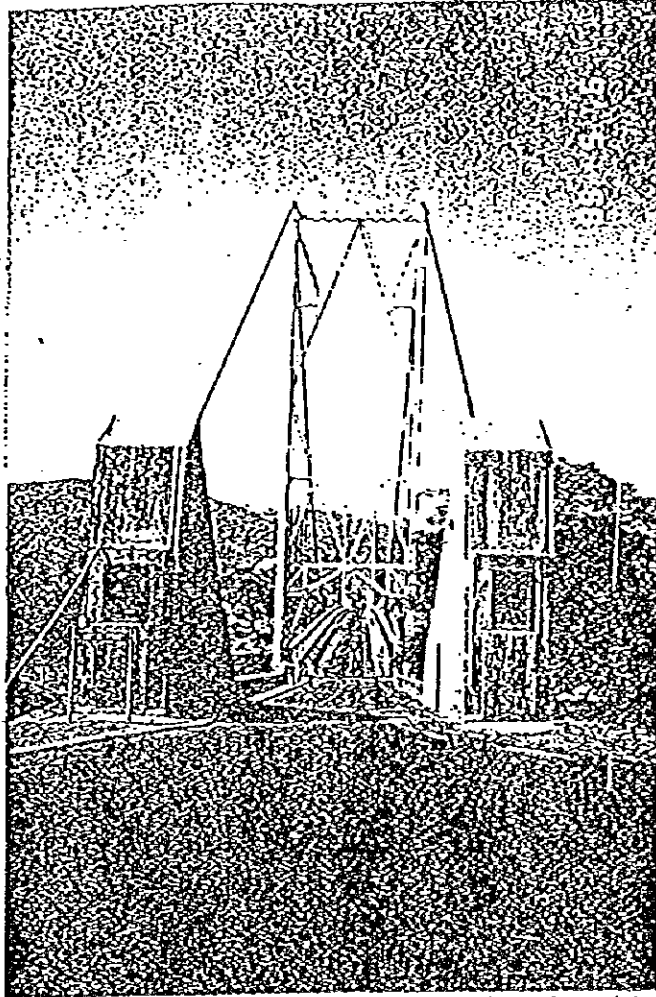


Photo 03: Otto Beit Bridge viewed from Zambia side

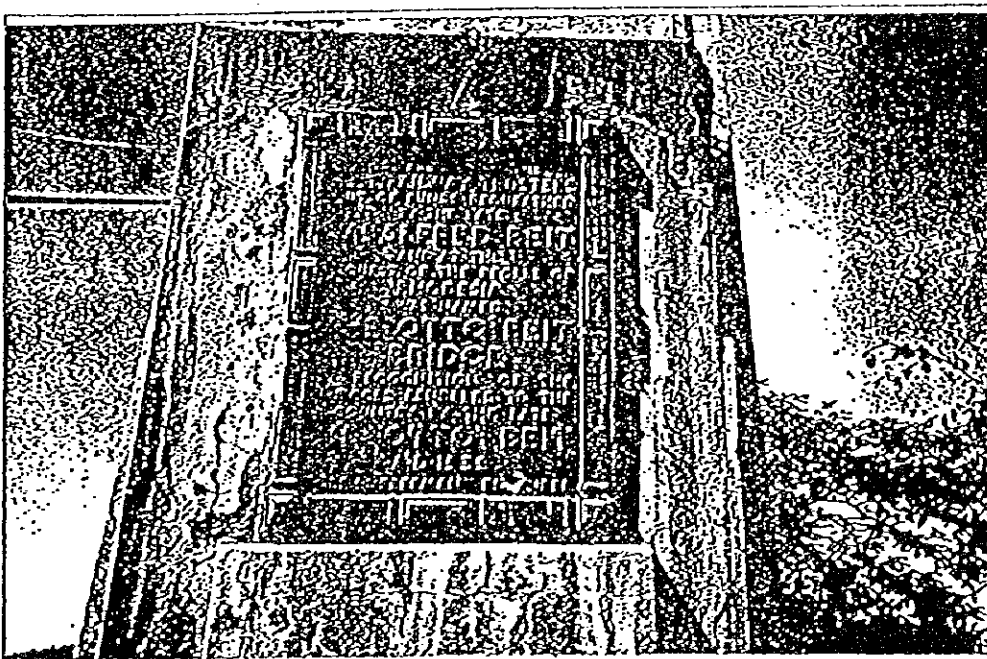


Photo 04: The plaque affixed to anchor concrete block of Otto Beit Bridge.

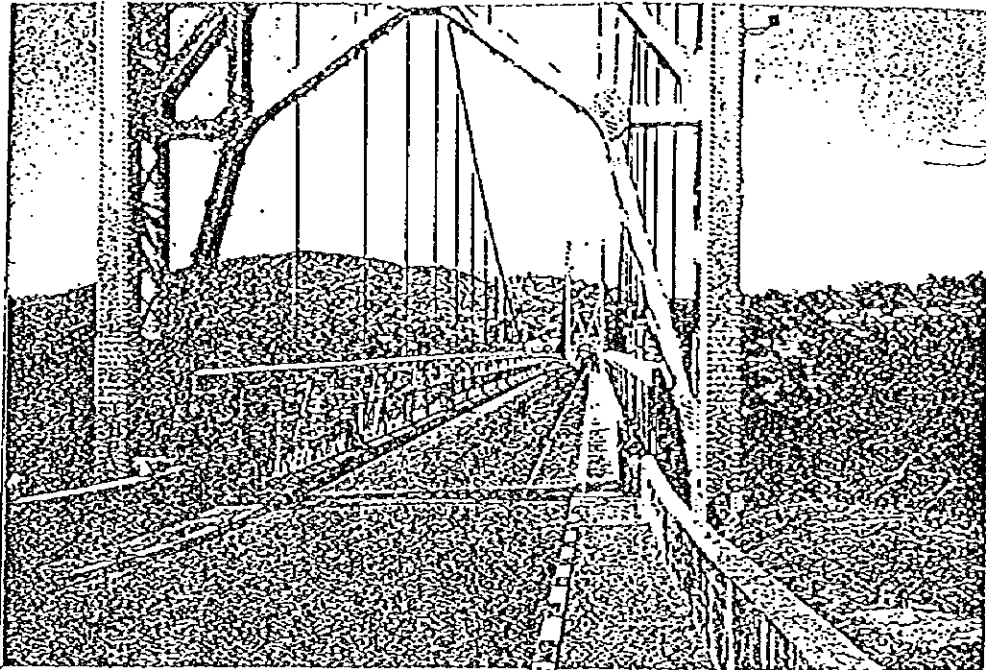


Photo 05: Close-up view of Otto Beit Bridge from Zambia side

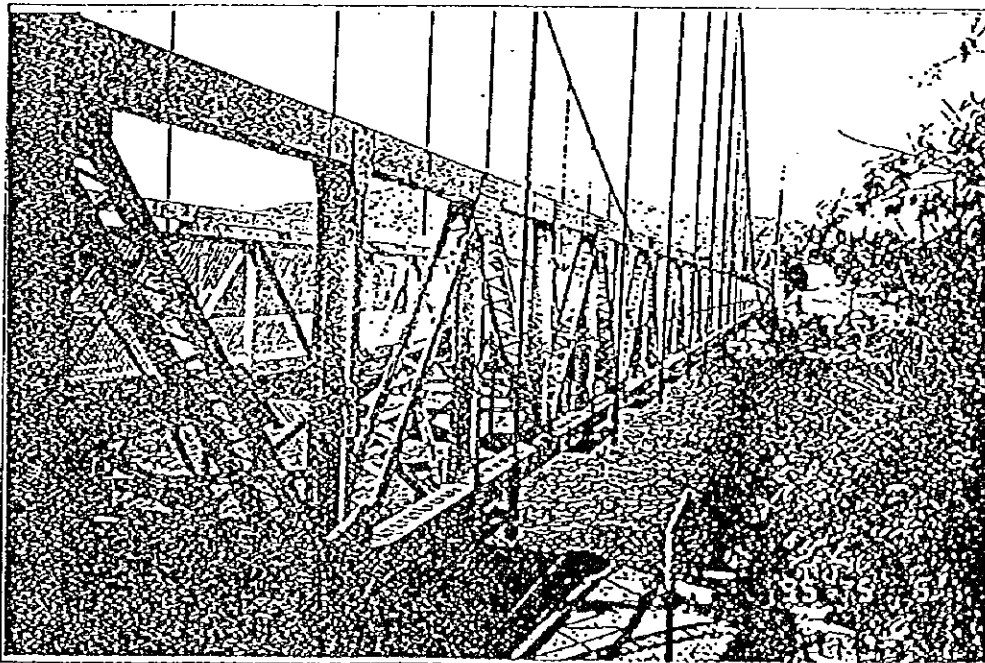


Photo 06: Side view of Otto Beit Bridge from Zambia side

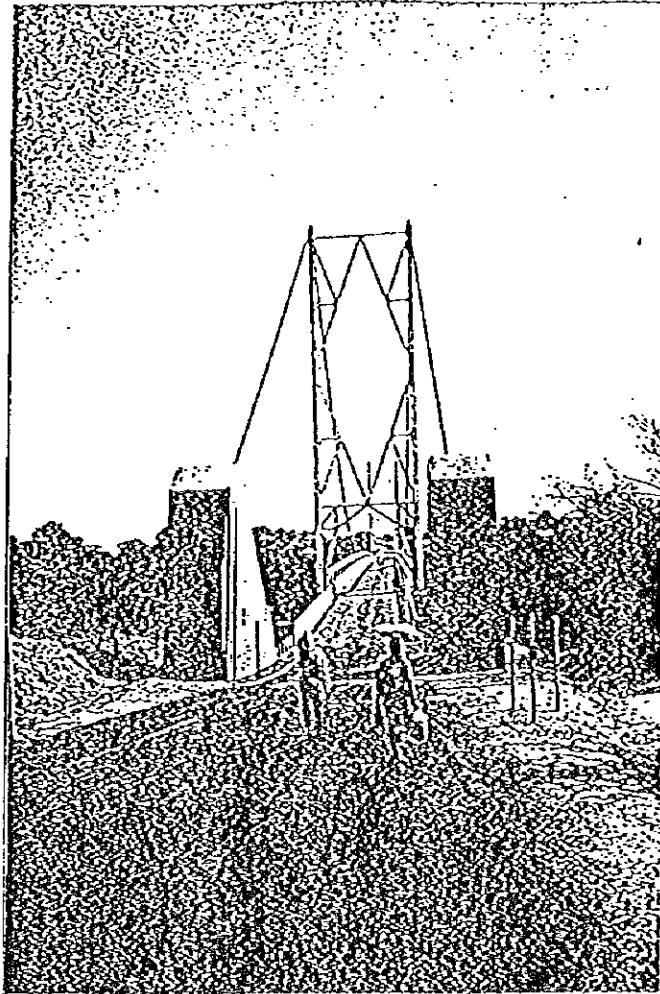


Photo 07: Otto Beit Bridge viewed from Zimbabwe side

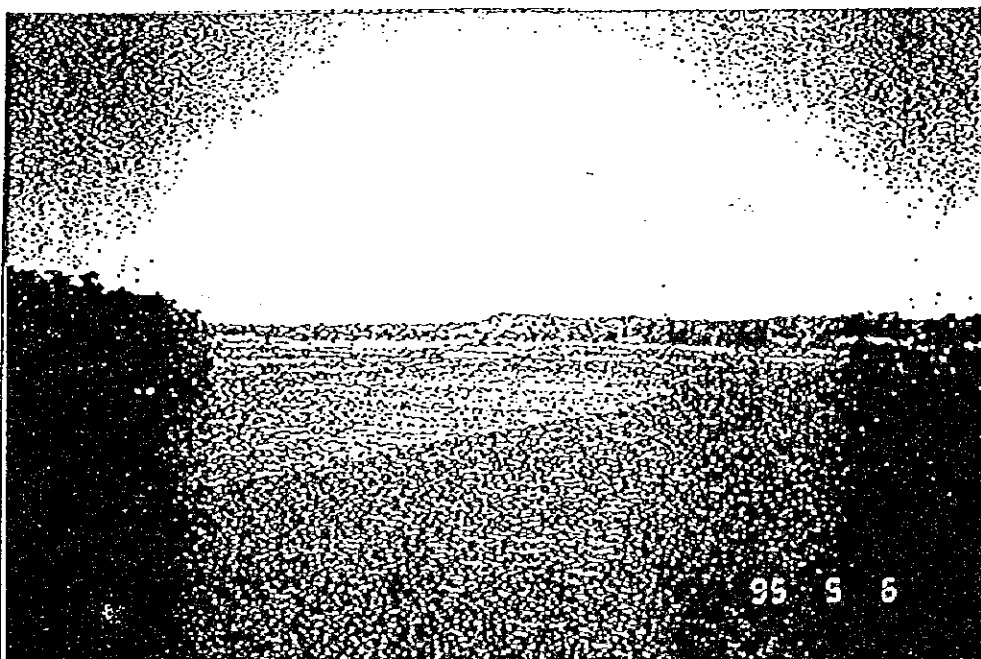


Photo 08: Up-stream view of the river from Otto Beit Bridge. Islands are seen in the river.

③ S/W

SCOPE OF WORK

FOR

THE FEASIBILITY STUDY ON THE PROPOSED NEW BRIDGE
OVER THE ZAMBEZI RIVER AT CHIRUNDU BORDER POST

BETWEEN

THE REPUBLIC OF ZAMBIA

AND

THE REPUBLIC OF ZIMBABWE


AGREED UPON BY

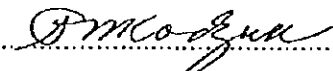
MINISTRY OF WORKS AND SUPPLY OF ZAMBIA,
MINISTRY OF TRANSPORT AND ENERGY OF ZIMBABWE

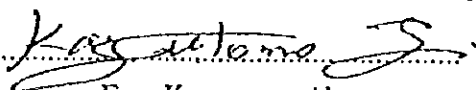
AND

JAPAN INTERNATIONAL COOPERATION AGENCY

in Harare, Zimbabwe, on 18th of February, 1997


.....
Mr M.X. Mufwaza
Permanent Secretary
Ministry of Works and Supply
Republic of Zambia


.....
Eng. P.M. Kodzwa
Permanent Secretary
Ministry of Transport and Energy
Republic of Zimbabwe


.....
Eng. Kazutomo Abe
Leader of the Preparatory Study Team
Japan International Cooperation Agency
(JICA)

A. INTRODUCTION

In response to the request of the Government of the Republic of Zambia (hereinafter referred to as "Zambia") and the Government of the Republic of Zimbabwe (hereinafter referred to as "Zimbabwe"), the Government of Japan (hereinafter referred to as Japan) decided to implement the Study on a New Bridge Construction on the Zambezi River at Chirundu (hereinafter referred to as "the Study") in accordance with the relevant laws and regulations in force in Japan.

Accordingly, the Japan International Cooperation Agency (hereinafter referred to as "JICA"), the official agency responsible for the implementation of the technical cooperation programs of Japan, will undertake the Study, in close cooperation with the authorities concerned in Zambia and Zimbabwe.

The present document sets forth the Scope of Work with regard to the Study.

B. OBJECTIVE OF THE STUDY

The objective of the Study is to conduct a feasibility study on a new bridge construction and border facilities development at Chirundu, whose capacity utilisation is targetted for year 2010.

C. SCOPE OF THE STUDY

1. Data Collection and Analysis

- (1) socio-economic data;
- (2) traffic and transportation data;
- (3) soil and geological data;
- (4) climatic and seismic data;
- (5) hydrological data;
- (6) topographic data;
- (7) development plans;
- (8) others.

2. Preliminary Site Survey

- (1) soil and geological survey;
- (2) topographic survey;
- (3) hydrologic and hydraulic survey (cross sectional survey, flood water level, velocity, run-off analysis);
- (4) existing bridge evaluation.

3. **Traffic Forecast to Year 2010**
 - (1) traffic survey (traffic volume , composition , axle load etc);
 - (2) socio- economic framework;
 - (3) future traffic demand forecast.

4. **Bridge Planning**
 - (1) bridge planning alternatives (site, span length, width, bridge type, approach);
 - (2) evaluation of bridge planning alternatives (environment impact, construction and maintenance costs, preliminary socio-economic analysis and etc);
 - (3) determination of bridge plan.

5. **Detailed Site Survey**
 - (1) topographic survey;
 - (2) soil and geological survey;
 - (3) environmental survey.

6. **Preliminary Bridge Design**
 - (1) design criteria;
 - (2) bridge and approach design;
 - (3) construction plan;
 - (4) maintenance plan;
 - (5) quantity and cost estimate;
 - (6) EIA (Environmental Impact Assessment).

7. **Border Facilities Planning**
 - (1) Preliminary design of border facilities;
 - (2) Operational plan for border facilities.

8. **Formulation of Implementation Program**

9. **Economic Evaluation**
 - (1) benefit estimate;
 - (2) economic analysis.

10. **Preparation of Overall Recommendations**
 - (1) recommendation for management organization after construction/maintenance;
 - (2) preparation of overall recommendations.

D. STUDY SCHEDULE

The Study shall be conducted in accordance with the attached tentative schedule.

E. REPORTS

JICA shall prepare the following reports and submit them to Zambia and Zimbabwe :

1. Inception Report

Ten (10) copies in English to each country.

This report shall be submitted at the commencement of the Study and is to describe the overall approach and implementation program of the Study.

2. Progress Report

Ten (10) copies in English to each country.

This report shall be submitted within three (3) months after the commencement of the Study.

3. Interim Report

Ten (10) copies in English to each country.

This Report will be submitted within four (4) months after the commencement of the Study.

4. Draft Final Report

Ten (10) copies in English to each country.

This report will be submitted within nine (9) months after the commencement of the Study. Both Zambia and Zimbabwe shall provide their comments on the Report within one (1) month after the receipt of the Report .

5. Final Report

Ten (10) copies in English to each country

This report will be submitted within one (1) month after the receipt of the written comments on the Draft Final Report from both Zambia and Zimbabwe.

F. UNDERTAKINGS OF ZAMBIA AND ZIMBABWE

1. To facilitate the smooth implementation of the Study, both Zambia and Zimbabwe shall take following necessary measures :

(1) to secure the safety of the Team.

(2) to permit members of the Team to enter, leave and sojourn in both Zambia and Zimbabwe for the duration of their assignments therein and exempt them from alien registration requirements and consular fees.

- (3) to exempt members of the Team from taxes, duties and any other charges on equipment, machinery and other material brought into both Zambia and Zimbabwe for the implementation of the Study.
 - (4) to exempt members of the Team from income tax and charges of any kind imposed on or in connection with any emoluments or allowances paid to the members of the Team for their services in connection with the implementation of the Study.
 - (5) to provide necessary facilities to the Team for the remittance as well as utilisation of the funds introduced into both Zambia and Zimbabwe from Japan in connection with the implementation of the Study.
 - (6) to secure permission for the Team for entry into private areas or restricted areas for the implementation of the Study.
 - (7) to secure permission for the team to take all data and documents (including photographs) related to the Study out of both Zambia and Zimbabwe to Japan.
 - (8) to provide the medical services as needed, while its expenses will be chargeable on the members of the Team.
2. Both Zambia and Zimbabwe shall bear claims, if any arises against the members of the Team resulting from, occurring in the course of, or otherwise connected with, the discharge of their duties in the implementation of the Study, except when such claims arise from gross negligence or willfull misconduct on the part of the members of the Team.
 3. Ministry of Works and Supply of Zambia (hereinafter referred to as "MWS") and Ministry of transport and Energy of Zimbabwe (hereinafter referred to as "MOTE") shall act as the couterpart agencies to the Japanese Study Team and also act as the coordinating body with other relevant organisations for the smooth implementation of The Study, on behalf of both Zambia and Zimbabwe.
 4. MWS shall, at its own expenses, provide the Team with the following in cooperation with relevant organisations :
 - (1) available data (including maps) and information related to the Study;
 - (2) counterpart personnel;
 - (3) suitable office space with office equipment and furniture in Lusaka;
 - (4) credentials or identification cards; and
 - (5) vehicles with drivers.

5. MOTE shall, at its own expenses, provide the Team with the following in cooperation with relevant organisations :

- (1) available data (including maps) and information related to the Study;
- (2) counterpart personnel;
- (3) suitable office space with office equipment and furniture in Harare and Chirundu;
- (4) credentials or identification cards; and
- (5) vehicles with drivers.

G. UNDERTAKINGS BY JICA

For the implementation of the Study, JICA shall take the following measures :

- (1) to dispatch, at its own expense, the Feasibility Study Team to both Zambia and Zimbabwe; and,
- (2) to pursue technology transfer to both Zambia and Zimbabwe counterpart personnel in the course of the Study.

H. OTHERS

JICA, MWS and MOTE shall consult with each other with respect to any matter that may arise from or in connection with the Study.

Attachment

TENTATIVE SCHEDULE

The Study
 on
 a New Bridge Construction
 on the Zambezi River at Chirundu
 in
 the Republic of Zambia
 and
 the Republic of Zimbabwe

Month	1	2	3	4	5	6	7	8	9	10	11
Field Work		—————			—————				—		
Work in Japan	—		—	—			—————			—	
Reports	▲ IC/R		▲ PG/R	▲ IT/R					▲ DF/R	▲ F/R	

④ M/M

MINUTES OF THE MEETINGS ON THE SCOPE OF WORK

FOR

THE FEASIBILITY STUDY ON THE PROPOSED NEW BRIDGE
OVER THE ZAMBEZI RIVER AT CHIRUNDU BORDER POST

BETWEEN

THE REPUBLIC OF ZAMBIA

AND

THE REPUBLIC OF ZIMBABWE

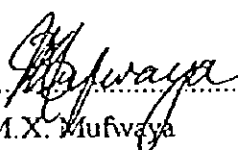
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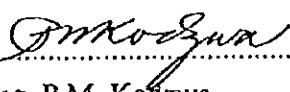
MINISTRY OF WORKS AND SUPPLY OF ZAMBIA,
MINISTRY OF TRANSPORT AND ENERGY OF ZIMBABWE

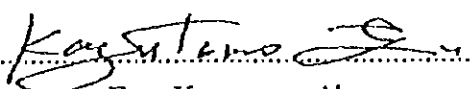
AND

JAPAN INTERNATIONAL COOPERATION AGENCY

in Harare, Zimbabwe, on 18th of February, 1997


.....
Mr M.X. Mufwava
Permanent Secretary
Ministry of Works and Supply
Republic of Zambia


.....
Eng. P.M. Kudzwa
Permanent Secretary
Ministry of Transport and Energy
Republic of Zimbabwe


.....
Eng. Kazutomo Abe
Leader of the Preparatory Study Team
Japan International Cooperation Agency
(JICA)

The Japanese Preparatory Study Team (hereinafter referred to as "the Team") organised by Japan International Cooperation Agency (hereinafter referred to as "JICA"), and headed by Mr Kazutomo Abe visited Zambia and Zimbabwe from 5th to 18th February 1997, in connection with the envisaged Feasibility Study (hereinafter referred to as "the Study") on the proposed New Bridge over the Zambezi River at Chirundu Border Post situated between the Republic of Zambia and the Republic of Zimbabwe.

The Team held a series of meetings on the Scope of Work on the Study with relevant authorities of the Government of Zambia (hereinafter referred to as "Zambia") and the Government of Zimbabwe (hereinafter referred to as "Zimbabwe"). Attendees of the meetings in Zambia and Zimbabwe are listed in Annex 1 attached. The Team also carried out field surveys at Chirundu Border Post.

As the result of discussions, the following points are confirmed between Zambia, Zimbabwe and the Team, (hereinafter referred to as "the Tripartite").

1. The Scope of Work proposed by the Team, with modifications resulting from discussions, was agreed upon by the Tripartite.
2. The Beit Trustees shall be consulted, by the governments of Zambia and Zimbabwe, on the possible alternative use(s) of the existing Otto Beit Bridge.
3. Border facilities were to be taken to include only those facilities required for customs clearance, immigration control, banking, quarantine, police clearance, vehicle inspection and parking areas.
4. The load and design criteria for the new bridge design shall be determined in the Study through discussions between Zambia and Zimbabwe and the Full Scale Feasibility Study Team (hereinafter referred to as "the Study Team").
5. The Study shall cover the economic impact of the project on the two countries, Zimbabwe and Zambia.
6. Zambia (Zimbabwe) shall bear costs of its counterpart personnel assigned to the Study, including travel expenses to Zimbabwe (Zambia).
7. Zambia (Zimbabwe) shall bear its travel expenses to attend Steering Committee meetings in Zimbabwe (Zambia)

8. Both Zambia and Zimbabwe shall issue multiple visas for the Study Team and sub-contractors to enable smooth implementation of the Study.
9. A Steering Committee was created for the Study, and consists of representatives of following agencies :
 - i. Zambia : Ministry of Work and Supply,
 - ii. Zimbabwe : Ministry of Transport and Energy,
 - iii. To be co-opted by both countries : Ministry of Finance (Department of Customs and Excise) and Ministry of Home Affairs (Department of Immigration Control and the Police).
10. The Tripartite agreed that the Deputy Director of Planning in Zambia and the Deputy Director of Planning and Designs in Zimbabwe shall work as co-ordinators of the Steering Committee for smooth exchange of opinions between Steering Committee and Japanese Side.
11. The tripartite agreed upon the following points on sub-contracting :
 - i. Procedure for sub-contracting shall be in full accordance with the rules of JICA.
 - ii. Local or international sub-contractors shall be allowed to conduct business in both Zambia and Zimbabwe.
12. Both Zambia and Zimbabwe requested the Team that bridge type should be determined taking into account of usage of local materials.
13. The Tripartite agreed that traffic demand should be forecast to the year 2010 considering socio-economic development in neighbouring countries such as South Africa, Zaire, Malawi, Mozambique.
14. The Study Team will be allowed to take out aerial photographs related to the area of Study out of both Zambia and Zimbabwe to Japan.
15. Both Zambia and Zimbabwe shall each assign at least two (2) engineers as counterpart personnel to the Study.
16. Zambia addressed the Team that Zambia could not arrange vehicles for the Study Team. The Team replied that JICA would arrange necessary vehicles in Zambia for the Study.

17. Zimbabwe agreed to provide the Study Team with one sedan and one pickup truck for purposes of carrying the Study.

18. Zimbabwe and Zambia requested the Team to arrange counterpart training in Japan. The Team replied that it was to convey the request to the Government of Japan.

end.

ANNEX 1 TO MINUTES OF THE MEETING ON SCOPE OF WORKS

Zimbabwe

1. N. Kudenga Director of Roads - Department of Roads
2. C. T. Bopoto Chief Engineer Planning - Department of Roads
3. G. Nhemachena Deputy Director Planning and Designs, Dept. of Roads
4. E.V. Chipuru A/ Chief Engineer Bridges - Department of Roads
5. I. J. Jumo A/Chief Engineer Road Design - Department of Roads
6. T. Mdawarima A/Chief Engineer - Construction
7. M.H. Ruwende A/Deputy Chief Engineer Planning - Department of Roads
8. R. M. Ziracha Principal Town Planner - Department of Physical Planning
9. B. Zvomuya Town Planner - Department of Physical Planning
10. M. Cochrane Collector, Customs and Excise, Ministry of Finance,
Head Office Audit
11. F. M. Mandishona Collector, Customs and Excise, Ministry of Finance,
Chirundu

Zambia

1. M. X. Mufwaya Permanent Secretary, Ministry of Works and Supply (MWS)
2. J.D. Mwila Director of Roads - Roads Department
3. V. M. Mooya Deputy Director of Planning (MWS)
4. E. Kaunda Deputy Director of Roads - Roads Department
5. G.S. Kwiliko Deputy Police Commissioner - Ministry of Home Affairs
6. R.T. Holder Project Engineer - Burrow Binnie(Zambia)
Consulting Engineers to Zambia Revenue Authority (ZRA)
7. C. Chileshe Senior Hydrologist - Ministry of Energy and Water
Development
8. T. Ngambi Council Chairman - Siavonga District Council

- | | | |
|-----|-----------------|---|
| 9. | B.M. Akende | Council Secretary - Siavonga District Council |
| 10. | B. Chikolwa | Valuation Officer - Ministry of Works and Supply |
| 11. | K. Chirwa | Acting Senior Engineer - Ministry of Local Government and Housing |
| 12. | W.S.C. Mwandila | Director Planning - Ministry of Transport and Communication |
| 13. | G. A. Murray | Deputy Commissioner - ZRA, Customs and Excise |
| 14. | R.S. Nkunika | Projects Manager - ZRA |
| 15. | W. Lisulo | Lisulo + Bwalya - Consulting Architects to ZRA |
| 16. | S.F. Daka | Chief Engineering Assistant - Roads Department |
| 17. | S.M. Matonka | Chief Immigration Officer - Immigration Department |
| 18. | S.H. Ndlovu | Director of Works - Siavonga District Council |
| 19. | F.K. Chindele | Ministry of Health |
| 20. | R. Mbewe | Administration Secretary (JICA) |

Japan Study Team

- | | | |
|-----|--------------|---|
| 1. | K. Abe | Team Leader - JICA, Japan |
| 2. | T. Mizuguchi | Road Planner - JICA, Japan |
| 3. | T. Kai | Bridge Designer - JICA, Japan |
| 4. | Y. Kobayashi | Environmentalist - JICA, Japan |
| 5. | M. Ueda | Border Facilities Planner - JICA, Japan |
| 6. | K. Seto | Study Planner - JICA, Japan |
| 7. | T. Yamane | Road and Bridge Expert - JICA, Zimbabwe |
| 8. | K. Sakamoto | JICA Economic Adviser, SADC Secretariat, Botswana |
| 9. | Y. Kitamura | Staff - JICA, Zambia |
| 10. | T. Seki | Staff - JICA, Zimbabwe |

⑤ 収集資料リスト

資料リスト (収集資料)

平成9年3月5日作成

主管部長	文書管理課長	主管課長

情報管理課	技術管理課	情報管理課長

地域	アフリカ	調査国名又は専門家名	ザンベジ川チルンド橋建設計画調査	調査の種類又は指導科目	事前調査	作成部課	社会開発調査部 社会開発調査第一課
国名	ザンビア(ZA)	配属機関名		現地調査期間又は派建期間	119年2月5日～2月27日	担当者氏名	瀬戸 健太

番号	資料の名称	形態	判型	ページ数	オリジナルコピーの別	部数	収集先名称又は発行機関	寄贈・購入(価格)の別	取扱区分	利用表示	利用者所属氏名	納入予定日	納入確認日
1	Tourist Map; Republic of Zambia (1:1,500,000)	地図	B 1	1	オリジナル	1	Min. of Works and Supply	寄贈					
2	Geological and Mineral Occurrence Map (1:2,000,000)	地図	86cm x 89cm	1	オリジナル	1	Min. of Works and Supply	寄贈					
3	[Chirundo] Topographic Map (1:2,500及び1:5,000-1986) 2枚1組	地図	78cm x 100cm	2	複製	1	Min. of Works and Supply	寄贈					
4	[Chirundo Township] Contour Survey (1"=50') Dec., 1963	図面	78cm x 125cm	1	複製	1	Min. of Works and Supply	寄贈					
5	Chirundo Layout Plan (1:2,500) July 1991	図面	A 0	1	複製	1	Min. of Works and Supply	寄贈					
6	Chirundo Redistribution Scheme (1"=100'), July 1994	図面	B 2	1	複製	1	Min. of Works and Supply	寄贈					
7	Proposed New Bridge at Chirundo - Location Plan (1:2,500) Feb., 1997	図面	B 2	1	複製 + 手書き	1	Min. of Works and Supply	寄贈					
8	Proposed New Bridge at Chirundo, Site Layout (1:200) Jan., 1997	図面	A 2	1	コピー	2	Min. of Works and Supply	寄贈					
9	地形図(5万分の1)地図2枚を貼り合せたもの(一部コピー)	地図	A 3	1	コピー	1	Min. of Works and Supply	寄贈					
10	地形図 Zimbabwe side (1:2,500) 一部コピー	地図	A 3	1	コピー	1	Min. of Works and Supply	寄贈					
11	地形図 Zambia side (1:2,500) 一部コピー	地図	A 3	1	コピー	1	Min. of Works and Supply	寄贈					

資料リスト (収集資料)

平成9年3月5日作成

主 管 部 長	文 書 管 理 長	主 管 課 長

情 報 管 理 課	技 術 情 報 課

地 域	アフリカ	調査団名又は 専門 家 名	ザンベジ川チルンド橋建設計画調査	調査の種類又は 指 導 科 目	事前調査	作成 部 課	社会開発調査部 社会開発調査第一課
国 名	ザンビア (ZA)	配 属 機 関 名		現地調査期間又は 派 遣 期 間	99年2月5日～2月27日	担 当 者 氏 名	瀬 戸 健 太

番 号	資料の名称	形 態	判 型	ペー ー 数	コピ ー 数	コピ ー 機 種	部 数	収集先名称又は 発 行 機 関	寄贈・購入 (価格)の別	取扱い区分	利用表示	利用者所属氏名	納 入 予定日	納 入 確認日
12	The Geology of the Leopards Hill Area by Geological Survey of Zambia, 1967	文献	B 5	64p.+ 2地図	コピ ー	コピ ー	1	Min. of Works and Supply	寄贈					
13	Secondary School ATLAS	文献	Letter Size	121	コピ ー	コピ ー	1	Longman	購入					
14	Zambia Today Analysis of the public's views	文献	B 5	131	コピ ー	コピ ー	1	Zambia Association for Research and Development	購入					
15	The Situation of Women in Zambia-NGO Shadow Report	文献	A 5	91	コピ ー	コピ ー	1	NGOCC	購入					
16	"Proposed New Chirundo Bridge" by V. M. Mooya	文献	A 4	4	コピ ー	コピ ー	1	Min. of Works and Supply	寄贈					
17	Road Maintenance Initiative Country Report, October 1996	文書	A 4	8	コピ ー	コピ ー	1	MWS	寄贈					
18	Metric Road Map (scale 1:1,500,000)	地図	A 3	1	コピ ー	コピ ー	8	MWS	寄贈					
19	Zambia's Performance in the Road Sector	文書	A 4	6	コピ ー	コピ ー	1	Ministry of Communication & Transport	寄贈					
20	Extracts from the Road Sector Investment Programme-Project Proposal for 1997-2007	文書	A 4	6	コピ ー	コピ ー	1	Ministry of Communication & Transport	寄贈					
21	Weightbridges - Traffic Count Points	図面	A 3	1	コピ ー	コピ ー	1	MWS	寄贈					

資料リスト (収集資料)

平成9年3月5日作成

主管部長	文書管理課	文書管理課 長	主管課長

情報管理課	情報管理課 長	技術情報課	技術情報課 長

地域	アフリカ	調査団名又は専門家名	ザンベジ川チルンド橋建設計画調査	調査の種類又は指導科目	事前調査	作成部課	社会開発調査部 社会開発調査課一課						
国名	ザンビア(ZA)	配属機関名		現地調査期間又は派遣期間	H9年2月5日～2月27日	担当者氏名	坂戸 健太						
番号	資料の名称	形態	判型	ページ数	オリジナルコピーの別	部数	収集先名称又は発行機関	寄贈・購入(価格)の別	取扱区分	利用表示	利用希望氏名	納入予定日	納入確認日
22	Chirundo Road Traffic Volume	表	A4	1	コピー	1	MWS	寄贈					
23	Notice to Heavy Vehicle Operations 08/03/88	文書	A4	2	コピー	1	MWS	寄贈					
24	Aerodromes Index	図面	A3	1	コピー	1	MWS	寄贈					
25	Kafue River Weigh bridge (May '96~June '94)	表	A4	29	コピー	1	MWS	購入 (コピー代)					
26	Monthly flow data at Chirundo Station	表	A4	1	コピー	1	Ministry of Energy & Water Development	寄贈					
27	Environmental Impact Assessment Regulations Revised Draft	文書	A4	12	コピー	1	Environmental Council of Zambia	寄贈					
28	First Schedule : Projects which require Project Briefs Regulation 3 (2)	文書	A4	8	コピー	1	Environmental Council of Zambia	寄贈					
29	The Environmental Protection and Pollution Control Act, 1990	文書	A4	34	コピー	1	Environmental Council of Zambia	寄贈					
30	"Who is who" in Environment, Zambia '94	文献	A4	12	オリジナル	1	NORAD	寄贈					
31	State of Environment Report, 1994	文献	A4	115	オリジナル	1	NORAD	購入					

資料リスト (収集資料)

平成9年3月5日作成

情報管理課長	技術情報課長
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文書管理課長	主管課長
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地域	アフリカ	調査団名又は専門家名	ガンベジ川チルンド橋建設計画調査	調査の種類又は指図	事前調査	作成部課	社会開発調査部 社会開発調査第一課
国名	ザンビア(ZA)	配属機関名		現地調査期間又は派遣	H 9年2月5日~2月27日	担当者氏名	瀬戸 健太

番号	資料の名称	形態	判型	ページ数	オリジナルコピーの有無	部数	収集先名称又は発行機関	寄贈・購入(価格)の別	取扱区分	利用表示	利用者所属氏名	納入予定日	納入確認日
32	A Secondary Geography of Zambia	文獻	B 5	156	有り	1	Longman	購入					
33	Basic Education Atlas of Zambia	文獻	A 4	57	有り	1	Mac Millan	購入					

資料リスト (収集資料)

平成9年3月5日作成

主 管 部 長	文 書 管 理 長	主 管 課 長

信 息 管 理 課	技 術 情 報 課

地 域	アフリカ	調査団名又は 専門 家 名	ザンベジ川チルンド橋建設計画調査	調査の種類又は 指 導 科 目	事前調査	作 成 部 課	社会開発調査部 社会開発調査第一課
国 名	ジンバブエ(ZW)	配 属 機 関 名		現地調査期間又は 派 遣 期 間	H 9 年 2 月 5 日 ~ 2 月 27 日	担 当 者 氏 名	坂 戸 健 太

番 号	資料の名称	形 態	判 型	ペー ジ 数	オリ ジナル コピー の別	部 数	収集先名称又は 発 行 機 関	寄 贈・購入 (価格)の別	取扱区分	利用表示	利用 者 所 属 氏 名	納 入 予 定 日	納 入 確 認 日
1	Minutes of the Permanent Secretary's Meeting with Senior Management (27 January 1997)	文書	A 4	6	コピー	6	NOTE	寄贈					
2	Minutes of Joint Zambia-Zimbabwe Site Meeting on the 28th January 1997	文書	A 4	2	コピー	6	NOTE	寄贈					
3	Background to Loading Conditions by V.E. Chipura	文書	A 4	6	コピー	6	NOTE	寄贈					
4	Land Use Report, 06 February 1997	文書	A 4	2	コピー	6	NOTE	寄贈					
5	Road Maintenance Initiative Country Report, October 1996	文書	A 4	21	コピー	1	坂元専門員	寄贈					
6	Abnormal Load Vehicles (Jan. 1996 - Jan. 1997)	文書	A 4	1	コピー	1	NOTE	寄贈					
7	Traffic along Chirundo Road (1995, 1996)	文書	A 4	1	コピー	1	NOTE	寄贈					
8	Chirundo Residential Layout Plan, Jan. 1991 (1:2,500)	図面	A 0	1	背焼	1	NOTE	寄贈					
9	Maintenance Map, June 1993 (1:1,000,000)	図面	A 0	1	背焼	1	Dept. Of Shete Road MOT	寄贈					
10	Aerophotograph of Chirundo (1:12,500) 1/8/89	写真	47cm x 47cm	3	オリジナル	1組	NOTE	寄贈					

資料リスト (収集資料)

平成9年3月5日作成

主管部長	文書管理課長	情報管理課長	技術情報課長

地域	アフリカ	調査団名又は専門家名	ザンベジ川チルンド橋建設計画調査	調査の種類又は指導科目	事前調査	作成部課	社会開発調査部 社会開発調査第一課
国名	ジンバブエ(ZW)	配属機関名		現地調査期間又は派遣期間	H9年2月5日～2月27日	担当者氏名	瀬戸 健太

番号	資料の名称	形態	判型	ページ数	オリジナルコピーの別	部数	収集先名称又は発行機関	寄贈・購入(価格)の別	取扱区分	利用表示	利用者所属氏名	納入予定日	納入確認日
11	Procedure and Guidelines for EIA of Road Construction Project; Dep. Of State Roads, Dec. '94	文庫	A4	27	コピー	1	MOTE	寄贈					
12	Letter from the Beit Trust on Otto Beit Bridge, 30/6/95	文書	A4	5 (3枚)	コピー	1	MOTE	寄贈					
13	SATCC : Draft Resolution on Border Post Operations 4-5 December, 1996	文書	A4	2 (1枚)	コピー	1	MOTE	寄贈					
14	Road Map 1995 (1:1,000,000)	地図	B0	1	オリジナル	1	The Survey-General	購入					
15	全図1983 (1:2,500,000)	地図	A2	1	オリジナル	1	The Survey-General	購入					
16	地形図Chirundo 1628 B2 1989 (1:50,000)	地図	A2	1	オリジナル	1	The Survey-General	購入					
17	地形図Mubindi 1528 D4 1977 (1:50,000)	地図	A2	1	オリジナル	1	The Survey-General	購入					
18	Land Classification 1995 (1:1,000,000)	地図	B0	1	オリジナル	1	The Survey-General	購入					
19	Mean Annual Rainfall 1984 (1:2,500,000)	地図	A2	1	オリジナル	1	The Survey-General	購入					
20	Climatic Comfort-Discomfort Belts and Building Design 1979 (1:2,500,000)	地図	A2	1	オリジナル	1	The Survey-General	購入					
21	Hydrological Zones 1984 (1:1,000,000)	地図	B0	1	オリジナル	1	The Survey-General	購入					

資料リスト (収集資料)

平成9年3月5日作成

主管部長	文書管理 長	主管課長
	課	

情報管理 長	技術情報 長
課	課

地域	アフリカ	調査団名又は 専門家名	ザンベジ川チルンド橋建設計画調査	調査の種類又は 指導科目	事前調査	作成部課	社会開発調査部 社会開発調査第一課
国名	ジンバブエ(ZW)	配属機関名		現地調査期間又は 派遣期間	119年2月5日～2月27日	担当者氏名	城戸 健太

番号	資料の名称	形態	判型	ページ数	オリジナル コピーの別	部数	収集先名称又は 発行機関	承認・購入 (価格)の別	取扱区分	利用表示	利用者所属氏名	納入 予定日	納入 確認日
22	Geological Map 1985 (1:1,000,000)	地図	B0	1	オリジナル	1	The Geological Survey	購入					
23	Statistical Year Book 1989	文献	A4	266	オリジナル	1	Central Statistical Office	購入					
24	Transport Statistics - 1991/92 Report (October 1995)	文献	A4	25	オリジナル	1	Central Statistical Office	購入					
25	Census 1992 (November 1994)	文献	A4	226	オリジナル	1	Central Statistical Office	購入					
26	Directory of Environmental Information & Organizations on Southern Africa: Vol.1	文献	B5 変	163	オリジナル	1	SARDC	購入					
27	State of Environment in Southern Africa	文献	B5 変	332	オリジナル	1	SARDC	購入					
28	Environmental Impact Assessment Policy, July 1994	文献	A4	16	オリジナル	1	Ministry of Environment & Tourism	寄贈					
29	List of International Laws signed by Zimbabwe	文書	A4	2	コピー	1	Ministry of Environment & Tourism	寄贈					
30	The Otto Beit Bridge 図面 - Construction Drawings	図面	A0	5枚	背焼	1	MOTC	寄贈					

資料リスト (収集資料)

平成9年3月5日作成

情報管理課	技術情報課
課長	課長

主管部長	文書管理課	主管課長
	課長	

地域	アフリカ	調査団名又は 専門家名	ザンベジ川デルタ橋建設計画調査	調査の種類又は 指 導 科 目	事前調査	作成部 課	社会開発調査部 社会開発調査第一課
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31	The Otto Beit Bridge 図面 - 1952 Strengthening	図面	A0	3枚	青焼	1	NOTE	寄贈					
32	The Otto Beit Bridge 図面 - 1982 Repair of Cable	図面	A0	4枚	青焼	1	NOTE	寄贈					

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