Language: English
Original: English

AFRICAN DEVELOPMENT FUND

PROJECT: KAZUNGULA BRIDGE PROJECT

(SADC NORTH – SOUTH TRANSPORT CORRIDOR IMPROVEMENT)

MULTINATIONAL: REPUBLIC OF ZAMBIA and REPUBLIC OF BOTSWANA

PROJECT APPRAISAL REPORT

Date: October 2011

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Currency Equivalents

As of 01.08.2011

1 UA = 1.6 USD

Botswana 1 UA = 10.4604 BWP
Zambia 1 UA = 7605 ZMK

Fiscal Year

Botswana: 01 April – 31 March
Zambia: 01 January – 31 December

Weights and Measures

1 metric tonne	=	2204 pounds (lbs)
1 kilogram (kg)	=	2.200 lbs
1 meter (m)	=	3.28 feet (ft)
1 millimeter (mm)	=	0.03937 inch (“)
1 kilometer (km)	=	0.62 mile
1 hectare (ha)	=	2.471 acres

LIST OF ABBREVIATIONS			
ADB	African Development Bank	MDG	Millennium Development Goals
ADF	African Development Fund	MIC	Middle Income Country
ACFA	Accelerated Co-financing Facility for Africa	MTP	Medium Term Plan
ARAP	Abbreviated Resettlement Action Plan	MTS	Medium Term Strategy
CBO	Community Based Organization	NAPA	National Adaptation Programme of Action
COMESA	Common Market for Eastern and Southern Africa	NDP	National Development Plan
CPIA	Country Policy and Institutional Assessment	NEPAD	New Partnership for Africa's Development
DBSA	Development Bank for Southern Africa	NSC	North South Transport Corridor
DDR	Detailed Design Report	O&M	Operation & Maintenance
DoR	Department of Roads (Botswana)	OSBP	One Stop Border Post
DEA	Department of Environmental Affairs, Botswana	PAP	Project Affected People
EAC	East African Community	PAR	Project Appraisal Report
EC	European Commission	PCN	Project Concept Note
		PDR	Preliminary Design Report
EIB	European Investment Bank	PIT	Project Implementation Team
EPC	Engineering Procurement Construction	PRSP	Poverty Reduction Strategy Paper
ERP	Emergency Response Plan	QCBS	Quality and Cost Based Selection
ESAP	Environmental and Social Assessment Procedures	QPR	Quarterly Progress Report
ESIA	Environmental and Social Impact Assessment	RAP	Resettlement Action Plan
ESMP	Environmental and Social Management Plan	RBCSP	Results-Based Country Strategy Paper
ESMU	Environmental and Social Management Unit	RDA	Road Development Agency (Zambia)
EU	European Union	REC	Regional Economic Community
FS	Feasibility Study	RISP	Regional Integration Strategy Paper
GRB	Government of the Republic of Botswana	RMC	Regional Member Country
GRZ	Government of the Republic of Zambia	SADC	Southern African Development Community
ICT	Information Communication Technology	SNDP	Sixth National Development Plan
IPM	Interim Project Manager	STAP	Short Term Action Plan
IPPF	Infrastructure Project Preparation Facility	STI	Sexually Transmitted Infection
ITF	Infrastructure Trust Fund	SSATP	Sub-Saharan Africa Transport Policy Program
JAS	Joint Assistance Strategy	TAF	Technical Assistance Fund
JICA	Japanese International Cooperation Agency	TOR	Terms of Reference
JSC	Joint Steering Committee	UA	Units of Account
KBA	Kazungula Bridge Authority	UNCTAD	United Nations Conference On Trade And Development
KBP	**Kazungula Bridge Project**	ZEMA	Zambia Environmental Management Agency

Loan Information

Client's information

BORROWER: **REPUBLIC OF ZAMBIA**

EXECUTING AGENCY(S): **ROADS DEVELOPMENT AGENCY (ZAMBIA) &TRANSPORT HUB (BOTSWANA)**

Financing plan

SOURCE		UA million GRZ		GRB	Total	% Total Cost	Instrument
ADF	PBA RO	17.00 34.00	51.00	-	51.00	31.5%	Loan
ADB	-		0.00	0.00	0.0%	Loan	
JICA			23.20	70.05	93.25	57.5%	Loan
ITF *			1.49	1.49	2.98	1.8%	Grant
GRZ			8.41	-	8.41	5.2%	Counterpart
GRB			-	6.42	6.42	4.0%	Counterpart
Total			**84.10**	**77.96**	**162.06**	**100.0%**	

*** EU-Africa Infrastructure Trust Fund**

Bank Group key financing information

	ADF (ZAMBIA)
Loan currency	Unit of Account (UA)
Interest type	Not Applicable
Interest rate spread	Not Applicable
Service Charge	0.75% on amount disbursed and outstanding
Commitment fee	0.50% on the un-disbursed loan amount
Tenor	50 years
Grace period	10 years
NPV (base case)	US$ 172million @ 12%
EIRR (base case)	23.0 %

Timeframe - Main Milestones (expected)

Concept Note approval	July, 2011
Project approval	December, 2011
Effectiveness	January, 2012
Last Disbursement	December, 2018
Completion	December, 2017
Last repayment	December, 2061

PROJECT SUMMARY

Project Overview

1. The Kazungula Bridge Project (KBP) is a *multi-national* project on the North-South Corridor (NSC) within the SADC region and part of a corridor-long infrastructure improvement programme. The project scope includes a bridge linking Botswana and Zambia over the Zambezi River to replace the existing ferry and juxtaposed one-stop border facilities at Kazungula. The expected outcomes include: (i) reduced border transit time; (ii) improved procedures on trade facilitation; (iii) improved border management operations, and consequently (iv) increased traffic throughput and (v) reduced time-based transport and trade cost. The direct beneficiaries are sections of population and businesses engaged in the mining, agricultural and service sectors, contributors of 60-80% of the region's GDP. The benefits gained are through increased opportunities for intra- and extra- regional trade activities, integration of the economies served by the corridor and the creation of jobs.

2. The estimated total project cost is UA 162.06 million (approximately US$ 259.3 million), funded through a co-financing arrangement with JICA. The Bank covers from the ADF window UA 51.00 million, equivalent to 31.5% of the total project cost. The balance is shared between JICA (57.5%), Governments (9.2%) and EU-ITF Grant (1.8%). The project implementation period is five (5) years.

Needs Assessment

3. The economies of SADC, of which Zambia and Botswana are major players, contribute nearly 40% of the GDP of sub-Sahara Africa equivalent to US$340 billion (2007 figures). The basic need of export dependent economies is connectivity to markets. Easing access to regional and international trade partners by mitigating the uncertainties and high transport cost and border delays, particularly for landlocked countries such as Zambia and Botswana, is an essential need and the project's underlying rationale.

Bank's Added Value

4. The Bank financed the detailed design and feasibility study for the project and has invaluable insight in the development objectives and benefits. The study included a corridor-long component, which investigated the trade and transport facilitation needs of the corridor, providing the Bank with a broader perspective on the corridor's development potential which consequently informs Bank-wide project pipeline. On funding, the Bank has access to diverse lending and non-lending instruments which is demonstrated in the financing of the project. The Bank has leveraged non-lending resource from the EU-Africa Infrastructure Trust Fund to supplement the loan to finance much needed capacity building components. The Bank has, in addition to the grant, leveraged its partnership with JICA to develop a funding arrangement that meets the specific needs of each member state.

Knowledge Management

5. KBP is considered a flagship project for the Bank and the knowledge gained from the design and construction of a complete cross-border infrastructure system provides an invaluable knowledge-base for future projects with high trade impact. With a primary objective to facilitate trade, it is considered necessary that the project's trade parameters are monitored to measure project outcomes. Monitoring throughput of trade traffic across the border is therefore included in the project design to inform future design of similar projects.

SADC NORTH – SOUTH TRANSPORT CORRIDOR IMPROVEMENT: KAZUNGULA BRIDGE PROJECT

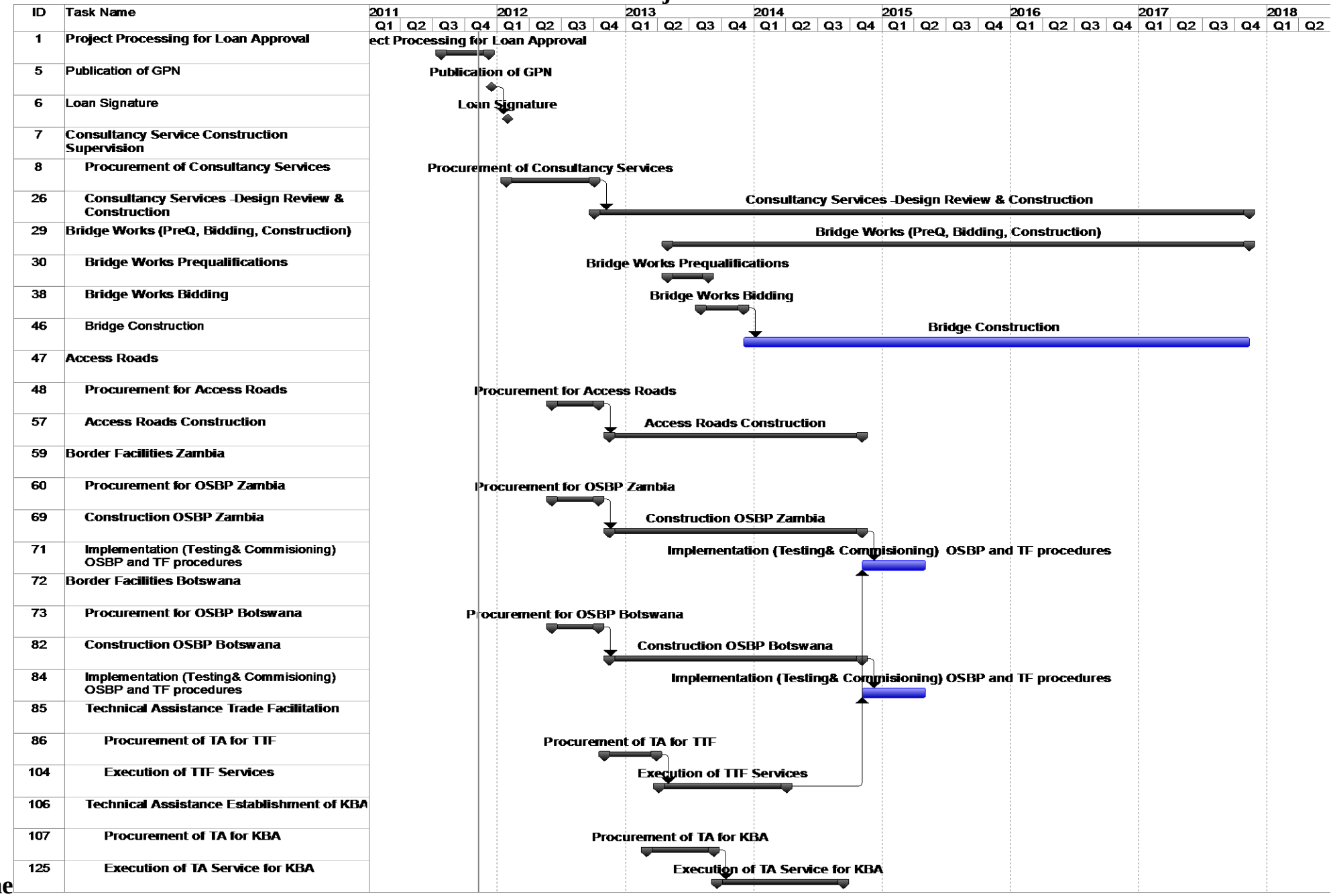
Results Based Logical Framework

Country and project name: The Republic of Botswana and Republic of Zambia: Kazungula Bridge Project
Purpose of the project: The project will reduce transit time at the border, improve the trade facilitation procedures, increase the volume of trade traffic and reduce transport cost on the corridor.

Results chain		Performance indicators: Indicator (including CSI)	Performance indicators: Baseline	Performance indicators: Target	Means of verification	Risks / mitigation measures
Impact	Increased trade activities (export & import), improved integration of economies and improved global competiveness for countries on the North South Transport Corridor (NSTC), particularly landlocked countries	Value of trade (export & import for countries on the NSTC.	Value of trade US$ 207 billion (2008)	Value of trade increase to US$ 300 billion by 2023	Trade statistics from UN Comtrade, COMESA, IGAD, UNCTAD, WTO Customs Statistics National Statistical Office data Data from SADC/ COMESA World Economic Forum	Risks • Political and Institutional risk from Intergovernmental differences. Mitigation measure • Open dialogue, commitment and collaboration exist among stakeholders. Ratification of agreements, existence of MOU and adherence to protocol is demonstrated. Active role of SADC as a facilitator is leveraged.
Outcomes	• Increase trade volume and traffic through Kazungula	• Volume of freight traffic (average trucks/day) • Freight Volume (tons/week)	• 116 Average trucks/day (2009) • 12,800 tons/wk (2009)	• Average 255 trucks/day in 2020. • Average 15,000 tons/wk by 2020	SADC Statistics Zambia Revenue Authority, Botswana unified Revenue Services (BURS). Road Freight Association of South Africa, Bank Reports,	Risks • Resistance to change in the application of trade facilitation procedures. • The reduction in the transit time offset by the deteriorated road conditions on the corridor. • Sustainability risks Mitigating Measures • Commitment and collaboration by SADC and Government and to sensitise through training programmes • Governments' commitment to medium to long term road programme to complement corridor development. Cooperating partners continued support. • A revenue generating asset and dedicated authority (KBA) responsible for O&M.
	• Reduced border transit-time (reduced corridor transport cost -trucks)	• Border transit time (hrs) •	• 30 hrs (2.5 days) transit time (2009)	• 6hrs (0.5 days) in 2018 (5% reduction in corridor transport cost)		
Outputs	• Cable-stayed rail/road bridge • 10km bituminous pavement access roads • 2x One Stop Border Post Facilities • Trade Facilitation • Capacity Building • Resettled Community	• No of >900m long bridge • Km of road • No. of OSBP constructed Trade facilitation procedures deployed • No. of local people employed • No. of people sensitized on HIV/AIDS and Road Safety • No of PAPs /compensated.	• n/a • n/a. • n/a • n/a • Data to be collected • 117 PAPs	• One 930m long bridge • 10 km of access road in service • OSBP operational • 50% designed trade facilitation procedure deployed and operational in 2017 • Min of 200 persons employed (30% women) from local population • 100% reach with HIV/AIDS awareness of Kazungula and Chobe towns • 100% of Lumbo village compensated & resettled by end 2012	Progress, disbursement and financial reports Bank supervision mission reports Project quarterly and completion reports Approved ARAP	Risks • Procurement delays • Delays in compensation payment and community resettlement • Cost overrun Mitigating Measures • Closer monitoring by Bank /Governments to effectively manage resettlement process. Bank providing some financial support to expedite the process. • Effective project management and risk assessment. The implementation of the ESMP to be well resourced and better managed. • Apply adequate contingencies in cost estimates and effective Technical Assistance service to the Project Management Team (PMT)

Key activities: Components s	Input
1 Civil works comprising (i) construction of a 930m long, 16.5m wide cable stayed road/rail bridge, (ii) construction of OSBP, (iii) construction of bridge approach/access roads	1 UA 96.19million
2 Consultancy services comprising, design review/construction supervision, technical and financial audits	2 UA 9.62million
3 Technical Assistance for capacity building for (i) Organisational Development/Asset Management for the establishment of Kazungula Bridge Authority, (ii) Scoping/Implementation of Trade Facilitation Procedures	3 UA 2.48million
4 OSBP Equipment	4 UA 13.63million
5 Establishment/Expenditure of Project Office	5 UA 3.06million
6 Complementary crosscutting components; include (i) relocation and compensation of Lumbo Community, and (ii) implementation of ESMP	6 UA 3.78million
7 Zambia: (i) National Transport Master Plan Study;(ii) Feasibility and preliminary design (a) Livingstone-Kazungula Bridge-Sesheke and (b) Mpulungu - Nseluka railway spurs	7 UA 5.00million
	UA 133.76**million Total Base Cost**
	UA 162.06**million (incl. contingencies)**

Indicative Project Time



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REPORT AND RECOMMENDATION OF THE MANAGEMENT OF THE BANK GROUP TO THE BOARD OF DIRECTORS ON PROPOSED LOAN TO THE REPUBLIC OF ZAMBIA FOR THE KAZUNGULA BRIDGE PROJECT

Management submits the following Report and Recommendation on a proposed loan for UA 51.00 million to the Republic of Zambia to finance the Kazungula Bridge Project (KBP) linking Zambia and Botswana across the Zambezi River.

1 STRATEGIC THRUST & RATIONALE

1.1 Project linkages with countries strategies and objectives

1.1.1 KBP is directly linked with relevant pillars of the Bank's regional and country strategies. The project is also aligned with the NEPAD STAP which prioritises Bank intervention on flagship projects, citing KBP as a priority project. Table 1.1 below illustrates the linkages between the project and the countries relevant development strategies as well as the Bank's strategic priorities. Table 1.1 Summary of project linkages.

Country	Project Linkage	
	Strategy Papers (CSP and NDP)	**Pillars and Project Alignment**
Zambia	CSP 2011 - 2015. (Aligned with Sixth NDP, 2011-2015)	*Pillar I Support to Infrastructure Development.* Project is specifically cited in the CSP to boost revenue capacity through increased Trade
Botswana	CSP (2009-2013). (Aligned with Vision 2016, 10th NDP, 2009-2016)	*Pillar II: Remove infrastructure bottlenecks to enhance competitiveness and growth.* Project objective is removal of trade barriers and enhancing the competiveness of the corridor
Regional	RISP (2009-2012)	*Pillar I: Institutional Capacity Building; II Regional Infrastructure Development* Project is cited as a priority project in RISP.
	AU/NEPAD-IPPF	Consistent with the AU/NEPAD-IPPF. Study part funded by IPPF Grant

1.2 Rationale for Bank's involvement

1.2.1 The rationale for the Bank's involvement stems from the importance of the eight economies (Tanzania, DRC, Malawi, Mozambique, Zambia, Botswana, Zimbabwe, South Africa) served by the NSC corridor. By their aggregate contribution of nearly 40% of sub-Sahara Africa's GDP, the development objective of the project and target area is geographically broad and aligned with the Bank's regional integration strategy on maximising development impact, project reach and effective integration of economies. Later in the report, in section 2.5, the target areas and beneficiaries are described to illustrate the project's alignment with pillars such as growth enhancement and competiveness through private sector development and employment creation

1.2.2 The Bank's intervention is also a contribution to the fulfilment of part of the US$ 1.2 billion multi-donor, multi-agency pledge made in Lusaka in 2006 under the Aid for Trade programme. The project rationale is further reflected in the documents listed in section 1.1.

1.3 Donors coordination

1.3.1 In Zambia, the Joint Donor Forum is one of the mechanisms by which activities are coordinated. The synergy between donors is demonstrated in the preparation of the Joint

Assistance Strategy for Zambia (JASZ), of which sixteen cooperating partners including the AfDB collaborate and are signatories, with the primary aim to support and coordinate national development. The current draft of JASZ II (2011-2015) provides an insight into the support provisions by cooperating partners to Zambia's Sixth (2011-2015) NDP such as the currently planned National Transport Master Plan Study which is being developed through collaboration between the donors. The main donors to the sector are AfDB, World Bank, DBSA, Exim (China) Bank, BADEA and DANIDA with a total contribution of UA200 million, equivalent to 50% of the total annual budget provision for 2011 work programme. The balance comprises 34% and 16% from GRZ national budget and user charges and levy respectively.

1.3.2 The Government of Botswana re-launched the Development Partners Coordination Forum (DPCF) in 2007 as an initiative to improve coordination between donors including the AfDB. Chaired by the Ministry of Finance and Development Planning, the Forum meets bi-annually. Another medium for coordination is the EU funded and donor-managed online database, Botswana Development Assistance Management Information System (BODAMIS, www.bodamis.gov.bw) providing government with an overview on external aid and enabling effective coordination among development partners. The main donors in the sector are the World Bank, BADEA, OFID, KFAED and China with total contribution of a UA203 million.

1.3.3 At regional level, development and donor activities on corridors, including the NSC, are coordinated among the RECs, notably SADC and COMESA and the International Cooperating Partners and implemented through the joint SADC-ICP Task Force. Other multi-lateral agencies by their individual mandates and interests in corridor development promote and facilitate coordination of donors to meet their objective. The activities of Trademark Southern African, a DFID supported project and the COMESA/SADC/EAC Tripartite Task Force are examples of agencies whose activities facilitate coordination. The SADC Secretariat typically leads the coordination of trade facilitation aspects of the corridor.

2 PROJECT DESCRIPTION

2.1 Project Components

2.1.1 The project's development objective is to improve the efficiency of transit traffic through the Kazungula border to facilitate increase trade activities and global competiveness of Zambia and Botswana, improve regional connectivity of the North South Corridor and contribute to the regional integration of the economies in the SADC region.

2.1.2 The project main components comprise the construction of a new road/rail bridge, one-stop-border-post facilities (OSBP) and access roads at Kazungula border. The project also includes the following complementary components (i) implementation of hard and soft infrastructure to ensure full operation of a complete border infrastructure system and (ii) feasibility study and engineering design of additional transport facilities to meet medium to long term corridor development and regional connectivity needs. The details of components are summarised in Table 2.1.

Table 2.1- Description Project Components

	COMPONENT NAME	UA (m)	COMPONENT DESCRIPTION
1	Civil works (Bridge/Roads/Border Post)	96.19	Construction of: (i) 930m long, 16.5m wide cable stayed road/rail bridge, including the tolling facilities, (ii) OSBP (iii) bridge approach/access roads approximately 10km length,
2	Design reviews & Construction Supervision services	9.56	Consultancy services for (i) design review, and (ii) supervision of works and project management services. Project management services include capacity building and skills transfer in project management.
	Consultancy Services for Project Technical and Financial Audits	0.06	Consultancy services to undertake technical and financial audit services. A project financial audit is to ensure the proceeds of the loan are used in accordance with the conditions of the loan. The technical audit will ensure that the works are performed as per the technical specification.
3	Technical Assistance (Capacity Building)	2.48	Technical Assistance on (i) establishment of KBA, (ii) scoping/ implementation of OSBP and trade facilitation procedures. Assistance also developing OSBP border management & trade facilitation procedures and asset management for the establishment and operations of the operating authority KBA.
4	Procurement of OSBP operational equipment	13.63	Procurement and installation of equipment for OSBP operational equipment, comprising: (i) procurement and installation of ICT office equipment, (ii) vehicle scanners, (iii) office furniture and fixtures, etc.
5	Project Office Expenditure	3.06	The setting up and running of the project office at Kasane, Botswana and comprise: (i) leasing of office space, (ii) office furniture & equipment, (iii) staff allowance, (iv) salaries, (v) office maintenance, (vi) overheads etc. This is funded 100% by the GRZ and GRB
6	Resettlement and Compensation	2.59	The activities associated with resettlement and compensations of PAPs and comprise: relocation of Lumbo Village, construction of new housing units, amenities and services.
	Implementation of ESMP	1.19	Implementing actions as per ESMP including sensitisation programs (Road safety and HIV), collecting of socio-economic baseline data, provisions of facilities for small market traders, and monitoring of the bio-physical environment during and post construction
7	Zambia: Studies and Preliminary Design	5.00	Consultancy services to carry out (i) National Transport Master Plan Study (UA3.0m); (ii) Feasibility and preliminary design of railway spur for (a) Livingstone-Kazungula-Sesheke, and (b) Mpulungu to Nseluka. (UA2.0m)
	TOTAL BASE COST	**133.76**	

2.2 Technical solution retained and other alternatives explored

2.2.1 The technical design was governed by two key factors; (i) location of border post, and; (ii) alignment and length of the bridge. The latter was however the most significant feature hence fundamental to the design exercise. The solutions investigated were based on ascertaining the most optimized border post/bridge configuration and within the following parameters and constraints: (i) sovereign boundaries (ii) the Zambezi River basin and its bio-environment, (iii) the local communities, and (iv) whole-life cost. In addition, performance criteria on functionality, aesthetics, works scheduling and constructability and financing alternatives were also explored.

2.2.2 *Technical options:* Three construction types were investigated; (i) a cable-stayed extra-dosed, (ii) concrete box structure, and (iii) steel/concrete composite warren truss. As an alternative to the road only bridge and to ensure sustainability of the corridor as a competitive major trade route for heavy and bulk haulage, a dual (road and rail) functionality was considered for each bridge type. The concrete box and steel/composite truss options were rejected on the grounds of relatively high whole-life cost, aesthetic incompatibility with the environment, constructability and alignment challenges. The concrete box required frequent

supports in the river bed and does not readily lend itself to curved horizontal alignment. The truss structure has similar limitations, high maintenance cost and constructability challenges. In addition, the inclusion of rail component was a favoured choice over the single mode functionality given the heavy cargo serving the mining and manufacturing sectors.

2.2.3 The cable –stayed road/rail extra-dosed concrete bridge was selected as the preferred option based on the criteria of functionality in terms of strength/weight ratio, site constraints and lower whole life cost. The Y-pylons emphasise structural significance and architecture, are aesthetically pleasing in keeping with the environment and performs a vital hydraulic function by minimising the footprint of the bridge within the flood channels. With its heavy haulage capacity and significance to trade, the added economic benefit by integrating a rail component is a value-added functionality over the bridge's 100-year design life, albeit the plus 15-20% cost implication. Studies are already underway or planned in both countries for railway spur through Kazungula. In Botswana, preparatory study for the Mosetse to Kazungula rail spur is underway, whereas in Zambia, the study/design for the 40km spur from Livingstone to Kazungula is a component of this project.

2.2.4 *Financing options:* A number of financing options were investigated including PPP financing with varying combination of public and private (equity and or debt) investment from 100% public to 100% private against varying scenarios of traffic and revenue generation. The study concluded that an attractive return on investment required an investment of approximately 20% of capital cost with 100% of revenue as private income, an unattractive option to the Governments. The financing of capital expenditure with 100% public funds was therefore recommended for the project. The study however recommended a PPP option to be considered in the medium to long term for operations and maintenance on the basis that, excluding capital cost, the financial return could potentially be attractive for private sector participation.

2.3 Project type

2.3.1 The project falls under the Bank's investment programme on transport infrastructure operations. It is a standalone multi-national project co-financed through ADF loan facilities from the Bank's country allocation and regional operations windows.

2.4 Project cost and financing arrangements

2.4.1 The total estimated project cost (net of all taxes/duties) including physical/price contingencies, is UA162.06 million (US$259.3 million) shared on 52%:48% split between the GRZ and GRB as: UA84.10 million and UA77.96 million respectively. A foreign exchange component of 68% of the total cost estimate has been proposed.

Table 2. 2 - Sources of Financing by Country

Sources of financing	*Foreign Exchange*	*Local Currency*	*Total Costs*	*%Total Cost*
ADF	38.28	12.72	51.00	31.5%
ADB	0.00	0.00	0.00	0.0%
JICA	65.65	27.60	93.25	57.5%
ITF Grant	2.33	0.64	2.97	1.8%
GRZ	0.24	8.18	8.42	5.2%
GRB	0.00	6.42	6.42	4.0%
Total project cost	**106.50**	**55.56**	**162.06**	**100.0%**

2.4.2 The total cost of the project is funded by a financing arrangement that comprises (i) UA51.00 million (31.5%) from the Bank Group's ADF window and (ii) UA 93.25 million (57.5%) from JICA, (iii) UA2.98 million (1.8%) from the EU-Africa Infrastructure Trust

Fund. The balance of UA14.83million (9.2%) is the counterpart contribution from both countries. There is no lending from the ADB window to Botswana. The project cost by component and source of finance is provided in Tables 2.3 and 2.4 respectively.

Table 2.3 – Total Project Cost Estimates by Component (Net of Taxes)(UA million)

Components	*Foreign Exchange*	*Local Currency*	*Total Costs*	*%Foreign*
Civil Works	76.95	19.24	96.19	80%
Consultancy Services	7.65	1.97	9.62	79%
TA/Capacity Building	1.98	0.50	2.48	80%
Implementation of ESM P	0.00	1.19	1.19	0%
OSBP Equipment (scanners, ICT etc)	0.00	13.63	13.63	0%
Project Office Establishment/Operations	0.00	3.06	3.06	0%
Resettlement & Compensation	0.00	2.59	2.59	0%
Feasibility and Detailed Design	4.00	1.00	5.00	80%
Base Cost	**90.58**	**43.18**	**133.76**	68%
Physical	9.06	4.32	13.38	
Subtotal	99.64	47.50	147.14	
Price contingency	6.86	8.06	14.92	
TOTAL	**106.50**	**55.56**	**162.06**	

FE= 3%; LC: 8%

Table 2. 4 - Sources of Financing (UA million)

Source	ZAMBIA			BOTSWANA			**TOTAL**		
	US$ m	**UA m**	% Cost	*US$ m*	**UA m**	% Cost	*US$ m*	**UA m**	%Total cost
JICA	*37.12*	**23.20**	27.6%	*112.08*	**70.05**	90%	*149.20*	**93.25**	57.5%
ADF	*81.60*	**51.00**	60.6%				*81.60*	**51.00**	31.5%
ADB				-	-	-	-	-	-
ITF	*2.38*	**1.49**	1.8%	*2.38*	**1.49**	2%	*4.76*	**2.98**	1.8%
GRZ	*13.46*	**8.41**	10.0%				*13.46*	**8.41**	5.2%
GRB				*10.27*	**6.42**	8%	*10.27*	**6.42**	4.0%
	134.56	**84.10**	**100.0%**	***124.73***	**77.96**	**100%**	***259.29***	**162.06**	**100.0%**

2.4.3 The funding from the ADF source comprise UA17.00 million and UA34.00 million from the ADF-XII PBA and RO windows respectively. GRZ's counterpart contribution is UA8.41 million equivalent to 10.0% of its share of the project cost. The counterpart contribution will cover (i) the cost of setting up and operating the designated project office shared equally between GRZ and GRB (UA1.53 million each), (ii) 55% (UA1.42 million) of the compensation cost for resettlement of Lumbo village, including the cost of land acquisition of the new site, and (iii) 50% of OSBP equipment. The ADF loan will cover the balance of UA1.17 million of the resettlement and compensation, i.e. 45%, which will cover the cost of the amenities (water, toilets, minor access roadways etc.). Total cost by category and expenditure schedule are provided in Tables 2.5 and 2.6. The detailed cost estimate by country is provided in Annex 2.

Table 2.5 – Project Total Cost by category of expenditures (UA Million)

Category	*Foreign Exchange*	*Local Currency*	*Total Costs*	*%Foreign*
Works	76.95	19.24	96.19	80%
Services	13.63	3.47	17.10	80%
Goods	0.00	13.63	13.63	0%
Miscellaneous	0.00	6.84	6.84	0%
Base Cost	**90.58**	**43.18**	**133.76**	68%
Physical	9.06	4.32	13.38	
Subtotal	99.64	47.50	147.14	
Price contingency	6.86	8.06	14.92	
TOTAL	**106.50**	**55.56**	**162.06**	

Table 2.6 – Total Expenditure schedule by component (UA Million)

Components	*2012/13*	*2013/14*	*2014/15*	*2015/16*	*2016/17*	*Total*
Civil Works	0.00	24.05	28.86	28.86	14.43	**96.19**
Consultancy Services	0.00	2.40	2.89	2.89	1.44	**9.62**
TA/Capacity Building	0.74	0.50	0.50	0.50	0.25	**2.48**
Implementation of ESM P	0.36	0.24	0.24	0.24	0.12	**1.19**
OSBP Equipment (scanners, ICT etc)	0.00	0.00	8.18	5.45	0.00	**13.63**
Project Office Establishment/Operations	0.92	0.61	0.61	0.61	0.31	**3.06**
Resettlement & Compensation	2.59	0.00	0.00	0.00	0.00	**2.59**
Feasibility and Detailed Design	0.00	2.50	2.50	0.00	0.00	**5.00**
Base Cost	**4.61**	**30.30**	**43.76**	38.54	**16.54**	**133.76**
Physical	0.46	3.03	4.38	3.85	1.65	**13.38**
Subtotal	5.07	33.33	48.14	42.39	18.20	**147.14**
Price contingency	0.00	6.42	5.04	2.72	0.75	**14.92**
TOTAL	**5.07**	**39.74**	**53.18**	**45.11**	**18.95**	**162.06**

2.5 Project's target area and Beneficiaries

2.5.1 The target areas immediate to the project are districts of Chobe (Botswana) and Kazungula (Zambia) where employment opportunities will arise and household revenue increased as a result of the increased economic activities. Further from the project site, the provincial area of Livingstone (Zambia) and corridor nodes will benefit from the transit traffic. Increased transit traffic and the attraction of low fuel prices in Botswana, will increase the customer base for businesses serving transit traffic such as hospitality sector, service stations, market traders thus generate private sector businesses, employment, and revenue from taxation and levies. While the project would result in the decommissioning of the ferry, jobs associated with ferry operations will be transferred rather than lost, as the demand for operational ferries in both countries outweighs supply. The decommissioned ferries will be redeployed elsewhere such as the rivers of the Okavango Delta in Botswana.

2.5.2 Further from the project's geographical area, the mining and agricultural regions or sectors in DRC and the Central and Copperbelt Provinces of Zambia are direct target areas and beneficiaries, served by nearly 500km of the corridor relying on the transport network for input and links to export markets. The sectors that support the mining, manufacturing and agricultural sectors benefit by increasing competitiveness and economic growth. The Republic of South Africa, a dominating trade partner and net exporter of the SADC region, is a beneficiary of the project. Increased vehicle utilization and throughput thus reduced transport cost, benefits the trucking and haulage businesses in all corridor countries.

2.6 Participatory process for project design and implementation

2.6.1 The participatory process for the design and implementation had regional or cross-border and local dimensions. At design phase, cross-border participation and consultation was through joint project implementation team and the JSC which comprised representatives of the two countries. The Bank participated in selected JSC meetings as the financier of the study and during the project's preparation for implementation. A visit by the Bank to the Chirundu OSBP was conducted as part of the consultation process to observe operations and note avoidable problems. At the local level, the design undertook extensive surveys on the socio-economic and bio-physical environment and surveys on transit traffic locally and at other surrounding borders. Public meetings were advertised in daily papers and held and specialist consultants and government agencies held public consultations at district level in Kasane and Kazungula and also Livingstone. The Bank carried out sample on-site consultation during project preparation.

2.6.2 On implementation, the project implementation team and respective government agencies were consulted extensively on the technical aspects, legal and institutional and implementation arrangements. Consultations on compliance with regional protocols and multi-lateral agreements on shared assets such as the Zambezi watercourse were conducted. The SADC Secretariat was also engaged to ascertain project buy-in and responsibilities in the implementation phase. The key donors consulted were the World Bank, EU and DBSA.

2.7 Bank Group experience, lessons reflected in project design

2.7.1 The Bank's intervention in the sector in both countries has been limited with no more than three projects since 2001. The project design nevertheless draws lessons on the limited exposure. The PCR for the Trans-Kgalagadi Road in Botswana concluded timely completion of the project and also on budget although indicated institutional capacity challenges which is reflected in the RBCSP (2009-2013) as a focus area for future intervention. In Zambia, the rehabilitation of Lusaka-Luangwa Bridge section of the Lusaka-Chipata road, which was completed in 2001, and the on-going Nacala Road Corridor Project Phase II (NRCP) are the interventions to date and the transferable lessons were derived from the latter. The NRCP, approved in 2010 and yet to be supervised, exhibits capacity challenges in the early procurement process. The study for this project experienced disbursement and schedule delays attributed to a combination of scope changes by the countries and project management capacity challenges of the executing agency. The disbursement delays are being addressed by assigning ownership of submission of audit report to the sector ministry for added assurance. Strengthening of the capacity of the project team in procurement and general project management has been addressed in the project design.

2.7.2 The lessons from the design and operations of the Chirundu One-Stop-Border-Post (OSBP) (Zimbabwe/Zambia border) will form an input in the development of the scope and implementation strategy of trade facilitation measures and OSBP operations at Kazungula. Unlike Chirundu, where the trade facilitation and border procedure were implemented ex-post, this project has integrated trade facilitation as part of its design.. The SSATP (World Bank)/COMESA sponsored transit time-monitoring or time–release surveys carried out at Chirundu will be replicated, capturing data which will serve as design input, and conducted by the trade facilitation consultant.

2.8 Key performance indicators

2.8.1 The project's performance indicators are provided in Results Based Logical Framework (RBLF) including baseline and targets. The performance indicators linked to the project outcome will be measured in three main areas; (i) trade volume, (ii) transit time, (iii)

socio-economic and environmental factors including employment. On trade, the primary indicator is *tons/wk* annualized and aggregated by *goods type and exports and imports*. Data will be accessible from ZRA (Zambia) and BURS (Botswana) records. Indicator on transit time will be measured as throughput in *veh/day* and aggregated by *vehicle type*. The framework for data collection will be provided by the trade facilitation consultant and the activities carried out by a monitoring and evaluation (M&E) expert within the project management team. The baseline data for the project has been set at 2009 figures for the purpose of project analysis, which is to be updated in 2012 (prior to commencement of works) , and collected bi-annually thereafter through the implementation period. ZRA and BURS are currently conducting 'time-release' surveys at selected borders which will be extended to Kazungula.

2.8.2 Other socio-economic and environmental indicators are on (i) gender, (ii) incidence of HIV/AIDS cases, (iii) data on households within the district, (iv) metrics on bio-physical habitat of the Zambezi basin on ecological, aquatic life, water quality, which will be monitored during the construction phase and over a 3-year period after project completion. The metrics are provide in the project's ESMP and baseline data will be collected prior to construction start by the works contractor's Environmental Control Office (ECO) and coordinated with ZEMA and DEA.

3 PROJECT FEASIBILITY

3.1 Economic and Financial performance

3.1.1 The economic analysis compares two main scenarios of 'with project' and 'without project scenarios. The 'without project' scenario is based on improved ferry services. Against the capital and operating cost of the new infrastructure, the economic benefit is mainly derived from (i) time savings on normal and diverted commercial traffic, (ii) time savings on normal and diverted non-commercial traffic. In general, distance-related VOC contribution does not constitute a benefit as the Kazungula route is a longer route travelling between origins and destinations in Zambia, DRC and RSA. Assuming road conditions on all alternative routes are equal, distance-related VOC will be higher for the Kazungula route without project. In the absence of detailed analysis of alternative routes, the benefit from distance-related VOC was discounted in the analysis. Instead, time-savings accrued as a result of the reduced transit time is the project's main benefit. Other unquantifiable social and economic benefits such as: (i) employment opportunities; (ii) economic benefit from transit traffic in Botswana; (iii) and increased regional and territorial economic development that accrue as a result of greater efficiency and reliability of the border crossing have not been considered in the analysis given complexity of measurement.

3.1.2 The analysis has been based on the following parameters: (i) 2.5% annual traffic growth in normal traffic and calculated diverted traffic (from Victoria Falls and Chirundu); (ii) an economic cost (excluding cost of resettlement compensation, taxes and contingencies), (iii) annualized maintenance and operating cost; (iv) 30 year economic life; and (v) a reduction in transit time from 30hrs (2.5days, based on a12-hour day operations) to 6 (0.5days), the economic viability (EIRR and NPV) are found to be robust with an EIRR of approximately 23% and an NPV of USD 172 million (discounted rate of 12%). The analysis was based on calculated benefits attributed to time saving for commercial vehicles (HGVs) for normal traffic and diverted traffic. Sensitivity analysis was performed on variations in cost and benefits. The relatively high NPV is attributed to the time savings accrued by high time-value on trade traffic. Switching values on project viability by costs and benefits are presented in table 3.1 below.

3.1.3 The revenue generation potential based from the toll charges was also studied in the context of evaluating private interest as well as the financial sustainability of the asset. The latter is covered under project sustainability in section 4.6.

Table 3.1: Key Economic Results Summary

		Switching Values (EIRR= 12%)	
EIRR (base case), NPV (12% Discount)	23%, US$ 172 million	Cost	Benefit
EIRR (+20% costs & -20% benefits),	17.3%	+250%	-60%

3.2 Environmental and Social impacts

Environment

3.2.1 The environmental category of the project is category I. The project is regarded as complex and large in terms of size, results in the displacement of people and located adjacent to a conservation area and wetlands. An ESIA and ARAP dated February 2010 and December 2010 respectively were prepared for the project and were approved on 24 December 2010 by the Governments' authorities, ZEMA and DEA. The ESIA Summary was posted 04 August 2011 as per the Bank disclosure policy.

3.2.2 The main environmental and social impacts of the project, during and post implementation include: creation and expansion of borrow pits; soil erosion; loss of vegetation; noise/air/water pollution; potential encroachment of archaeological and cultural sites; limited loss of property; impact to the biophysical ecosystem; increased influx of construction workers and vehicle traffic; increased pressure on social services, impact on natural resources such as trees and wildlife; increased health risks (including STI/HIV/AIDS).

3.2.3 Mitigation measures of some of the above include construction of temporary and compliant waste and pollutants (fuel, oils, hazardous substance etc.) storage and disposal facilities. River contamination will be monitored and erosion mitigated by controlled re-vegetation. Site camps will be located away from flood lines and alluvial sediments. Individual and mature trees of conservation importance will be marked and avoided. Sensitive ecological areas such as wetlands and river banks will be avoided and landscaping with native plants will be undertaken. The cost estimate for implementation of the ESMP excluding resettlement is USD$1,750,000.

3.2.4 The project has positive economic attributes and incorporates social awareness programs and environmental control measures to mitigate some of the adverse impact. Within the immediate environment, job creation schemes will flourish and economic activities during construction will inject money into the local economy for the duration of construction, generating tax revenues for the economy. New businesses are anticipated in terms of direct service provision associated with the bridge, notably toll and bridge management, border clearance services, including small-scale trade and retail trade. The bridge will link two primary tourism centres increasing business opportunities serving goods and services.

Climate change

3.2.5 There will be potential impacts on climate change caused by exhaust emissions during construction and service operations with a net air pollution increase during construction. Mitigation measures contemplated are controls over the working conditions and efficiency of construction equipment, with key equipment meeting minimum specification. The project has potential to generate climate change benefits through adaptation of initiatives to climate change variability. Recycling & reusing of waste materials (e.g. composting of biodegradable

waste) and sensitization on new cropping techniques and sustainable agricultural practices for the community will be encouraged.

3.2.6 The results of climate change could potentially result in increased flood levels and or unpredictable frequencies and the technical design takes this into account based on hydraulic analysis of the river basin. The bridge soffit has been designed for 100year flood level plus a freeboard for recreational boats and the ferry during the construction period. With a flood and soffit level of 929m and 936.7m, there is ample room to accommodate unpredictable rise in flood level as the hydraulic studies predict the expanse of the flood plain of the Zambezi basin upstream reduces the vertical elevation of flood levels downstream. Additional adaptation measure is locating the bridge approach ramps above and outside the floods limits. Similarly, the border facilities are generally located at higher ground above flood levels and outside the flood plain with the Botswana border post located 5m above flood level, being the lower of the sites.

Gender

3.2.7 The project will not impact on a particular gender in a disproportionately different way. Impacts on gender (especially in favour of women) shall include a deliberate policy to increase employment chances for women on the project, with a bias towards a 30% quota for women as indicated in the SADC Gender Policy which Zambia has ratified. Gender matters in Zambia are guided by the National Gender Policy (NGP) adopted in 2000 covering all major sectors where an implementation plan, the Joint Gender Support Programme (JGSP) has been developed. The Ministry of Transport, Works, Supply and Communications in Zambia has developed a policy on Gender for its employees and agencies including identifying a gender focal point within the ministry. In Botswana, other local measures are being implemented. The Department of Women's Affairs in Botswana is transforming the Policy from Women in Development into an all-encompassing Gender Mainstreaming (Policy) and strategy for 2012- 2016. The Department has embarked on creating and training gender focal points in key ministries. Main focus of the gender activities have been provision of financial grants for economic empowerment and poverty alleviation. There will also be opportunities for trading with salaried project workers, and provisions of roadside services to road users, activities dominated by women.

3.2.8 Based on the social assessment conducted during the preparation of ESIA and ARAP, both countries have shown higher HIV/AIDS incidence among women than men. Hence the HIV/AIDS and STI awareness and prevention programs shall target women and girls who are most vulnerable. With support from the UNDP, the National Aids Coordinating Agency in Botswana embarked on a program to integrate HIV/AIDS and Gender. The ARAP for Zambia has identified particular vulnerable households which are headed by females for special assistance during resettlement. Information on this was gathered during the Focus Group Discussions which included Female Headed Households and the training program under CITF will apply gender equity during its implementation. The review of relevant impacts particularly negative impacts focuses on women, included alcohol abuse, sex workers, and violence. Additional disaggregated information has been provided in the districts which includes household census enumerating the proportion of women to men, female headed households, health and education data such as maternal deaths, infant mortality, hospital space for men and women; and school enrolment. Project specific disaggregated data shall be collected during implementation for monitoring purposes under the ESMP component.

Social

3.2.9 The project will create temporary employment opportunities for local communities. In addition, the suppliers of goods and services will also economically benefit from the project. The project has unique construction methods providing the opportunity for new skills and knowledge on the use of special equipment and techniques and exposure to new technologies. An estimated workforce of 1200 skilled and unskilled labour is expected to participate in the construction activities with at least 200 persons recruited from local communities. The CITF (Botswana) and the National Council for Construction (Zambia), whose mandate is to promote skills training in the construction industry, will use the project as a platform for further training. CITF will launch its mobile training unit at the project site to enable it to leverage the available expertise and technology to expand knowledge base and to facilitate and conduct project-specific programs. The skills to be acquired include, project engineering, steelwork design and fabrication, operating heavy equipment such as foundation rigs and mobile formwork launching. It is also anticipated that on-going bridge maintenance would generate full employment positions although periodic maintenance of specialized nature may attract workers outside the local area.

3.2.10 HIV/AIDS/STI and TB: One of the major challenges to be faced during construction and operation of the project is the spread of HIV/AIDS and STI. Incidences of malaria are also expected to increase although the former poses a greater challenge of which the prevalence rates for Chobe and Kazungula Districts are higher than the national averages of 23 and 14.3%, respectively. The major challenges of Kazungula and Chobe districts are compounded by the dynamics of social activities at border points where truck drivers spend lengthy leisure periods. The influx of construction job seekers will potentially compound the social activities of sex-workers hence increased risk. In Zambian, NGOs and CBOs work with the National Aids Council and Ministry of Health to implement prevention and awareness programs. Special programs targeting police and immigration workers at Kazungula among others are being implemented by Corridors of Hope (NGO). In Botswana, the Ministry of Transport and Communications has programs targeting mobile populations and the National Aids Coordination Agency under the National Aids Council is implementing awareness programs at district, village and ward levels. The SADC Secretariat is implementing the SADC HIV/AIDS Cross Border Initiative which target important border points classified as 'hot spots' for HIV/AIDS. The project will provide adequate resources to the contractor, estimate as USD200,000 and included as part of the ESMP cost, to engage service providers to sensitize all persons within the project area.

3.2.11 Road Safety: The inherent risk of construction and operational safety (road safety) will be managed. While workers' safety issues are addressed in the ESMP, the project will also ensure that additional road safety measures are being adhered to, during construction and operation. During construction, the contractors will provide adequate awareness on health and safety through signage and literature to public and construction works. The Road Transport and Safety Agency in Zambia has conducted reviews and provided input at the design stage. The project has included in the ESMP awareness programs coupled with civic education to be conducted both during construction and operation to road users. This is pertinent for both countries to fully implement the national activities under the UN sponsored Decade of Action in Road Safety.

Compensation and Relocation

3.2.12 No resettlement activity and compensation are required in Botswana. Resettlement and compensation of PAPs occurs in Zambian with 117 people of 38 households in Lumbo village affected by the project on which an ARAP was compiled accordingly. The

implementation of the ARAP is estimated as ZMK18billion (approx. US$4million) and this includes: (i) building of houses, (ii) provisions for seeds and fertilizer to the households for the first two years of relocation and, (iii) hiring a social worker who will provide psycho-social support to the vulnerable PAPs. The proposed site for relocation currently lacks critical social amenities such as potable water, sanitation and access to the nearest road and a school within 3km radius. The project makes provisions to cater for these amenities in the compensation estimate. The planning for the resettlement and construction of houses for PAPs is underway and will be finalized by end of Q1-2012. Four (4) families within Lumbo Village are extremely poor and currently housed in church premises and with charitable families. Provision will be made in the planning of housing to accommodate the family and to improve living conditions and enable a level of independence.

4 IMPLEMENTATION

4.1 Implementation Arrangements

4.1.1 The Executing Agency for Zambia will be the Roads Development Agency (RDA) which is under the Ministry of Transport, Works, Supply and Communications (MTWSC). The counterpart agency in Botswana is the Transport Hub (TH), an agency under the Ministry of Transport and Communication (MTC). The latter is headed by a Transport Hub Coordinator and the former by a CEO. A dedicated project office will be set-up located in the proximity of the project site in Kasane, Botswana.

4.1.2 A Project Management Team (PMT) composed of members seconded from TH and RDA, having a skill mix covering all relevant disciplines, will be responsible for administrating the project with the support of the supervision consultant. Two main categories of members, permanent and non-permanent members, and discipline-based will make up the PMT. Permanent members will cover the following core disciplines; (i) bridge, road and building engineering, (ii) measurement engineering, (iii) architecture, (iv) environmental, and (v) procurement/contracts management. Other supporting resources for disciplines such as legal, financial management and monitoring and evaluation, will be on-demand. The PMT will be headed by a Team Leader whose appointment will be by mutual agreement of the Heads of RDA and TH and have qualification and experience acceptable to the Bank and will report to the TH Coordinator. In addition, each country will nominate a member of the PMT as Country Coordinator (CC) responsible for all country specific matters. The Team Leader may also serve as the CC.

4.1.3 To strengthen the institutional capacity and enhance its management effectiveness, the PMT will receive support from the supervision consultant as part of the project management services. A Joint Steering Committee (JSC) chaired by the Permanent Secretaries of MTWSC and MTC will oversee the activities of the PMT at a strategic level facilitating coordination among the member states. The SADC Secretariat will be represented on the JSC and the PMT with an advisory role to ensure the regional context of the infrastructure, instruments and institutional aspects are maintained. The implementation arrangement is further illustrated in Annex 3. It is intended that core members of the PMT will migrate to KBA when KBA is established and operational. Details on KBA responsibilities are covered under project *Sustainability* (section 4.4).

4.1.4 On resettlement, the RDA's Environmental and Social Management Unit (ESMU) will be responsible for the implementation of the ARAP. The RDA and TH, in collaboration with their respective agencies, ZEMA and DEA, will oversee the implementation of the ESMP/ERP which will be carried out by the works main contractor or subcontractor.

Procurement

4.1.5 All procurement of Goods, Works and Acquisition of Consulting Services financed by ADF resources, except for the component in 4.1.6, will be in accordance with the Bank's *Rules and Procedures for the Procurement of Goods and Works, May 2008 edition* and the *Rules and Procedures for the Use of Consultants, May 2008 edition* as amended from time to time and using the relevant Bank Standard Bidding Documents. The details of the procurement arrangements are provided in Annex 5.

4.1.6 The procurement of civil works for the bridge, which is co-financed using ADF resources in a 31%:69% share between the Bank and JICA respectively, will be in accordance with JICA's Procurement Guidelines. The modalities followed in using JICA procurement guidelines in lieu of the Bank's are described in 4.1.7 below.

4.1.7 Section 1.17 (b) of the Bank's *Rules and Procedures for Procurement of Goods and Works* provide that:

> "*where the Bank finances on a Joint basis with financiers, other than the Borrower, the Bank will require as a condition for its financing that these Rules apply, unless the Board of Directors authorizes a waiver.*

JICA is the senior partner in the financing of the bridge providing 69% of the required funding and has requested that its procurement rules apply. The Bank conducted a detailed assessment of JICA procurement guidelines to satisfy itself with the compatibility and consistency with its own procurement rules. The review found the JICA guidelines generally consistent with the Bank's rules with relatively minor differences, which JICA has agreed to accommodate through special conditions of contract where necessary. Management is therefore satisfied with the findings of the review and has no objection to the use of the JICA procurement guidelines. Through this report, Management seeks from the Board of Directors a waiver to use the JICA procurement procedures, in lieu of the Bank's Rules and Procedures for the procurement of the components described in 4.1.6 above.

4.1.8 All civil works, including components procured under the JICA rules, will be procured by International Competitive Bidding (ICB). Pre-qualification of contractors will be used for the procurement of the bridge works. The recruitment of consultants for supervision of works will be by short-listing of qualified firms and selection by Quality and Cost Based Selection (QCBS) or Quality Base Selection (QBS), as appropriate. Selection of consultants for Financial and Technical Audit will be by Least-Cost Selection (LCS) method.

4.1.9 The Government has submitted to the Bank a request for Advance Contracting for the bridge works and construction supervision service and is currently being reviewed by the Bank. The Government has in addition requested that domestic preference be applied to the civil works for border facilities, access road on the Zambian side and the margin of domestic preference will be applied subject to the conditions specified in the Bank Rules.

Financial Management and Disbursement Arrangements

4.1.10 The project's FM will be managed within the PMT by the FM specialists seconded from RDA and NRFA (in Zambia) and from the respective sector agencies in Botswana. An FM assessment conducted at RDA and NRFA concluded it had adequate capacity to handle and manage the resources of the project and the overall risk rating was found to moderate. NRFA and RDA have experience in the implementation of donor funded projects and are therefore familiar with the requirements of international financial institutions including the Bank. A preliminary review done of the Botswana country financial management systems indicated that adequate systems exist to handle the project transactions.

4.1.11 Project transactions relating to each country will be maintained within the PMT and quarterly progress reports with consolidated information for each country together with annual audited financial statements will be prepared by the PMT and submitted to the Bank. The audit will be carried out by an independent external auditor acceptable to the Bank and the audit report submitted along with the management letter to the Bank within six months after the end of each fiscal year adopted for the project of 31 December. The procurement of the consultancy services for the audits will be in line with Bank's procedures and the cost financed from the proceeds of the ADF Loan.

4.1.12 For the ADF Loan, the NRFA/RDA FM specialist of the PMT will be responsible for the preparation and submission of disbursement request to the Bank after the necessary approvals. The Direct Payment Disbursement Method will be used for all payments under the project including those related to the acquisition of Technical Assistance financed under the ITF grant. All disbursements from the Bank's resources will follow the procedures and requirements outlined in AfDB's Disbursement Handbook, as applicable.

4.2 Monitoring

4.2.1 Project monitoring will cover: environment, social, quality of works, general management activities of the project and compliance with various institutional agreements and protocols. Based on a structure to be developed under the trade facilitation services, trade-related border traffic will be monitored by the M&E expert, pre and post commissioning. The Bank will monitor adherence to key milestones, quality of deliverables and outputs through periodic supervisions, mid-term reviews, implementation support and quarterly reporting. The ESMP identifies project impact, the control measures and implementation responsibilities. The monitoring regime, which will reflect impact and mitigation measures described in section 3.2 above, will cover pre-construction, construction and post-construction, i.e. operational, periods. Given the variability of the bio-physical environment, the ESMP will be a live document, subject to periodic reviews and updates, to ensure its effectiveness as a working tool. The Bank will monitor closely the activities on the resettlement and compensation of PAPs ensuring compliance with the agreed ARAP to ensure project schedule is not unduly compromised. The project implementation and monitoring schedule is provided in Annex 3, Table A3-1

4.3 Governance

4.3.1 Zambia has made significant progress recently and achieved several years of strong economic growth. A number of reform measures include development and revision of the Public Procurement System, and pilot implementation of the integrated financial management information system-IFMIS (launched in January 2010). In addition, the national anti-corruption policy and implementation plan was developed in 2009 and recommendations from audit of the roads sector are currently being implemented. At sector level, GRZ is actively implementing institutional reforms, which are aligned with findings and recommendations of the 2009 Auditor General's Report. Cooperating Partners including the Bank have visibility of the actions plans and encouraged by the significant progress made to date. CPIA and Governance ratings (2010) are 3.3 and 3.8 respectively.

4.3.2 Botswana ranks in the top 25% of various governance indices world-wide, and generally, highest in Africa. This is due to a number of factors including prudent management of the economy, effective national development planning, dedicated leadership, capable state institutions, in-built checks and balances, and an efficient judicial system. The Bank's CPIA has consistently ranked Botswana in the first quintile consistently for the past eight years, with an average CPIA score of 4.62 (2009) and Governance Rating of 5.00 (2009).

4.3.3 This project will contribute to the efforts made to date in supporting reforms in improving or strengthening governance in the transport sector in the two countries. Following the recommendations of recent Bank approved projects, particularly the Nacala Road Corridor Phase II for Zambia, the project builds on institutional support through provision of technical assistance in the areas of project management. The project incorporates periodic technical and financial audits by independent audit firms to ensure quality control and efficient financial management.

4.4 Sustainability

4.4.1 Capable of generating direct revenue, the principles of establishing sustainability was to ascertain the infrastructure's capability to be financially independent, which consequently was the basis for evaluating the PPP option. As a shared asset, and typical by international practice, the bridge will be jointly owned by GRZ and GRB. The border post and access road in each country will be owned by the respective government. However, the operating and maintenance responsibility of the entire infrastructure i.e. the bridge, border posts, and roads, and all physical assets within the project boundaries, will be the responsibility of new authority, Kazungula Bridge Authority (KBA). KBA will be jointly-owned by the two countries and also have responsibility for the collection of the tolls as the revenue source for O&M expenditure (OPEX).

4.4.2 The ownership and O&M responsibilities are further described as follows. The road section on the main alignment forming part of the trunk road network including the bridge approach ramp in each country will be owned by each respective national sector Ministry whereas the minor access roads to the border post will be under the ownership of KBA. KBA will have overall maintenance responsibility of the road network within its boundaries including the main alignment of the trunk road and bridge approach ramp. Similarly, BURS and ZRA will own the respective border posts with KBA having maintenance responsibilities. KBA will own, operate and maintain the bridge. The responsibility matrix for components other than the bridge is presented in table 4.1.

Table 4.1 – Ownership/O&M Responsibility Matrix

	Botswana			**Zambia**		
	OSBP	**Road Network**		**OSBP**	**Road Network**	
		Access Road (0.5km)	Main (incl ramp, 4km)		Access Road (0.5km)	Main (incl ramp, 4km)
Owner	BURS	KBA	RD	ZRA	KBA	RDA
O&M Responsibility (within infrastructure boundary)	KBA			KBA		

4.4.3 The financial sustainability of the infrastructure was analysed based on assumed traffic growth, a tariff structure and operating cost of the entire facility. A summary of the revenue and expenditure is presented in 5-year increments in table 4.2 below. Current tolls for vehicle traffic are: for trucks (rigid/articulated), US$14/US$32; buses/mini buses, US$23/US$10; and cars, US$8. The analysis was generally conservative assuming uniform 2.5% annual traffic growth for all classes of vehicle with inflationary adjustment on toll charges in the near term to 2020. Beyond 2020, 3% inflation on tolls was assumed. It is expected the bridge will require periodic inspection of cables, bearings, parapets and other mechanical devices on the railway reservation with replacement of such devices once in a 50 year cycle of the bridge. Periodic deck resurfacing, concrete repairs and some component replacement would be required. The total operating and maintenance cost, including annual administrative cost of US$250,000 incurred by KBA, for the bridge, road and border facilities are provided in table 4.2. Additional and potential revenues from franchises, lending and

leasing of land on the project site have been excluded although a potential revenue source. The analysis proves the infrastructure to be financially self-sustainable with effective management of the revenue.

Table 4.2 Income & Expenditure Summary in 5-year increments in (US$million)

	2017	2020	2025	2030	2035	2040	2045
*Toll Revenue	1,59	171	2.11	2.76	3.61	4.71	5.99
**O&M Cost	0.89	1.08	1.50	2.08	2.88	4.01	5.40
Net Income	0.70	0.63	0.61	0.68	0.73	0.70	0.59

***Annual inflation on Tolls: 0% in 017-2019; 3% beyond 2020.**
Annual traffic growth: 2.5% for all traffic categories; OPEX comprise O&M of Bridge/Border facilities/Access Road ,
**** 5% inflation on OPEX**

4.4.4 Under current arrangement, tolls are collected by the ferry operators (Engineering Services Corporation Limited in Zambia and Central Transport Organization in Botswana) on behalf of government as national revenue under the authority of the sector ministries. Under the KBA, the revenue will be collected and managed through a fund managed by KBA to cover O&M cost. KBA will be accountable to the finance ministries and sector ministries on the management of the revenue.

4.4.5 As the medium to long term scenario, the transfer of asset into a PPP management contract was studied and the findings suggested this option to be potentially viable. The prospects of improved revenue from the tolls and non-traffic sources (e.g. lease of land for businesses) to improve profitability and attractiveness to the PPP option was evaluated and its potential will depend on the review of pricing structure. This option however falls outside the scope of this project, albeit potential for future intervention.

4.4.6 KBA will be formed during the course of project's implementation and will take ownership upon project completion and the process of formulating the operational constitution is currently underway. KBA will operate with similar legal and institutional status as the current setup of TAZARA and Zambia River Authority operating the Tanzania/Zambia Railway and Zimbabwe/Zambia Kariba Dam respectively. To assist in the establishment of KBA, the project design includes technical assistance on organizational development, asset and financial management to develop the operational framework of KBA. Further details on institutional arrangement are provided in Annex 3.

4.5 Risk management

Risk - Project Impact

4.5.1 *Political*: The risk to the project as a result of political discord is very low as the two governments recognise the need to alleviate or eliminate the accessibility difficulties associated with being landlocked. Political risk associated with external stakeholders is mitigated by the active involvement and support of the SADC Secretariat.

4.5.2 *Institutional*: Incompatibility of institutional policies between countries is a risk that is mitigated by the underlying political commitment. An MOU had been signed (24 July 2008), detailing the protocols of cooperation which was demonstrated through the project's design phase. Ratification of operational agreements, such as formation of KBA, is underway. The strategic role of SADC Secretariat, as a JSC member, is facilitating compliance with regional or cross-border protocols, such as the Shared Watercourse protocol.

Risk - Project Outcome

4.5.3 *Trade Facilitation:* Employees of border agencies are likely to resist embracing new working practices to streamline trade and border procedures. The lack of awareness of the benefits is mitigated through the project funded sensitisation and training programmes, complemented by the enforcement of protocols such as SADC Trade and Transport Protocols and operational agreement such as Authorised Economic Operators, the latter committing operators to standard codes of practice.

4.5.4 *Transit Time:* Transit time savings may be offset by adverse road conditions on the corridor. However, the governments have demonstrated commitment to the development of the corridor by developing the road links to the Kazungula such as the rehabilitation of Nata - Kazungula road which is underway in Botswana. In Zambia, Zimba –Livingstone road has been completed. Plans for construction of railway links are being developed by the countries.

4.5.5 *Sustainability:* The risk associated with the financial sustainability and ownership of the asset has been analysed and mitigated. A dedicated authority will own, operate and maintain the infrastructure on behalf of the government. The infrastructure will generate own revenue from toll collection to finance operations and maintenance therefore not dependent on scare public funds. The existing ferry is current tolled hence users unwillingness to pay is discounted as a risk.

Risk - Project Output

4.5.6 *Implementation:* There is risk of delays to the implementation schedule and cost overruns and the latter may arise from natural inflationary pressures. Mitigation measures include: (i) rationalised procurement packages to reduce dependencies, (ii) provide technical assistance on upstream activities to address borrower's capacity deficiency (iii) conduct early field missions and ahead of commencement of works to assess procurement process, (iv) contingencies applied on price and physical variations.

4.5.7 *Resettlement:* Delays in meeting resettlement and compensation obligations by GRZ due to lengthy government processes is a risk to the project schedule. However, mitigation measures are currently being implemented. The government has been proactive in initiating the process of resettlement and has to date identified the new site for the PAPs and made indicative budgetary allocation in its 2012 annual work plan. A field mission (circa, Q2-2012) will be conducted ahead of construction to assess and assist in expediting the resettlement process.

4.5.8 *Environmental and Unforeseen Conditions:* The project environment is susceptible to the risk of floods, pollution and contamination of the bio-physical environment. Unforeseen ground conditions, particularly for foundation works undertaken in the river bed, is a risk typical of such works. The ESMP, a live document revised periodically to accommodate environment variability, details monitoring measures to be followed including emergency response plans and contractor's own environmental plan will complement ESMP. Engineering design includes adaptation measures for floods, e.g. locating border post at higher ground. Adequate ground investigations were carried out at foundation points to minimize the risks associated with variable ground and also contingencies are incorporated in the cost estimates.

4.6 Knowledge Building

4.6.1 The project provide**s** an excellent opportunity for new skills to be developed within the Bank and for citizens of the participating countries. Within the Bank, it is an opportunity to strengthen further its knowledge on regional integration and putting into practice the mechanics on trade facilitation. The project is considered a flagship project for the Bank and

the knowledge gained from being engaged in the detailed design and implementation of a complete cross-border infrastructure system provides an invaluable knowledge base for future projects. To inform Bank's future projects of high trade impact, extended monitoring is included in the project design to enable data collection and analysis, post implementation.

4.6.2 To the borrower, the transfer of technical knowledge from the specialist contractors and exposure to new construction techniques will boost the competence of local expertise. The CITF (Botswana) and the National Council for Construction (Zambia), whose mandate is to promote and finance training programs for the construction industry will leverage the project to build the local skills. The KBA, through its O&M activities, will gain the experience in the use of bridge management systems, a toolkit for asset management. The potential of a PPP-based O&M management contract is an opportunity for the borrowers to broaden knowledge by putting into practice some of its PPP framework agreements.

5 LEGAL INSTRUMENTS AND AUTHORITY

5.1 Legal instrument

5.1.1 The Bank instrument to finance this operation is an ADF concessionary loan to the Government of Zambia. The loan amounts to UA51.00 million, equivalent to 31.5% of the total project cost of UA162.06 million, to be sourced from the ADF-XII PBA allocation and from the Regional Operations envelope apportioned as UA17.00 million and UA34.00 million respectively. The standard ADF loan terms and conditions are applicable to the loan.

5.2 Conditions associated with Bank's intervention

5.2.1 Conditions Precedent to the Entry into Force of the ADF Loan Agreement

The entry into force of the Loan Agreement shall be subject to the fulfilment by the Borrower of the provisions of Section 12.01 of the General Conditions.

5.2.2 Conditions Precedent to First Disbursement of the ADF Loan.

The obligation of the Fund to make the first disbursement of the Loan shall be conditional upon entry into force of the Agreement in accordance with Section 5.2.1 above and the following conditions, namely, the Borrower shall have provided evidence satisfactory to the Fund of:

i) The acquisition of land and a copy of the programme of works to be carried out for the new site of Lumbo village in accordance with the agreed Abbreviated Resettlement Action Plan (ARAP); and

ii) The appointment of the Country Coordinators and the Team Leader of the Project Management Team with experience and qualifications acceptable to the Fund.

5.2.3 Other Conditions of the Loan

The Borrower will provide evidence in form and substance acceptable to the Fund of the following:

i) Budgetary allocation for the resettlement and compensation of Project Affected Persons in accordance with the ARAP within 3 (three) months of the date of this Agreement; and

ii) Prior to commencement of any construction works, all Project Affected Persons affected by the works, have been fully compensated and/or resettled in accordance with the agreed ARAP and any updates to the ARAP.

5.2.4 Undertakings

The Borrower hereby undertakes the following:

i) To implement and report on the implementation of the Environmental and Social Impact Assessment, the Environment and Social Management Plan and the ARAP on a quarterly basis in form acceptable to the Fund;

ii) To provide a draft copy of the constitution and articles of KBA and a copy of the signed Sponsors Agreement by *31 December 2012*; and

iii) To procure goods, works and services in accordance with the Fund's Rules and Procedures, unless otherwise provided in this Agreement.

6 RECOMMENDATION

6.1.1 This intervention is a continuation of a Bank-funded study. The project's rationale is strong in terms of its regional economic significance and the alignment with pillars of development strategies in supporting trade-led growth and reducing the poverty levels of those impacted by the project. The cross-cutting issues have been considered in the design and close monitoring will be instituted to ensure positive project impact. The institutional capacity deficiencies have been addressed. The hard infrastructure is complemented by soft components to ensure that an efficient and sustainable infrastructure system evolves as the output. The project risks are manageable and practical mitigation measures have been built into the design.

6.1.2 Management recommends that the Board of Directors approve:

i) The proposed ADF loan of UA51.00 million to the Government of the Republic of Zambia for the purpose of co-financing the implementation of the Kazungula Bridge Project subject to the conditions stipulated in this report; and

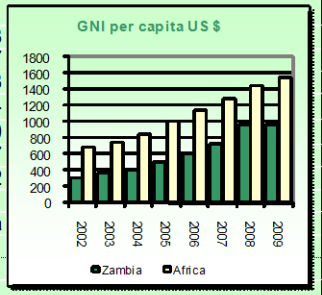
ii) A waiver to use JICA procurement rules for the Bridge component of the project.

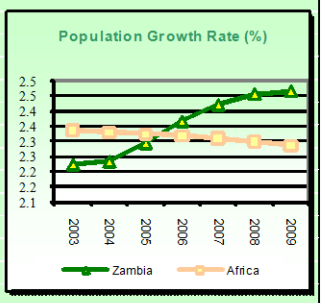
Country's Comparative Socio-Economic Indicator

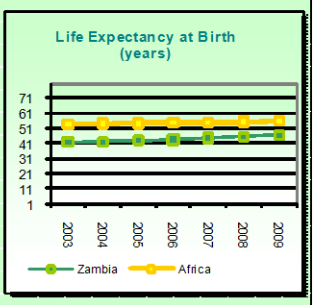
Zambia

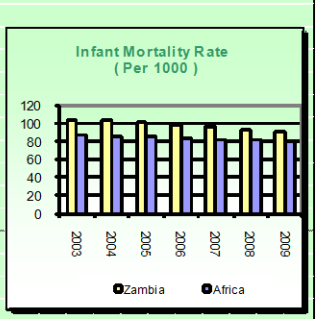
COMPARATIVE SOCIO-ECONOMIC INDICATORS

	Year	Zambia	Africa	Develo-ping Countrie	Develo-ped Countrie
Basic Indicators					
Area ('000 Km²)		753	30 323	80 976	54 658
Total Population (millions)	2010	13.3	1,031.5	5,659	1,117
Urban Population (% of Total)	2010	35.7	39.9	45.1	77.3
Population Density (per Km²)	2010	17.6	34.0	69.9	20.4
GNI per Capita (US $)	2009	970	1 525	2 968	37 990
Labor Force Participation - Total (%)	2010	37.3	40.1	61.8	60.7
Labor Force Participation - Female (%)	2010	43.2	41.0	49.1	52.2
Gender -Related Development Index Value	2007	0.473	0.433	0.694	0.911
Human Develop. Index (Rank among 169 countries	2010	150	n.a	n.a	n.a
Popul. Living Below $ 1 a Day (% of Population)	2004-08	64.3	42.3	25.2	...
Demographic Indicators					
Population Growth Rate - Total (%)	2010	2.5	2.3	1.3	0.6
Population Growth Rate - Urban (%)	2010	3.0	3.4	2.4	1.0
Population < 15 years (%)	2010	46.2	40.3	29.0	17.5
Population >= 65 years (%)	2010	3.4	3.8	6.0	15.4
Dependency Ratio (%)	2010	97.0	77.6	55.4	49.2
Sex Ratio (per 100 female)	2010	99.6	99.5	93.5	94.8
Female Population 15-49 years (% of total populatic	2010	22.2	24.4	49.4	50.6
Life Expectancy at Birth - Total (years)	2010	47.3	56.0	67.1	79.8
Life Expectancy at Birth - Female (years)	2010	47.8	57.1	69.1	82.7
Crude Birth Rate (per 1,000)	2010	41.8	34.2	21.4	11.8
Crude Death Rate (per 1,000)	2010	16.0	12.6	8.2	8.4
Infant Mortality Rate (per 1,000)	2010	86.5	78.6	46.9	5.8
Child Mortality Rate (per 1,000)	2010	146.5	127.2	66.5	6.9
Total Fertility Rate (per woman)	2010	5.6	4.4	2.7	1.7
Maternal Mortality Rate (per 100,000)	2008	470.0	530.2	290.0	15.2
Women Using Contraception (%)	2005-08	...	...	61.0	...
Health & Nutrition Indicators					
Physicians (per 100,000 people)	2006	6.0	58.3	109.5	286.0
Nurses (per 100,000 people)*	2006	50.7	113.3	204.0	786.5
Births attended by Trained Health Personnel (%)	2007	46.5	50.2	64.1	...
Access to Safe Water (% of Population)	2008	60.0	64.5	84.3	99.6
Access to Health Services (% of Population)	2004-08	90.2	65.4	80.0	100.0
Access to Sanitation (% of Population)	2008	49.0	41.0	53.6	99.5
Percent. of Adults (aged 15-49) Living with HIV/AID	2007	15.2	4.9	0.9	0.3
Incidence of Tuberculosis (per 100,000)	2009	433.0	294.9	161.0	14.0
Child Immunization Against Tuberculosis (%)	2009	99.0	79.9	81.0	95.1
Child Immunization Against Measles (%)	2009	92.0	71.1	80.7	93.0
Underweight Children (% of children under 5 years	2007	14.9	30.9	22.4	...
Daily Calorie Supply per Capita	2007	1 873	2 465	2 675	3 285
Public Expenditure on Health (as % of GDP)	2008	6.0	5.7	2.9	7.4
Education Indicators					
Gross Enrolment Ratio (%)					
Primary School - Total	2009	112.9	102.7	107.2	101.3
Primary School - Female	2009	112.4	99.0	109.2	101.1
Secondary School - Total	2005-09	...	37.8	62.9	100.1
Secondary School - Female	2005-09	...	33.8	61.3	99.6
Primary School Female Teaching Staff (% of Total)	2008	50.1	47.0	60.5	81.4
Adult literacy Rate - Total (%)	2008	70.7	64.8	80.3	98.4
Adult literacy Rate - Male (%)	2008	80.6	74.0	86.0	98.7
Adult literacy Rate - Female (%)	2008	61.0	55.9	74.8	98.1
Percentage of GDP Spent on Education	2008	1.3	4.6	3.8	5.0
Environmental Indicators					
Land Use (Arable Land as % of Total Land Area)	2008	3.2	7.8	10.6	10.9
Annual Rate of Deforestation (%)	2005-09	...	0.7	0.4	-0.2
Annual Rate of Reforestation (%)	2005-09	...	10.9	...	...
Per Capita CO2 Emissions (metric tons)	2009	0.2	1.1	2.9	12.5







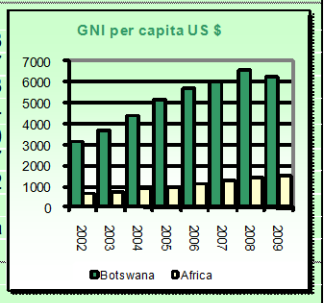


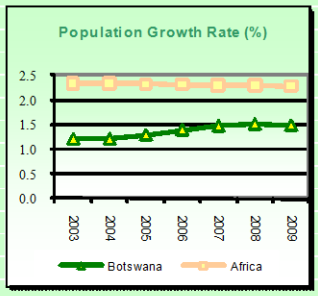
Sources : ADB Statistics Department Databases; World Bank: World Development Indicators; last update : May 2011
UNAIDS; UNSD; WHO, UNICEF, WRI, UNDP; Country Reports.
Note : n.a. : Not Applicable ; ... : Data ***Not Available.***

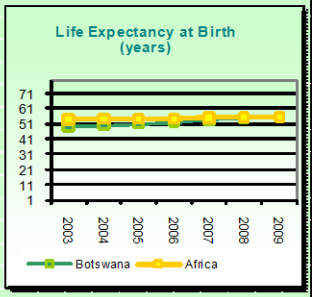
Botswana

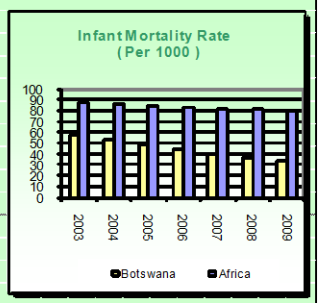
COMPARATIVE SOCIO-ECONOMIC INDICATORS

	Year	Botswana	Africa	Developing Countrie	Developed Countrie
Basic Indicators					
Area ('000 Km²)		582	30 323	80 976	54 658
Total Population (millions)	2010	2.0	1,031.5	5,659	1,117
Urban Population (% of Total)	2010	61.1	39.9	45.1	77.3
Population Density (per Km²)	2010	3.4	34.0	69.9	20.4
GNI per Capita (US $)	2009	6 260	1 525	2 968	37 990
Labor Force Participation - Total (%)	2010	51.5	40.1	61.8	60.7
Labor Force Participation - Female (%)	2010	47.4	41.0	49.1	52.2
Gender -Related Development Index Value	2007	0.689	0.433	0.694	0.911
Human Develop. Index (Rank among 169 countrie	2010	98	n.a	n.a	n.a
Popul. Living Below $ 1 a Day (% of Population)	2005-09	...	42.3	25.2	...
Demographic Indicators					
Population Growth Rate - Total (%)	2010	1.4	2.3	1.3	0.6
Population Growth Rate - Urban (%)	2010	2.6	3.4	2.4	1.0
Population < 15 years (%)	2010	32.9	40.3	29.0	17.5
Population >= 65 years (%)	2010	4.3	3.8	6.0	15.4
Dependency Ratio (%)	2010	58.2	77.6	55.4	49.2
Sex Ratio (per 100 female)	2010	100.1	99.5	93.5	94.8
Female Population 15-49 years (% of total populati	2010	26.7	24.4	49.4	50.6
Life Expectancy at Birth - Total (years)	2010	55.5	56.0	67.1	79.8
Life Expectancy at Birth - Female (years)	2010	55.0	57.1	69.1	82.7
Crude Birth Rate (per 1,000)	2010	24.2	34.2	21.4	11.8
Crude Death Rate (per 1,000)	2010	11.7	12.6	8.2	8.4
Infant Mortality Rate (per 1,000)	2010	32.2	78.6	46.9	5.8
Child Mortality Rate (per 1,000)	2010	44.3	127.2	66.5	6.9
Total Fertility Rate (per woman)	2010	2.8	4.4	2.7	1.7
Maternal Mortality Rate (per 100,000)	2008	190.0	530.2	290.0	15.2
Women Using Contraception (%)	2005-07	...	...	61.0	...
Health & Nutrition Indicators					
Physicians (per 100,000 people)	2006	34.0	58.3	109.5	286.0
Nurses (per 100,000 people)*	2006	268.4	113.3	204.0	786.5
Births attended by Trained Health Personnel (%)	2005-08	...	50.2	64.1	...
Access to Safe Water (% of Population)	2008	95.0	64.5	84.3	99.6
Access to Health Services (% of Population)	2007	84.0	65.4	80.0	100.0
Access to Sanitation (% of Population)	2008	60.0	41.0	53.6	99.5
Percent. of Adults (aged 15-49) Living with HIV/AID	2007	23.9	4.9	0.9	0.3
Incidence of Tuberculosis (per 100,000)	2009	694.0	294.9	161.0	14.0
Child Immunization Against Tuberculosis (%)	2009	99.0	79.9	81.0	95.1
Child Immunization Against Measles (%)	2009	93.0	71.1	80.7	93.0
Underweight Children (% of children under 5 years	2005-07	...	30.9	22.4	...
Daily Calorie Supply per Capita	2007	2 264	2 465	2 675	3 285
Public Expenditure on Health (as % of GDP)	2008	5.6	5.7	2.9	7.4
Education Indicators					
Gross Enrolment Ratio (%)					
Primary School - Total	2007	109.4	102.7	107.2	101.3
Primary School - Female	2007	107.9	99.0	109.2	101.1
Secondary School - Total	2007	81.5	37.8	62.9	100.1
Secondary School - Female	2007	83.7	33.8	61.3	99.6
Primary School Female Teaching Staff (% of Total)	2007	76.3	47.0	60.5	81.4
Adult literacy Rate - Total (%)	2008	83.3	64.8	80.3	98.4
Adult literacy Rate - Male (%)	2008	83.1	74.0	86.0	98.7
Adult literacy Rate - Female (%)	2008	83.5	55.9	74.8	98.1
Percentage of GDP Spent on Education	2009	7.9	4.6	3.8	5.0
Environmental Indicators					
Land Use (Arable Land as % of Total Land Area)	2008	0.4	7.8	10.6	10.9
Annual Rate of Deforestation (%)	2005-09	...	0.7	0.4	-0.2
Annual Rate of Reforestation (%)	2005-09	...	10.9	...	...
Per Capita CO2 Emissions (metric tons)	2009	2.3	1.1	2.9	12.5









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last update : May 2011

Note : n.a. : Not Applicable ; ... : Data ***Not Available.***

Table of AfDB's portfolio in the country

ZAMBIA (September 2011)

Project Name/Country	Main Sector	Financing Source	Approval Date	Amount Approved	Disbursement		Disbursement Deadline
				(UA Mil)	Amount	%	
Emergency Assistance To 2009 Flood Mitigation	Agric	ADF	06.12.10	0.637	0	100	30.06.11
Community Water Management Improvement	Agric	ADF	12.11.09	0.626	0.341	54.48%	30.06.11
Central Province Eight Centres Water Supply	Water	ADF	17.12.03	16.25	16.25	100 %	31.12.10
Central Province Eight Centres Water Supply Grant	Water	ADF	17.12.03	5.78	4.39	75.97%	31.12.10
Rural Water Supply & Sanitation Program	Water	ADF	31.10.06	15.00	1.89	12.60%	31.12.11
Nkana Water Supply And Sanitation Programme	Water	ADF	27.11.08	35.00	1.00	2.87 %	31.12.13
Lake Tanganyika Integrated Regional Management Prg.	MultiNational Agric	ADF	17.11.04	3.26	0.57	17.46%	31.01.12
Sadc North - South Corridor - Kazungula Bridge Study	MultiNational Transport	ADF	01.12.06	1.45	0.77	52.91%	13.12.10
Enhancing Procurement Reforms and Capacity Project	Multi-Sector	ADF		5.66	5.30	93.55%	31.12.11
Nacala Corridor Project Phase II (Zambia)	MultiNational Transport	ADF	27.09.10	69.37	0.00	0.00 %	31.03.15
Zanaco Zambia**	Private Sector	ADB	24.09.08	6.37	3.19	50.00%	12.07.10
FAPA TA Grant SMEs	Private Sector	ADB	10.11.08	0.63	0.00	0.00 %	30.06.12
Technical Assistance to PFSL-Zambia	Private Sector	ADB	13.07.09	0.60	0.51	86.10%	31.12.14
Total On-going Operations				**160.629**	**34.207**	**21.30%**	

Table of AfDB's portfolio in the country

BOTSWANA September 2011

Project Name/Country	Main Sector	Financing Source	Approval Date	Amount Approved (UA Mil)	Disbursement		Disbursement Deadline
					Amount	%	
Pandamatenga Agriculture Infrastructure Project	Agric	ADB	09.09.08	25.12	0.4	1.59%	31.12.2013
Economic Diversification Support Loan	Institutional Reform	ADB	02.06.09	959.14	959.14	100.00%	30.06.11
Morupule B Power Project	Energy	ADB	28.10.09	127.4	0	0.00%	31.12.2013
Water Control and Management System (AWF)	Water	AWF	18.06.07	1.05	0.78	74.29%	30.06.2010
Corporate Governance Code	Multi-sector	MIC	01.03.07	0.15	0.1	66.67%	30.06.11
Institutional Strengthening of Local authorities	Multi-sector	MIC	31.01.08	0.28	0.27	96.43%	31.12.10
Technical Assistance for Fast-tracking Vision 2016	Multi-sector	MIC	06.05.08	0.25	0.05	20.00%	31.03.2012
Feasibility study on Solar Energy Project	Energy	MIC	03.11.09	0.6	0	0.00%	31.12.13
Educational Standards and Technical Vacation Education (ESTVET)-MIC (P-BW-IAZ-001)	Social	MIC	19.03.10	0.6	0.32	53.33%	31.12.2013
Mining and Diversification Study	Mining	MIC	08.06.10	0.28	0.18	64.29%	31.03.2012
Support to PEEPA in Improving Private Sector Participation in the Delivery of Public Infrastructure and services	Multi-sector	MIC	14.10.2010	0.6	0	0.00%	31.12.2013
Support to NBIFRA in implementing a Risk Based Regulatory Framework	Multi-sector	MIC	22.09.2010	0.6	0	0.00%	31.12.2013
Total On-going Operations				**1,116.07**	**961.24**	**86.13%**	

Related Projects Financed by the Bank and Other Donors

1. Botswana, March 2010

Project Title	Donor	Region	USD million
Institutional Cooperation between Road Departments	**Norway**	Botswana	0.5
Transport Policy and Administrative Management	**World Bank**	Botswana	22.3
Integrated Transport Project	**World Bank**	Botswana	186
Middlepits-Botkspits Road Project	**BADEA**	Kalahari	35
Rehabilitation and Renewal of Botswana Railway	**China**	Serule-Mahalpye-Artesia	40.6
Letlhakeng-Kang Road Project	**China**	Kgalagadi-Kweneng	19

2. Zambia Ongoing Projects

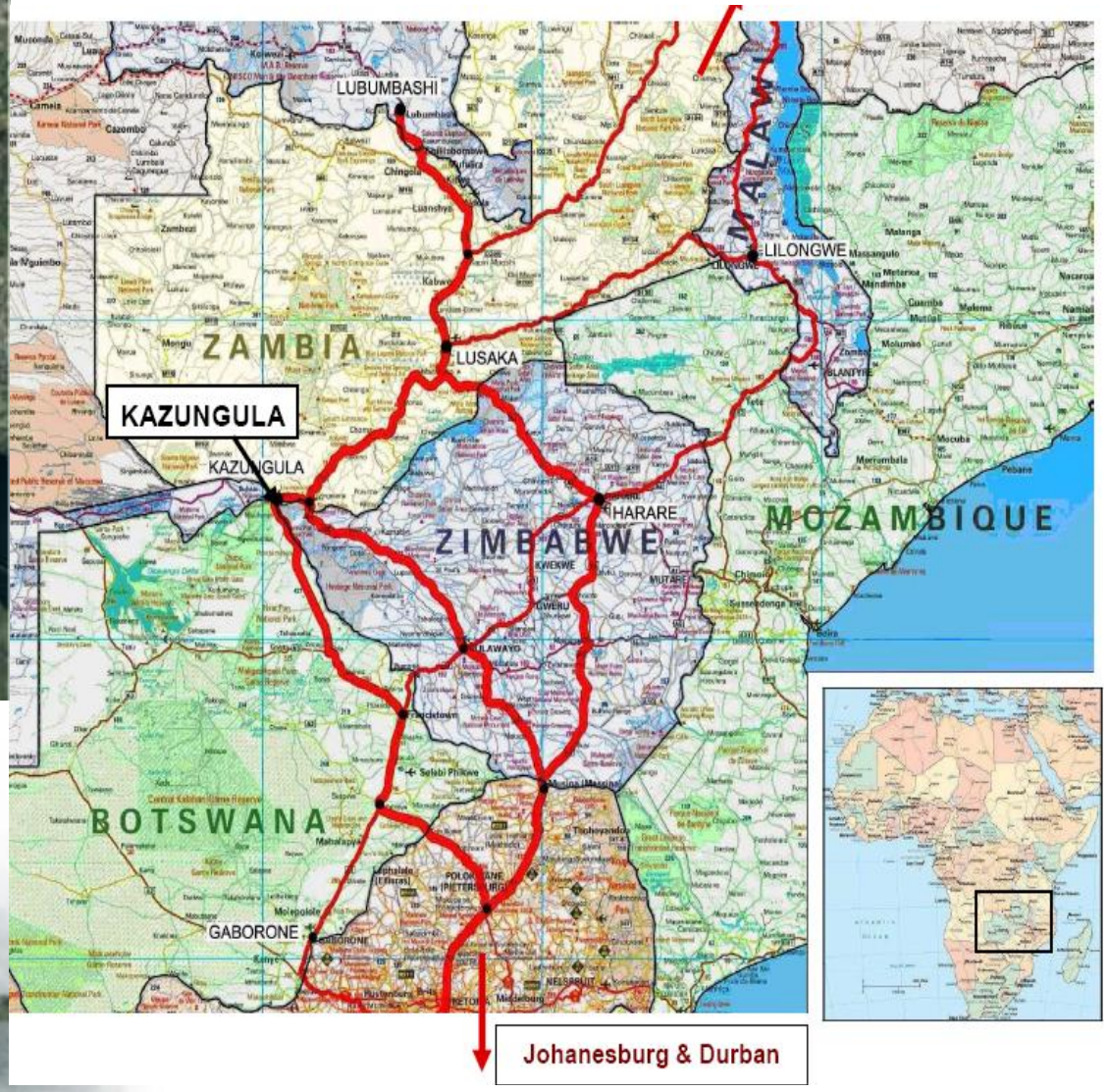
Project Name	Source of Funding	Region	Type of Works	Contract Sum (EUR Million)
Zimba-Livingstone, Road Lot 2, Contract A	European Union	Southern	Full reconstruction	19
Zimba-Livingstone, Road Lot 2, Contract B	European Union	Southern	Full reconstruction	35
North Western and Central Province Feeder Roads	European Union	Central	Re-gravelling and rehabilitation	6.1
Choma Agricultural Feeder Roads	World Bank	Southern Province	Spot improvement and rehabilitation	3.5
Chongwe Agricultural Roads	European Union	Eastern Province	Spot improvement and rehabilitation	1.9
Nacala Corridor Road Project	AfDB/EU	Eastern Province	Rehabiliation	78.50

3. Zambia -Planned Projects

Project Name	Source of Funding	Region	Type of Works	Contract Sum (EUR Million)
Lusaka-Chirundu Road	World Bank	Lusaka	Rehabilitation	40.5
Luangwa-Mwami Road (Nacala Road Corridor Project, Phase II)	EU, AfDB, EIB	Eastern	Rehabilitation	220
Kalabo-Sikongo Road	BADEA, KFEAD, SFD, OFID	Western	Upgrading to bituminous standard	45.3
Copperbelt Feeder Roads	BADEA, OFID	Copperbelt	Rehabilitation	12.1

Appendix IV: The Project Map

Artistic Impression of Bridge



Trade Facilitation and Regional Integration

1. The North South Corridor

A1-1 The North South Corridor (NSC) carries about 84% of regional freight traffic dominated by trading activities of Zambia, DRC and South Africa. Most traffic flows are generated by the Port of Durban which handles nearly 64% of all container traffic in the region and the Gauteng Province of South Africa (Johannesburg/Pretoria area), which is the main regional manufacturing, warehousing and distribution hub. The NSC has the most balanced import export traffic, competitive transport prices and is generally the corridor of choice for the mining, agriculture and manufacturing sectors of Zambia, DRC and Botswana, all being landlocked.

2. Evaluation of Alternative Routes (Chirundu) and Kazungula

A1-2 Transport operators choose their route based on, among others, the distance-related operating costs, travel time, predictability of transit, reliability of services, security and the 'hospitability' of the route. The route through Chirundu is about 300km shorter but has a number of drawbacks including; (i) the deteriorated condition of the road, (ii) the challenging terrain (escarpment) thus high vehicle operating costs and unacceptable level of accidents, (iii) security of the route, a concern particularly during periods of high commodity prices of copper, and (iv) the shortage and high cost of fuel on the section of the route. Using lessons learned from Chirundu, both in the trade and OSBP procedures, the aspiration of the KBP is to develop an efficient infrastructure system to facilitate incremental traffic growth for normal and diverted trade traffic. The Livingstone/Kazungula route has gentle terrain and largely in good condition. The availability and relatively low cost of fuel in Botswana is a significant advantage and there are less security concerns. Given the economic significance of the NSC, the need for a reliable alternative route is evident.

3. Measures for Trade Facilitation and OSBP considered at Kazungula

A1-4 The Kazungula Bridge Project will implement trade facilitation and OSBP procedures to ensure operations at the border are synchronised to ensure maximum efficiency and will comprise four critical measures, namely, (i) operational principles and standard operating procedures, (ii) harmonised and legal frameworks, (iii) stakeholder institutional framework; (iv) physical infrastructure and information sharing networks. The activities of each are described below and will be developed during the implementation of works and fully deployed upon completion of the bridge and border facilities. The schedule for the implementation of model facilitation system has been incorporated into the overall programme making provision for pilot operations prior to full commissioning.

A1-5 Five main drivers constitute the components for trade facilitation and OSBP operations, namely, people, processes, hard infrastructure, policies and ICT which in aggregate will ensure efficiency of the operation if well designed. The focus areas informing the design include, among others, (i) uniformity of documentation (iii) coordination among the border agencies, (iv) integrated border management systems (v) adopting new technologies, (vi) skills, behaviours and knowledge, (vi) trusted partnerships, (vii) operational and institutional agreements, etc.

4. Operational principles and standard operating procedures

A1-6 This component is to develop operating procedures to be applied by the customs, immigration, security and other key agencies to ensure the streamlined operations thus removing the non-physical barriers on cross-border transit. Prior to implementation, the OSBP procedures will be agreed among border agencies (police, immigration, customs, etc) and the scope for developing the operating procedures will comprise (i) examination of the existing procedures; (ii) developing comprehensive common procedures and framework; (iii)

build consensus on the adoption of the procedures through interactive means; and (iv) conducting workshops and awareness campaigns for all agencies.

A1-7 The components and input relevant to the operations of an integrated OSBP and trade facilitation project constituting the soft components of KBP is illustrated in fishbone diagram of figure 1. Business *processes* have to be standardised with centralised facilities for information depository. *ICT* system will be designed to facilitate interoperability and information sharing. The *skills* and *competence* of operators and agency official will be enhanced to fully appreciate project advantage and to overcome resistance to change in working culture. *Regulatory policies* will be exhaustive covering both operational and institutional arrangements and to develop a culture of compliance management in all operational activities.

Harmonised and legal frameworks

A1-8 The purpose is to establish legal framework for Zambia and Botswana to prepare a legislation which will facilitate the establishment of a common control zone where personnel in both countries can operate in either territories. Zambia already has a law in place whereas Botswana's is under development and will include preparation of a draft bill. This will facilitate negotiation and signing of bi-lateral agreement on operations. The following are the key activities: (i) examination of legal instruments; (ii) developing model legislations for review by government; (iii) build consensus and acceptance; and (iv) developing bi-lateral agreement(s).

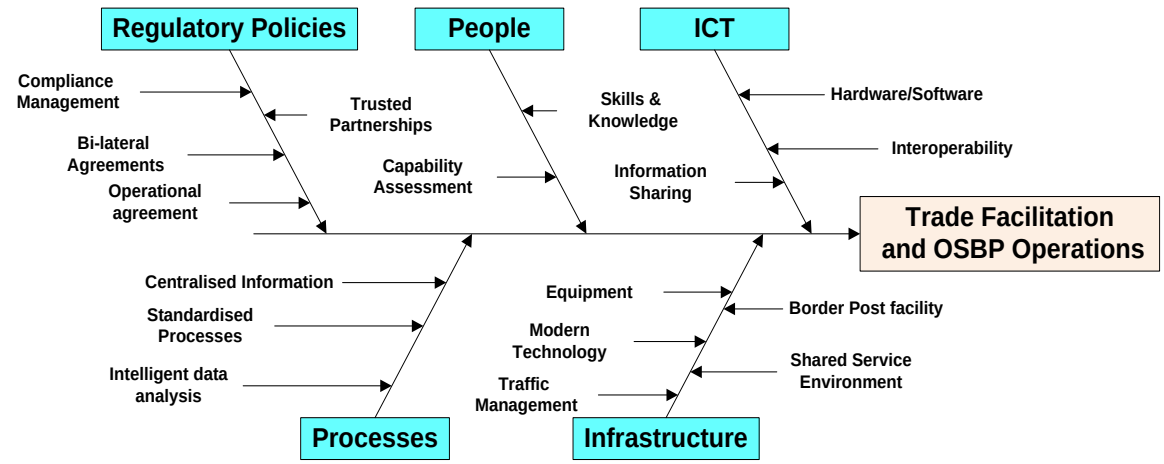
Stakeholder Institutional Framework

A1-9 This component is to enable all players including the users, i.e. freight operators, to have consultative mechanism to manage the affairs of the border post. This will involve the establishment of committees and sub-committees as a medium for participatory involvement. The key activity is the development of the terms of reference for the Committees/Subcommittee and the modalities for its establishment.

Physical infrastructure and Information Sharing Network (ICT)

A1-10 In addition to hard infrastructure, a needs assessment of OSBP equipment will be carried out, including the specification and programme for installation. The installation of all equipment will be integrated with the main civil works of the border post. Software and hardware needs for the ICT will also be carried out. The infrastructure is to enable the following operational activities: intelligent data analysis, sharing and capture of information, compliance management and interoperability of operations. Complementary agreements to enable inter-agency and inter-governmental networking will be identified and drafted for implementation.

Figure 1 Component of the Trade Facilitation and OSBP



Project Detail Costs

Table A2-1: Cost by Component and Funding Source – Zambia and Botswana

PROJECT COMPONENT	FUNDING SOURCE					
	AfDB	**JICA**	**ITF Grant**	**GRZ**	**GRB**	**TOTAL**
Civil works						
Kazungula Bridge	17.96	39.98	-	-	-	57.94
Border Facilities Zambia	11.88	-	-	-	-	11.88
Border Facilities Botswana	-	14.06	-	-	-	14.06
Access Roads	6.16	6.16	-	-	-	12.31
Subtotal	36.00	60.20				96.19
Consultancy Services						
Design Reviews & Construction Supervision	0.00	9.56	-	0.00	0.00	9.56
Project Financial Audits Services	0.03	0.00	-	0.00	0.00	0.03
Project Technical Audits Services	0.03	0.00	-	0.00	0.00	0.03
Subtotal	**0.06**	**9.56**	**-**	**-**	**-**	**9.62**
Technical Assistance – Consultancy Services						
Establishment of KBA	-	-	0.39	-	-	0.39
Project Management Services	-	-	1.97	-	-	1.97
Trade Facilitation	-	-	0.12	-	-	0.12
Subtotal	**-**	**0**	**2.48**	**-**	**-**	**2.48**
Complementary Components						
Implementation of ESM P	0.59	0.59	-	0.00	0.00	1.19
OSBP Equipment (scanners, ICT etc)	0.00	6.81	-	3.41	3.41	13.63
Project Office Establishment/Operations	0.00	0.00	-	1.53	1.53	3.06
Resettlement & Compensation	1.17	0.00	-	1.42	0.00	2.59
Subtotal	**1.76**	**7.40**	**0.00**	**6.36**	**4.94**	**20.47**
Feasibility and Detailed Design (Zambia)	4.75	0.00	0.00	0.25	0.00	5.00
BASE COST	**42.57**	**77.16**	**2.48**	**6.61**	**4.94**	**133.76**
contingencies(physical)	4.26	7.72	0.25	0.66	0.49	13.38
Subtotal	46.83	84.87	2.73	7.27	5.43	147.14
contingencies (price)	4.17	8.38	0.25	1.14	0.99	14.93
TOTAL COST	**51.00**	**93.25**	**2.98**	**8.41**	**6.42**	**162.06**

Table A2.2 - Cost by component (UA million) *Zambia*

Components	***Foreign Exchange***	***Local Currency***	***Total Costs***	***%Foreign***
Civil Works	37.60	9.40	47.00	80.0%
Consultancy Services	3.83	1.02	4.85	79.0%
TA/Capacity Building	0.99	0.25	1.24	80.0%
Implementation of ESM P	0.00	0.59	0.59	0.0%
OSBP Equipment (scanners, ICT etc)	0.00	6.81	6.81	0.0%
Project Office Establishment/Operations	0.00	1.53	1.53	0.0%
Resettlement & Compensation	0.00	2.60	2.60	0.0%
Feasibility and Detailed Design	4.00	1.00	5.00	80.0%
Base Cost	**46.42**	**23.20**	**69.62**	67%
Physical	4.64	2.32	6.96	
Subtotal	51.06	25.52	76.58	
Price contingency	3.46	4.06	7.52	
TOTAL	**54.52**	**29.58**	**84.10**	**65%**

Table A2.3 - Cost by Category (UA million) ***Zambia***

Category	*Foreign Exchange*	*Local Currency*	*Total Costs*	*%Foreign*
Works	37.60	9.40	47.00	80%
Services	8.82	2.27	11.09	80%
Goods	0.00	6.81	6.81	0%
Miscellaneous	0.00	4.72	4.72	0%
Base Cost	**46.42**	**23.20**	**69.62**	67%
Physical	4.64	2.32	6.96	
Subtotal	51.06	25.52	76.58	
Price contingency	3.46	4.06	7.52	
TOTAL	**54.52**	**29.58**	**84.10**	

Table A2.4 – Expenditure Schedule (UA million) ***Zambia***

Components	*2012/13*	*2013/14*	*2014/15*	*2015/16*	*2016/17*	*Total*
Civil Works	0.00	11.75	14.10	14.10	7.05	**47.00**
Consultancy Services	0.00	1.21	1.45	1.45	0.73	**4.84**
TA/Capacity Building	0.37	0.25	0.25	0.25	0.12	**1.24**
Implementation of ESM P	0.18	0.12	0.12	0.12	0.06	**0.59**
OSBP Equipment	0.00	0.00	4.09	2.73	0.00	**6.81**
Project Office Establishment/Operations	0.46	0.31	0.31	0.31	0.15	**1.53**
Resettlement & Compensation	2.59	0.00	0.00	0.00	0.00	**2.60**
Feasibility and Detailed Design	0.00	2.50	2.50	0.00	0.00	**5.00**
Base Cost	**3.60**	**16.13**	**22.81**	18.95	**8.11**	**69.62**
Physical	0.36	1.61	2.28	1.90	0.81	**6.96**
Subtotal	3.96	17.75	25.10	20.85	8.92	**76.58**
Price contingency	0.00	3.27	2.54	1.34	0.37	**7.52**
TOTAL	**3.96**	**21.02**	**27.64**	**22.19**	**9.29**	**84.10**

Table A2.5 - Cost by component *Botswana*

Components	*Foreign Exchange*	*Local Currency*	*Total Costs*	*%Foreign*
Civil Works	39.35	9.84	49.19	80%
Consultancy Services	3.82	0.96	4.78	80%
TA/Capacity Building	0.99	0.25	1.24	80%
Implementation of ESM P	0.00	0.59	0.59	0%
OSBP Equipment (scanners, ICT etc)	0.00	6.81	6.81	0%
Project Office Establishment/Operations	0.00	1.53	1.53	0%
Resettlement & Compensation	0.00	0.00	0.00	0%
Feasibility and Detailed Design	0.00	0.00	0.00	0%
Base Cost	**44.16**	**19.98**	**64.14**	69%
Physical	4.42	2.00	6.42	
Subtotal	48.58	21.98	70.56	
Price contingency	3.40	4.00	7.40	
TOTAL	**51.98**	**25.98**	**77.96**	

Table A2.6 – Expenditure Schedule *Botswana*

Components - Botswana	*2012/13*	*2013/14*	*2014/15*	*2015/16*	*2016/17*	*Total*
Civil Works	0.00	12.30	14.76	14.76	7.38	**49.19**
Consultancy Services	0.00	1.19	1.43	1.43	0.72	**4.78**
TA/Capacity Building	0.37	0.25	0.25	0.25	0.12	**1.24**
Implementation of ESM P	0.18	0.12	0.12	0.12	0.06	**0.59**
OSBP Equipment	0.00	0.00	4.09	2.73	0.00	**6.81**
Project Office Establishment/Operations	0.46	0.31	0.31	0.31	0.15	**1.53**
Resettlement & Compensation	0.00	0.00	0.00	0.00	0.00	**0.00**
Feasibility and Detailed Design	0.00	0.00	0.00	0.00	0.00	**0.00**
Base Cost	**1.01**	**14.16**	**20.95**	19.59	**8.43**	**64.14**
Physical	0.10	1.42	2.10	1.96	0.84	**6.42**
Subtotal	1.11	15.58	23.05	21.55	9.27	**70.56**
Price contingency	0.00	3.14	2.50	1.38	0.38	**7.40**
TOTAL	**1.11**	**18.72**	**25.55**	**22.93**	**9.65**	**77.96**

Institutional and Implementation Arrangements

Institutional Arrangement:

A3-1 There are multiple stakeholders including sovereign and non-sovereign institutions with shared interest either by association with outcome or impact. The medium for ensuring project buy-in by all stakeholders is through bi-/multi- lateral agreements and protocols. The arrangements relevant for this project include primary agreement(s) between the main sovereign sponsors (GRZ and GRB) and secondary agreements with third parties. The primary agreement are: (i) in addition to the signed MOU, GRZ and GRB will sign a *Sponsors Agreement* guided by traditional and internationally acceptable arrangement for assets having joint-sovereign ownership, (ii) within the framework of the Sponsor's Agreement, a commitment to a mandate in establishing the Kazungula Bridge Authority; (iii) Agreement on the harmonisation and integration of customs operations. The secondary arrangement entails the agreement associated with the shared watercourse protocol of the Zambezi Basin.

A3-2 The essence of the Sponsors Agreement is to assure the long term sustainability of the asset and the modalities for signing the agreement is underway at ministerial level in respective governments. The agreement outlines the following: (i) agreement on the nominated agency for the procurement of project, (ii) agreement on the mechanisms to be adopted for operations and maintenance of the infrastructure, (iii) agreement to establish the KBA under the laws on either party including the operational structure, and (iv) the management on the revenue from the tolls. The signing of the sponsor's agreement is expected to be signed by 31 December 2012. The agreement on customs operations will be signed by ZRA and BURS to established harmonised procedures to assure the operational efficiency under the internally recognised Authorised Economic Operator (AEO) framework. This agreement replicates current agreement at other OSBPs at Chirundu (Zambia/Zimbabwe) and Mamuno (Namibia/Botswana) on the Trans-Kalahari corridor. As signatories to the ZAMCOM Agreement and stakeholders on the Zambezi Watercourse Commission, both countries are to comply with the overarching framework on the project development, harmonized management of the basin and foster regional cooperation. The SADC Secretariat, under the auspices SADC Protocol of 2000, has the lead role in fostering closer cooperation among parties to ensure project compliance to all relevant multi-lateral agreements. The Bank will be periodically updated or advised by the PMT on the status of all the arrangements.

Project Management Responsibilities of Executing Agency and PMT

The Executing Agency and the PMT, assisted by the technical assistance on project management, will carry out all activities associated with the successful delivery of the project, which shall include, but not limited to, the following:

A3-4 *Pre-construction Phase Activities* – (i) Prepare the TOR and perform the associated tasks for the procurement of Technical Assistance (ii) performing all tasks associated with the procurement of the consultants and works contractor, including documentation preparation, tender and bid evaluations, negotiations and contract award (iii) coordinate all institutional arrangements in collaboration with SADC secretariat (iv) lead all communication with AfDB, (v) familiarisation with relevant AfDB procedures, (vi) facilitate and ensure all conditions of the loan agreement are duly met.

A3-5 *Construction Phase Activities* – (i) Supervise project implementation; (ii) Supervise and monitor consultants, and contractor; (iii) Facilitate take-over of right-of-way of project site, quarries, and camp sites; (iv) Ensure timely payments to consultants and contractors; (v) Prepare and submit progress reports to the Bank; (vi) Ensure timely

execution and submission of audit reports; (vii) attend tri-party progress review meetings; (viii) oversee the monitoring of Environmental and Social Management Plan and the Monitoring and Evaluation activities of project indicators; (ix) Maintain all project records.

Implementation Supervision by the Bank

A3-6 The Bank will supervise and monitor the project through the Bank's supervision program comprising field supervision mission and desktop activities. The Bank will conduct a minimum of two pre-construction missions to supervise/monitor the resettlement activities of Lumbo village and the progress of institutional arrangements.

Table A3-*1 – Implementation Monitoring Timeframe*

Timeframe	Milestone	Monitoring process	Feedback loop
Q1 - 2012	Project Launching	*Field Mission*	Progress Reporting
Q2-2012	Project Review- Procurement, Institutional Arrangements and Resettlement	*Field Supervision*	Progress reporting
Q3 - 2013	Construction Start + 6 months	*Supervision*	Progress Reporting
Q3 -2014	Construction Start + 18 months	*Field Mission/Midterm Review*	Progress Reporting
Q4 -2016	Substantial completion (3 months prior to construction End date) of civil works	*Field Mission/Project Completion Report*	Project Completion Report
Q4-2017	Defects Liability Period & First year of Operations	*Project Evaluation (Trade Facilitation)*	Monitoring and Trade Facilitation Report
Standard supervision program : Q1-2013; Q1-2014; Q1-2015; Q3-2015; Q2-2016			

Figure A3-1

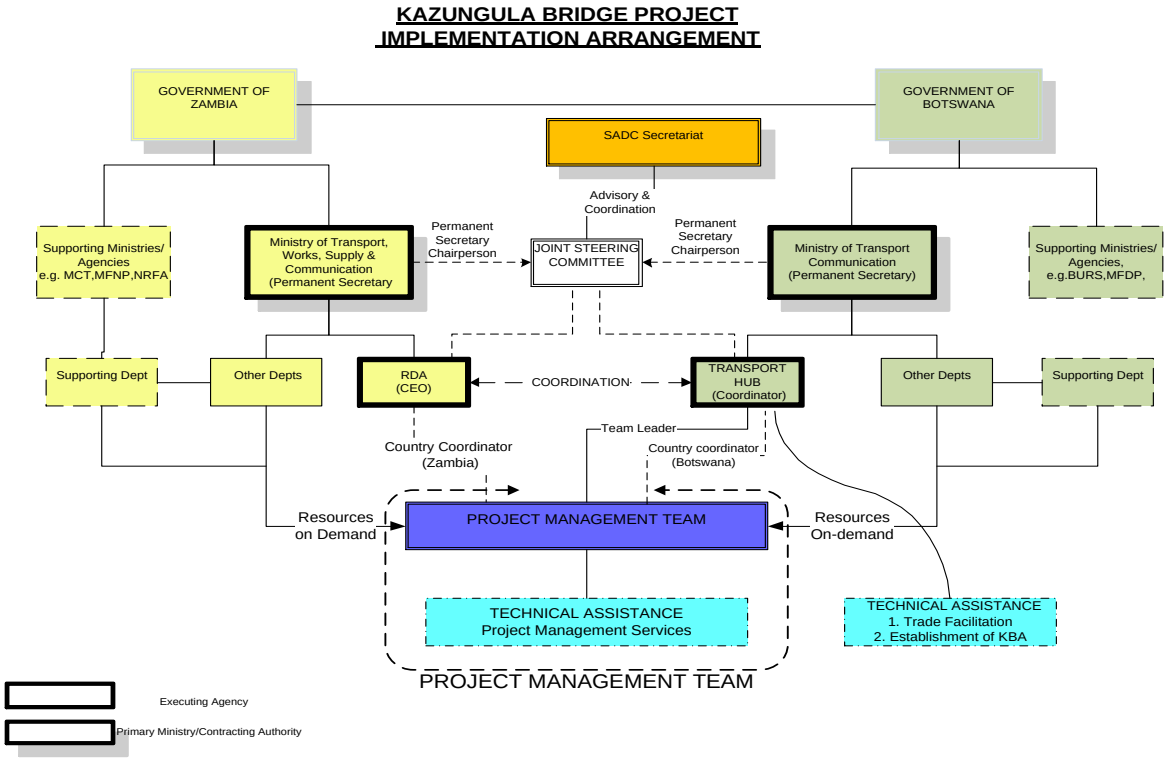


TABLE A3-2: INSTITUTIONAL ARRANGEMENT MATRIX

PARTIES	FORMATION OF & CONSTITUTION OF KBA	SIGNING OF SPONSORS AGREEMENT	CUSTOMS AGREEMENT (AEO)
GRB	X	X	X
GRZ	X	X	X
SADC			X
DATE	31/12/2016	31/12/12	Prior to commissioning

Annex 4

Financial Management and Disbursement Arrangements

Financial Management

A4-1 In accordance with the Bank's Guidelines for the Financial Management and Financial Analysis of Projects (2007) and ORPF FMS Tool Kit (June 2010), a financial management assessment was done by the Bank to assess the adequacy or otherwise of financial management systems which exist at the implementing agency. The objective of the assessment was to determine whether the implementing agency, National Road Fund Agency (NRFA), has the minimum financial management arrangements, to ensure that: (a) project funds are used only for the intended purposes, in an efficient and economical way; (b) the project's financial reports will be prepared in an accurate, reliable, and timely manner; (c) internal controls exist which allow early detection of errors, unusual practices as a deterrent to fraud and corruption; and that (d) project assets are safeguarded. The overall conclusion of the financial management assessment of the NRFA is that the financial management risk for the Project is moderate and the existing financial management arrangement satisfies the Bank's minimum requirements.

Disbursement Arrangements

A4-3 *Disbursement Conditions* - The first disbursement on each loan will not be made until the loan enters into force and conditions precedent to first disbursement as stipulated in the loan agreement has been fulfilled. Prior to submitting the first request for disbursement, the borrower shall communicate to the Bank the person (persons) authorized to sign the withdrawal applications together with the authenticated specimen signature(s).

A4-4 *Disbursement Method* - The Disbursement methods applicable to the various components of the project is summarized below. A change to a method other than that agreed upon in this table will require the prior approval of the Bank.

Audit Arrangements

A4-5 In accordance with Bank policy, Borrowers are requested to submit audited financial statements of Bank –funded projects no later than six months after the end of each fiscal year. The objective of the audit of the Project's financial statements is to enable the auditors to express a professional opinion on the financial position of the Project and on the statement of receipts and expenditures covering the whole period of the Project implementation activities. The audit will be carried out by an independent external auditor acceptable to the Bank and the audit report submitted along with the management letter to the Bank within six months after the end of each fiscal year adopted for the project of 31 December. The procurement of the consultancy services for the audits will be in line with Bank's procedures and the cost financed from the proceeds of the ADF Loan.

Table B4-1 – Proposed Disbursement Arrangements (ADF Component)

Project Components	Amount UA Million Base Cost	Disbursement Method
Civil Works	42.92	Direct Payment
Consulting Services: Audits	0.06	Direct Payment
Technical Assistance (ITF Grant)	2.48	Direct Payment
Miscellaneous (Resettlement, ESMP	2.34	Direct Payment
Feasibility studies and Design	5.00	Direct Payment

Procurement Arrangements

A5-1 The procurement arrangement for the project is described in Section 4.2. The components, the cost and percentage share by co-financier and the proposed applicable procurement rules and procedures are summarised in the A5.1 below.

Table A5.1 Summary of Procurement Arrangements (in UA million)

Project Categories	Amount (UA m) Base Cost	Selection Procedure	Applicable Rules and Procedures	% COST Share AfDB	JICA	Pre-Qualification	Bank Prior Review
Bridge	59.24*	ICB	JICA	31%	69%	Y	N
OSBP Facilities Zambia	11.88	ICB	AfDB	100%		N	Y
OSBP Facilities Botswana	14.06	ICB	JICA	0%	100%	N	N/A
Access Road – Botswana	6.16	ICB	JICA	0%	100%	N	N/A
Access Road – Zambia	6.16	ICB	AfDB	100%	-	N	Y
Supervision Consultant	9.56	QCBS	JICA	0%	100%	n/a	N/A
Technical & Financial Audits	0.06	LCS	AfDB	100%	-	n/a	Y
Technical Assistance	2.48	QCBS	AfDB	100%		n/a	Y
Feasibility Studies & Design	5.0	QCBS	AfDB	100%		n/a	Y
Resettlement/Compensation	2.59	Force Account		45%		N	N
Goods	13.63	Shopping	JICA		50%	N	N/A
**Includes Implementation of ESMP ;*							

A5-2 ***Country Systems:*** The country systems administered by the ZPPA of Zambia and PPADB of Botswana, have been reviewed for adequacy and suitability for Bank funded projects. While they were found to have sound legal framework for public procurement, there are shortcomings in meeting the Bank's requirements on ICB requirement and therefore country systems will not be used. Some key shortcomings are: standard solicitation documents for the procurement of goods, works and services are still not in place. Current practice of using other bidding documents which are not officially adopted at the discretion of procurement entities compromises the procurement system.

A5-3 ***General Procurement Notice***: It is envisage that upon approval of AfDB portion of the loan for the project, General Procurement Notice (GPN) will be posted in the Bank Website and in the UNDB online for the ADF funded components. The text for the GPN will be agreed with the GRZ and GRB prior to publication.

A5-4 ***Review Procedure***: For the packages that are fully financed from ADF resources, the following documents are subject to review and approval by the Bank before promulgation.

- General Procurement Notices
- Invitation for pre-qualification/ Specific Procurement Notice/ Invitation for EOI
- Tender Documents and Requests for Proposals from Consultants
- Pre-qualification assessments, Tender Evaluation Reports, Evaluation of Consultants' Proposals including any recommendations for contract award, and
- Draft Contracts, if the Form of Contract document in the Standard Bidding Document and RFP have been amended

A5-6 ***Procurement Plan*** – The Borrower shall furnish to the Bank for its approval an acceptable Procurement Plan acceptable to the Bank. The Bank shall review the procurement arrangements proposed in the Procurement Plan during Loan Negotiations for its conformity with the Loan Agreement and its Rules. The Procurement Plan shall cover an initial period of at least 18 months. The Borrower shall update the Procurement Plan on an annual basis or as needed always covering the next 18 months period of project implementation. Any revisions proposed to the Procurement Plan shall be furnished to the Bank for its prior approval.

Economic Analysis

Situation analysis

A6-1 Currently, the Kazungula crossing operates with two ferries, each of which can accommodate one heavy goods vehicle (HGV), 1-2 cars or small trucks and pedestrians. Each trip takes 30 minutes including loading and off-loading. Operating on a 12hr day, the throughput is 24HGV per day hence a total of 48-50 HGV. During rainy seasons (February to April) at high flood level, crossing time is doubled thus halving throughput. The reduced service is further exacerbated by the unreliability of the ferry with frequent breakdowns averaging a day every two days, implying only 50% ferry reliability. Although the limited capacity of the ferry is main cause of the bottleneck, some delays are attributed to inefficient custom procedures. The project objective therefore also targets streamlining the operational procedures at the border post. The purpose of the project is to reduce the travel transit time and increase throughput.

Methodology

A6-2 Economic appraisal of the project refers to the modification of the existing economic activity by analyzing an "incremental" situation by calculating the future costs and benefits for "with" and "without" project, and then reflecting the incremental difference of the two. Incremental benefit data is then used to calculate net present values (NPV), economic internal rates of return (EIRR), benefit-cost ratios (BC), and thus determine whether the project will generate enough additional benefits to justify the additional costs. The data used in the analysis were based on the traffic survey and data collected from various sources. The traffic data collection campaign was used to calculate origin-destination matrices, which in turn was employed as input to the traffic modelling process. The traffic surveys were carried out at the following border crossings: namely Kazungula, Victoria Falls, Chirundu and Katima Mullio, and Kariba to establish traffic distribution of the corridor. The traffic along alternative corridors which will divert to the route via the Kazungula Bridge was taken into consideration in the origin-destination survey.

Project Cost

A6-3 The economic costs considered in the analysis are the costs related to the "extra-dosed" cable stay bridge, the construction costs of which (excluding taxes and duties) amount to of USD 92.5 million, (with an annual maintenance of 0.3% of the investment cost), access roads, with an investment of USD 19.7 million (annual maintenance cost of 2% of the investment cost, and USD 41.4 million for the two border posts. Price contingencies, taxes and duties are not included. Including additional cost on consultancy services and miscellaneous cost, total economic cost used is US$201 million. Project construction period is over 4 years with cost distribution as 25%:30%:30%:15%. Compensation cost is excluded for the analysis. Standard conversion factor of 0.8 was used to derive economic cost. All analysis components have been entered into the model in US dollars at the prices prevailing in 2011. The analysis compares the annual streams of capital investment and maintenance costs and compares them to annual stream of benefits by computing the net present value (NPV) and the economic internal rate of return (EIRR) calculated on the basis of opportunity cost of 12% in Zambia and Botswana.

Assumptions

A6-4 The economic analysis compares **two scenarios**:

(i) "Without Project".

This assumes current ferry operation however with improvement in reliability of the ferry by investment in two new ferries. This is based on the premise that a 'do-minimum' or 'do nothing' scenarios are unrealistic as either scenarios are unsustainable. This is also a

reflection of the recent investment by GRB in a new ferry. The cost of the new ferries amounts to USD 4.6 million incurred in 2012 and 2032.

(ii) "With Project" is the construction of the new infrastructure system including bridge, access road and OSBP, and all complementary components.

Residual values including the bridge, access road, and the border posts are calculated for the period of 30 years. The design life was rationalised to take into account of the differing 50 years and 25 years design life for the bridge and border post respectively.

Benefits

A6-5 On the benefits, the main impact on traffic is related to the ferries limited capacity. The principal benefits of the project are derived from reductions in road users costs (RUC), comprising time savings for normal traffic, time savings for diverted traffic, time value of per truck (Source SATN: Comparative Transit Transport Cost Analysis 2001). The latter includes cargo inventory (Source: The World Bank), driver wage, average value of cargo at the Zambian border posts. The benefits also comprises savings in vehicle operating costs, and additional benefits due to the value of investment plus operating and maintenance costs saved by not improving the current ferry system. The time saving of 24 hours (30 minus 6, based on 12-hour day operations) has been used in the analysis. The time value data on time saving benefits are provided in table A6-1.

Table A6-1 Time value per truck ($/hour)

Daily fixed cost	Inventory cost	Truck driver salary	Cargo value	Total
13.54	1.01	2.1	0.77	17.42

Results

A6-6 The results of economic analysis based on measures of economic viability (EIRR and NPV) are found robust with an EIRR of 23.0% for the project and NPV of USD 172 million. A sensitivity analysis was conducted by assessing the implications of (a) a cost increase by 20%; (b) a decrease in benefits by 20%; and a concurrent increase in cost of 20% and a 20% decrease in benefits. The economic parameters are summarised and presented in Table A6-2.

Table A6-2 – Results Summary

	Base scenario	Costs +20%	Benefits -20%	Costs +20 Benefits -20%
EIRR (%)	23.0	21	20.4	17.5
NPV (US%, million)	172	147	112	87
Benefit/Cost ratio	2.34	1.95	1.87	1.56