

# **PROJECT BRIEF**

**FOR**

**THE DESIGN, BUILD, FINANCE, OPERATE AND TRANSFER OF THE  
BORDER INFRASTRUCTURE, NDOLA TO MUFULIRA ROAD, AND  
ACCESS ROAD TO SAKANIA BORDER POST ON PRIVATE PUBLIC  
PARTNERSHIP (PPP) BASIS**

**IN THE**

**COPPERBELT PROVINCE**

**IN THE**

**REPUBLIC OF ZAMBIA**

**BY**

**CITIZENS FOR A BETTER ENVIRONMENT (CBE) CONSORTIUM**

**JUNE, 2022**

# **PROJECT BRIEF FOR THE DESIGN, BUILD, FINANCE, OPERATE AND TRANSFER OF THE BORDER INFRASTRUCTURE, NDOLA TO MUFULIRA ROAD, AND ACCESS ROAD TO SAKANIA BORDER POST ON PRIVATE PUBLIC PARTNERSHIP (PPP) BASIS**

## **1. Overview**

The Ministry of Commerce Trade and Industry (“the Authority”) has floated the Request for Competing Proposals (RCP) seeking a private partner for engineering, procurement, construction, finance, operations and maintenance with regard to the border post infrastructure at Sakania Border, Ndola-Mufulira Road and Access Road Sakania Border Post (“the Project”) on a design, build, finance, operate and transfer (DBFOT) model pursuant to the amended Public Private Partnership (PPP) Act, 2009 of the Laws of Zambia.

## **2. Ministry of Commerce, Trade and Industry**

The Authority is the executive organ of the Government of the Republic of Zambia (GRZ) charged with the responsibility of development of commerce, trade and industry, including ports of entry, to attract private investment in the country. The Ministry has identified border post infrastructure, Ndola to Mufulira Road, and access road to Sakania Border Post for development through the PPP arrangement under the DBFDT model. After completion, the Project is expected to improve trade facilitation through shortened border crossing time and costs of doing business. It would also yield other benefits including creation of jobs, women and youth empowerment, transfer of technology and skills as well as enhancement of revenue collections for both Government and the private investors. The proposed partnership would also result in a win-win situation for both the private party awarded the Concession and the Government.

## **3. The Project**

The Authority intends to develop border infrastructure at Sakania Border, the Ndola to Mufulira Road (M4 Road), and the access road to Sakania Border Post. This will involve engineering, procurement, construction, finance, operations and maintenance of the developed infrastructure.

The road component of the Project has been split into three segments: (i) starting at junction of M4 Road with T3 (Levy Mwanawasa Stadium roundabout) to Kamalasha Junction is planned to be developed to a two-lane dual carriageway (2+ 2 lanes both sides); (ii) starting from Kamalasha Junction to Sakania Border Post, is planned to be a one plus one (1+1) rigid pavement to replace existing gravel motorway; and (iii) starting from Kamalasha Junctions to Mufulira is a two-lane dual carriageway (2 + 2 lanes).

For this purpose, preliminary design and technical studies have already been carried out by the Citizens for the Better Environment Consortium (the Consortium) and herein presents them to prospective partners in the Czech Republic to provide finance the project through a loan arrangement; main construction contractor; as well as other border-related service providers. Interested banks, construction contractors, and other service providers ought to express interest in writing to indicate their willingness to partners with the Consortium for the project if the Consortium wins the bid for the Project. Such expressions of interest, and profiles could then be submitted to the Consortium by 28<sup>th</sup> June, 2022 so that they are presented in competing technical and financial proposal (the Proposal) to the Authority in response to the RCP.

#### **4. The Scope of Work**

Although the Authority has advertised for development of border infrastructure at Sakania Border, the Ndola to Mufulira Road (M4 Road), and the access road to Sakania Border Post, the Consortium intends to submit a Competing Proposal which also includes development of border infrastructure at Mokambo Border and the Mufulira to Mokambo Road (M5) for strategic reasons. The rationale for the proposed inclusion is that in the event of a technical glitch at Sakania Border, road freighters ought to have an nearby alternative exit or entry route. Therefore, the Concessionaire shall be responsible for the overall implementation of the proposed Competing Project, including but not limited to the investigation, study, engineering, procurement, construction, financing, operations and maintenance of the Project in line with the terms and conditions provided in the Concession Agreement.

In this regard, the Consortium proposes to design, build, finance, operate and transfer the following:

- a) Paved dual road linking Ndola-Sakania
- b) Paved dual road linking Sakania-Mufulira
- c) Paved dual road linking Mufulira-Mokambo
- d) Paved single road (approach and site) at Sakania Border Post
- e) Government cluster offices (Sakania and Mokambo)
- f) Auxiliary buildings (warehousing, passenger terminal, logistics, banking, shopping etc. (Sakania and Mokambo)
- g) Truck parking bays (Sakania and Mokambo)
- h) Toll Plaza (Ndola-Sakania Road and Mufulira-Mokambo Road)
- i) Weighbridge (Sakania and Mokambo border posts)
- j) ICT and other equipment for border cluster operations (Sakania and Mokambo)
- k) Truck Parking bays, Perimeter Fencing, Guardhouses (Sakania and Mokambo)
- l) Railway siding (Sakania)

- m) Socio-economic programmes for affected and vulnerable persons including resettlement; health; road safety; environmental protection; home-ownership scheme; land tenure; micro-finance, etc. (Sakania and Mokambo)

The proposed road works involve approximately 86.8 km of road spit in five segments shown in Table 1 below:

**Table 1:** Division of Highway Sections

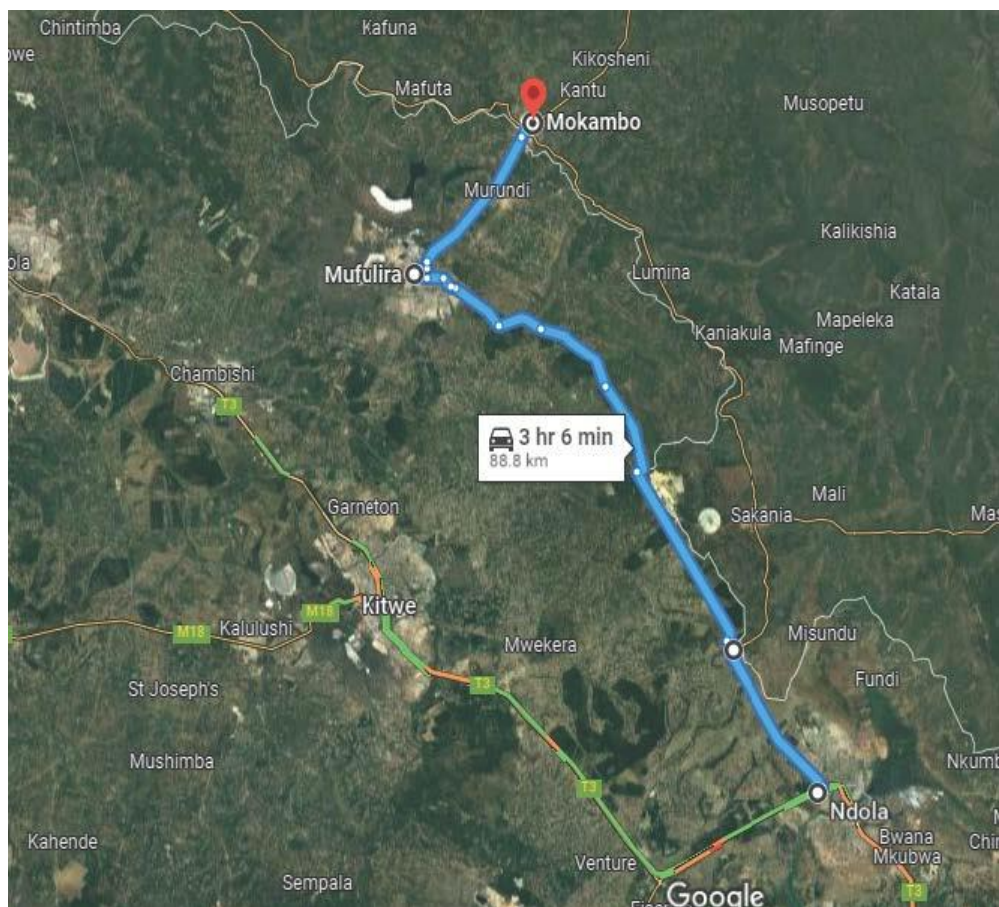
Section	Highway Description	Start (km)	End (km)	Length (km)
1	M4 Road	0	16.8	16.8
2	M4 Road	16.8	59.0	42.2
3	Access to Sakania Border	0	1.0	1.0
4	M5 Road- Section 4	0	21.0	21.0
5	Security Road (gravel) x2	0	5.8	5.8
<b>Total Length</b>				<b>86.8</b>

The Consortium's view is that sections of M4, M5, and Sakania border access roads need to be upgraded to all weather, surfaced two-lane road with shoulders, adhering to international standards. At the moment, it takes about three hours drive to cover a distance of less than 90 km from Ndola to Mokambo Border Post. Focus is on strengthening and widening the existing M4 and M5 pavement to about seven (7) meters (2+2), by asphalt-cement surfacing; plus, 1.0-meter shoulders on each side as well as upgrading the Sakania and Mokambo border posts, access road from gravel to paved road (1+1). This will enable the roads, among other capabilities, to carry, at the minimum, 20-foot container trucks.

## 5. Private Public Partnership Arrangement

The relationship between Authority and the party to be selected as the Concessionaire, shall be governed by the Concession Agreement entered into between the Authority and Government, which will detail the contributions and responsibilities of Authority and the Concessionaire, establish the economic relationship inherent in the transaction, and set out all other terms and conditions necessary to define the relationship between the two parties. The relationship shall be through a Final Concession Agreement.

## 6. Location of the Project Area



## 7. Concession Implementation

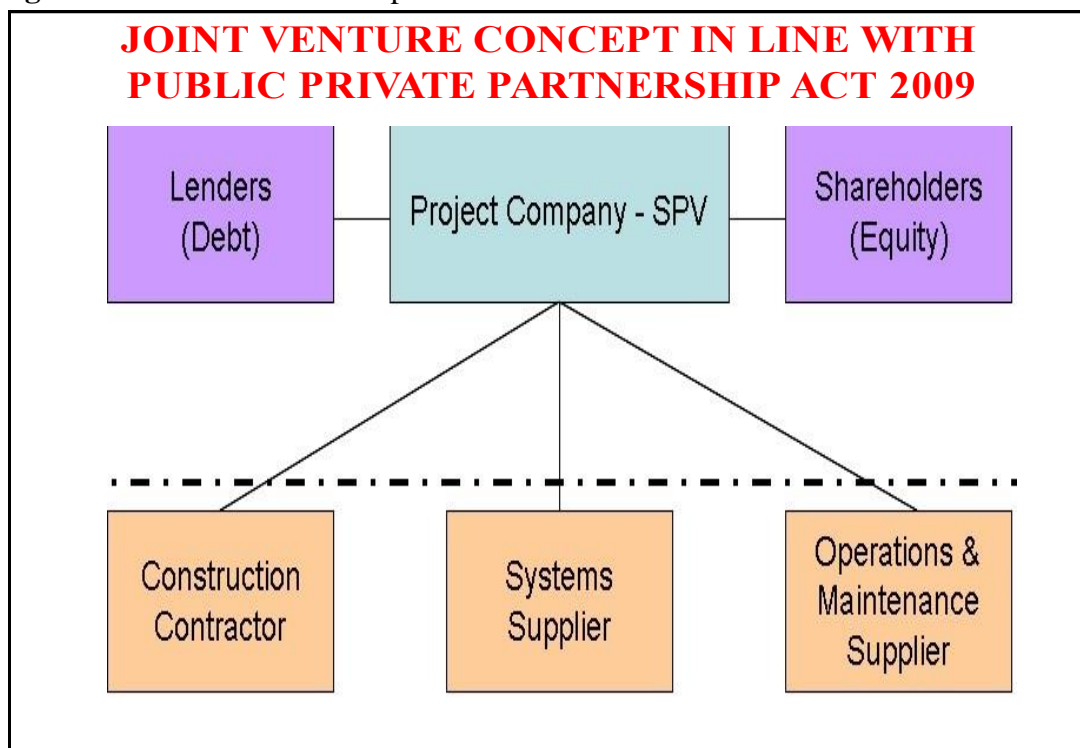
Subject to and in accordance with the terms and conditions set forth in the Final Concession Agreement, the Authority shall grant to the Concessionaire the right to investigate, study, design, engineer, procure, construct, finance, operate, maintain and transfer the Project and to exercise and/or enjoy the rights, powers, privileges, authorizations and entitlements as set forth in the Concession Agreement (collectively “the Concession”).

If selected as the Concessionaire, the Consortium proposes to implement the Project through a Special Purpose Vehicle (the “SPV”) incorporated under the laws of Zambia as a corporate entity, with such company’s shareholding substantially the same as indicated in this Bid, and as shall be mutually agreed upon by shareholders from time to time.

## 8. Joint Venture Concept

The Joint Venture Concept is as shown in the Figure 2 below:

**Figure 2:** Joint Venture Concept



The Consortium is seeking for partners from the Czech Republic to play the role of **lenders (debt); equity; construction contractors; systems supplier.**

## 9. Government Support

In order to enhance the financial viability of the Project, the Authority is willing to offer the following support:

- (i) **Sharing of Upside Revenues:** From the Substantial Completion Date, the Concessionaire shall be allowed to retain all toll revenues which are up to the Benchmark Toll Revenues, *provided however* in the event the actual toll revenues during a year are greater than 100% of the Benchmark Toll Revenues, then the excess percentage over and above the Benchmark Toll Revenues, as determined by the Consortium, if it is the Successful Bidder in the bidding process, shall be shared between the Authority and the Concessionaire on a sliding scaled ranging from 30% to 50% of the excess toll revenues shall be payable to the Authority and the Concessionaire.

- (ii) **GRZ Properties:** In order to provide further support to the Project, GRZ has also expressed willingness to provide land along the Project trade corridor, to facilitate the Concessionaire in securing adequate space for Project.

## 10. Project Financing Scope

**Table 2: Project Cost and Financing Summary**

<b>Primary Infrastructure (Improving Road Infrastructure)</b>	
<ul style="list-style-type: none"> <li>M4, M5 Four-lane @ US\$463,750 per km per lane) (80 km x 4 lanes)</li> <li>Access Road to Sakania Border Post (1 km)</li> <li>Toll Plazas (2) Plazas @ US\$2.5 million each</li> <li>Weighbridges (2) @ US\$1.8 million each</li> <li>Truck Parking Bays (1,500 trucks capacity- Sakania/Mokambo)</li> <li>Perimeter Security gravel road (2.9 km)</li> </ul>	US\$ 148.40 million US\$0.70 million US\$5.00 million US\$3.60 million US\$36.24 million US\$0.04 million
<b>Secondary Infrastructure (Improving Trade Facilitation)</b>	
<ul style="list-style-type: none"> <li>Government Cluster Offices</li> <li>Other Buildings (warehousing)</li> <li>Equipment including Scanners, ICT</li> <li>Procurement of cold chain facilities</li> <li>Procurement of ClearVU security fencing</li> </ul>	US\$36.00 million US\$2.00 million US\$18.50 million US\$1.20 million US\$1.70 million
<b>Social Infrastructure (Improving economic and social Facilitation)</b>	
<ul style="list-style-type: none"> <li>Procurement of Engineering Consultancies</li> <li>Procurement for environmental and social management</li> </ul>	(US\$ 3.00 million) US\$ 2.10 million
<b>Project Cost at Financial Close (less procurement of Engineering consultancies)</b>	<b>US \$ 255.48 million</b>
<b>Contingency</b>	<b>US\$25.55 million</b>
<b>Interest During Implementation @ 6% per annum</b>	<b>US\$20.51 million p.a.</b>
<b>Interest Accumulated over 23 years</b>	<b>US\$216.157 million</b>
<b>Total Debt</b>	<b>US\$471.64 million</b>
<b>O &amp; M Costs @ 7.325% of Construction Costs</b>	<b>US\$18.713 million</b>
<b>Funding:</b>	
Government Grant	<b>0%</b>
Debt	<b>80%</b>
Equity	<b>20%</b>
<b>Concession Period</b>	<b>25 Years</b>
<b>Toll Gate Tariffs escalation</b>	<b>Assumed at 6% per annum for first 12 years and thereafter at 4% for the remainder of the Concession</b>
<b>Truck Traffic Revenue Forecast (Border Crossing Fees)</b>	<b>US\$2,201 million</b>
<b>Revenue Forecast (Road Toll)</b>	<b>US\$37.4 million</b>
<b>Rental Revenue</b>	<b>US\$5.16 million</b>
<b>Total Revenue</b>	<b>US\$2,244 million</b>
<b>Returns on Investment</b> (Surpasses the ADB/World Bank required threshold of 12.0% EIRR)	<b>EIRR = 18.17%;</b> <b>NPV = US\$ 194.64 million</b> <b>Gross Return = 778.53%</b> <b>Net Cash Flow= US\$1,988.993 million</b>

## 11. Revenue Streams

**Table 3:** Projected Revenue from Cargo Trucks for Border Crossing Fees

<b>PROJECTED REVENUE FROM TRUCK BORDER CROSSING (Price Escalation Included) in US\$</b>			
<b>Year</b>	<b>Sakania</b>	<b>Mokambo</b>	<b>Sakania and Mokambo (Trucks Only)</b>
1	17,791,560.00	4,380,000.00	22,171,560.00
2	20,273,560.00	4,899,082.56	25,172,642.56
3	22,407,808.73	5,479,682.63	27,887,491.36
4	24,752,569.91	6,129,090.78	30,881,660.69
5	27,380,518.25	6,855,461.59	34,235,979.83
6	30,338,751.48	7,667,916.05	38,006,667.53
7	33,678,700.63	8,576,656.12	42,255,356.75
8	37,461,151.06	9,593,092.79	47,054,243.85
9	41,757,759.64	10,729,989.40	52,487,749.04
10	46,655,865.32	12,001,621.90	58,657,487.23
11	52,260,723.43	13,423,958.12	65,684,681.55
12	58,700,013.78	15,014,858.24	73,714,872.02
13	64,883,016.31	16,477,425.56	81,360,441.86
14	71,953,111.23	18,082,458.62	90,035,569.85
15	80,079,679.01	19,843,834.75	99,923,513.76
16	89,476,434.58	21,776,783.01	111,253,217.59
17	100,408,921.78	23,898,015.89	124,306,937.66
18	113,216,079.33	26,225,873.82	139,441,953.15
19	128,330,505.26	28,780,483.74	157,110,989.00
20	146,311,601.56	31,583,933.10	177,895,534.66
21	167,889,737.00	34,660,460.85	202,550,197.85
22	194,030,761.35	38,036,667.02	232,067,428.38
23	226,025,334.63	41,741,742.68	267,767,077.31
<b>TOTALS</b>	<b>1,796,064,164.28</b>	<b>405,859,089.22</b>	<b>2,201,923,253.50</b>



**Table 3: Projected Revenue from Road Tolling and Border Facilities Rentals**

<b>COMBINED REVENUE FOR SAKANIA AND MOKAMBO</b>					
<b>Projected Revenue from Toll Gates and Rentals (in US\$)</b>					
<b>Year</b>	<b>Trucks</b>	<b>Cars</b>	<b>Small Buses</b>	<b>Big Buses</b>	<b>Rentals</b>
1	1,350,000.00	22,500.00	112,500.00	140,625.00	224,400.00
2	1,350,000.00	22,500.00	112,500.00	140,625.00	224,400.00
3	1,350,000.00	22,500.00	112,500.00	140,625.00	224,400.00
4	1,350,000.00	22,500.00	112,500.00	140,625.00	224,400.00
5	1,350,000.00	22,500.00	112,500.00	140,625.00	224,400.00
6	1,350,000.00	22,500.00	112,500.00	140,625.00	224,400.00
7	1,350,000.00	22,500.00	112,500.00	140,625.00	224,400.00
8	1,350,000.00	22,500.00	112,500.00	140,625.00	224,400.00
9	1,350,000.00	22,500.00	112,500.00	140,625.00	224,400.00
10	1,350,000.00	22,500.00	112,500.00	140,625.00	224,400.00
11	1,350,000.00	22,500.00	112,500.00	140,625.00	224,400.00
12	1,350,000.00	22,500.00	112,500.00	140,625.00	224,400.00
13	1,350,000.00	22,500.00	112,500.00	140,625.00	224,400.00
14	1,350,000.00	22,500.00	112,500.00	140,625.00	224,400.00
15	1,350,000.00	22,500.00	112,500.00	140,625.00	224,400.00
16	1,350,000.00	22,500.00	112,500.00	140,625.00	224,400.00
17	1,350,000.00	22,500.00	112,500.00	140,625.00	224,400.00
18	1,350,000.00	22,500.00	112,500.00	140,625.00	224,400.00
19	1,350,000.00	22,500.00	112,500.00	140,625.00	224,400.00
20	1,350,000.00	22,500.00	112,500.00	140,625.00	224,400.00
21	1,350,000.00	22,500.00	112,500.00	140,625.00	224,400.00
22	1,350,000.00	22,500.00	112,500.00	140,625.00	224,400.00
23	1,350,000.00	22,500.00	112,500.00	140,625.00	224,400.00
<b>TOTALS</b>	<b>31,050,000.00</b>	<b>517,500.00</b>	<b>2,587,500.00</b>	<b>3,234,375.00</b>	<b>5,161,200.00</b>

## 12. Construction Performance Security

Prior to commencement of construction activities, the Successful Bidder (as Concessionaire) shall provide to the Authority a Construction Performance Security to ensure the completion of the construction of the Project in accordance with the Concession Agreement. The Construction Performance Security shall have a face amount equal to a percentage of the Pre-Estimated Project Costs.

The Construction Performance Security shall answer for, and guarantee the completion of the construction of the Project in accordance with the performance standards and the timetable, and the payment of liquidated damages, which Concessionaire may be required

to pay pursuant to the Concession Agreement. The Construction Performance Security shall be valid for specified number of months after the Scheduled Substantial Completion Date.

### **13. Financial Close**

The Concessionaire shall be required at its own cost, expenses and risk to make such financing arrangement as would be necessary to finance the Project and to meet the obligations under the Concession Agreement in a timely manner.

Provided further that Financial Close shall be achieved no later than six (6) months from the signing of the Concession Agreement. This time period however, may be extended by Authority by up to another six (6) months upon request of the Concessionaire with appropriate supporting reasons.

### **14. Project Monitoring**

The Authority and the Concessionaire shall jointly appoint an Independent Engineer and Independent Auditor jointly for overseeing the Concessionaire's activities, including, but not limited to, assessing various performance metrics such as quality of the work done. The remuneration, cost and expenses of the Independent Engineer and Independent Auditor shall be borne by the Concessionaire. The rights and obligation proposed by the Authority are further set-out in the Concession Agreement

### **15. Maintenance and Operation**

The Concessionaire shall be responsible to operate and maintain the Project that includes:

- i. Operation and maintenance of the Project;
- ii. Toll and weighbridge operations and maintenance of toll booths; and
- iii. all other obligations set-out in the Concession Agreement.

### **16. Annual Toll Escalation**

Six percent (6%) annual toll escalation shall be applied for the first twelve (12) years after the Commencement Date. Thereafter, four percent (4%) toll escalation shall be applied annually. All calculations of Tolls shall be in the metric system and calculations rounded to the nearest multiple of ten (10).

### **17. Viability of the Project**

As is shown in Table below, a weighted average for the cost of a scenario based on

US\$255.480 million of total cost for both border posts, and a 25 years concession period, of which 2 years is construction period, the projected total revenue over the period of 23 years is US\$2,244,473,828.50; the EIRR is 18.18% and the NPV is US\$194,634,002.80.

Alternative 3 (Both OSBPs) produces the highest EIRR of 18.17%; a positive NPV of US\$ 194.64 million; Gross Return of 778.53%; and Net Cash Flow of US\$1,988.993 million. It passes the ADB/World Bank required threshold of 12.0% EIRR. It also complies with the Government Policy for M4 and M5 Road of dual way upgrade, and International Standard 7 m wide, asphalt concrete standard.

Alternative 1 (Sakania Only) produces the second level EIRR, of 15.21%; NPV of US\$ 95.628 million, both of which passes the ADB/World Bank required threshold of 12.0% EIRR. The Gross Return of 778.53% and Net Cash Flow of US\$1,988.993 million are both returns on investment.

However, strategically it is not ideal in case of technical challenges. For example, in an event of ICT failure at Sakania OSBP on the Zambian side, diverting the cargo traffic to Mokambo Border Post would be extremely cumbersome and very expensive to the freighters since the road from Sakania to Mufulira is in deplorable state and impassable for heavy cargo traffic.

In case of such system failure, this would entail diverting the truckers to drive back to Ndola and then use T3 to proceed to Kasumbalesa or M4 via Kitwe-Sabina-Mufulira.

Unquestionably, Alternative 3 based on 7m road-way width and asphalt concrete paving type of road provides superior engineering standards, adhering to International Standards, and in line with Government vision for a long-term National Road Network.

The only limitation Sakania Only Alternative is that this recommendation lacks an alternative viable route for truckers in the event of technical challenges which may require diverting traffic to a nearest alternative border post. An investment solely on Sakania OSBP is not ideal in the medium to long term operations.

Given these difficulties the Consortium proposes to improve the entire M4-M5 Road Corridor, and border facilities at both Sakania and Mokambo border posts.

**Table 4:** Cost Benefit Analysis of three Alternatives for Border and Road Improvement

OSBP	Projected Income (US\$)	No. of Years	Economic Index	Sakania Border Post only (Alternative 1)	Mokambo Border Post only (Alternative 2)	Both Sakania and Mokambo (Alternative 3)
				US\$255.48 million	US\$255.48 million	US\$255.48 million
Sakania Only	1,796,064,164.28	23	NPV (million US\$) at 12%	95.628	-	-
			EIRR (%)	15.21	-	-
			Gross Return (%)	603.02	-	-
			Net Cash Flow (million US\$)	1,540.58	-	-
Mokambo Only	405,859,089.22	23	NPV (million \$) at 12%	-	-171.88	-
			EIRR (%)	-	3.027	-
			Gross Return (%)	-	58.86	-
			Net Cash Flow (million US\$)	-	150.38	-
Sakania and Mokambo combined	2,244,473,828.50	23	NPV (million \$) at 12%	-	-	<b>194.634</b>
			EIRR (%)	-	-	<b>18.176</b>
			Gross Return (%)	-	-	<b>778.53</b>
			Net Cash Flow (million US\$)	--		<b>1,988.993</b>

## 18. Conclusion and Recommendations

Based on the standard ADB guidelines (NPV>0, EIRR>12%), the project passes the threshold of economic analysis. Both alternatives produce positive EIRRs of 15.6 % and 20.824% respectively. This Competing Proposal is based on the alternative that produces the highest EIRR, which is 20.824%.