THE WORLD BANK
IBRD • IDA | WORLD BANK GROUP

FOR OFFICIAL USE ONLY

Report No: PAD5548

INTERNATIONAL DEVELOPMENT ASSOCIATION

PROJECT APPRAISAL DOCUMENT
ON A
PROPOSED GRANT

IN THE AMOUNT OF SDR 201.2 MILLION
(US$270 MILLION EQUIVALENT)

TO THE

REPUBLIC OF ZAMBIA

FOR A

TRANSPORT CORRIDORS FOR ECONOMIC RESILIENCE PROJECT

January 29, 2024

Transport Global Practice
Eastern and Southern Africa Region

CURRENCY EQUIVALENTS

(Exchange Rate Effective {December 31, 2023})

Currency Unit =	Zambian Kwacha
US$1 =	ZMW 25.73
US$1 =	SDR 0.75

FISCAL YEAR
January 1 - December 31

Regional Vice President:	Victoria Kwakwa
Country Director:	Boutheina Guermazi and Nathan M. Belete
Regional Director:	Wendy E. Hughes
Practice Manager:	Almud Weitz
Task Team Leaders:	Aymen Ahmed Osman Ali, Moustafa Baher El-Hefnawy

ABBREVIATIONS AND ACRONYMS

8NDP	8th National Development Plan
AfDB	African Development Bank
AWPBs	Annual work plans and budgets
CBM	Coordinated Border Management
CCTTFA	Central Corridor Transit Transport Facilitation Agency
CERC	Contingent Emergency Response Component
CESMPs	Contractor' ESMPs
CMS	Customs Management System
COMESA	Common Market for Eastern and Southern Africa
CPF	Country Partnership Framework
DRC	Democratic Republic of Congo
E&S	Environmental and Social
EAC	East African Community
ECTS	Electronic Cargo Tracking System
EIRR	Economic Internal Rate of Return
ESF	Environmental and Social Framework
ESIA	Environmental and Social Impact Assessment
ESRS	Environmental and Social Review Summary
FM	Financial Management
GDP	Gross Domestic Product
GFDRR	Global Facility for Disaster Reduction & Recovery
GHG	Greenhouse gas
GoT	Government of the United Republic of Tanzania
GPS	Global Positioning System
GRS	Grievance Redress Service
GRSF	Global Road Safety Facility
GRTI	Gender and Rural Transport Initiative
GRZ	Government of the Republic of Zambia
IDA	International Development Association
IFR	Interim Financial Reports
ITS	Intelligent Transportation System
M&E	Monitoring and Evaluation
MCTI	Ministry of Commerce, Trade & Investment
MGEE	Ministry of Green Economy & Environment
MIHUD	Ministry of Infrastructure, Housing and Urban Development
MoFNP	Ministry of Finance & National Planning
MTL	Ministry of Transport and Logistics

MSMED	Ministry of Small Medium Enterprises Development
NAPA	National Adaptation Program of Action
NDC	Nationally Determined Contribution
NMT	Non-Motorized Transport
NRFA	National Road Fund Agency
OSBP	One Stop Border Post
PAPs	Project Affected Persons
PBA	Performance-Based Allocations
PDO	Project Development Objective
PIU	Project Implementing Unit
POM	Project Operations Manual
PPP	Public-Private-Partnership
PPSD	Project Procurement Strategy for Development
PRAMS	Procurement Risk Assessment and Management System
RAP	Resettlement Action Plan
RDA	Road Development Agency
RECs	Regional Economic Communities
ROW	Right-of-way
RSSAT	Road Safety Screening and Assessment Tool
RTSA	Road Transport and Safety Agency
SADC	Southern African Development Community
SDR	Special Drawing Rights
SEP	Stakeholder Engagement Plan
SMART	Safety, Mobility, Automated, Real-time Traffic Management
SME	Small and medium enterprises
SOEs	Statements of expenditure
SOP	Series of Projects
SORT	Systematic Operations Risk-Rating Tool
TAZARA	Tanzania-Zambia Railway Authority
TCDH	Trade Community Data Hub
TMA	TradeMark Africa
UNCTAD	United Nations Conference on Trade & Development
WIM	Weigh-in-Motion weighbridges
ZRA	Zambia Revenue Authority
ZRL	Zambia Railways Limited

TABLE OF CONTENTS

DATASHEET

BASIC INFORMATION

Country(ies)	Project Name	
Zambia	Transport Corridors for Economic Resilience (TRACER)	
Project ID	**Financing Instrument**	**Environmental and Social Risk Classification**
P180801	Investment Project Financing	High

Financing & Implementation Modalities

[ ] Multiphase Programmatic Approach (MPA)	[✓] Contingent Emergency Response Component (CERC)
[✓] Series of Projects (SOP)	[ ] Fragile State(s)
[ ] Performance-Based Conditions (PBCs)	[ ] Small State(s)
[ ] Financial Intermediaries (FI)	[ ] Fragile within a non-fragile Country
[ ] Project-Based Guarantee	[ ] Conflict
[ ] Deferred Drawdown	[ ] Responding to Natural or Man-made Disaster
[ ] Alternate Procurement Arrangements (APA)	[ ] Hands-on Enhanced Implementation Support (HEIS)

Expected Approval Date	Expected Closing Date
20-Feb-2024	27-Feb-2030

Bank/IFC Collaboration

No

Proposed Development Objective(s)

The PDO of the SOP is to improve efficiency, connectivity and climate resilience of key regional transport and trade corridors in Eastern and Southern Africa.

The PDO of SOP1 is to improve year-round transport and trade connectivity between Zambia and Tanzania and expand economic activity along the Dar es Salaam Corridor in Zambia.

Components

Component Name	Cost (US$, millions)
Resilient transport and trade facilitation systems along the Dar es Salaam Corridor and preparatory studies for ensuing corridors under the SOP	234.00
Corridor-oriented development	21.00
Sectoral capacity development and project management	15.00
Contingent Emergency Response Component (CERC)	0.00

Organizations

Borrower:	The Republic of Zambia
Implementing Agency:	The National Road Fund Agency (NRFA)

PROJECT FINANCING DATA (US$, Millions)

SUMMARY

Total Project Cost	270.00
Total Financing	270.00
of which IBRD/IDA	270.00
Financing Gap	0.00

DETAILS

World Bank Group Financing

International Development Association (IDA)	270.00
IDA Grant	270.00

IDA Resources (in US$, Millions)

	Credit Amount	Grant Amount	SML Amount	Guarantee Amount	Total Amount
Zambia	0.00	270.00	0.00	0.00	270.00

National Performance-Based Allocations (PBA)	0.00	90.00	0.00	0.00	90.00
Regional	0.00	180.00	0.00	0.00	180.00
Total	**0.00**	**270.00**	**0.00**	**0.00**	**270.00**

Expected Disbursements (in US$, Millions)

WB Fiscal Year	2024	2025	2026	2027	2028	2029	2030
Annual	12.00	28.00	39.00	40.00	48.00	50.00	53.00
Cumulative	12.00	40.00	79.00	119.00	167.00	217.00	270.00

INSTITUTIONAL DATA

Practice Area (Lead)

Transport

Contributing Practice Areas

Agriculture and Food, Digital Development, Finance, Competitiveness and Innovation, Infrastructure, PPP's & Guarantees

Climate Change and Disaster Screening

This operation has been screened for short and long-term climate change and disaster risks

SYSTEMATIC OPERATIONS RISK-RATING TOOL (SORT)

Risk Category	Rating
1. Political and Governance	Moderate
2. Macroeconomic	Moderate
3. Sector Strategies and Policies	Moderate
4. Technical Design of Project or Program	Moderate
5. Institutional Capacity for Implementation and Sustainability	Moderate
6. Fiduciary	Moderate
7. Environment and Social	High
8. Stakeholders	Moderate

9. Other	
10. Overall	Moderate

COMPLIANCE

Policy

Does the project depart from the CPF in content or in other significant respects?

[ ] Yes [✓] No

Does the project require any waivers of Bank policies?

[ ] Yes [✓] No

Environmental and Social Standards Relevance Given its Context at the Time of Appraisal

E & S Standards	Relevance
Assessment and Management of Environmental and Social Risks and Impacts	Relevant
Stakeholder Engagement and Information Disclosure	Relevant
Labor and Working Conditions	Relevant
Resource Efficiency and Pollution Prevention and Management	Relevant
Community Health and Safety	Relevant
Land Acquisition, Restrictions on Land Use and Involuntary Resettlement	Relevant
Biodiversity Conservation and Sustainable Management of Living Natural Resources	Relevant
Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities	Not Currently Relevant
Cultural Heritage	Relevant
Financial Intermediaries	Not Currently Relevant

NOTE: For further information regarding the World Bank's due diligence assessment of the Project's potential environmental and social risks and impacts, please refer to the Project's Appraisal Environmental and Social Review Summary (ESRS).

Legal Covenants

Sections and Description

The Recipient shall; (a) No later than three (3) months after the Effective Date, establish and thereafter maintain throughout the implementation of the Project, a Project steering committee; (b) No later than three (3) months after the Effective Date, establish and thereafter maintain throughout the implementation of the Project, a Project technical committee; and (c) No later than three (3) months after Effective Date, establish and thereafter maintain at all times during the implementation of the Project, a Project implementation unit.

Conditions

Type	Financing source	Description
Effectiveness	IBRD/IDA	In line with clauses 5.01 (a-d) of Article V of the Financing Agreement: (a) The Recipient has prepared and adopted the Project Operations Manual in form and substance satisfactory to the Association. (b) The Recipient has prepared and duly executed a Subsidiary Agreement with NRFA, in form and substance satisfactory to the Association. (c) The Recipient has recruited or appointed, into the Project Implementation Unit, the Project coordinator with qualifications, experience, and under terms of reference satisfactory to the Association, and in accordance with Section I.A.4 of Schedule 2 to the Financing Agreement. (d) The Recipient has prepared and duly executed the Project Implementation Memorandum of Understanding with Project Implementing Entities and participating ministries, in form and substance satisfactory to the Association. (e) The RDA has recruited, or appointed, into its environmental and social management unit one social specialist and one occupational health & safety (OHS) specialist.

I. STRATEGIC CONTEXT

A. Regional and Country Context

Regional Context

1. **Diversity in the economies and endowments in Eastern and Southern Africa provides considerable potential for significant gains from deeper integration.** While the region has vast agricultural potential, natural resources, good manufacturing and service industry bases, and a relatively inexpensive large labor endowment, intraregional trade is only 23 percent, well below regional aspirations and rates in Europe. The desire to increase regional integration, economic resilience and food security has motivated several initiatives by the African Union (AU) and the Regional Economic Communities (RECs), including the African Continental Free Trade Area (AfCFTA) established in 2019, creating the largest free trade area in the world. The importance of such initiatives has become more pronounced following the COVID-19 pandemic, Russia's invasion of Ukraine and severe climatic changes.[1]

2. **Climate-resilient and efficient transport connectivity along the main corridors in Eastern and Southern Africa are essential for economic transformation and economic resilience.** Modernizing transport corridors also remains a priority under the 2012-2040 African Union's Program for Infrastructure Development in Africa (PIDA), currently in its second phase.[2] Eastern and Southern Africa is served by 11 major transport corridors (Annex 7) connecting the countries of the region to one another and to ports on the Atlantic and Indian oceans. Reducing climate-related disruptions and increasing the efficiency of these corridors would not only provide reliable routes for international trade, but would help in economic diversification, job creation and attraction of foreign investment in agriculture, value added mining and manufacturing. The corridors would also foster small and medium enterprises (SMEs) along the corridors, contributing to inclusive and sustainable economic development. The availability of multiple climate-resilient corridors also plays an important role in increasing the resilience of communities and economies to changes in corridor physical and operating conditions, and political changes.

3. **Despite the potential of these multimodal corridors, inadequate trade and transport facilitation systems, missing and weak infrastructure links, and inefficient transport and logistics services are major impediments to intraregional trade.** The cost of transport and logistics associated with trade including at border crossings for landlocked countries in Sub-Saharan Africa could be as high as 60 percent of trade values. Reducing the cost of transport connectivity of the land-linked countries of Zambia, Zimbabwe, Malawi, Botswana, and the Democratic Republic of Congo (DRC) could result in economic savings conservatively estimated at 2 percent of their Gross Domestic Product (GDP). Establishing a coordinated regional approach to addressing climate resilience and inefficiencies is therefore necessary for realizing the full potential of these corridors.

4. **The Series of Projects (SOP) aims to address climate resilience and corridor efficiency in a systemic and coordinated manner.** SOP1 focuses on Dar es Salaam Corridor in Zambia, a key regional corridor connecting to the port of Dar es Salaam and is expected to be followed by projects in Zambia and Tanzania, building on agreements between Zambia, Tanzania and other countries as well as recent and ongoing investments by the countries in this and other corridors (see para 23). Ensuing projects are being developed to strengthen climate resilience and efficiency in roads and railways in the Nacala and Walvis Bay corridors starting with Zambia. Future projects will also help directly enable economic activities along the corridors and provide ancillary infrastructure

[1] Climate change is expected to increase the vulnerability of the region, which relies heavily on rain-fed farming.
[2] PIDA estimated efficiency gains of at least US$172 billion in the African regional transport network, with the potential for larger savings from developing and improving the trade corridors.

for climate resilient connectivity.

Country Context

5. **Zambia is a land-linked, resource rich, sparsely populated country in Southern Africa.** It is surrounded by eight countries plus Burundi (connected through Lake Tanganyika), with six of Eastern and Southern Africa's regional corridors passing through the country. The country's population, spread over a vast geographical area (750,000 km^2), much of it urban, is estimated at about 20.0 million (2022) with a growth rate of 2.8 percent per year.[3] The 2021 poverty rate was estimated at 62 percent, with the incidence of poverty three times higher in rural areas than in urban areas, especially for women. While Zambia has made progress in terms of gender equality, a significant gender divide exists in terms of incomes, with women earning about 20 percent less than men as Zambia ranks 62 out of 146 countries in access to economic opportunities in the Gender Gap Index. The country's Human Development Index places it at 154 out of 191 countries and territories.[4]

6. **Zambia has restored macroeconomic stability after defaulting on its external debt in 2020 and its economy is on a sustainable development path.** A large government infrastructure investment program financed largely by non-concessional borrowing pushed public debt to 150 percent of GDP in 2020. The COVID-19 pandemic tipped the economy into a contraction of 2.8 percent in 2020, Zambia's first recession since 1998, and per capita income dropped over the same period to US$1,030 in 2021. Meanwhile inflation reached 22 percent in 2021 and the kwacha depreciated by over 50 percent. Since 2021, however, the authorities have cancelled non-performing projects, cut energy subsidies, shifted spending towards human development, tightened monetary policy, and negotiated terms of debt restructuring with official creditors.[5] The government is committed to mobilizing private capital to close Zambia's infrastructure gaps, including in transport, and to increasing the competitiveness of Zambian firms. The economy is rebounding, with GDP expected to grow by 4.3 percent in 2023 and by an average of around 4.8 percent over the medium term.[3]

7. **Zambia's Eighth National Development Plan 2022-2026 (8NDP) recognizes inadequate transport infrastructure and logistics as constraints to realizing economic transformation and job creation.** The country's economic turnaround depends on successfully catalyzing new growth in manufacturing, tourism, mining, and agriculture; the latter two accounting for about 90 percent of Zambia's exports[3]. While mining will remain the main driver of the GDP growth and exports for years to come especially with the significant increase in global demand for green energy transition minerals, over-reliance on the mining industry has exposed the country to the volatility in international copper prices. Furthermore, a good share of the agricultural productive zones and Tourism Development Areas (TDAs) lack the necessary connectivity. Addressing the impediments to efficient connectivity would enable Zambia to better utilize its strategic location at the crossroads of several key regional transport corridors and would provide an excellent opportunity to ramp up trade and boost productivity and economic growth.

8. **Climate resilient infrastructure is essential to dampen the impact of floods, droughts and extreme temperatures on livelihoods and economic growth.[6]** Zambia ranked 132 out of 185 countries in the 2021 Notre Dame Global Adaptation Initiative index, indicating high exposure and sensitivity and low ability to adapt to the

[3] World Bank Data – Zambia; https://data.worldbank.org/
[4] World Bank Gender Data Portal. https://genderdata.worldbank.org/countries/zambia
[5] In October 2023, the Government of the Republic of Zambia (GRZ) finalized a memorandum of understanding (MoU) to restructure debt owed to official bilateral creditors in line with debt sustainability thresholds in the World Bank–International Monetary Fund (IMF) Debt Sustainability Analysis. The GRZ is currently negotiating with private creditors to restructure debt on terms comparable to this MoU.
[6] While total national greenhouse gas (GHG) emissions in Zambia are far below Lower Middle Income (LMI) countries average and have declined on a per capita level by 1.4 percent between 2008 and 2017, better than the LMI average, and the major threats to Zambia from climate change require developing resilient systems, there are economically viable opportunities for reducing emissions.

negative impacts of climate change.[7] The country is already experiencing these impacts.[8] The increase in frequency and intensity of these hazards will further threaten agricultural productivity and significantly increase the number of people facing high levels of acute food insecurity in Zambia and the region. One study estimated that climate impacts could reduce GDP by up to 6 percent by 2050.[9] As the failure of key transport infrastructure has proven to be a main contributor and conduit to the negative impacts of climate change, sound transport adaptation policies within a climate-resilient infrastructure system is essential for mitigating these impacts for Zambia and the region. The location of Zambia at the center of several regional transport corridors endows the country with alternative trade and transport routes increasing the resilience of the economy, provided impediments along these corridors are removed.

B. Sectoral and Institutional Context

9. **The Ministry of Transport and Logistics (MTL) in Zambia is mandated to coordinate the development, policy and regulation of the transport and logistics sector,** while the Ministry of Infrastructure, Housing and Urban Development (MIHUD) oversees policy implementation in road infrastructure development. The Road Development Agency (RDA) is the custodian of all public roads, the National Road Fund Agency (NRFA) administers funds in the road sector, and the Road Transport and Safety Agency (RTSA) is responsible for the implementation of government policy on road safety and traffic management.

10. **Transport corridors play a fundamental role in Zambia's and the region's economic growth.** As a land-linked country with a vast geographical area and widely distributed natural resources, Zambia relies on these corridors for connecting Zambia's mining sector to ports, its agricultural produce to national and international markets, and people to cultural and tourism sites. The corridors are equally important for Zambia's neighbors, particularly DRC, Zimbabwe, Malawi, and Botswana. The Copperbelt region in DRC and Zambia, for example, produced around 2.4 million and 0.9 million tons of copper in 2021/2022[10], respectively, representing 57 percent and over 80 percent of their export values, with further growth in extraction rates planned in both countries. The bulk of Zambia's trade via the Indian and Atlantic oceans is carried by six regional transport corridors:

(a) The North-South Corridor connecting DRC, Zambia, Zimbabwe and Botswana to the port of Durban.
(b) The Dar es Salaam Corridor, connecting DRC and Zambia to the port of Dar es Salaam in Tanzania.
(c) The Nacala Corridor, which connects Lusaka to Malawi and to the Nacala port in Mozambique.
(d) The Trans-Caprivi Corridor,[11] which connects Walvis Bay port in Namibia with Zambia and in DRC.
(e) The Lobito Corridor, connecting Zambia and DRC to the Lobito port in Angola.
(f) The Beira Corridor, connecting Zambia to the Beira port in Mozambique.

11. **The *Dar es Salaam* rail-road corridor, with its connection to the North-South Corridor, continues to be the busiest by traffic volume and most important transport corridor in terms of value of trade and freight carried for Zambia**. The corridor carries most of DRC's copper production as well as that of Zambia through the rail and road networks towards Dar es Salaam in the northeastern direction. The corridor has also been instrumental in carrying fuel imports and agricultural exports of the country. The Government of the Republic of Zambia (GRZ) and the Government of the United Republic of Tanzania (GoT) have signed several agreements to work collectively to further develop and remove all physical and non-physical barriers along the corridor.

[7] Think Hazard. Consulted on 26th October 2023. URL: https://thinkhazard.org/en/report/270-zambia
[8] One study showed that the country lost US$5 billion between 1991 and 2011 due to negative economic impacts of climate-related disasters.
[9] Economic Implications of climate change in Zambia, Sep. 2020 https://sa-tied-archive.wider.unu.edu/article/economic-implications-climate-change-in-zambia#:~:text=The%20analysis%20suggests%20that%20climate,4%25%20for%20the%20same%20period.
[10] Ministry of Mines and Mineral Development – Zambia.
[11] Also known as the *Walvis Bay-Ndola-Lubumbashi Corridor.*

12. **One of the major impediments to efficient transport connectivity is the inadequate condition of long stretches of the corridors.** For example, the current state of the 147 km section between Kazungula and Katima Mulilo on the border with Namibia on the Trans Caprivi Corridor inhibits usage of the road and increases occurrence of accidents, transportation costs and time. Similarly, the 203 km section between Mpika and Serenje on the Dar es Salaam Corridor and the Lusaka – Luangwa section on the Nacala Corridor have been identified as bad links along strategic corridors. All these road sections pass through high climate risk districts and cities.[12]

13. **The second major impediment to efficient transport connectivity is the inefficiencies at border crossings, with cumbersome processes and inadequate facilities.** Currently, border clearance documentation and procedures are still largely manual beyond customs, duplicative, and cumbersome with little coordination among agencies. GRZ is pursuing several policies for harmonization of border processes with neighbouring countries for simplification of trade procedures and their consistent application. While investments have been made in modernizing key border posts towards a single window and a one stop border post (OSBP), a system connecting all relevant government border agencies does not yet exist and automation is lacking, resulting in significant delays – several days, even weeks - at the border.[13] For example, trucks could wait as long as 4 days at the border crossing on the Dar es Salaam Corridor between Tanzania and Zambia at Nakonde,[14] where about 20 percent of all of Zambia's customs consignments are processed. Tedious processes, inadequate border infrastructure and warehousing facilities and insufficient staffing create a heavy burden on cross-border traders, especially women who represent most informal traders.[15] In addition, women are often negatively impacted by corruption and sexual harassment at the border (See annex 3 for additional gender analysis).

14. **Road safety is also a major concern in Zambia, with 2,240 deaths recorded in 2022, and a fatality rate of 11 deaths per 100,000 people.** This is higher than the Sub-Saharan Africa and global averages, with a good portion of accidents occurring along regional corridors. In 2022, there was a 3.6 percent increase in fatalities compared to the previous year. Vulnerable road users (i.e., pedestrians, cyclists, motorcyclists) make up 65 percent of the fatalities. Despite not meeting the previous target, Zambia committed to reducing road deaths and injuries by at least 50 percent from 2021 to 2030 under the second UN Decade of Action for Road Safety.

15. **Railways have the potential to play a much larger role given their comparative advantage.** Zambia's railway networks carry about 15 percent of Zambia's freight and a small share of DRC's trade. Zambia has two railway networks: i) The Kapiri Mposhi-Dar es Salaam railway network, connecting Zambia with Tanzania and operated by the Tanzania-Zambia Railway Authority (TAZARA); and ii) The North-South railway network running from DRC to Zimbabwe through Lusaka, and operated by Zambia Railways Limited (ZRL). ZRL is a state-owned company, while TAZARA (I,860 km) is jointly owned by the Governments of Tanzania and Zambia and has been in operation for over 40 years serving mainly as a freight railway carrying mostly copper consignments. Since 2018, TAZARA has reached an open access agreement with two private operators to help increase line utilization and revenues.[16] Despite the economic, financial and environmental comparative advantages of railways for carrying minerals and other bulk goods and for travelling long distances, transportation of the minerals to smelters and

[12] Nordic Development Fund (2018): Development of Climate Resilient Infrastructure Standards and Codes for the Transport Sector in Zambia: Climate Vulnerability Assessment Report, Vol 1, Main Report.
[13] The Zambia Agribusiness and Trade Project-II (ZATP-II) (P179507) provides more details on the border clearance impediments.
[14] Nakonde is classified by the Nordic Development Fund as a high climate risk district.
[15] The results from a border profiling survey in Zambia for cross border traders revealed that more women reported physical abuse (25.1 percent), lack of childcare facilities (23.1 percent), unsanitary conditions of toilets (20.5 percent) and other challenges (28.9 percent) as challenges which particularly affected them. See COMESA (2022). Border Profiling Survey Mwami, Chirundu, Kasumbalesa and Nakonde (Zambia) and Gender Assessment annex for more details.
[16] The China Civil Engineering Construction Corporation is in the process of negotiating a concession with GRZ and GRT to operate TAZARA.

ports is almost exclusively carried out by road due to the inadequacy of railway infrastructure and rolling stock.[17] GRZ introduced a national target for a 30 percent rail modal share for freight and is pursuing private investment and partnerships to develop its railway networks.

16. **Transport efficiency in the region is hampered by climate hazards and the lack of resources allocated for maintenance and reconstruction, resulting in high logistic costs and safety risks**. Heavy rainfall events, floods, erosion and extreme temperature damage rail, road and bridge infrastructure, increasing the needs and costs of maintenance and rehabilitation. Climate change is expected to further raise climate risks for road and bridge infrastructure and in particular for the critically important transport corridors. Only 25 percent of Zambia's core road network is paved, and the paved network receives less than US$2,000/km for maintenance per year—less than a third of the recommended level of resources. Each year, NRFA collects only 20 percent of the estimated annual resources required, leaving it exposed to national treasury funding fluctuations. While clearly insufficient maintenance contributes to the poor condition of a road, heavy rains in high climate risk districts exacerbate the situation further damaging the roads and often making them impassable. For example, in 2018/2019 and 2019/2020, full access to the Serenje Mpika road was disrupted for a period of one to two weeks.

17. **GRZ is committed to attracting private capital and private participation to the transport sector.** Along the North-South Corridor, GRZ awarded a Public-Private-Partnership (PPP) concession for the development of the Lusaka-Ndola Road. The 317 km route constitutes the busiest road section in the Zambian road network and carries most of DRC's international trade. In addition to this concession, GRZ is advancing other PPP concessions in the road sector. The World Bank is currently supporting GRZ in identifying the appropriate approaches to PPPs in the road sector.[18] GRZ is also pursuing PPP opportunities in the rail sector.

18. **Realizing the full potential of the corridor investments requires structural reforms and capacity building in other economic sectors.** Zambia's arable land of 40 million hectares is far from being utilized to its full potential. GRZ recognizes that increasing agriculture and agribusiness are critical for improving incomes and food security, reducing poverty, and creating a more diversified and resilient economy. Among the key challenges that face the transformation of the sector and that need to be addressed in addition to the quality of infrastructure and logistics systems is the inadequate enabling environment (notably the investment climate), structural barriers to agricultural productivity, and limited ability to cushion external shocks. Substantial investments in infrastructure will not yield the full benefits unless these structural barriers are removed. World Bank operations under implementation and preparation are targeting these barriers.[19] Gender inequality also presents one of the challenges in the agriculture sector, where women's share of employment in the SADC region is 57 percent, compared to 46 percent for men.[20] However, women's productivity, measured in yields (kilogram per hectare) is lower due to the different dimensions of gender inequality in the agricultural sector.[21]

19. **Similar to the agriculture sector, the participation of women in the transport sector is also low.** Women participation rates in the transport, warehousing, and communications, and construction is 6 percent and 2.8

[17] The inadequacy of the railway network has dissuaded mine owners from building connecting tracks (infrastructure) to the main lines.
18 Technical Assistance: Development of PSP options for road infrastructure (P179195).
[19] ZATP-II is addressing access to markets and finance to promote the firm growth in Zambia's agribusiness sector; the Improved Rural Connectivity Project (IRCP; P159330), is addressing rural accessibility challenges; and the Zambia Second Macroeconomic Stability, Growth and Competitiveness DPF (P181011) (currently under preparation) will help remove agricultural market distortions.
[20] UNCTAD (2018). Teaching Material on Trade and Gender. Trade and Gender Linkages: An Analysis of the Southern African Development Community. New York and Geneva.
[21] Including limited access to transport and infrastructure, access to land, credit and inputs, and unequal work burden because of gender norms where women are responsible for most of the housework.

percent, respectively.[22] GRZ is committed to addressing issues of informality and unemployment by promoting women's participation in non-traditional sectors such as construction. Annex 3 describes the key barriers for women employment in the logistics sector. Considering schools offering logistics curricula are interested to attract female candidates, there is an opportunity to create a future pipeline of women in logistics through capacity building and collaboration with universities in the country.

C. Relevance to Higher Level Objectives

20. **The project is aligned with the objectives of the World Bank Group Country Partnership Framework (CPF) for Zambia for FY19-FY23 (Report No. 128467-ZA) and with Zambia's 2022-2026 8NDP.[23]** Supporting the CPF, SOP1 will contribute towards achieving objective 3.2 on increasing trade and infrastructure for economic integration and shared natural resources management with the broader region; objective 1.1 on agriculture sector diversification, objective 1.2 on rural communities climate resilience; and objective 1.3 on increasing access to resilient infrastructure. SOP1 also supports the realization of economic transformation and job creation under the 8NDP by responding to the plan's strategy for the improvement of transport and logistics, including the development of the roads and rail sectors, and trade and logistics facilitation.

21. **SOP1 also contributes directly to regional integration and increased trade sought by the African Union and the RECs**. Tanzania will benefit from the increased efficiency of the Dar es Salaam Corridor in line with Objective 1.7 (capture Tanzania's potential as a maritime gateway and regional trade hub) under Focus Area 1 to enhance productivity and accelerate equitable and sustainable growth in the CPF for Tanzania for FY18-FY22 (Report No. 121790-TZ). The FY25-FY28 CPF is currently under preparation.

22. **SOP1 meets the criteria for IDA Regional Program Funding** as: (i) the series cover a minimum of two countries (Zambia and Tanzania) starting with SOP1 in Zambia. Tanzania is expected to follow with the country investing its own resources in the SOP1 corridor and with recent investment on a key section by the World Bank; (ii) it contributes to transport connectivity in the region; (iii) the eventual expected full transport efficiency gains will only be achieved with the direct and integrated involvement of the countries sharing the corridors; (iv) the benefits can only be adequately achieved through the implementation of an integrated set of infrastructure, trade and development facilitation activities in Zambia and neighboring countries; (v) the program enhances competition among transport corridors in the region; and (vi) the target corridors are SADC and EAC regional corridors serving Eastern and Southern Africa. The funding from the regional integration IDA for SOP1 is estimated at US$180 million, with a PBA IDA allocation of US$90 million.

23. **Tanzania is fully committed to the development of the regional Dar es Salaam Corridor.** While SOP1 only covers Zambia (with Tanzania expected to follow), Tanzania's commitment is evident through: (i) the 2009 bilateral agreement for the establishment of the OSBP at Tunduma (Tanzania)/Nakonde (Zambia); (ii) the 2015 Bilateral Agreement between Tanzania and Zambia on cross border freight road transport; and (iii) the June 2023 Communiqué between the two countries to review and resolve transport challenges along the Dar es Salaam Corridor. Moreover, GoT has used, and continues to use its own resources for developing sections of the corridor[24]

[22] ILOSTAT: International Labor Organization Statistics website.
https://www.ilo.org/shinyapps/bulkexplorer32/?lang=en&segment=indicator&id=EAP_2EAP_SEX_AGE_NB_A

[23] https://www.zambiaembassy.org/document/eighth-national-development-plan-8ndp-2022-2026

[24] GRT received a US$210 million for the first phase of the Southern Africa Trade and Transport Facilitation Program (P120370) which closed in December 2020. The project financed a 138 km of the Mafinga-Igawain section of the Dar es Salaam Corridor. GRT is using its own resources for the following two sections: Construction of the Uyole – Mbeya City Bypass (48.9km) and rehabilitation of the Igawa – Tunduma road section (218 km). Design for both sections was completed in 2021, contractor has been procured and the projects will be implemented under an Engineering, Procurement, Construction and Financing (EPC+F) arrangement.

and has recently requested US$155 million in additional financing from the World Bank for increasing the capacity of the Dar es Salaam port, of which 40 percent of the throughput serves Tanzania's neighbors.[25]

24. **SOP1 is consistent with Zambia's updated Nationally Determined Contribution (NDC),[26] the National Adaptation Program of Action (NAPA),[27] and the National Policy on Climate Change (NPCC).**[28] As one of the least contributors to global greenhouse gas (GHG) emissions,[29] Zambia places significant importance and priority on adaptation to climate change impacts to enhance the resilience of its population, ecosystems, infrastructure, productive and health systems. Zambia's updated NDC includes the transport sector in its mitigation and adaptation objectives but does not prescribe specific mitigation and adaptation measures for the transport sector. Zambia's climate policies include, among others, strengthening mechanisms for identifying risks and hazards to facilitate planning, strengthening the resilience of infrastructure, and coping strategies for drought, flooding, and extreme heat that include income diversification and trading other commodities for food and food rationing, and strengthening early warning systems, emergency preparedness, early evacuation and improving drainage systems. SoP1 aims to enhance the climate resilience of the Dar es Salaam corridor and of other transport corridors in the country and will support the development of a Green Strategy for the Transport Sector and a strategy and action plan for improving the capacity and efficiency of railways, among other activities that support the development of a climate resilient low-carbon transport sector.

25. **SOP1 will contribute to the World Bank Group's vision to create a world free of poverty on a livable planet.** It aims at improving efficiency, connectivity and climate resilience on a major corridor between Zambia, Tanzania and DRC, which will boost the productivity and improve their economic resilience. It is consistent with the World Bank's Green, Resilient, Inclusive Development (GRID) approach,[30] as improved transport connectivity will help create, and improve access to employment opportunities. SOP1 is also consistent with the forthcoming new Gender Strategy 2024-30, which aims to expand women's economic opportunities. Furthermore, SOP1 aligns with the World Bank Group's Climate Change Action Plan (FY21–FY25), which aims to advance the climate change aspects of GRID,[31] and the World Bank's Africa Climate Change Business Plan, which highlights the importance and urgency of ramping up climate-smart development that addresses climate impacts and risks.[32]

26. **SOP1 aligns with the World Bank's commitment to enable and mobilize private capital for development and GRZ's strategic priority for mobilizing private capital in the 8NDP.**[33] SOP1 will support the enabling environment in Zambia and help identify potential PPP modalities for delivering sustainable and resilient regional road projects with a particular focus on the Nacala corridor and supporting SMEs.

---

[25] This is under the Dar es Salaam Maritime Gateway Project (IDA-61170) (P150496).
[26] Zambia's Nationally Determined Contribution; 2021. Available at: https://unfccc.int/sites/default/files/NDC/2022-06/Final%20Zambia_Revised%20and%20Updated_NDC_2021_.pdf
[27] Formulation of the National Adaptation Programme of Action on Climate Change - Final Report; Ministry of Tourism, Environment and Natural Resources; September 2007. Available at: https://unfccc.int/resource/docs/napa/zmb01.pdf
[28] National Policy on Climate Change; Ministry of National Development Planning; April 2016. Available at: https://faolex.fao.org/docs/pdf/zam174957.pdf
[29] Despite being one of the lowest GHG emitters, Zambia's NDC pledges to reduce greenhouse gas (GHG) emissions by 25 percent by 2030 against 2010 base year emissions, with limited international support, and by 47 percent with substantial international support.
[30] World Bank Group, *Green, Resilient and Inclusive Development* (Washington, DC: World Bank,2021).
[31] World Bank Group, *World Bank Group Climate Change Action Plan 2021–2025: Supporting Green, Resilient, and Inclusive Development* (Washington, DC: World Bank, 2021).
[32] World Bank Group, 2020. *The Next Generation Africa Climate Business Plan*, Washington, DC. URL: https://openknowledge.worldbank.org/entities/publication/e44b41cc-9835-5acb-bce5-d5718bccb7bb
[33] Zambia's 8NDP lists three 'outcomes' under this strategic development area, including the development of *industrialized and diversified economy*, *enhanced citizenry participation in the economy* and a *competitive private sector.*

II. PROJECT DESCRIPTION

A. Project Development Objective

PDO Statement

27. The Project Development Objective (PDO) of the SOP is to improve efficiency, connectivity and climate resilience of key regional transport and trade corridors in Eastern and Southern Africa. The SOP will retain the same PDO for all ensuing projects and will follow a consistent approach in terms of project design. This is to ensure maximum synergy and cross learning through the different projects.

28. The PDO of SOP1 is to improve year-round transport and trade connectivity between Zambia and Tanzania and expand economic activity along the Dar es Salaam Corridor in Zambia.

29. **Scope of the SOP**. The first project in the SOP (SOP1) or 'the project' will focus on improvements along the Dar es Salaam Corridor between Zambia and Tanzania and support preparatory studies for future SOPs. Future SOPs in Zambia will include physical and institutional improvements along the Nacala Corridor and the Trans Caprivi/Walvis Bay-Ndola-Lubumbashi Corridor including the rehabilitation of bad sections (notably the 147 km Kazungula-Katima Mulilo section). Improvements to railway transport are also under consideration as a future project under the SOP. Future projects under the SOP will also focus on the development of bad sections on the Tanzanian side of Dar es Salaam Corridor and potentially in other neighboring countries.[34] Prioritizing SOP interventions will be based on the criticality of a corridor to serving transport needs (freight and passengers) and on the climate vulnerability of the corridor section and mode under consideration.

PDO Level Indicators

30. The following PDO level indicators will be used to measure the outcomes specified in the PDO statement:

i) Travel time between Dar es Salaam Lusaka and Lusaka
ii) Reduction in number of fatalities along the Serenje-Mpika
iii) Border clearance time at Nakonde (for trucks)
iv) Population benefiting from the climate resilience of the Serenje-Mpika road section
v) Beneficiaries with increased revenue (segregated by gender)

B. Project Components

31. The project will improve transport and trade facilitation along the Dar es Salaam Corridor by rehabilitating the Serenje-Mpika section of the corridor, developing a One Stop Border Post (OSBP) at Nakonde, and converting the corridor into a SMART corridor.[35] The project will further prepare studies for two other key corridors, namely the Nacala Transport Corridor and the Trans-Caprivi Corridor, and will enhance the institutional capacities to manage the regional road-rail corridors. The project also aims at maximizing the social inclusion and socio-economic opportunities along the corridor.

32. The overall project cost is US$270 million (100 percent financed by an IDA grant), implemented over six

[34] The road sections in Tanzania are the Kibaha-Chalinze (75 km) section, and the Morogoro-Iyovi section (155 km). A third section in bad condition is the Igawa-Tunduma section (220 km) which the Government of Tanzania is already addressing using an Engineering, Procurement and Construction approach (see para 23). Other potential road links to be developed are on the Malawi side (Nacala corridor) and the DRC side (North-South Corridor).
[35] Safety, Mobility, Automated, Real-time Traffic Management (SMART) corridor.

years, and structured around the four components described below.

33. **Component 1: Resilient transport and trade facilitation systems along the Dar es Salaam Corridor and preparatory studies for ensuing corridors under the SOP (US$234 million, IDA equivalent).**

(a) **Sub-component 1.1. Development of climate resilient road sections along the Dar es Salaam Corridor (US$150 million, IDA equivalent).** This sub-component will finance the rehabilitation of an existing 2-lane bituminous road section between Serenje and Mpika (203 km)[36] in Zambia, including bridges and structures. It also includes preparatory studies, such as a road safety audits, and roadside stations assessment and design. Serenje-Mpika presents the missing section of the corridor on the Zambian side that is in poor condition. This section will be rehabilitated to a good condition[37] with a resilient pavement design and safety measures. Other sections that are under development along the same corridor include the Nakonde-Chinsali and the Chinsali-Mpika sections, financed by the African Development Bank (AfDB), and the European Investment Bank (EIB) and the European Commission, respectively.

(b) **Sub-component 1.2. Development of the Nakonde One Stop Border Post (OSBP)** (**US$22 million, IDA equivalent).** This component includes the development of the border crossing facility at Nakonde in Zambia /Tunduma in Tanzania)[38] into an OSBP. The development of the OSBP will be carried out in two lots, with TradeMark Africa (TMA) financing Lot 1, which includes the installation of a key truck scanner, construction of associated access roads, and supply of ICT equipment (related to the scanners) and systems at Nakonde. The World Bank will finance Lot 2, which consists in the development of key infrastructure (buildings, roads, parking areas, power supply), the supply of ICT equipment (related to building operations), and training of staff at Nakonde. The AfDB will finance a bypass around the OSBP.[39] The new design of the OBSP will be informed by the ongoing trade-efficient reforms that GRZ is carrying out under the World Bank-financed Zambia Agribusiness and Trade Project-II (ZATP-II, P179507). The new facility will include green solutions such as solar power supply systems and efficient water-use systems, in addition to existing facilities. It will also include measures that will benefit women such as the installment of a single window,[40] training of officials on appropriate response to sexual harassment, and access to information/training for women to understand border procedures and their rights. Annex 6 provides more details on this component.

(c) **Sub-component 1.3. Development of the Safety, Mobility, Automated, Real-time Traffic Management (SMART) corridor concept on the Lusaka–Nakonde section of the Dar es Salaam corridor (US$54 million, IDA equivalent).** The objective of this subcomponent is to improve corridor coordination and management to provide safe and efficient transport flow and enhanced trade facilitation. This will be achieved through the digitization and installation of special corridor features, systems and facilities to reduce the cost of transport and trade inefficiencies along the corridor. The SMART corridor has four key pillars: (i) Corridor Monitoring; (ii) Traffic Management; (iii) Trade Facilitation; and (iv) Improving Road Safety. Additional details of the SMART corridor and its specific measures are included in Annex 4.

(d) **Sub-component 1.4. Preparatory studies for road sections along key regional corridors (US$8 million, IDA equivalent).** This sub-component includes the preparation of several studies for road sections along specific

[36] The Government is in the process of developing an additional length of 38 km.
[37] The road network in Zambia is defined into three categories; Good, Fair and Poor.
[38] The Tunduma side has already been developed, but the crossing cannot operate as OSBP, awaiting the development of Nakonde.
[39] Both Lot 1 and the bypass are at advance stages of preparations. Both are anticipated to be physically completed by the end of 2025.
[40] The single trade window will benefit everyone but will bring disproportionally greater benefits to women in two ways: 1) women are time poor because they have to deal with household and economic activities; therefore, women will benefit from shorter processing times; and 2) fewer process interactions mean less exposure to harassment and corruption that women often face at border crossings.

corridors, namely the Dar es Salaam Corridor, the Nacala Road Corridor and the Walvis Bay-Ndola-Lubumbashi corridor. This in addition to preparatory studies for other facilities (e.g. border crossings, dry ports and others). The civil works will be implemented under ensuing phases of the SOP. The road studies include:

(i) Update of the detailed design of sections of Serenje-Mpika road.

(ii) Feasibility studies, detailed designs and Environmental and Social Impact Assessment (ESIA) for the rehabilitation of the Lusaka-Luangwa section (207 km) of the Nacala corridor (connecting Zambia, Malawi and Mozambique). Out of this section, the road from Lusaka to Chongwe (50 km) is proposed to be widened to two lanes in each direction. The studies will examine the possibility of developing and widening the Lusaka–Chongwe section in Zambia using the PPP modality.

(iii) Detailed designs for the rehabilitation of the Livingstone–Katima Mulilo road section (212 Km) in Zambia, which forms part of the Walvis Bay-Ndola-Lubumbashi corridor (which connects Zambia with Namibia and DRC). The feasibility studies and the ESIA for the road section will be financed under the ongoing World Bank-financed Improved Rural Connectivity Project (IRCP – P159330).

34. **Component 2: Corridor-oriented development (US$21 million, IDA equivalent)**

(a) **Sub-component 2.1. Assessment of socio-economic development opportunities along the Dar es Salaam corridor (US$1 million, IDA equivalent).** This activity aims at identifying the current gaps, opportunities and related investment needs that will enable the acceleration of the project's development impact for the growth- oriented Micro, Small and Medium-sized enterprises (MSMEs) in the hinterland of the corridor. The assessment will focus on regional agri-business logistics and allied activities along the value chains including warehousing, storage, etc. and will also cover mining and tourism. The assessment will also identify gender disparities. For example, in case of agricultural value chains, it will focus on all the main nodes, i.e., production, aggregation, processing, and distribution to provide recommendations to address the major barriers related to access to productive resources and better market shares for women within a regional context.

(b) **Sub-component 2.2. Development of identified MSME businesses for regional exports (US$20 million IDA equivalent).** This sub-component will finance activities complementing ongoing World Bank projects[41] supporting agriculture and agribusiness, tourism as well as opportunities identified from the assessment. Support will include: (i) improving last mile connectivity through construction or rehabilitation of infrastructure, warehousing and agro-logistic centers that are aligned to climate resilience; (ii) capital investments towards productive assets such as machinery/equipment for logistics centers and warehouses and (iii) business advisory services to support export orientation of SMEs to take advantage of the regional corridor starting with training in basic business skills. Support will be provided through direct investments and matching grants. Eligibility criteria for the grants will be specified in the Project Operations Manual (POM). Activities under this sub-component will have a special focus on capacity building for women and youth entrepreneurs.

35. **Component 3: Sectoral capacity development and project management (US$15 million IDA equivalent).**

(a) **Sub-component 3.1. Support to regional corridors management (US$2 million IDA equivalent).** This sub-component focuses on supporting institutional capacities at the regional level to enhance corridor monitoring and management. The objective is to enhance monitoring, planning and management capabilities within the

[41] For example, Zambia Agribusiness and Trade Project-II (ZATP-II) - (P179507) and Zambia Growth Opportunities Program - (P178372); Green, Resilient and Transformational Tourism Development Project (GREAT-TDP) (P180337); and Transforming Landscapes for Resilience and Development in Zambia (P164764).

region. This sub-component will specifically aid in facilitating the institutional inclusion of the Dar es Salaam Corridor into the Central Corridor[42] in collaboration with the Central Corridor Transit Transport Facilitation Agency (CCTTFA).[43] The sub-component will support other corridors and regional bodies such as Nacala Corridor, TAZARA, and the Lobito Corridor Development Facilitation Agency Permanent Secretariat (LCDFAPS). This support will primarily include technical advisory and administrative support.

(b) **Sub-component 3.2. Development of a railway strategy for Zambia including an action plan for enhancing the institutional set-up, operational efficiency, and financial sustainability of ZRL, (US$5 million IDA equivalent).** The strategy will address the roles of TAZARA and ZRL in offering integrated efficient railway services and help the government reach or exceed their goal of a 30 percent modal share for railways. The strategy will consider recent developments for modernizing TAZARA and the role rail is expected to play in supporting the green energy transition mining[44] in Zambia and the region. The subcomponent also includes an assessment of ZRL, the development and implementation support of a strategy and action plan for improving its institutional set-up, operational efficiency, and financial performance.

(c) **Sub-component 3.3. Studies and sectoral capacity building activities (US$5 million IDA equivalent).** This activity covers several studies, assessments, and capacity building activities aiming at improving the Government's capacity to plan and manage regional corridors. It includes the development of a Zambia Transport and Logistics Policy and Strategy and Roadmap; supporting the domestic construction industry; the development of a national road safety capacity review and action plan, development of a Greening Strategy for the Transport Sector, conducting assessment and action plan to increase women's participation in logistics; supporting the development of PPP enabling environment and transaction advisories (as to be determined, and building capacity of RDA, NRFA, MTL, and RTSA, among others, in planning and implementing their mandates.

(d) **Sub-component 3.4. Project management for the entire project, monitoring and evaluation (US$3 million IDA equivalent).** This will include incremental administrative costs for project management to ensure project implementation and all activities associated with program monitoring and evaluation (M&E) and impact evaluation (IE).

36. **Component 4: Contingent Emergency Response Component (CERC) (US$0 million).** This zero-dollar component is designed to provide swift response in the event of an eligible crisis or emergency, by enabling GRZ to request the World Bank to reallocate project funds to support emergency response and reconstruction, in accordance with an applicable CERC Manual that would need to be prepared. Following an eligible crisis or emergency, the Borrower may request the Bank to re-allocate project funds to support emergency response and reconstruction. With no allocation at appraisal, this component would draw from the uncommitted resources under the project from other project components to cover emergency response. Activities financed under the CERC will be Paris aligned and will be implemented in accordance with acceptable environmental and social instruments.[45] This will be detailed in the CERC Manual.

[42] GRZ and the CCTTFA agreed to include Dar es Salaam Corridor in the Central Corridor, which extends from Dar es Salaam Port in Tanzania to DRC. It now connects Tanzania, Zambia, Rwanda, Uganda, Burundi, Rwanda and DRC.
[43] The Agency was established to help facilitate the Development of Integrated Transportation and Trade Networks along the Central Corridor.
[44] Zambia is the second largest producer of copper in Africa. Copper is a strategic metal that plays an important role in manufacturing of key elements of the green energy transition, e.g. batteries of electric vehicles.
[45] Details of all CERC requirements are found in the Financing Agreement governing this project.

C. Project Beneficiaries

37. **The trade and transport facilitation measures will generate benefits to cargo owners and passengers using the Dar es Salaam corridor** due to the efficiencies gained, bolstered resilience, and reduction in cost of using the corridor. The implementation of the SMART corridor concept will also enhance road safety along the corridor for the benefit of users. The reduction in the cost of trade and transport and the increased resilience in the transport corridor will contribute to the increase in trade and GDP and increased economic resilience of Zambia. Component 1 could also lead to an increase in global benefits due to the reduction in GHG emissions as a result of the improved road.

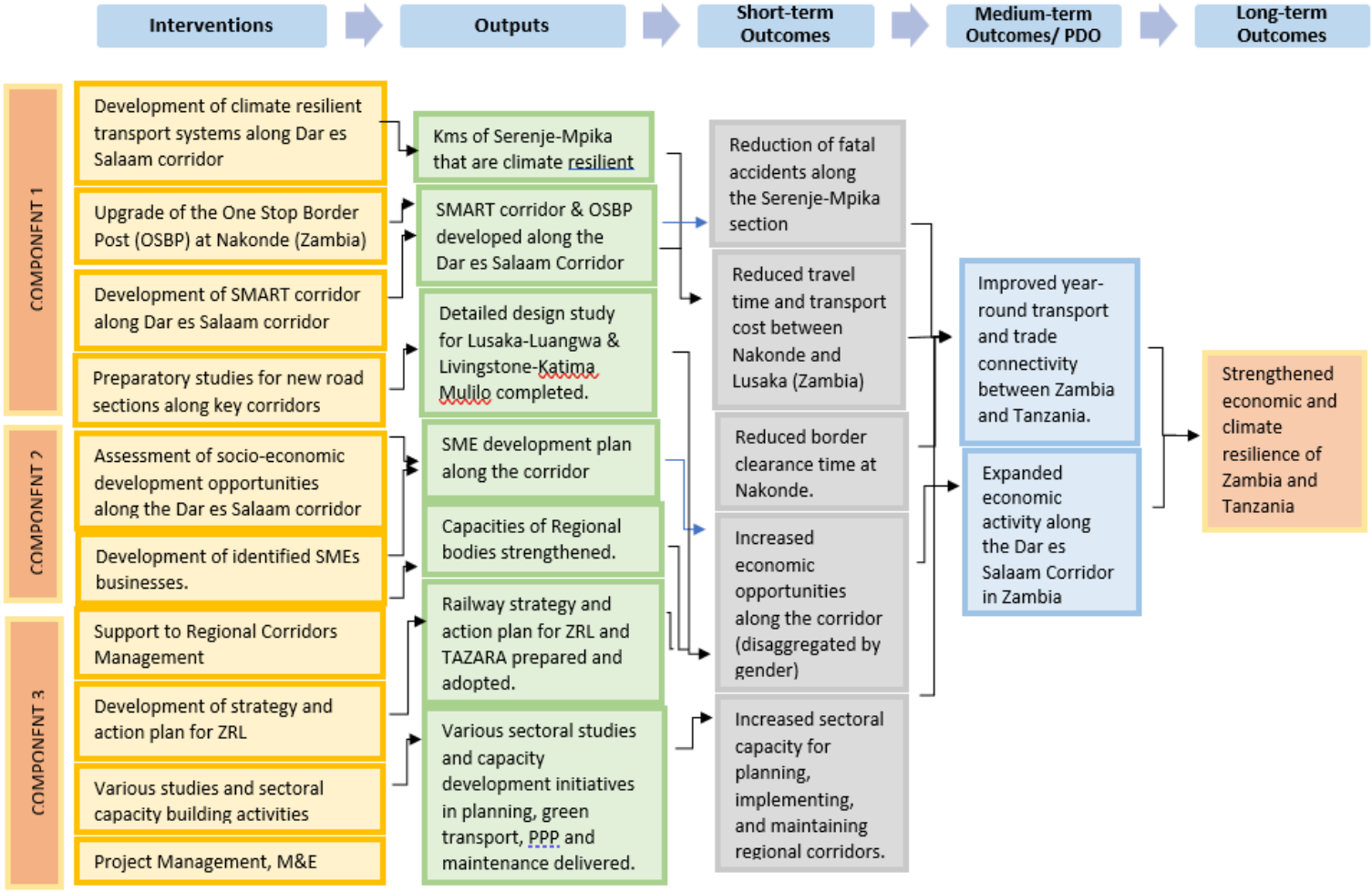
38. **Communities living along the corridor can benefit directly from the improved road and the corridor-oriented development.** While the exact activities under this component (component 2) have not yet been identified, the beneficiaries are expected to be those engaged in agriculture, SMEs or tourism along the road corridor. This component will help communities along the corridor overcome obstacles that would not allow them to fully benefit from the improved road.

39. **The transport and logistics sector will overall benefit from the activities targeting institutional and sectoral capacity development.** More specifically, road users, cargo owners and passengers will be the ultimate beneficiaries of a more efficient multimodal logistics strategy and from a more efficient and higher quality railway network. The subcomponent on supporting the domestic construction industry will better equip industry participants to build their capacity and compete resulting in a more efficient market and less reliance on foreign contractors. Road and transport sector officials will also benefit from the sectoral and institutional capacity building. The railway modernization strategy and plan, once implemented, will also contribute to the reduction in GHGs, a global benefit. The direct project beneficiaries are estimated at 500,000 person and over 2,000,000 of indirect beneficiaries. In total these represent 13 percent of the country's population. This is in addition to beneficiaries in Tanzania, Malawi and DRC.

D. Results Chain

40. **The project is intended to improve year-round transport and trade connectivity between Zambia and Tanzania and expand economic activity along the Dar es Salaam Corridor in Zambia.** This will ultimately contribute to strengthening the economic and climate resilience of both Zambia and Tanzania. To reach this goal GRZ needs to develop its regional links with Tanzania, particularly the Dar es Salaam Corridor, improve trade facilitation and develop economic activities along the corridor. Under SOP1, GRZ will rehabilitate the last remaining poor road section of the corridor, namely the Serenje-Mpika section, upgrade the border crossing with Tanzania, and equip the corridor with trade facilitation and corridor management measures. These interventions will collectively lead to faster, safer, more climate resilient and efficient connectivity between the two countries with less waiting and processing times across the border. The interventions will be supported by corridor-oriented development to maximize the impact of the project and increase social inclusion. In addition, and to ensure the efficient long-term sustainability of the corridor, GRZ will also develop the institutional capacities of its various entities to plan, manage and operate the regional corridors. The Theory of Change (TOC) for SOP1 is presented below (Figure 1).

Figure 1: Theory of Change



E. Rationale for Bank Involvement and Role of Development Partners

41. **The World Bank brings significant implementation experience to SOP1.** The World Bank has gained experience over the past few decades in the design and implementation of regional transport projects, trade facilitation and logistics. In addition, the World Bank will mobilize global knowledge in developing the PPP enabling environment, regional advocacy and coordination, environment and social management, and fiduciary controls.

42. **SOP1 complements ongoing World Bank activities in Zambia.** The design of the OSBP at Nakonde builds on, and is influenced by, the ongoing World Bank operation Zambia Agribusiness and Trade Support Project-II (ZATP-II, P179507). It is also in harmony with, and complements, the World Bank-executed Technical Assistance to support the development of PPP in the road sector in Zambia. Similarly, the corridor-oriented component under SOP1 is well coordinated with other World Bank projects to support SMEs in agribusiness.

43. **The World Bank's experience and expertise in climate resilience and disaster risk management, road safety, and gender equity will add value to the project's focus on addressing Zambia's transport challenges**. The

World Bank, with support from the Global Facility for Disaster Reduction and Recovery, brings experience in: (i) climate risk assessment of the transport sector; (ii) criticality and climate vulnerability analysis of road networks to inform prioritization of investments; and (iii) climate vulnerability analysis of road and rail corridors to inform project design. The World Bank's Global Road Safety Facility, with extensive international experience in working to reduce fatalities, will support SOP1. Also, World Bank activities have contributed to reducing the gender gap in the transport and road sector in several countries in Africa and other parts of the world. This experience will help bring good practices to Zambia.

F. Lessons learned and reflected in the project design

44. The project design takes stock of country-specific lessons in Africa, South Asia and Europe and of international best practices and recommendations of the Independent Evaluation Group:[46]

a. **Successful upgrading and modernization of transport corridors requires strong commitment from all countries involved.** To avoid situations where the transport infrastructure is constructed but border crossing remains cumbersome and time consuming or situations where OSBPs are constructed but not utilized, SOP1 addresses the efficiency of the Dar es Salaam corridor including transport and OBSP infrastructure and operations. The corridor upgrading enjoys high level support in both countries and the Dar es Salaam Corridor is being included into the Central Corridor that has been successfully managed by CCTTFA in a sustainable manner.

b. **The project design follows the 'economic corridor' approach.** In recognition that the full potential of transport corridors cannot be achieved without complementary interventions, SOP1 incorporates investments in infrastructure and policy interventions while ensuring coordination and complementarity with existing and planned initiatives in other economic sectors.

c. **The integration of multisectoral components into corridor projects can expand the project impact but increases implementation complexity.** SOP1's design aims to avoid these problems by using experienced project implementation units to implement the corridor-oriented development component (with full participation of the stakeholders). To avoid the delay in the preparation and implementation of this component, SOP1 is coordinating with other ongoing projects[47] along the corridor to identify activities that can start after effectiveness while other activities are undergoing preparation.

d. **Institutional and capacity building through improved procedures, cooperation, and information exchange are as equally important as physical improvements to the infrastructure.** Experiences from the Trade and Transport Facilitation projects in Eastern Europe[48] and from other projects in Africa highlight the importance of capacity building for the success of regional connectivity projects. SOP1 has been designed to provide significant capacity development and other projects in the SOP will enable continued effort.

e. **Upgrading road infrastructure should include mitigation measures to ensure road safety.** Experience indicates that improved roads will attract more traffic at higher speeds, thereby potentially putting more people at risk. SOP1 design will prioritize speed management and the safety of vulnerable road users. Conducting road safety audits at various stages will reduce road safety risks. A dedicated focus on the SMART

[46] Sources include: the Implementation Completion Results (ICR) reports for The First Phase (APL 1) of The Southern Africa Trade and Transport Facilitation Program (P120370) and the 3A-W Africa Transport & Transit Facilitation (P079749), the World Bank Group (2007): The Development Potential of Regional Programs by the Independent Evaluation Group and Francis John Gichaga (2017): The impact of road improvements on road safety and related characteristics.

[47] ZATP-II - (P179507) and Zambia Growth Opportunities Program (P178372)

[48] This covered of a number of projects in South East Europe dedicated to supporting the movement of trade between borrower and neighboring beneficiaries (P077079, P070086, P091723, P065041, P074090, P073626, P070079, P070088, P070089).

corridor will significantly decrease fatalities and serve as a demonstration for future road safety investments.

f. **The climate vulnerability assessment (CVA)[49] for Zambia identified several opportunities to strengthen climate resilience for the road sector.** Although Zambia adopted the National Climate Change Policy in 2017, climate change issues are being addressed in a fragmented manner and data is lacking. Overcoming fragmentation requires mainstreaming climate change into policies, strategies, and action plans across sectors. Specific opportunities identified by the CVA that informed SOP1 included, among others: (i) integrating climate resilience into sectoral and spatial planning; (ii) revising operational and maintenance strategies and plans to include identification of climate risks and mitigation strategies; (iii) developing standardized and comprehensive road sector climate impact reporting; (iv) deploying resilient infrastructure solutions in planning and design, procurement processes, construction and rehabilitation; and (v) improving road infrastructure maintenance.

III. IMPLEMENTATION ARRANGEMENTS

A. Institutional and Implementation Arrangements

45. The implementing agency will be the National Road Fund Agency (NRFA), which will sign a Project Agreement with the different executing entities. TRACER will be implemented through a three-tier structure:

i. **Steering Committee (SC)** consisting of the Permanent Secretaries of the Ministry of Infrastructure, Housing, and Urban Development, the Ministry of Transport and Logistics, Ministry of Commerce, Trade and Industry, Ministry of Finance and National Planning, Ministry of Green Economy and Environment, Ministry of Small Medium Enterprises Development (MSMED), the CEO of RDA, Zambia Revenue Authority (ZRA) and other ministries and agencies. The SC will be chaired by the PS of the Ministry of Infrastructure, Housing and Urban Development and will meet bi-annually, or more often if needed, to oversee overall project implementation and help ensure satisfactory progress.

ii. **Technical Committee (TC)** consisting of the focal points from the ministries listed above, as well as RDA, RTSA, NRFA and ZRA. The TC will be chaired by the Ministry of Transport and Logistics, and the Chair will convene meetings with the necessary members of the TC to address implementation issues. The TC will be the platform for coordination with the Tanzanian government counterparts on issues related to cross-border facilitation (e.g. on Nakonde OSBP implementation), and also with agencies such as the Central Corridor Transit Transport Facilitation Agency (CCTTFA).

iii. **Project Implementation Unit (PIU)** comprised of representatives from the different ministries and agencies will be responsible for day-to-day management of TRACER. The PIU will be led by a Project Coordinator, who will report to the Permanent Secretary of the Ministry of Infrastructure, Housing and Urban Development. Implementation of each key activity under the project will be overseen by Project Managers from RDA and other ministries and agencies as relevant. Environmental and social management will be carried out by RDA and MIHUD. Procurement activities for the entire project will be carried out by RDA, and MTL. FM activities will be conducted by NRFA. Details are presented in Annex 1.

46. **GRZ** has experience in implementing several OSBP facilities, working in partnership with international institutions such as AfDB. The Government, and in particular MIHUD, RDA and ZRA have good experience in the implementation arrangements for such facilities, which usually involves the engagement of several government

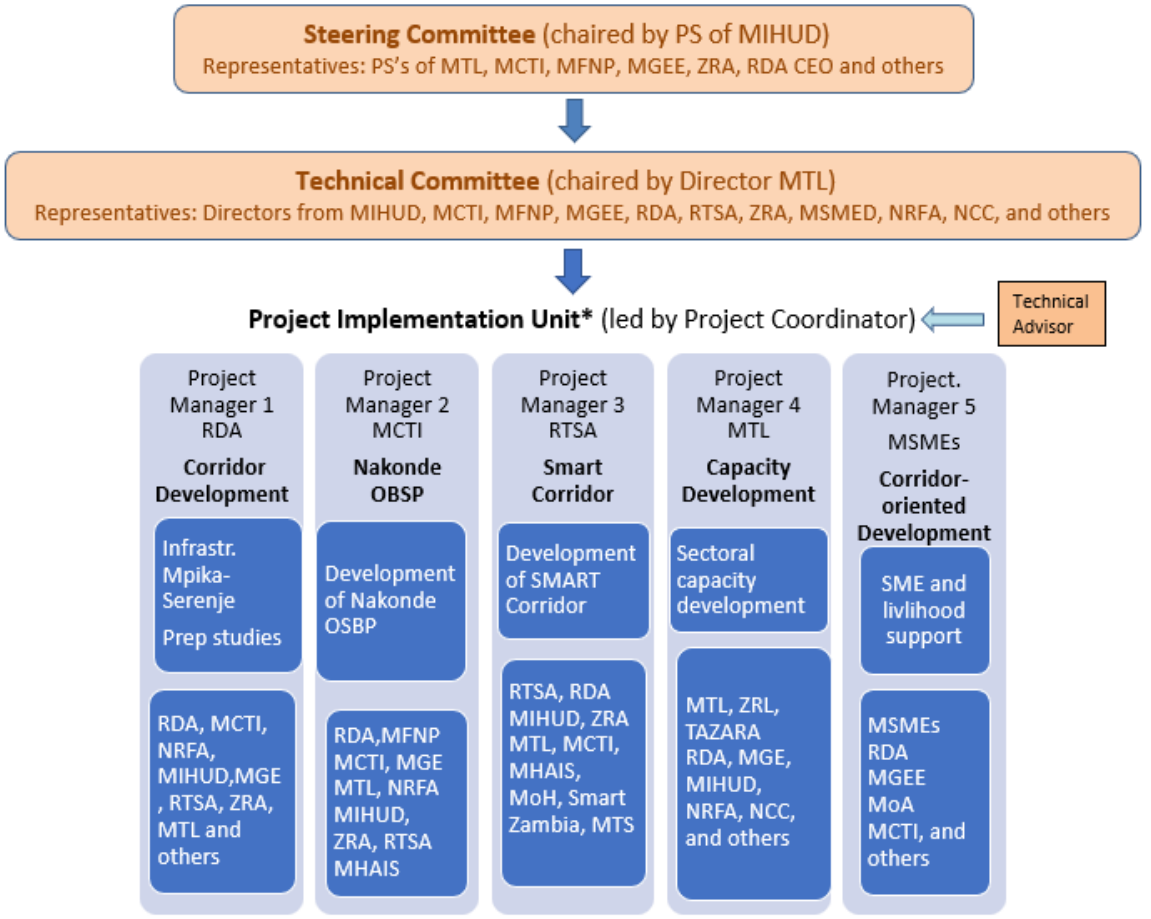
[49] Climate Vulnerability Assessment Report - Volume 1: Main Report; NTU International; Nordic Development Fund; June 2018.

entities and agencies coordinated through technical committees. RDA has good experience in implementing road infrastructure projects.

47. **RTSA** will have a key role in the implementation of the SMART Corridor, which includes installation of systems and equipment, similar in nature and complexity to systems that RTSA has implemented in the past. RTSA will coordinate directly with MCTI, ZRA, RDA and MTL on the design and implementation of the SMART corridor.

48. **The National Trade Facilitation Committee (NTFC)** was established by the Government to oversee national trade facilitation initiatives. The TC or the PIU (through the TC) may call for meetings of the NTFC, as required, to coordinate the design and implementation of the trade facilitation aspects of the OSBP and the SMART corridor.

Figure 2: institutional Arrangements



The Technical Committee will involve the relevant representatives from the Government of the United Republic of Tanzania, as and when needed. Similarly, it will involve representatives of regional agencies/ bodies such as CCTTFA.
Environmental & Social Management: RDA, MIHUD for first three pillars. MSMEs for corridor-oriented development pillar.
Procurement and Financial Management: RDA and NRFA for all pillars, except for the fourth pillar which will be by MTL.

* The composition of the project Implementation team will be defined in the Project Operation Manual (POM), but is anticipated to include M&E expert, E&S safeguards experts, accountant, and others.

B. Results Monitoring and Evaluation Arrangements

49. **To assess progress, a monitoring and evaluation (M&E) system has been designed for SOP1.** The M&E system is designed to assess the implementation progress of the project to ensure it is on track to achieve its objectives and expected results. Progress measurement and updates for the project activities will be documented in project progress reports. The PIU will be responsible for preparing these reports and will have a dedicated skilled and capable planning and technical team to conduct M&E periodically. The PIU will benefit from the resources allocated under Sub-component 3.4 of the project for project management tasks, including project monitoring.

50. **To collect relevant information and data, the PIU will coordinate with departments within ministries and government entities involved in implementing the project nationally and locally**. The reports will be prepared on a semiannual basis not later than 45 days after the end of each calendar semester. They will cover the calendar semester and will be submitted to the World Bank for review. Aside from reporting on the PDO result indicators and intermediate outcome indicators, the reports will include information on disbursements, FM, procurement, and social and environmental policies and guidelines, as well as an updated annual plan of works and activities. They will also include an assessment of the impact women have had on the project's design, and success (quality, cost, time), as well as of the completed or ongoing activities and lessons learned. The structure of these reports is detailed in the POM. Also, the PIU will jointly conduct a midterm review (MTR) of the project's implementation progress with the World Bank. The MTR will provide an opportunity to make any adjustments that may be needed to achieve the project objectives. The PIU will assist with the preparation of the World Bank's Implementation and Completion Results Report (ICR) at completion.

C. Sustainability

51. **The project has embedded elements that are expected to enhance the sustainability of the key investments.** These key investments are the road infrastructure, the SMART corridor and the OSBP facility. For road sustainability, a sectoral approach is followed in coordination with other development partners. This is implemented through different projects and programs including the World Bank-financed IRCP (P159330). The approach focuses on prevention of road damage and improving road maintenance operations. For the latter, the focus is directed towards enhancing the capacities for the three key pillars of road maintenance, i.e., planning, funding, and implementation. Components 1 and 3 under this project include the installation of Weigh-In-Motion (WIM)[50] scales, E-tolling equipment, and building RDA's PPP and maintenance planning capacities. The existing weighbridge stations will be complemented with the WIM scales to act as an integrated system that will help detect and prevent vehicles overloading, which is a key factor in pavement deterioration. This is further supported by the adoption of climate-resilient pavement design and building the maintenance response capacity of RDA, as supported by RDA's Road Sector Investment Program III, the key investment strategy for the sector.[51]

52. **The project will support the adoption of PPP modalities in the road sector.** This will be supported by an ongoing World Bank-implemented Technical Assistance.[52] The adoption of the PPP approach will produce economic efficiency gains that include efficient maintenance operations. While the target section of the Dar es Salaam corridor will not be developed using the PPP modality, the spread of this contractual modality will have a

[50] WIM systems are devices that measure the axle mass of moving vehicles. The systems capture and record axle weights and gross vehicle weights as vehicles drive over a measurement site at normal traffic speeds. Legally loaded vehicles are redirected back onto the road while vehicles suspected of being overloaded are directed to an adjacent lane for accurate weighing on a static scale.
[51] It is to be noted that the Road Sector Investment Program-III (under preparation) is heavily focused on maintenance operations.
[52] Development of PSP options for road infrastructure (P179195).

sector-wide impact in the medium to long terms, particularly for infrastructure sustainability. The toll and border fees will contribute to availing financial resources for the maintenance of the road and the OSBP facility. While these resources are not currently ring-fenced to the maintenance of these facilities, the adoption of PPP modalities in the medium future will produce such ring-fencing mechanism. The project will further enhance these plans by providing the physical foundations for the use of modern technologies such as E-tolling and Smart Gates.

53. **Component 3 includes activities, amongst others, aiming at building capacities to plan and manage SMART corridors.** Considering the new adoption of the SMART corridor concept in Zambia, the project was designed to include measures to build the institutional capacity of RTSA, RDA and the MTL in the operation and maintenance for the SMART corridor equipment and systems. These will include the establishment of dedicated teams/ units within the respective agencies. Regarding OSBP maintenance operations, the Government has good institutional and technical experience in maintaining the existing OSBPs in the different borders of the country.

IV. PROJECT APPRAISAL SUMMARY

A. Technical, Economic and Financial Analysis

Technical Analysis

54. **The Serenje-Mpika road section is part of the Dar es Salaam Corridor designated as Route T2.** It is part of the Great North Road and part of the Regional Trunk Road Network (RTRN Link 15) as well as the Trans-African Highway Number 4. It runs in a northeastern direction from Serenje in the Central Province to Mpika in the Muchinga Province covering a total distance of 203 km. The road is of bituminous standard with a double surface dressing and its condition ranges from fair to poor. The route has one of the worst accident records in the region with accidents having led to 33 persons killed and 191 injured in 2022.

55. **The project includes the rehabilitation of the existing 2-lane road section from Serenje to Mpika**. The carriageway will be made of bituminous pavement, with a design speed of 80 km/h.[53] The project detailed design is being updated and will incorporate climate resilience measures. The road design will also be subjected to road safety audits.

56. **The project includes the preparation of the Feasibility Study (FS) and detailed design for widening and rehabilitation of the Lusaka-Chongwe-Luangwa Road section (275 km).** The road is part of the Nacala Corridor, and it is proposed that the Lusaka-Chongwe section (50 km) will be widened to dual carriageway, while the Chongwe-Luangwa section (225 km) will be rehabilitated as single carriageway. The FS will examine the viability of adopting the PPP model for the widening section. If found viable, further detailed studies and transaction advisory will be conducted to structure the widening project for a PPP concession. The World Bank will support the Government in structuring the transaction and tendering the concession until financial close. If the PPP approach is adopted the ensuing phases of the SOP will potentially finance the Viability Gap funding for the project. The rehabilitation section will be implemented under ensuing phases of the SOP.

57. **The project also includes the development of the Nakonde border facility**. The facility will form, together with the existing Tunduma border facility on the Tanzanian side, an OSBP. The developed facility will help in reducing the waiting and processing time for commercial and passenger vehicles crossing the borders in both directions. The OSBP will be equipped with smart gates and will deploy the latest customs and border

[53] The rehabilitation of the adjacent section along the same corridor, from Mpika to Chinsali (228 km), is financed by EIB and EU while the rehabilitation of the Chinsali to Nakonde section (226 km) is financed by the AfDB (90 percent completion rate)

management technologies. The development of the facility will take place within the existing Nakonde station boundaries and will be harmonized with the SMART corridor systems.

58. **The SMART corridor concept will be designed taking into consideration the ongoing national trade facilitation programs.** The concept, which is being deployed for the first time in Zambia and the region, will also be developed in coordination with national road safety and traffic management programs and in line with best international practices. More details on the concept and its technical details are included in Annex 4.

Economic Analysis

59. **The current levels of traffic on the Serenje–Mpika section fully justify rehabilitation.** It had an annual average daily traffic of 1,486 vehicles in 2023. The average speed on the project road is expected to increase from the current 50 km per hour to around 80 km per hour after project completion. In addition, the road works will make the roads more resilient to climate-related events such as heavy rain and flooding.

60. **HDM-4[54] Model Version 2.09 was used to undertake the economic evaluation.** HDM-4 simulates life cycle conditions and costs and provides economic decision criteria for multiple road design and maintenance alternatives. The economic analysis takes into account vehicle operating costs, travel time costs, road maintenance costs, economic costs of road accidents, and environmental effects in terms of CO_2 emissions[55] costs. The project road works will result in reduced travel time and vehicle operating costs, thus reducing travel costs.

61. **The Economic Internal Rate of Return (EIRR) on the rehabilitation of the project road (203 km) is 25.5 percent**. The Net Present Value is US$299 million at a discount rate of 8 percent, indicating that the project is economically justified. A sensitivity analysis shows that for the scenario with a 20 percent increase in construction costs, the EIRR is 22.5 percent; and for the scenario with a 20 percent decrease in benefits, the EIRR is 21.9 percent. If both scenarios are combined, the EIRR is 19.2 percent. With an expected modal shift to the railways once the TAZARA line is rehabilitated in a few years, economic returns are still sufficiently robust to withstand a 40 percent drop in traffic yielding an EIRR of 17.7 percent.

62. **These economic benefits should be considered lower bound estimates.** The intervention at the OSBP at Nakonde is expected to result in savings of 20 hours per truck, a little less than 10 times the time savings generated by the road improvement. Given that the time savings constitute 20 percent – 30 percent of the economic benefits of road construction, and the cost of the project intervention at the OSBP is 15 percent of the road construction cost, the improvement of the OSBP will generate significant economic returns.

63. **The benefits of SoP1 extend beyond Zambia to Tanzania, DRC and Malawi.** Many of the trucks plowing the Dar es Salaam corridor are owned by Tanzanians. They will stand to benefit directly from the time and vehicle operating cost savings resulting from the improvements under Component 1. DRC and Malawi will also benefit from a more climate resilient, efficient and safer road corridor and border crossing reducing the cost of their imports and making their exports more competitive. The improved productivity at the border crossing will also generate more revenues for the Dar es Salaam port.

64. **The GHG accounting assessment estimates that there will be an increase in carbon dioxide (CO_2) emissions on the project road with the project.** The total CO_2 emissions over the 20-year evaluation period are estimated at 4,162,552 tons under the without-project scenario and 4,572,446 tons under the with-project scenario, resulting in net CO_2 emissions of 403,837 tons, or 20,495 tons per year. The increase in CO_2 emissions is attributed to the projected increase in traffic and associated fuel consumption with the project.

[54] Highway Development and Management.
[55] Emissions other than CO^2 were not included for the purpose of economic analysis.

65. **Road safety benefits, calculated using Road Safety Screening and Appraisal Tools (RSSAT)**, shows that the project will have a Project Safety Impact[56] of 0.96, resulting in a 4 percent reduction in fatalities. Over a 20-year period, the estimated road safety benefits will amount to approximately US$4.3 million.

Assessment of Alignment with the Paris Agreement

66. **SOP1 is aligned with the goals of the Paris Agreement on both adaptation and mitigation.** SOP1 is consistent with the country's NDC, NAPA[57], and NPCC, as documented in the section on Relevance to Higher Level Objectives. Zambia does not have a Long-Term Strategy (LTS) nor a Country Climate and Development Report (CCDR). The full description of climate risks and how SOP1 integrates targeted adaptation and mitigation measures to manage and reduce risks to a low level is provided in the section of Country Context and in Annex 2.

67. **Assessment and reduction of adaptation risks:** SOP1 adequately reduces the physical climate risks to the project outcomes, and the project's climate resilience and adaptation design considerations limit the exposure to a low level of residual risk. SOP1 invests in (a) updating the feasibility and design studies for the Serenje-Mpika section of the corridor incorporating climate-resilient road standards, the rehabilitation of the road section observing the climate resilient-road standards, the development and implementation of the SMART corridor concept which provides monitoring, information and early warning on climate-related emergency situations; (b) the design, construction and equipping of a new OSBP, including administrative buildings, parking spaces and access roads, to climate-resilient standards; (c) supporting economic development activities along the corridor, considerate of climate risks; and (d) institutional and sectoral capacity development to integrate climate risk considerations in policy and strategy development and to strengthen the offer on climate resilient road maintenance services. SOP1 is therefore assessed low risk and aligned from an adaptation perspective.

68. **The project will be supported by a Technical Assistance, through the Global Centre on Adaptation, under the Africa Adaptation Acceleration Program (AAAP).** The objective of the technical assistance is to conduct a high-resolution, asset-level, climate risk and vulnerability assessments of the road sections, developing innovative solutions for climate smart transport asset management and conducting capacity building for resilient transport planning.

69. **Assessment and reduction of mitigation risks:** The project is not at a material risk of having a negative impact on the country's low-GHG-emissions development pathways. The activities financed by SOP1 are either universally aligned or present low mitigation risk. The project is therefore assessed to be aligned from a mitigation perspective. SOP1 invests in:

(a) **The rehabilitation and upgrading of the Serenje-Mpika section of the corridor to climate resilience standards** without capacity expansion, and without contributing to deforestation, and is therefore considered universally aligned. Zambia has a very low motorization rate, and the road section serves as an essential access

[56] Project Safety Impact (PSI) value which is the ratio of road crash fatalities expected with the designed project compared to the existing road, calculated separately for the four main road user groups (vehicle occupants, motorized two-wheelers, pedestrians and bicyclists).

[57] The National Adaptation Plan for Zambia (NAP) was under preparation during the project appraisal stage and SOP1 is consistent with the draft NAP. Once published the NAP will state the government policy on climate adaptation.

function.[58,59] Investments do not create barriers to Non-Motorized Transport (NMT) nor long distance public transport, and do not contribute to urban sprawl. Service stations will have the required infrastructure for the future deployment of electric vehicles charging stations. The road section cannot be substituted by a lower carbon transport mode such as railways. The transport corridor includes a rail line that operates at a low level of capacity and efficiency and is therefore considered complementary as it would not be able to replace or compete with the road corridor in the short to medium term. To strengthen multimodal corridor development, the project invests in railway institutional capacity building to improve the capacity, efficiency, and reliability of the railway sector, and ultimately improve modal distribution in the long-term. Further investments in the railway sector are expected in subsequent projects under the SOP, further reducing potential future mitigation risks.

(b) **The design, construction and equipping of a new OSBP facility.** This will include the construction of new administrative buildings, which will be fully electrified and connected to the electricity grid, and will have energy efficient utilities, like energy efficient lighting. Street lighting will all be solar powered. The activity is therefore considered to present low risk from a mitigation perspective.

(c) **The development and implementation of the SMART corridor concept on the Lusaka-Nakonde section of the Dar es Salaam Corridor,** using intelligent transport systems to improve traffic management, incident detection and emergency response. This activity presents low mitigation risk.

(d) **Assessment of socio-economic development opportunities and the development of identified SMEs businesses, in the agriculture, agrobusiness and tourism sectors.** Investments will integrate measures to reduce climate mitigation risks to a low level. The activity is therefore considered low risk from a mitigation perspective.

(e) **Institutional and sectoral capacity development,** including the development of a green transport strategy to support the definition and implementation of a climate resilient low-carbon development pathway in the transport sector. SOP1 includes a CERC, and the World Bank will ensure that all eligible activities included in the CERC Manual/CERC Annex of the POM are Paris Aligned.

B. Fiduciary

(i) Financial Management (FM)

70. The World Bank conducted a financial management (FM) assessment of the National Road Fund Agency (NRFA) in September 2023. The objective of the assessment was to determine whether NRFA maintains adequate FM arrangements capable of ensuring that: (a) funds channeled into the project will be used for the purposes intended in an effective, efficient and economical manner, (b) the project's financial reports will be prepared in an accurate, reliable and in a timely manner; and (c) the project's assets and resources will be safeguarded. The FM assessment was carried out in accordance with the World Bank Directive: Financial Management Manual for World Bank Investment Project Financing Operations issued February 10, 2017. The assessment covered the six key FM elements of budgeting, funds flow, accounting, internal control, financial reporting, and auditing

[58] According to the International Organization of Motor Vehicle Manufacturers (OICA), Zambia's motorization rate was 23 vehicles per 1000 inhabitants in 2015, compared to Africa's average of 42, the EU average of 581. Available at: *https://www.oica.net/wp-content/uploads/Total_in-use-All-Vehicles.pdf* . According to Zambia's Road Transport and Safety Agency (RTSA), the motorization rate in Zambia was 41 in 2015. Although there is a discrepancy between the values reported by OICA and RTSA, the motorization rate in Zambia is in both cases very low.

[59] It is estimated that while 70 percent of the population depend on agriculture for their livelihood, only 17 percent of the population lives within 2 kilometers of an all-season road; about half of the average in Africa. (Source: Climate Vulnerability assessment Report – Volume 1: Main Report; NTU International; NDF; June 2018.)

arrangements and these were assessed to be effective. The overall FM residual risk rating is assessed as **Moderate**. Full details of the assessed FM arrangements are in Annex 1.

(ii) Procurement

71. **Procurement activities, including approvals and payments for the project, will be coordinated, and processed centrally by NRFA** as managers of funds in the road Sector (refer to paragraph 9) under the existing sector institutional arrangements. For procurement, RDA will take the lead for procurement planning, processing contract awards contract management for components 1, and the Ministry of Transport and Logistics for their respective activities within Component 3. RDA will also lead the procedural aspects of the procurement process for Component 2, with key involvement of the MSMED. Procurement activities proposed under the project will be carried out in accordance with the World Bank's 'Procurement Regulations for IPF Borrowers', 5th edition dated September 2023. The regulations are also referred to as 'Procurement Regulations and provisions of the World Bank's Guidelines for Prevention of Fraud and Anti-corruption dated July 2016. When procurement is carried out using provisions of the Zambia Public Procurement Act and its Procurement Regulations the procurement procedures will be adjusted to comply with provisions of paragraph 5.3 of the World Bank Procurement Regulations and comply with eligibility, conflict of interest and anti-corruption provisions. and the World Bank's environment and social framework.

72. **Based on the institutional arrangements for the project, the World Bank assessed that the main procurement risk will lie with RDA.** The assessment was carried out using the World Bank's online Procurement Risk Assessment and Management System. The procurement risk is rated as **Moderate**. A description of the identified risks and risk mitigations is provided in Annex 1. The PIU, with the support of the World Bank, will prepare a Project Procurement Strategy for Development (PPSD) to address how procurement activities will be implemented in support of the development objectives of the project to deliver the best value for money under a risk-based approach. The World Bank will conduct assessment of RTSA and MSMED during project implementation to assess their capacities to lead procurement processes for some activities within components 1 and 2.

73. **The World Bank's Online Systematic Tracking of Exchanges in Procurement (STEP) system will be used as a planning, data management, and filing and procurement management tracking system**. In addition to the prior review supervision to be carried out by the World Bank, the World Bank will conduct semi-annual implementation support missions to the field. As part of performance review and compliance monitoring, the World Bank will carry out procurement post reviews online using data in STEP on sample basis of procurement activities carried out on procurement post review basis.

C. Legal Operational Policies

	Triggered?
Projects on International Waterways OP 7.50	No
Projects in Disputed Areas OP 7.60	No

D. Environmental and Social

74. **The environmental risk rating is High** mainly due to RDA's inadequate Environmental and Social (E&S) performance and capacity. The likely environmental risks and impacts from SOP1 activities are typically direct, indirect and cumulative. This may include local water and soil contamination, generation of large quantities of

hazardous, solid and construction wastes, GHG emissions, loss and fragmentation of critical and natural habitats, severance of animal migratory routes and extensive land degradation from the extraction of bulk raw materials and road/access road construction. The ESIA will require application of Environmental and Social Standards (ESS) 3 and ESS6 and the mitigation hierarchy to demonstrate project avoidance of sensitive habitats, minimization of impacts and mitigation using biodiversity management plans, effective management of hazardous materials and wastes of all types, careful selection of routes and suppliers of construction materials to achieve no net loss of biodiversity and to avoid environmental degradation. Occupational health and safety risks on site include noise, vibration, fall from heights, vehicle to worker impacts and vehicle accidents. The latter are also associated with common community risks where pedestrian and work sites are not adequately separated and protected. The multiple borrow pits required present a high risk of drownings during and after the rain season. ESS2 requires adequate assessment of OHS risks and the implementation of risk control measures using OHS plans and ESS4 will require the development of community health and safety plans including measures to prevent drownings and minimize traffic accidents as part of the ESIA's ESMP and contractor's ESMP. Any identified impacts on cultural heritage will be assessed under ESS8 in the ESIA and relevant plans and procedures developed.

75. **The social risk rating has been assessed as High**, primarily due to several factors, including land acquisition, involuntary resettlement impacts, restrictions on land use, risks of labor influx, and capacity constraints to manage social risks. During the rehabilitation of the road, there is a possibility of the project impacting communities' lands, houses, water points, church buildings, shops, fruit trees, and other facilities such as storage sheds and shelters. According to the Resettlement Action Plan (RAP) prepared in 2022, approximately 7,176 people will be physically displaced, and 488 households will likely lose their shelter. Similarly, land acquisition will be required for the construction of the Border Post at Nakonde, and temporary land arrangements will be needed for worker/labor camps, storage of machinery, access roads, and borrow pits. Economic activities along the right-of-way may also be affected temporarily due to access restrictions during construction works. During the construction phase, there may be an increase in labor influx, which could heighten the risk of sexual exploitation and sexual harassment (SEA/SH) for women and girls in the communities along the corridors. There is also a social risk associated with marginalization and conflict in the selection of Small and Medium Enterprises (SMEs) for socio-economic development along the corridor. This could potentially exclude certain groups from benefiting from the project's development initiatives. Additionally, if there is non-compliance with national legislation and ESS2 requirements, there may be labor and working condition risks. This includes issues such as non-discrimination of workers, working hours, wages, overtime, compensation, benefits, and grievance management.

76. **The ESIA, prepared in 2016 and updated in 2022, for the Serenje-Mpika section, was disclosed in country on December 07, 2022 and on the World Bank website on September 07, 2023** to inform stakeholders about the expected environmental and social impacts. It is currently being updated to include the requirements of the Environmental and Social Framework.

77. **RDA's E&S performance needs strengthening.** RDA's E&S performance on the ongoing IRCP highlights certain weaknesses, specifically: (i) inadequate enforcement of the Health and Safety Management Plan (HSMP) by the contractors and a lack of oversight by the Monitoring Consultants; (ii) unfilled positions for Occupational Health and Safety (OHS) and E&S specialists in the Supervision Consultants' and contractors' organizations resulting in E&S non-compliance issues; and (iii) inadequacy of contractual penalties. The Environmental and Social Risk Classification (ESRC) will be reviewed when RDA and its executing entity improve their E&S performance ensuring that the Supervision Consultants and Monitoring Consultants perform the full range of their E&S responsibilities. This will entail contractors' compliance with the project's Environmental Social and Commitment Plan, E&S and OHS mitigation measures and plans and the application of the contractual remedies in case of

noncompliance.

78. **Substantial technical capacity support will be provided during project implementation to assist the RDA, MIHUD, and MTL, as well as the PIU ensure adherence to the ESF requirements.** All three entities (RDA, MIHUD & MTL) are actively involved in World Bank-financed operations and have low E&S capacities and capabilities to oversee the implementation of the different activities under Component 1. The E&S management capacity during implementation should be strengthened through recruitment of suitably qualified environmental and social specialists, a service provider to manage the risk of sexual exploitation and abuse and sexual harassment in the project, and OHS specialists, third-party.

79. **The preparation of the listed E&S instruments will undergo public consultations, and the documents will be disclosed.** An Environmental and Social Commitment Plan (ESCP) was disclosed on January 25, 2023. Additionally, a Stakeholder Engagement Plan (SEP) and Labor Management Procedures (LMP) were prepared and disclosed on December 07, 2023. The E&S risk classification was re-assessed at Appraisal and remains High. The ESRC will be reviewed again when the project is under implementation.

80. **Citizen Engagement.** The project will adopt a robust citizen engagement approach throughout its cycle. Project-affected persons (PAPs), interested parties, and vulnerable and marginalized groups, including women, will be identified, and engaged in the project activities from early stage of preparation all through implementation and completion. The project's results framework includes one beneficiary feedback indicator[60] and its implementation will be followed up during the project's lifecycle. The Recipient prepared an SEP that set out the approaches and modalities of the stakeholder engagement through citizen-led planning and monitoring using participatory tools and techniques, as appropriate. The SEP also includes a project-specific grievance management process that outlines the procedures for receiving, evaluating, and addressing project-related complaints from citizens, stakeholders, and other affected communities.

81. **Gender**. The project will contribute to addressing the identified gender disparities and limitations faced by women in the transport sector. During SOP1 implementation, gender gaps will be examined in detail, gender actions to address those gaps will be prepared, which will all be included as part of a Gender Action Plan. The assessment will cover the national, sector and project levels. The assessment will aim to provide specific recommendations to i) address the barriers that women face to improve their conditions within the trade value chain with a strong emphasis on the challenges that they face at the border and for their entrepreneurship; and ii) supporting women's participation in the transport and logistics sectors. For this purpose activities will include facilitating trade for women by improving trade-enabling infrastructure design and addressing regulations that constrain women; developing codes of conduct and grievance redress mechanisms; providing gender-sensitive training to border officials; testing innovative approaches as cluster trading to address some of the identified barriers; providing women with business development skills; and designing a six-month paid internship program for women graduate engineers accompanied with a mentoring program within MIHUD to help address the barriers of school to work transition. These measures will be delivered through Components 1, 2 and 3 of the project.

V. GRIEVANCE REDRESS SERVICES

82. **Grievance Redress.** Communities and individuals who believe that they are adversely affected by a project supported by the World Bank may submit complaints to existing project-level grievance mechanisms or the World Bank's Grievance Redress Service (GRS). The GRS ensures that complaints received are promptly reviewed to address project-related concerns. Project-affected communities and individuals may submit their

[60] Indicator: "Local people that express that works meet their needs (disaggregated by gender)".

complaint to the World Bank's independent Accountability Mechanism (AM). The AM houses the Inspection Panel, which determines whether harm occurred, or could occur, as a result of World Bank non-compliance with its policies and procedures, and the Dispute Resolution Service, which provides communities and borrowers with the opportunity to address complaints through dispute resolution. Complaints may be submitted to the AM at any time after concerns have been brought directly to the attention of World Bank Management and after Management has been given an opportunity to respond. For information on how to submit complaints to the World Bank's Grievance Redress Service (GRS), please visit http://www.worldbank.org/GRS. For information on how to submit complaints to the World Bank's Accountability Mechanism, please visit https://accountability.worldbank.org.

VI. KEY RISKS

83. **The overall risk for SOP1 is Moderate.** However, the environmental and social risks are rated High.

84. **The environmental and social risk rating is High.** The key environmental risks are direct and indirect that may impact biodiversity, natural resources, cause land degradation and nuisance and occupational noise and vibration, contamination of soil and water resources and increase the risk of occupational and community health and safety incidents and accidents. Cumulative impacts could be intensified by road rehabilitation and operation by increased GHG emissions and contamination of local waterways. The key social risks include land acquisition, involuntary resettlement impacts (including physical and economic displacement), restrictions on land use, risks of sexual exploitation and abuse and sexual harassment due to labor influx, and capacity constraints to manage the social risks. The key E&S risks and impacts will be mitigated by: (i) updating the 2016 ESIA and RAP for the Serenje-Mpika section by an independent expert;[61,62] (ii) conducting an E&S screening of the Nakonde OSBP and the weighbridge and developing appropriate E&S instruments to manage E&S risks and impacts during implementation; (iii) preparing, during project implementation, the feasibility studies, detailed designs, ESIAs and other E&S instruments for targeted sections along the Nacala Corridor and Trans-Caprivi Corridor; (iv) developing HSMPs and Contractors' Environmental and Social Management Plans (CESMPs) before implementation and updating these during the implementation; (v) preparing the draft Environmental and Social Commitment Plan (ESCP) disclosed before appraisal and updated after negotiations and; (vi) development of Labor Management Procedures (LMP) and Stakeholder Engagement Plan (SEP) disclosed before project appraisal; (vii) development of an SEA/SH Action Plan[63] and hire of a service provider to implement the SEA/SH Action Plan; and (viii) clearly defining selection criteria for SMEs with stakeholders and beneficiaries taking into consideration poverty and vulnerability. The E&S risk classification will be re-assessed during project implementation.

[61] Completion of the update is a disbursement condition for Component 1a.
[62] Potential negative impacts vulnerable populations, including the elderly, disabled individuals, and female-headed households will be re-evaluated once the update of ESIA report is completed, and additional mitigation measures may be included.
[63] SEA/SH Action Plan is required as part of the ESIA.

VII. Results Framework & Monitoring

Results Framework

COUNTRY: Eastern and Southern Africa

Transport Corridors for Economic Resilience (TRACER)

Project Development Objectives(s)

The PDO of the SOP is to improve efficiency, connectivity and climate resilience of key regional transport and trade corridors in Eastern and Southern Africa.

The PDO of SOP1 is to improve year-round transport and trade connectivity between Zambia and Tanzania and expand economic activity along the Dar es Salaam Corridor in Zambia.

Project Development Objective Indicators

Indicator Name	PBC	Baseline	End Target
Improve year-round transport and trade connectivity between Zambia and Tanzania			
Travel time between Dar es Salaam and Lusaka (Hours)		74.00	51.50
Reduction in number of fatalities along Serenje-Mpika (Percentage)		0.00	30.00
Border clearance time at Nakonde (for trucks) (Hours)		39.00	18.00
Population benefiting from the climate resilience of the Serenje-Mpika road section (Number)		0.00	500,000.00
Expand economic activity along the Dar es Salaam Corridor			
Beneficiaries with increased revenues (Percentage)		0.00	60.00

Indicator Name	PBC	Baseline	End Target
Beneficiaries with increased revenues who are women (Percentage)		0.00	35.00

Intermediate Results Indicators by Components

Indicator Name	PBC	Baseline	End Target
C1. Resilient transport &trade facilitation along the Dar es Salaam Corridor & preparatory studies			
Roads rehablitated (CRI, Kilometers)		0.00	203.00
Roads rehabilitated - non-rural (CRI, Kilometers)		0.00	203.00
Length of section of the Dar es Salaam Corridor converted into SMART corridor (Kilometers)		0.00	203.00
Detailed designs for Lusaka-Luangwa and Livingstone-Katima Mulilo completed (Yes/No)		No	Yes
Lusaka-Luangwa PPP concession reaching financial close (Yes/No)		No	Yes
Project-related grievances addressed (Percentage)		0.00	100.00
Local people that express that works meet their needs (disaggregated by gender) (Percentage)		0.00	500.00
People with enhanced access to transportation services (CRI, Number)		0.00	800,000.00
Crossing time at Nakonde OSBP for small traders segregated by gender (Hours)		20.00	2.00
C2. Corridor-oriented development			
Last mile infrastructure projects supported by the project (Number)		0.00	7.00
Sub-projects facilitated by the project (Number)		0.00	120.00

Indicator Name	PBC	Baseline	End Target
SMEs accessing Business Support Services along the identified corridor (Number) (Number)		0.00	1,000.00
C3. Sectoral capacity development and project management			
Railway Technical Assistance completed (Yes/No)		No	Yes
Sectoral studies completed (Number)		0.00	4.00
Government staff trained (Number)		0.00	80.00
Women enrolled in an internship program under the MHUD (Number)		0.00	12.00
Percentage of women from the internship program that find a job 12 months after the program is completed (Percentage)		0.00	60.00

Monitoring & Evaluation Plan: PDO Indicators

Indicator Name	Definition/Description	Frequency	Datasource	Methodology for Data Collection	Responsibility for Data Collection
Travel time between Dar es Salaam and Lusaka	Truck travel time between Dar es Salaam Port in Tanzania and Lusaka in Zambia including border clearance time at Nakonde.	Three times: (i) at completion and commissioning of the OSBP, (ii) at completion of the rehabilitation	RDA (travel time surveys) and ZRA (border clearance time surveys) data centers.	Regular time surveys. Savings in travel time may be reduced to reflect any corridor improvements by the government or other development partners.	PIU in coordination with RDA and ZRA.

		of the Serenje-Mpika road, and (iii) at the completion and commissioning of the SMART corridor.			
Reduction in number of fatalities along Serenje-Mpika	Road fatalities along the Serenje-Mpika section of the corridor.	Annually	RTSA, Police records	RTSA accident registration files and Police accident reporting files.	PIU, in coordination with RTSA and Police
Border clearance time at Nakonde (for trucks)	Truck clearance time at the Nakonde OSBP.	Annually	ZRA records and RDA travel time surveys	Measured time will include waiting time prior to starting the actual clearance process.	PIU in coordination with ZRA and RDA
Population benefiting from the climate resilience of the Serenje-Mpika road section	Number of people travelling on the corridor who will benefit from access to a climate resilient Serenje-Mpika road section	Once: at project completion.	RDA surveys and ZRA (border) statistics and RTSA records	RTSA records from the Smart Corridor operations, confirmed by surveys conducted along the Serenje-Mpika road and ZRA records.	PIU in collaboration with RTSA, ZRA and RDA.

Beneficiaries with increased revenues	SMEs experiencing increased revenues due to project activities.	Twice: first half way during project implementation and the second at project completion.	MSMED surveys	Surveys of project beneficiaries	PIU in coordination with MSMED
Beneficiaries with increased revenues who are women	The percentage of the SME beneficiaries experiencing an increase in revenues that are women	Twice: first half way during project implementation and the second at project completion.	MSMED surveys.	MSMED surveys of project beneficiaries.	PIU in coordination with MSMED

Monitoring & Evaluation Plan: Intermediate Results Indicators					
Indicator Name	**Definition/Description**	**Frequency**	**Datasource**	**Methodology for Data Collection**	**Responsibility for Data Collection**
Roads rehablitated					
Roads rehabilitated - non-rural		Annually	Reports by RDA and Supervision Consultants	Supervision Consultants confirmation of completed sections.	PIU in coordination with RDA

Length of section of the Dar es Salaam Corridor converted into SMART corridor	Length of corridor converted into a SMART Corridor, including all features of the SMART concept. It is to be noted that longer sections (stretching in cases from Nakonde to Lusaka) will also have certain SMART facilities. For the purpose of this indicator only the full 203 km will be assessed.	Annually	Reports by RTSA, RDA and Supervision Consultants	Confirmation by Supervision Consultants, RDA and RTSA	PIU in collaboration with RDA and RTSA
Detailed designs for Lusaka-Luangwa and Livingstone-Katima Mulilo completed	Completion of detailed designs	Once in year 3 of the project	RDA records	Using RDA records.	PIU in coordination with RDA
Lusaka-Luangwa PPP concession reaching financial close	Concession reaching financial close	Once at project completion .	RDA and MoFNP records	RDA and MoFNP records	RDA and MoFP
Project-related grievances addressed	Project-related grievances addressed	Annual	Project's grievance redress services	Review of Project's grievance redress services reports	PIU in coordination with RDA, MIUHD, MoTL and MSMED
Local people that express that works meet their needs (disaggregated by gender)	Measures the satisfaction of local population with improved climate resilient access as a result of the	Annually, commencing year 2 of the	Questionnaires	Local community surveys	PIU in coordination with RDA, MIUHD and MSMED

	project	project.			
People with enhanced access to transportation services	The indicator measures the number of direct beneficiaries that experience improved access to transport infrastructure and services that have been built or rehabilitated through a WBG-financed project (including highways, rural roads, urban and interurban roads, mass transit systems, ports/waterways, railways, and airports). Beneficiaries typically experience reductions in cost and time to travel and/or improvements in safety, as well as increased access to markets, job opportunities, and health and education services. In urban areas, beneficiaries include the increase in the number of users of improved services. In rural areas, beneficiaries include the increase in the number of people who live in proximity to improved services.	Once at project completion	ZRA records, RDA surveys, ZRL, MoTL and RTSA statistics, MSMED surveys	Estimation of number of project beneficiaries using records, statistics and survey.	PIU in coordination with ZRA, ZRL RDA, RTSA, MoTL and MSMED

Crossing time at Nakonde OSBP for small traders segregated by gender	Time required for a small trader to obtain clearance to cross the Nakonde border post from Tanzania into Zambia segregated by gender, indicating the percentage of women small traders.	Annually	ZRA records	Time surveys and questionnaires	PIU in coordination with ZRA
Last mile infrastructure projects supported by the project	Number of last mile connectivity offered to SMEs	Annually	MSMED and RDA	Confirmation by Supervision Consultants, RDA and/or MSMED of completion of last mile connectivity	PIU in coordination with MSMED and RDA
Sub-projects facilitated by the project		Annual	MSMED surveys	Surveys	PIU in coordination with MSMED
SMEs accessing Business Support Services along the identified corridor (Number)	SMEs accessing Business Support Services along the identified corridor (Number)	Annual	MSMED surveys	Surveys	PIU in coordination with MSMED
Railway Technical Assistance completed	Completion of the four key activities under the ZRL Institutional support	Annually, commencing year 3 of the project	MTL	Completion of consulting contracts	PIU in coordination with MTL
Sectoral studies completed	Measuring the different studies completed under the project.	Twice: at mid Term and at completion of project	MTL, NCC, RDA	Conclusion of consulting contracts	PIU in coordination of MTL, NCC, RDA

Government staff trained	Number of government staff who completed targeted training, segregated by entity and gender	Annually	PIU training records	Certificates of concluded training	PIU in coordination with receiving entities
Women enrolled in an internship program under the MHUD	Number of female interns from Zambian Universities registered for Internship programs with MIHUD	Annually	MIHUD	HR Registration of MIHUD	PIU
Percentage of women from the internship program that find a job 12 months after the program is completed		Annually	MIHUD	Employment contracts signed	PIU

ANNEX 1: Implementation Arrangements and Support Plan

1. **TRACER will be implemented through a three-tier structure.** Firstly, a Steering Committee (SC) will be established to be chaired by the Permanent Secretary (PS) of the Ministry of Infrastructure, Housing and Urban Development and membership of entities highlighted in the "implementation section" of the report. The committee will provide high-level strategic guidance on the various implementation aspects of the project. Reporting to the SC will be a Technical Committee (TC), chaired by the Ministry of Transport and Logistics, with membership of the focal points from the ministries involved in the project, as well as RDA, RTSA, NRFA and ZRA. The TC will provide high-level technical guidance on the implementation of the various project activities, as needed and will convene with the necessary members to address implementation issues as these arise. The TC will be the platform for coordination with the Tanzanian government counterparts on issues related to cross-border facilitation, and with agencies such as the Central Corridor Transit Transport Facilitation Agency (CCTTFA).

2. **The Project Implementation Unit (PIU) will oversee the day-to-day management of the project activities.** It will ensure that all ministries and agencies (detailed below) are responsible for delivery of their respective activities. The PIU will coordinate with the different agencies/ ministries through the Project Managers assigned by the responsible agency/ ministry. The PIU will be led by a Project Coordinator, who will report to the Permanent Secretary of the Ministry of Infrastructure, Housing and Urban Development. Implementation of each key activity under the project will be overseen by Project Managers from the different ministries and agencies as relevant. Environmental and social management will be carried out by RDA and MIHUD. Procurement activities for the entire project will be carried out by RDA, and MTL. FM activities will be conducted by NRFA.

3. **RDA** will lead the implementation of the rehabilitation works and preparatory studies under component 1 and will coordinate with other ministries/ agencies as required. **RTSA** will have a key role in the implementation of the SMART Corridor, which includes installation of systems and equipment, similar in nature and complexity to systems that RTSA has implemented in the past. RTSA will coordinate directly with MCTI, ZRA, RDA and MTL on the design and implementation of the SMART corridor. **MTL** will lead the implementation of component 3, directly procuring and managing the railways and corridor-management activities and coordinating other activities under the component with the relevant ministries/ agencies. **MCTI** as the national custodian of border crossings will lead the implementation of the OSBP component with direct coordination with MIHUD, RDA, ZRA and other ministries and agencies as required. **MSMED** will lead the implementation of component 2 in coordination with various agencies and ministries as to be determined during the first activity of the component (the assessment).

4. **The National Trade Facilitation Committee (NTFC)** was established by the Government to oversee national trade facilitation initiatives. The TC or the PIU (through the TC) may call for meetings of the NTFC, as required, to coordinate the design and implementation of the trade facilitation aspects of the OSBP and the SMART corridor. **The POM** will detail the composition of the Steering Committee, the Technical Committee, and the PIU. It will also detail the coordination approach and channels, with clear responsibilities divide and assignment.

Financial Management

5. The World Bank conducted a Financial Management (FM) assessment of the National Road Fund Agency (NRFA)in September 2023. The objective of the assessment was to determine whether NRFA maintains adequate FM arrangements capable of ensuring that: a) Funds channeled into the project will be used for intended purposes in an effective, efficient and economical manner; b) The project's financial reports will be prepared in an accurate,

reliable and in a timely manner; and c) The project's assets and resources will be safeguarded. The FM assessment was carried out in accordance with the World Bank Directive: Financial Management Manual for World Bank Investment Project Financing Operations issued February 10, 2017. The assessment covered the six key FM elements of budgeting, funds flow, accounting, internal control, financial reporting, and auditing arrangements and these were assessed to be effective.

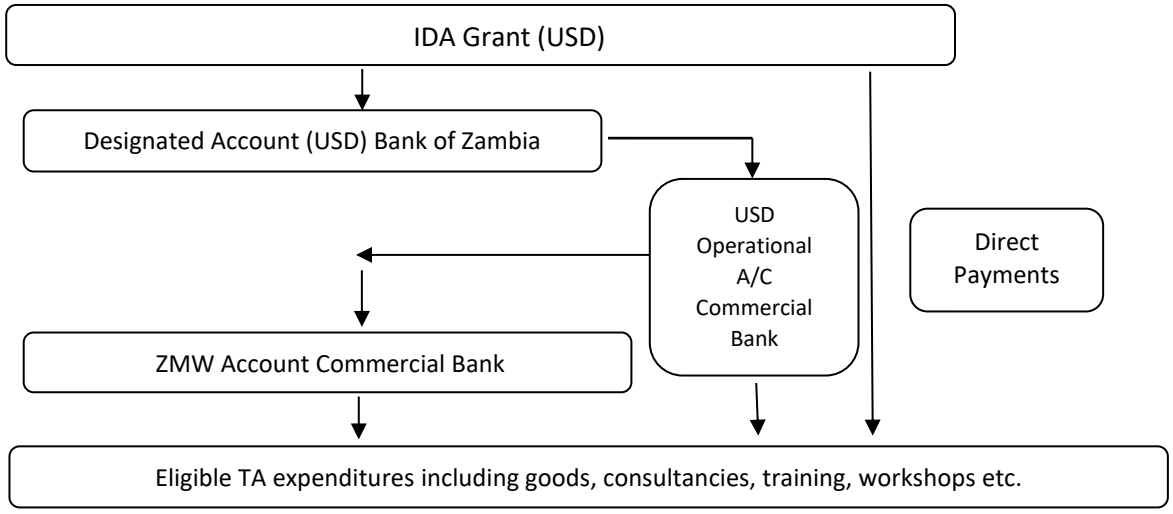
6. **Budgeting**. Budget preparation will be carried out by the TRACER PIU with the support of the RDA through the NRFA and will follow the NRFA budgeting framework using NRFA's procedures and policies. The budgeting processing commences when the Budget Office Call circulars are received from MoFNP. The NRFA in coordination with implementing Agencies and relevant Government Ministries will consolidate annual work plans and budgets (AWPBs) and thereafter submit them to MoFNP by September 30th each year for approval. The TRACER PIU will also ensure timely submission of the AWPB to the World Bank for No Objection. Budget Monitoring and Control will be done through existing variance analysis processes and reporting under the NRFA and shared with other entities. Additionally, the World Bank will monitor the implementation of the annual work plan and budget through the quarterly IFRs and supervision reviews. The project will be expected to report on variances between budgets and actual amounts and explain and implement mitigating measures for significant variances that may arise.

7. **Accounting**. The project will rely on the existing accounting capacity at NRFA which is deemed to be adequate. Currently, NRFA Finance Department is headed by the Director Fund Management, who is supported by three fund managers, five assistant accountants, nine accounts assistants, and 18 cashiers. NRFA finance staff are qualified and have adequate knowledge and experience in managing donor funds and have experience in World Bank financial management and disbursement procedures. The project will use the existing Sun accounting system to process project transactions. The software allows for proper recording of project financial transactions, including the allocation of expenditures in accordance with the respective components, disbursement categories and sources of funds.

8. **Internal Controls**. The project will rely on the NRFA's Internal Audit Department's regular internal audits and reviews of internal controls. The unit will be provided with additional resource to specifically ensure that World Bank projects are audited periodically. NRFA has an Internal Audit Manual as well as a Financial Management Systems manual setting out basic internal controls for financial management and which are expected to enhance the internal control environment of the Project. The project will process transactions based on the rules and regulations specified in the existing Financial Management Systems manual.

9. **Disbursement and Funds Flow Arrangements**. The project will use advances to replenish funds, and document expenses on a quarterly basis using unaudited interim financial reports (IFR) supported by statements of expenditure (SOEs). The project will use the IFR disbursement method for requesting funds from the World Bank. Funds will be disbursed through a Designated Account (DA) denominated in United States Dollars (USD) held at the Bank of Zambia (BOZ). The NRFA will transfer funds from the DA to the USD Project Operational Account held at the Commercial Bank. Local currency payments will be made from the ZMW Project Operational Account held at a Commercial Bank. Transfers to this ZMW Project Operational Account will be from the USD Operational Account held at a Commercial Bank. All the bank accounts that will be involved in the flow of funds will be reconciled monthly. All costs relating to programs will be managed centrally from the NRFA. The project will initially submit a cash flow forecast projection for six months to receive the initial deposit in the US dollar DA. Subsequent withdrawal requests will be made on a quarterly basis according to forecast cash flow for the next two quarters less bank balances as at the end of the quarter. Other methods of disbursement that will be available to the Project and to be specified in the Disbursement and Financial Information Letter will include direct payments, reimbursements, and special commitments.

Funds Flow Chart



10. **Financial Reporting**. NRFA will prepare and submit to the World Bank on quarterly basis unaudited IFRs to manage and monitor the use of funds disbursed to the project. The IFRs will at the minimum show a statement of sources and uses of funds, with the uses of funds analyzed by eligible category to compare actual expenditure with budget. The formats and contents of the IFRs are included in the DFIL. The IFR shall be submitted to the World Bank within 45 days after the end of the quarter. The project will also prepare the project annual accounts/financial statements which will be submitted to the external auditor within three months after the end of the financial year for audit. NRFA financial year end is December 31.

11. **External Audit**. The external audits shall be performed by the Auditor-General, who may contract private audit firms-based scope and audit ToRs acceptable to the World Bank. The cost of hiring a private audit firm will be met from grant proceeds. The audit will be carried out in accordance with International Standards on Auditing (ISAs). Audit reports, together with management letters, shall be submitted to the World Bank within six months after the end of the financial year. Audit reports will be publicly disclosed by the World Bank Group in accordance with the World Bank's disclosure policy.

12. FM supervision and implementation support. FM supervision and Implementation support will be carried out on a semi-annual basis or as needed and will include desk reviews such as the review of the IFRs, SOEs, audit reports, as well as virtual and in-person reviews and conferences with the project team.

13. **Conclusion**. The FM arrangements in place at NRFA meet the World Bank's minimum requirements under Bank Policy and Directive for IPFs, and therefore are adequate to provide, with reasonable assurance, accurate and timely information on the status of the project required by the World Bank. The overall FM residual risk rating is Moderate.

Procurement

14. **Applicable Procurement Regulations**. Procurement activities under the project will be carried out in accordance with the World Bank's 'Procurement Regulations for IPF Borrowers', 5th edition dated September 2023. Other applicable polices which will impact procurement will be applied such as provisions of the World Bank's 'Guidelines on Preventing and Combating Fraud and Corruption in Projects Financed by IBRD Loans and IDA Credits and Grants', dated October 15, 2006, revised in January 2011 and July 1, 2016, and other provisions that will be stipulated in the Financing Agreement. Procurements carried out using national procedures will apply

provisions of the Zambia Public Procurement Act No 8 of 2020 and its Procurement Regulations of April 2022 subject to modifications to make the procurements acceptable to the World Bank in line with provisions of Paragraph 5.3 of the World Bank's Procurement Regulations and in observance of eligibility and conflict of interest provisions.

15. **Procurement Capacity and Risk Assessment of the RDA to undertake procurement**. A procurement capacity assessment of RDA as the main component implementor for the project has been carried out by the World Bank using the World Bank's Online Procurement Risk Assessment and Management System (PRAMS) System in October 2023. The Procurement risk is rated as Moderate.

16. The World Bank notes that RDA has over time developed capacity to implement projects funded by the World Bank successfully. This has also been demonstrated in the implementation of the on-going IRCP project as was the case under the predecessor projects of the IRCP.

17. **Key identified Procurement Risks and Mitigation Actions**

a) Handling of procurement complaints needs enhancing. RDA should develop its own Complaints management system. The systems could benefit from provisions of the World Bank's Complaints Handling Guideline. If implemented, the Complaints Management System will enhance efficiency, fairness and trust in the bidding processes.

b) RDA needs to address procurement process delays. For each procurement activity, RDA needs to develop a time bound, stage by stage implementation roadmap. For each activity, RDA needs to preassign procurement and technical staff to prepare and implement realistic plans. This will result in confidence by the bidders, lower cost of bid and contract amounts.

c) RDA needs to enhance its payment systems working with NRFA who have the payments responsibility. Payment delays should be minimized by removing unnecessary layers and time delays. Efficiency should be monitored, reported on and improvement made as needed. This will require prescreening of the bidders during bidding stage for status of tax compliance. Doing so will eliminate delays at payment stage. This screening is a requirement by ZRA. Efficiency of payments may lead to lower bid and contract cost and will improve governance generally.

18. **PPSD and PP.** RDA has prepared a PPSD which was reviewed by the World Bank and was finalized by RDA. The PPSD is the basis for the preparation of the initial 18 months Procurement Plan which was reviewed and approved by the Bank prior to negotiations.

19. **Frequency of Procurement Supervision, Procurement Prior Reviews and Procurement Post Reviews.** The World Bank will carry out procurement prior reviews of specific procurement activities with cost estimates equal to or above the Prior Review Limit as will be set forth in the approved Procurement plan and in line with applicable thresholds. For the rest of the activities, the World Bank will on a sample basis, at least once a year, carry out Procurement Post Reviews using data in the World Bank's online STEP System. In addition, the World Bank will carry out supervision of procurement activities during the semiannual Implementation Support Missions.

20. **Procurement capacity building and training.** The World Bank will carry out basic procurement training for relevant staff. The training will include the use of the World Bank's online STEP system which now includes a module for contract management and is used by the World Bank to carry out Procurement Post Reviews (PPRs).

Project Operations Manual (POM)

21. **The POM will be adopted by the PIU prior to grant effectiveness.** This document presents key aspects of the project and determines the responsibilities as well as the tools to be applied during project implementation.

The POM is intended to ensure consistency, transparency, and accountability in the application of the project management procedures and will be applied during the entire project implementation period. The POM will contain detailed information on the project implementation arrangements and processes, including procurement, FM, disbursements, and environmental and social aspects, including an annex that specifies the implementation arrangements for each component. Any changes to the Manual during project implementation will require the World Bank's prior no objection.

ANNEX 2: Climate Change Adaptation and Mitigation

1. **Zambia is already experiencing the impacts of climate change, with rising temperatures and variable precipitation levels.** Mean annual temperatures increased by 1.3°C since 1960, an average of 0.29°C per decade. The number of hot days and nights has increased by 12 percent between 1960 and 2023. Mean annual rainfall has been decreasing, with rainfall seasons becoming less predictable and shorter, with more intense rainfall events between large dry gaps. The frequency and intensity of droughts and floods have been increasing during the last 30 years and the geographic distribution of these events has also been changing. Climate projections show that mean temperatures will continue to increase by 1.2-3.4°C by 2060, hot days are projected to increase by 15-29 percent, and hot nights by 26-54 percent by 2060.[64] Climate projections show an increase in inter-annual variability in the frequency and distribution of rainfall, with extreme wet periods, that suggests a greater likelihood of flash floods, and more intense droughts in the future.

2. **Zambia is highly vulnerable to the impacts of climate change and geophysical hazards.** Zambia ranked 132 out of 185 countries in the 2021 Notre Dame Global Adaptation Initiative (ND-GAIN) index, indicating high vulnerability and low readiness to adapt to climate change impacts. The climate and disaster risk screening conducted for SOP1 identified high risks at country level of river and urban floods, wildfire; medium risk of water scarcity, extreme heat, and earthquakes; and low risk of landslides and cyclones.[65] Climate change related hazards of particular relevance to SOP1 include heavy rainfall events, flash floods, soil erosion, high temperatures.

3. **Climate change impacts the road sector affecting connectivity.** Climate change related hazards, such as intense precipitation and longer periods of sustained precipitation can cause flash floods, slopes failures and landslides that damage and destroy roads, bridges, and culverts, cause traffic disruptions, disconnect regions and raise transport costs. Extreme heat and humidity also impact negatively road conditions, by raising the potential for asphalt deterioration through increased oxidation, aggregate spalling, rutting, and lateral displacement of asphalt under traffic loading. Prolonged dry spells can lead to decreased soil humidity resulting in base course, sub-base and subgrade shrinkage, shoulder deterioration, subsidence of underlying strata and loss of uniform bearing capacity - all of which can accelerate the deterioration of roads. These impacts increase road, bridge and drainage infrastructure maintenance and rehabilitation costs. Unpaved, poorly maintained roads, and roads in bad condition are the most sensitive to climatic events and the 2015 road condition survey identified that 60 percent of the core road network requires major rehabilitation and only 40 percent is in maintainable condition. The 2007 floods in Zambia affected 75 districts (of the total of 110) and in 39 of these districts 66 percent of the roads, bridges and culverts were either washed away or damaged, cutting off large areas. Traffic disruptions and road blockages result in loss of connectivity and higher transport costs, with impacts for local communities, trade activities and the economy. Figure 3.1 presents the sensitivity of the core road network by district showing that the Serenje-Mpika section of the is in a district of high climate sensitivity. The Livingstone-Katima Mulilo Road link is located in a fluvial flood prone area and is rated as having extreme climate vulnerability. The Lusaka-Luangwa corridor is erosion prone and located in an area exposed to extreme heat risks. Luangwa is located in a flood plain and Lusaka is periodically affected by flooding due to inadequate infrastructure planning, poor drainage, low topography and high-water table. This impacts negatively freight traffic movements and risks are projected to increase with climate change.

[64] Climate Resilient Road Guidelines and Codes; Road Development Agency; Government of the Republic of Zambia Ministry of Housing and Infrastructure; May 2021.
[65] Think Hazard. Consulted on 26th October 2023. URL: https://thinkhazard.org/en/report/270-zambia

4. **SOP1 aims to enhance the climate resilience of the transport sector and of the communities served.** The selection of the Dar es Salaam corridor, the prioritization of the Serenje-Mpika section and the selection of SOP interventions is based on the criticality of the corridor to serving transport needs (freight and passengers) and on the climate sensitivity and vulnerability of the corridor section, as identified in the Climate Vulnerability Assessment Report from the Nordic Development Fund. In the 2018/2019 and 2019/2020 rainy seasons the Serenje-Mpika road section was cut off / disrupted for a period of two weeks. Because the potential impacts of climate change on the road corridor are high, the project identified and incorporated measures to manage and reduce adaptation risks to an acceptable low level. The project also incorporates mitigation measures to reduce to a low level the risk that the operation presents to the country's low-GHG emissions development pathways (see Table 2.1).

Figure 2.1: Roadwork Composite Index Analysis of Climate Sensitivity by District for Paved Core Road Network (Source: CVA, 2018)

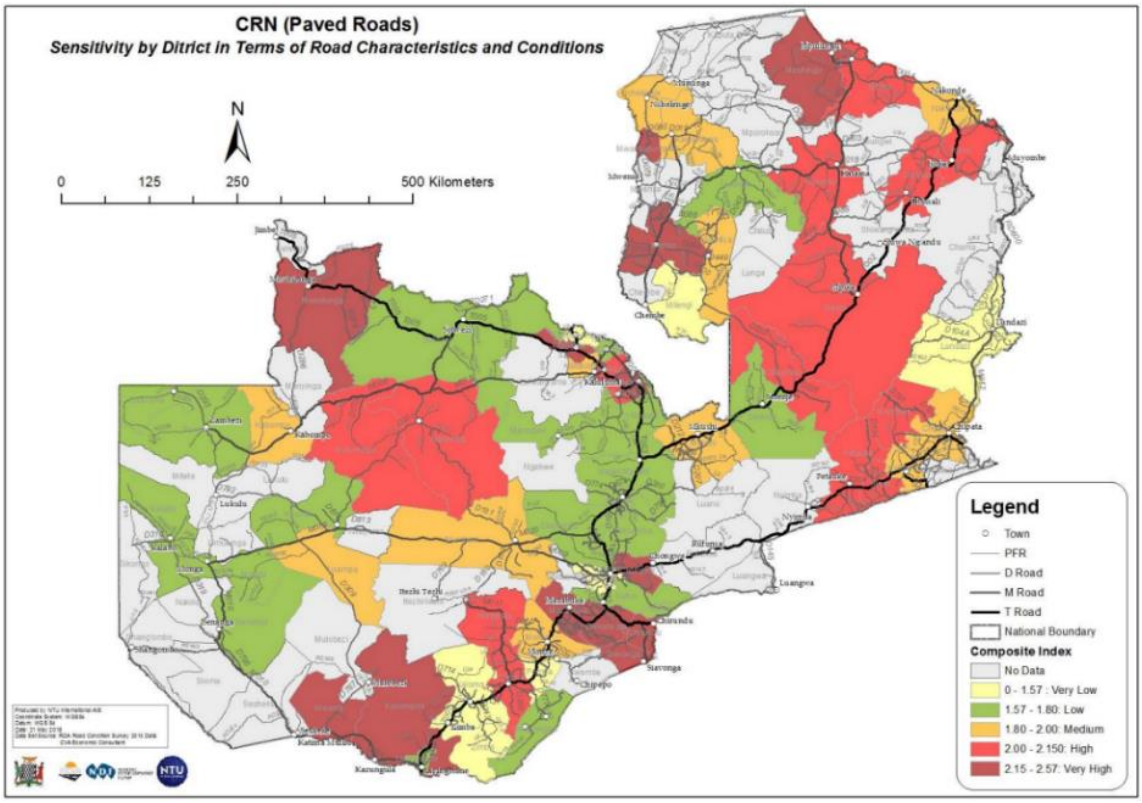


Table 2.1: The project Climate Adaptation and Mitigation Interventions, by Component

Components	Climate Adaptation and Mitigation Interventions
Component 1: Resilient transport and trade facilitation along Dar es Salaam Corridor and preparatory studies (US$225 million)	
Sub-Component 1.1: Development of climate resilient transport systems along Dar es	**Adaptation:** This component includes updating the feasibility and design studies for the Serenje-Mpika

Components	Climate Adaptation and Mitigation Interventions
Salaam corridor. (US$150 million, IDA)	section of the corridor to climate resilience standards and specifications,[66] and the rehabilitation of the road section observing these standards. Special focus will be provided to areas with major risks of flooding and extreme heat that might cause erosion and damage to the road assets. Important elements to be considered are the road levels, pavement design, cross drainage, slope stabilization, erosion protection of the road, as follows: i. Road drainage structures*:* The design and construction of enhanced road drainages structures with design specifications for recurrent weather events for critical road segments. The use of resilient design may call for additional cross and side drainage, adjustment in the vertical alignment of the road, and higher hydraulic clearances for the bridge and culverts. ii. Pavement design: Use of appropriate weather-resistant pavement surfacing materials based on robust asphalt mix designs and revised pavement thicknesses which take into consideration future temperatures. The type, strengthen or protection of subsurface conditions and materials may have to be modified to control and prevent constant or cycling soli saturation, or dehydration from damaging the overlaying infrastructure. iii. Bridge design and construction*:* The thermal expansion of bridges will be countered by accounting for the temperature increment at the design phase and using expansion joints. iv. Tree and grass planting for roadway reserve protection and slope stabilization*:* To protect the road and its drainage system from erosion, retaining walls, gabions will be installed as necessary. All slopes will be grassed and there will be drainage chutes to allow for controlled water discharge over the slopes, as well as an extensive tree-planting operation along the corridor. **Mitigation:** The rehabilitation of the Serenje-Mpika section provides an essential access function, including connectivity to rural areas; does not increase the capacity of the corridor; does not cause deforestation; and does not create barriers to non-motorized transport (NMT) nor long distance public transport. The rehabilitation includes provisions for safe use by NMT such as the provision of sidewalks, zebra crossings or pedestrian overpasses, as appropriate. The rehabilitation works also include tree and grass planting for roadway reserve protection and slope stabilization that result to some extent in carbon capture and sequestration. Service stations will be built with the required infrastructure to enable the installation of charging stations for electric vehicles. This agenda is being informed by the electric mobility infrastructure strategy being developed by the Ministry of Energy, and the electric mobility strategy being developed by the Ministry of Green Economy.
Sub-Component 1.2: Development of the Nakonde One Stop Border Post (OSBP). (US$22 million, IDA)	**Adaptation:** This component includes the construction of a new OSBP facility at Nakonde. Access roads, parking areas, office buildings, and other infrastructure will be built observing climate resilience standards, including enhanced drainage, slope protection, enhanced pavement design, and efficient water use. The OSBP will introduce systems and procedures to enhance the climate resilience of operations and maintenance, such as data recovery and backup to prevent data loss in the event of climate disasters. **Mitigation:** The new OSBP facility will be fully electrified, grid connected, and will incorporate energy efficient lighting, appliances, and equipment (EDGE Level 1 certification). Street lighting will be solar powered.
Sub-Component 1.3: Development and implementation of the SMART corridor concept	**Adaptation:** This component will develop and implement a SMART corridor concept, which will establish good articulation between traffic management functions and extreme weather monitoring, early warning, and emergency services, to enhance the climate resilience of the corridor, its users and that of the communities in the corridor area of influence. SMART corridor will enable implementation

[66] Observing climate resilience standards and specifications consist in incorporate climate resilient road guidelines and codes as defined in: Climate Resilient Road Guidelines and Codes; Road Development Agency; Government of the Republic of Zambia Ministry of Housing and Infrastructure; May 2021.

Components	Climate Adaptation and Mitigation Interventions
on the Lusaka – Nakonde section of the North-South Dar es Salaam corridor. (US$54 million, IDA)	of the emergency response plan developed under Component 3 of the project, through timely and effective response in case of a climate emergency. The SMART corridor includes systems for corridor monitoring, traffic management and road safety which, combined with climate information and forecasting abilities, will inform authorities, and enable the implementation of risk reduction measures such early warning, provision of alerts and communication to road users, for example, on reduction of speed due to inclement weather and traffic diversion in case of emergency. Corridor monitoring will inform the planning of maintenance activities, reducing the level of deterioration caused by climate change events. **Mitigation:** The establishment of a SMART corridor includes the deployment of infrastructure for electronic tolling, the basis for differentiated fees that incentivize the use of energy efficient low-emission vehicles (e.g.: electric vehicles). This agenda is being informed by a technical assistance study on e-tolling, financed by the World Bank, and by the electric mobility infrastructure strategy being developed by the Ministry of Energy, and the electric mobility strategy being developed by the Ministry of Green Economy.
Sub-Component 1.4: Preparatory studies for key sections along key regional corridors. (US$8 million, IDA)	**Adaptation:** This component will finance the preparation of feasibility studies for other key sections along *the Dar es Salaam corridor* that present high vulnerability to climate risks, including the development of detailed designs observing the climate resilient road standards. **Mitigation:** The preparation of feasibility studies for the rehabilitation of other key sections along the corridor will ensure that future works do not create barriers to NMT nor cause deforestations. The rehabilitation includes provisions for safe use by NMT such as the provision of sidewalks, zebra crossings or pedestrian overpasses, as appropriate. Rehabilitation will improve connectivity to rural areas, include tree and grass planting for roadway reserve protection and slope stabilization, include infrastructure required for future installation of e-vehicle charging stations, and have solar-powered lighting.
Component 2: Corridor-oriented development (US$35 million)	
Sub-Component 2.1: Assessment of socio-economic development opportunities along the Dar es Salaam corridor. (US$1 million, IDA)	**Adaptation & Mitigation:** SOP1 will support the assessment of socio-economic development opportunities along the corridor, targeting the agriculture, agrobusiness and tourism sectors, taking climate vulnerability, climate resilience and the potential for contributing to low-carbon development as key criteria for selection of opportunities for investment.
Sub-Component 2.2: Development of identified SMEs businesses. (US$20 million, IDA)	**Adaptation & Mitigation:** SOP1 will invest in selected socio-economic opportunities in the agriculture, agrobusiness and tourism sectors that contribute to climate resilience and mitigation. Support will incl for example, improving last mile connectivity through construction or rehabilitation of infrastructure, warehousing and agro-logistic centers that are aligned to climate resilience and mitigation objectives
Component 3: Institutional and sectoral capacity development (US$10 million)	
Sub-Component 3.1: Support to regional corridors management. (US$2 million, IDA)	**Adaptation & Mitigation:** SOP1 will support the regional corridors management, building institutional capacities on the development of climate and natural disaster risk and vulnerability assessments, identification and analysis of climate resilience and adaptation measures, for deployment in the corridors or segments of the corridors. SOP1 will also invest in the development of a road asset management system that considers climate risks to inform investment and maintenance planning.

Components	Climate Adaptation and Mitigation Interventions
Sub-Component 3.2: Development of a strategy and action plan for institutional set-up, operational efficiency, and financial sustainability of ZRL. (US$5 million, IDA)	**Adaptation & Mitigation:** SOP1 will also support the development of a strategy and action plan for enhancing the operational efficiency and financial sustainability of ZRL to strengthen the railway sector capacity, reliability and to reduce GHG emissions in the long-term, while improving overall climate resilience of the transport corridor. The strategy will address the roles of TAZARA and ZRL in offering integrated efficient railway services and help the government reach or exceed their goal of a 30 percent modal share for railways. The strategy considers the role that rail is expected to play in supporting the mining of copper and cobalt, which are strategic metals for the green energy transition. The implementation of the strategy and action plan will start with SOP1 and continue under ensuing SOPs. It is expected that this will facilitate modal shift from roads to railways in the future.
Sub-Component 3.3: Various studies and sectoral capacity building activities. (US$7 million, IDA)	**Adaptation & Mitigation:** SOP1 will support studies and sectoral capacity building such as the update of the existing Zambia Logistics Policy and Strategy to integrate climate resilience and mitigation considerations highlighting elements of green logistics such as strengthening of railways and multimodal integration, electric mobility and enabling the provision of electric-charging facilities. This component will support the development of a Green Strategy for the Transport Sector with the objective of defining a climate resilient low-carbon development pathway for the transport sector and identifying climate resilience and mitigation policies and measures for implementation. This component includes the development of an emergency response plan for the Dar es Salaam corridor. This component will also support the domestic construction industry, including through the development of a national action plan to increase the offer from companies with capacity to provide road and bridge maintenance services cognizant of climate risks and of the climate resilient road transport guidelines.
Sub-Component 3.3: Project Management, Monitoring and Evaluation. (US$1 million, IDA)	**Adaptation & Mitigation:** Climate co-benefits pro-rated to the whole project.
Component 4: Contingent Emergency Response Component (Zero Cost Allocation)	
CERC. (US$0 million)	This component would draw from the uncommitted resources from other project components to cover an emergency response, including from natural hazards and climate change impacts. The task team will ensure that all eligible activities included in the CERC Manual/CERC Annex of the POM are Paris Aligned.

ANNEX 3: Gender Analysis

1. **Country Context**: Gender equality has improved in Zambia in some indicators. Maternal mortality has reduced from 419 pregnant women that died per 100,000 live births in 2000 to 135 in 2020 (401 points lower than Sub Saharan Africa).[67] Lower secondary education rate among girls is higher than in the region; 58.7 percent girls in 2013 compared to 46.1 in the region.[68] However, there remains a gender divide in terms of access and quality of economic opportunities. Women earn about 20 percent less than men. In 2016, a constitutional amendment provided that no law will be discriminatory to any group to help ensure that workplace policies and practices prohibit discrimination in recruitment, retention and promotion of women in the public and private sectors.[69] Despite progress, equality has not reached specific groups such as rural women. Inequality of gender in political participation remains low despite progress in human capital. Women represent 20.5 percent of political positions in the country.[70] Only 15.1 percent of seats in parliament are held by women as of 2022 data, a rate lower than the regional average that stood at 26.3 percent for the same year. In 2017, Zambia was the Sub-Saharan African country with the lowest proportion of women seats.[71]

2. **Sectoral Context**: One of the objectives of the 2019-2023 CPF for Zambia is to improve "access to and quality of resilient infrastructure services with emphasis on roads". The CPF recognizes that women in the country are bound in access to basic infrastructure due to limited physical mobility, resulting in a greater burden on them for fuel, water collection, and personal safety. Under phase I of the Gender and Rural Transport Initiative (GRTI) in Zambia, a study found that 70 percent of rural travel revolves around domestic tasks and are performed by women, in a context where rural transport remains rudimentary with walking and head loading as the primary modes of transport, especially for women.[72] Lack of access to safe infrastructure hinders women's access to health facility, particularly in rural areas. Distance to health facilities was the most mentioned problem by women to access health facilities in Zambia.[73]

3. **Gaps in the transport and logistics' sectors.** Women's labor force participation rate in Zambia has increased over the past two decades, however it remains lower than men's by 13.5 percentage points (54.1 percent versus 67.6 in 2022).[74] Women represent only 3.83 percent of the sector labor force in the country.[75] In the logistics sector in Zambia women are underrepresented and face different types of barriers to succeed. Consultation with key stakeholders[76] revealed that barriers for women to be employed in the logistics sector are gender stereotypes, masculinization of the sector, and inconvenient work hours. Considering that schools offering a logistics curriculum are very eager to attract female candidates, this is an area of opportunity to create a future pipeline of women in logistics through capacity building and collaboration with universities.

4. **Women represent the majority of the SADC agricultural workforce; however, their productivity is lower due to gender inequality.** Women's share of employment in agriculture is 57 percent, compared to 46 percent of

[67] World Bank Gender Data Portal. https://genderdata.worldbank.org/countries/zambia

[68] World Bank; Working Toward Increased Women Political Participation Zambia; https://documents1.worldbank.org/curated/en/099104207042216384/pdf/IDU0a58a7c1d08c2c04f210b6ad0494cabb7bc0c.pdf

[69] Progress Report (2019) by the Republic of Zambia on the Implementation of the Beijing Declaration and Platform for Action (1995) and the Outcomes of the Twenty-Third Special Session of the General Assembly (2000): https://www.unwomen.org/sites/default/files/Headquarters/Attachments/Sections/CSW/64/National-reviews/Zambia.pdf

[70] UNDP Report (2023): Working towards increased women's political participation in Zambia; https://www.undp.org/zambia/news/working-towards-increased-womens-political-participation-zambia

[71] British Council, event (2017): www.britishcouncil.org/partner/international-development/news-and-events/march-2018/Women-are-perceived-that-they-should-be-at-home

[72] World Bank Group, SSATP country Report 15.

[73] USAID: Zambia Demographic and Health Survey (2018): https://dhsprogram.com/pubs/pdf/FR361/FR361.pdf

[74] World Bank Group, Gender data portal. https://genderdata.worldbank.org/countries/zambia

[75] ILO Stats, Zambia, 2021. https://www.ilo.org/shinyapps/bulkexplorer35/?lang=en&id=ZMB_A

[76] CEO of *Kweza Logistics and Trading Limited*

men in SADC region.[77] However, women's productivity, measured in yields (kilogram per hectare) is lower due to the different dimensions of gender inequality in the agricultural sector including limited access to land, credit and inputs, and unequal work burden because of gender norms where women are responsible of most of the housework. Women play a significant role in the crop production processes even though male-headed households growing crops is higher than female-headed households. [78] Data presented in the national gender profile of agriculture and rural livelihoods of Zambia show that women have less access to inputs such as land, and fertilizers, resulting in lower productivity than men. In addition, most women (59 percent) working in agriculture, forestry and fishing are unpaid family workers compared to 23 percent for males working in the same sector. This implies that women labor input is often not costed nor given economic value.

5. **Throughout the African continent, a range of studies indicate that most informal cross-border traders are women**. In Sub-Saharan Africa, women represent between 70 and 80 percent of informal traders.[79] In Southern Africa, a large proportion of female headed households tend to be poorer than male headed households,[80] which is one of the reasons behind women constituting most informal traders. These traders play a crucial role in mitigating food insecurity, and their income may often make a difference in whether children attend school or not.[81] The types of goods they sell are diverse, from agricultural crops to manufactured products such as second-hand clothes.[82]

6. **Regardless of the opportunities that small informal trade can bring, it comes with specific challenges for women.** Women running small and medium enterprises are disproportionally affected by burdensome customs and bureaucratic processes and processing import licenses, which makes it more costly for them to import and export.[83] Inadequate transport and border infrastructure and the lack of proper warehousing facilities are amongst the main barriers that impact cross-border traders, especially women. The limited mobility due to inadequate road conditions and limited public transportation (often in the form of unsafe, crowded minibuses) hinder women ability to reach more distant and possibly more profitable markets. They may miss community market days, and their consumable goods (especially agricultural products) may deteriorate.[84] This puts a heavier burden on women, who may sometimes be obliged to spend several hours at the border because of long travel times and irregular bus schedules, especially when the crossing point is not open on a 24-hour basis. Women may also be exposed to corruption and sexual harassment at the border derived from different interactions with security personnel and border officials, who are mainly men.[85] The results from a border profiling survey in Zambia for cross border traders revealed that more women than men reported physical abuse (25.1 percent), lack of childcare facilities (23.1 percent), unsanitary conditions of toilets (20.5 percent), and other challenges (28.9 percent) as challenges which particularly affected them.[86] The same survey showed that more women traders (63.1 percent) were unaware of COMESA, SADEC or EAC border procedures compared to men (49 percent). In addition, women traders are less educated than men which implies that they are less likely to find other forms of employment.

7. **The project aims to address some of the challenges discussed above.** Nakonde OSBP design will be gender-sensitive and will be inspired by COMESA's experiences. Activities will potentially include the establishment of trade information desk offices at OSBP to assist women understand key processes and rights,

[77] UNCTAD (2018). Trade and Gender Linkages: An Analysis of the Southern African Development Community. New York and Geneva.
[78] FAO, 218. National gender profile of agriculture and rural livelihoods. https://www.fao.org/3/i8461en/I8461EN.pdf
[79] UNCTAD. (2018). https://unctad.org/system/files/official-document/unda2023W-ICBTguide_zambia_en.pdf
[80] UNCTAD. (2018). Op.cit.
[81] World Bank: https://documents1.worldbank.org/curated/en/115591468211805723/pdf/825200WP0Women00Box379865B00PUBLIC0.pdf
[82] UNCTAD, 2019: Borderline-women-informal-cross-border-trade-malawi-united-republic-tanzania-and-zambia.
[83] UNCTAD. (2018). Op.cit.
[84] Afrika J K & Ajumbo G (2012). Informal cross-border trade in Africa: Implications and policy recommendations. AfDB.
[85] World Bank & WTO: Women and Trade: The Role of Trade in Promoting Gender Equality. Washington, DC: World Bank.
[86] COMESA. (2022). Border Profiling Survey Mwami, Chirundu, Kasumbalesa and Nakonde (Zambia)

and training of border official on gender-based violence. Internships with Government agencies will be supported by the project to increase women participation in the transport and logistics sectors. Furthermore, the Corridor-oriented development component will aim, amongst others, to support women SMES.

ANNEX 4: The SMART Corridor Concept – Dar es Salaam Corridor

1. **Introduction:** The project includes the implementation of the "Safety, Mobility, Automated, Real-time Traffic Management" (SMART) corridor concept along the Lusaka-Nakonde section of *the Dar es Salaam corridor* to improve corridor coordination and management and as a result provide safe and efficient transport flow, and enhanced trade facilitation. This will be achieved through the digitization and installation of special corridor features, systems and facilities (see details below) and ultimately reduce the cost of transport and trade inefficiencies along the corridor. The concept is being implemented in Zambia for the first time. It is envisaged that the successful adoption of the SMART corridor along *the Dar es Salaam corridor* will lead to the rolling out of the model onto other key corridors in Zambia, Tanzania and the region as a whole.

2. **Objectives:** The SMART corridor has four key pillars/objectives, which are listed and described below.

i. **Corridor Monitoring:** The SMART corridor will provide various stakeholders, including the ministry of Transport & Logistics, with the ability to monitor the performance of the corridor with real-time data. The use of real-time data and statistical information will help the authorities in better planning and optimizing the use of the corridor.
ii. **Traffic Management**: The SMART corridor will include the installation of Intelligent Transportation System (ITS) equipment, such as an interconnected traffic signal system, cameras, dynamic message signs and vehicle detection system. These will collectively contribute to better management of the traffic and vehicles using the corridor, and hence improve traffic flows as well as well as increasing vehicle compliance with national requirement.
iii. **Trade Facilitation:** The SMART corridor will provide systems that convert the corridor into a barrier free transit corridor, minimizing transit times and reducing trade costs. This pillar of the SMART corridor will be integrated with the systems of the One Stop Border Post (OSBP) at Nakonde. It will include elements such as Electronic Cargo Tracking System (ECTS) and Customs Management System (CMS).
iv. **Road Safety:** The SMART corridor will also include safety enhancement systems that aim at reducing crash occurrence and severity. These systems aim at ensuring safer infrastructure, enforcing compliance, and providing adequate post-crash care facilities.

3. **Components/elements of the SMART Corridor:**

Corridor Monitoring:

Development of Traffic Control Center	Cross border Trade Community Data Hub (TCDH)
Real-time data and stat. information monitoring system	Traffic/ maintenance/ Safety alert reporting system*
Electronic Corridor Trip Monitoring System (ECTMS)	

* Collects information along the corridors on traffic, accidents, maintenance, weather and deliver reports/ alerts to the stakeholders)

4. The TCDH is one of the systems with multi-uses and will be particularly beneficiary to the functions of corridor management, trade facilitation and traffic management. It is a central database that collects and distributes the electronic documents (data) to the various stakeholders. The system gathers information on the duration of each stage of the transit process.

Traffic Management:

Closed Circuit Television Cameras (CCTVs)	E-Tolling infrastructure and systems
Vehicle detection system	Dynamic message signs
Weigh-in-Motion weighbridges (WIM)*	Control centers + associated facilities and IT systems
Automation of funds collection at Weighbridge	Interconnected traffic signal system

* Electronically shared between relevant parties, government agencies. It avoids the cargo to stop at each weighing station and avoid redundant weighing processes).

Trade Facilitation:

Electronic Cargo Tracking System (ECTS)	Customs Procedures modernization and streamlining
Customs Management System (CMS)	One Stop Border Post (OSBP) – Separate component
Drones for fighting illicit trading and smuggling.	Coordinated Border Management
Common Customs declaration form	Risk Management based procedures

5. The Electronic Cargo Tracking Systems (ECTS) deploys GPS/GPRS tracking devices and electronic seals for trucks. The system enables authorities to monitor, in real time, on an electronic map, cargo and vehicle movements. The system also allows transporters' fleet control and users' consignments location information.

Road Safety:

Automated speed enforcement	Roadside stations including police platform
Trauma center and capacity building	Drones' system
Driver resting area	Retroreflective road markings and signage
Dynamic alert signage	Small vehicle examination units

* The above list under Road Safety pillar excludes other pavement-related safe measures that will be incorporated under the Serenje-Mpika rehabilitation activities.

6. **Geographical scope of the SMART Corridor:** The stretches along which the different elements of the SMART Corridor will be implemented will vary by the nature of these elements. Details of the different SMART corridor elements and their geographical scope are clarified in the table below.

Element	Geographical scope
Corridor Monitoring	Nakonde to Lusaka
Traffic Management:	Serenje-Mpika *, Nakonde-Lusaka
Trade Facilitation	At Nakonde, Nakonde-Lusaka and beyond
Road Safety	Serenje-Mpika *

* The geographical coverage of these elements may be increased subject to availability of funding on this activity following the conclusion of the first round of procurement.

7. The various systems will deploy an electronic payment approach, where invoices for the different types of services provided along the corridor by different operators will be paid using electronic solutions. The banks and stakeholders are connected via the TCDH to avoid delays related to payment requests and confirmation.

8. **The specific input activities:** The specific input activities and requirements for delivery of the above components are listed below.

Preparatory studies (technical designs & costing)	Establishment of control centers
Supervision consultancy	Installation of the various systems
Cabling and communication systems installation	Installation of gantries and poles
Construction of physical infrastructure	Training of Government agencies' staff

9. **Training activities:** The component includes training activities that are split into two main categories: i. training on the use (operation and maintenance) of the different systems under the SMART corridor, extended to the respective agencies in charge of operation and maintenance; and ii. training at the institutional level (particularly RTSA and RDA) on the planning for ITS systems.

10. **Implementation arrangement:** The SMART corridor concepts serve a number of stakeholders including a number of Government agencies, as well as a range of user beneficiaries' groups. It is from this point of view and taking into consideration the legal mandates of the different government agencies concerned, the

implementation arrangement of the SMART corridor will involve a number of implementing agencies. These are detailed below, together with the associated pillar of the SMART corridor.

11. **Coordination with national Trade Facilitation Programs:** It is to be noted that the Government of Zambia has developed several national trade facilitation initiatives aimed at improving and simplifying trade processes and procedures and reducing trade barriers. Some of these initiatives, which are coordination by the National Trade Facilitation Committee (NTFC)[87], do interact, either in terms of infrastructure and equipment or functionality, with several the elements of the SMART corridor. It is against this background that the implementation arrangement of the SMART corridor will include key stakeholders from the NTFC as detailed above. The implementation of the SMART corridor will also benefit from consultation with the NTFC on as-needed-basis.

Pillar	Beneficiary Agency	Implementing
Corridor Management	• Ministry of Transport & Logistics and RTSA	• RTSA
Traffic Management	• RTSA, RDA, NRFA and Police	• RTSA + RDA
Trade Facilitation	• ZRA, MCTI and Police	• RTSA, RDA, ZRA
Road Safety	• RTSA, RDA and Police	• RTSA

12. **Preparatory activities and implementation:** The preparatory studies for the SMART corridor sub-component include an identification study that will identify the systems to be implemented, assess the requirements, assess the systems requirements, prepare the design for the different systems, the cost estimation and prepare the tender documents of the supply and installation of these systems. The studies will determine the interoperability between the different systems of the SMART corridor. They will also develop the phasing and sequencing of installation works vs. that of the road rehabilitation works, and the development of the Nakonde OSBP. The studies will develop a prioritization framework of the different systems, presenting them as a group of sub-systems with separate cost ranges.

13. **Cost estimation:** The cost estimation of the SMART corridor elements is shown below.

Item	Unit Cost (US$)	Quantity	Cost (US$)
Studies	2,000,000	1	2,000,000
Supervision	1,500,000	1	1,500,000
Digital cabling (to be verified)	30,000 /km	150	4,500,000
Construction of physical infrastructure	Various	Various	10,000,000
Installation of gantries and poles	60,000	30	1,800,000
Traffic Control Centre	2,700,000	1	2,700,000
ITS systems & ICT, inc. alert systems and software	7,100,000	Various	7,100,000
Camera systems (various types for different uses)	50,000	50	3,000,000
WIM	60,000	4	200,000
Toll plazas, E-tolling infrastructure and systems	4,200,000	Various	4,200,000
Drones and supporting system	500,000	1	500,000
Small vehicle examination units	1,000,000	3	3,000,000
Ambulances	90,000	10	900,000
Training activities	500,000	TBD	500,000
Contingencies	-	-	9,200,000
Total			**54,000,000**

[87] The committee was established to bring together, for planning and decision-making purposes, the various stakeholders involved in the trade facilitation scene, including but not limited to ZRA, MCTI, private sector, Ministry of Finance & Planning.

ANNEX 5: Economic Analysis

1. **Economic Evaluation.** The project road has been evaluated using the Highway Development and Management Model Version 2.09 (HDM-4), commonly used in road feasibility studies. HDM-4 computes annual road agency and users' costs for each project alternative over the evaluation period, comparing the proposed project investments with the conditions without such investments. The quantified net benefits computed for the economic evaluation of the project roads comprise vehicle operating costs, travel time costs, road maintenance costs, road safety costs, and CO2 emissions costs. The evaluation considered a discount rate of 8 percent and an evaluation period of 20 years starting in 2024. All costs are stated in constant 2023 US Dollars.

2. **Project Road and condition**. The project will rehabilitate 203 km of the Serenje-Mpika road. The project road constitutes a key infrastructure, linking Tanzania in the north to the Zambian Copperbelt and DR Congo in the west, and to Lusaka, Zimbabwe, South Africa in the south. The existing road is a 6.0-metre paved carriageway with 2x1m shoulders and will increase to a 7.0-m carriageway with 2x2m shoulders under the project. The road is in very bad condition with frequent closures during the rainy season, and an estimated roughness of 4.6 IRI, m/km. With the project, this will decrease to 2.0 IRI, m/km. The road has received little periodic maintenance over the last 10 years. The current average speed is 50 km/ hour and will increase to 80 km/ hour with the project.

3. **Traffic:** The adopted 2023 Average Annual Daily Traffic (AADT) on the project road was based on RDA 2023 traffic counts at Mpika station, corresponding to 1,486 vehicles per day of which 48 percent are cars, vans, buses, and the remainder 52 percent trucks. Growth in road traffic is commonly related to economic growth. According to the International Monetary Fund, the expected Zambia's GDP growth between 2023 to 2018 is 4.6 percent per annum. Assuming an elasticity of traffic growth to GDP growth of 1.1, the estimated traffic growth for all vehicles considered in the analysis is 5.0 percent per annum. It is expected that the proposed higher-quality road will encourage accelerated development of economic sectors nationally and along the corridor. This will be reflected in additional generated traffic, adopted as 20 percent of normal traffic, considering that unit road user costs will decrease by around 20 percent, with the project. No diverted traffic was included in the analysis because there is no alternative route.

4. **Road User Costs.** Vehicle operating costs and travel time costs were based on a 2021 RDA study to update the adaptation of the HDM-4 vehicle operating costs model to Zambian conditions. The table below presents the current Zambia vehicle fleet economic unit and basic characteristics and traffic composition on the project road.

Table 5.1: Vehicle Fleet Economic Unit Costs, and Characteristics - 2023.

	Car	Utility Pickup	Light Truck	Medium Truck	Heavy Truck	Artic. Truck	Mini Bus	Large Bus
New Vehicle Cost (US$)	13,079	36,441	75,000	89,994	126,000	164,000	53,622	151,200
New Tire Cost (US$)	80	139	354	354	354	354	175	354
Fuel Cost (US$/liter)	0.85	0.85	0.94	0.94	0.94	0.94	0.94	0.94
Lubricant Cost (US$/liter)	2.20	2.50	2.50	2.50	2.50	2.50	2.50	2.50
Maintenance Cost (US$/h)	3.90	3.90	3.90	3.90	3.90	3.90	3.90	3.90
Crew Cost (US$/h)	1.20	1.20	1.20	2.00	2.00	2.00	1.20	1.20
Interest Rate (%)	12	12	12	12	12	12	12	12
Pass Work Time (US$/h)	6.70	6.70	0.00	0.00	0.00	0.00	6.70	6.70
Pass Non-Work Time (US$/h)	2.30	2.30	0.00	0.00	0.00	0.00	2.30	2.30
Cargo Time (US$/h)	0.00	0.00	0.67	0.67	0.67	0.67	0.00	0.00
Annual Utilization (km)	15,000	25,000	35,000	86,000	86,000	86,000	30,000	60,000
Annual Utilization (hs)	250	400	600	1,500	1,500	1,500	500	800
Service Life (years)	10	9	14	14	14	14	12	8
Number Passengers (#)	1	1.1	0	0	0	0	15	51.7
Work Related Pass Trips (%)	25	25	0	0	0	0	25	25
Operating Weight (tons)	1.0	2.7	15.0	21.2	38.2	38.2	2.7	10.0
ESA Loading Factor	0.00	0.01	1.30	2.28	1.30	1.30	0.04	0.80
Traffic Composition (%)	39.3%	3.9%	4.0%	8.0%	34.0%	6.0%	2.7%	2.1%

5. **Economic Capital Cost.** The financial capital cost of the rehabilitation works on the project road is estimated to be US$650,000 /km, without contingencies, corresponding to US$132 million without contingencies and US$150 million with contingencies. To obtain a true economic construction cost, this financial cost estimate was multiplied by an economic cost conversion factor of 0.90, giving an economic capital cost of US$ 119 million.

6. **Road Safety**. Road safety benefits are calculated using Road Safety Screening and Appraisal Tools (RSSAT). The analysis shows that the project will have a Project Safety Impact (PSI) of 0.96[88], resulting in a 4 percent reduction in fatalities. This amounts to approximately US$4.3 million of road safety benefits over 20 years[89].

7. **Model Results.** The HDM-4 evaluation gave the following results: Net Present Value (NPV) of US$299 million (at 8 percent discount rate), and an Economic Internal Rate of Return (EIRR) of 25.5 percent. The economic returns indicate that the project is economically justified, with a positive NPV. Vehicle operating costs are 76 percent of the project benefits, travel time costs are 22 percent and road safety benefits are 1 percent.

8. **Sensitivity and Switching Value Analyses** were applied to the results to assess the impact of changes in capital costs and project benefits. The table below shows the results of the analysis.

9. **Social Value of Carbon in Economic Analysis.** The adopted social cost of carbon is US$108 per ton equivalent in 2024 increasing to US$166 per ton equivalent in 2043, based on the high scenario for the social cost of carbon derived from the World Bank guidance note[90] and adjusted to the 2023 Consumer Price Index (CPI)[91]. Considering the low cost of the social cost of carbon, the EIRR increases to 26.2 percent and the NPV to US$311.6 million. Considering the social cost of carbon not included in the economic analysis, the EIRR increases to 26.9 percent and the NPV to US$324.3 million.

Table 5.2: Sensitivity Analysis Results

Sensitivity Scenario	EIRR (%)	NPV (US$ Million)
Base Case (High Shadow Cost of Carbon)	25.5%	298.9
Costs + 20%	22.5%	277.8
Benefits - 20%	21.9%	218.0
Costs + 20%, Benefits -20%	19.2%	196.9
Low Shadow Cost of Carbon	26.2%	311.6
No Shadow Cost of Carbon	26.9%	324.3
Including SMART Corridor Costs	20.0%	255.1

10. **GHG Accounting.** Total carbon dioxide (CO_2) emissions over the 20-year evaluation period are estimated at 4,162,552 tons without-project and 4,572,446 tons with-project, resulting in net CO_2 emissions of 409,894 tons, or 20,495 tons per year. The increase in CO_2 emissions is attributed to the increase in fuel consumption with the project due to the generated traffic.[92] These figures refer only to the impact of the road infrastructure rehabilitation, but not the potential positive impacts of measures targeting the facilitation of electric mobility.

[88] Project Safety Impact (PSI) value which is the ratio of road crash fatalities expected with the designed project compared to the existing road, calculated separately for the four main road user groups (vehicle occupants, motorized two-wheelers, pedestrians and bicyclists).
[89] These benefits are a result of a better road design, but don't include the impact of SMART corridor features.
[90] Guidance note on shadow price of carbon in economic analysis, World Bank Group; November 2017. Available at: https://thedocs.worldbank.org/en/doc/911381516303509498-0020022018/original/2017ShadowPriceofCarbonGuidanceNoteFINALCLEARED.pdf
[91] The high scenario was used for the base case due to positive net CO_2 emission of the project. A sensitivity analysis was done considering the low scenario of social cost of carbon that is US$55 per ton equivalent in 2024 increasing to US$83 per ton equivalent in 2043.
[92] The GHG accounting assessment follows the methodology described in the World Bank Guidance Manual "Greenhouse Gas Accounting and Shadow Price of Carbon for Transport Investment Operations; January 2022, and used the Highway Development and Management 4 (HDM-4) tool.

ANNEX 6: Nakonde One Stop Border Post (OSBP)

11. **Introduction:** The project includes, under Component 1, the development of a border facility at Nakonde (on the Zambian side), which together with Tunduma border crossing on the Tanzanian side will form a One Stop Border Post (OSBP) facility. Nakonde is an important entry point for commercial traffic (arriving mainly through Dar es Salaam port) clearance into Zambia, and other countries including Zimbabwe and DRC. In 2021, the port generated about ZMW 3.1 billion accounting for 17.6 percent of the total annual import revenue collection by Customs from handling consignments representing 19.2 percent of the total volume handled by ZRA. The crossing has inadequate infrastructure which in its current state can only support the flow of traffic in one direction at any given point in time for commercial traffic.

12. **The proposed facility:** The new facility will include green solutions such as solar supply system and efficient water use system. It will also include measures that will benefit women such as the installment of a single window, and training of officials on appropriate response to sexual harassment, and access to information/training for women to understand border procedures and their rights. The new design of the OBSP will be informed by the ongoing trade efficient reforms that the government is carrying out under ZATP-II.

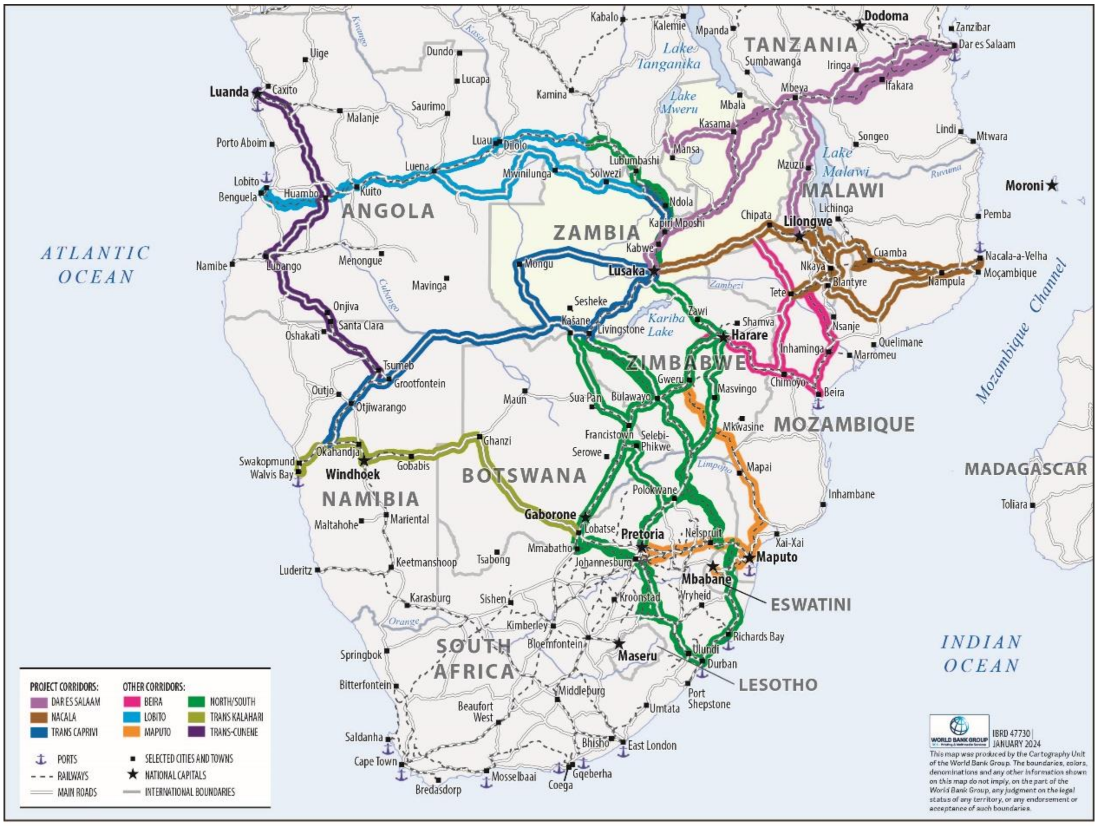
13. **Implementation arrangements:** The development of OSBPs in Zambia is led by MCTI, with the participation of other ministries and government agencies, including but not limited to MIHUD, ZRA and RDA. The implementation of the OSBP facility will therefore involve several implementing agencies, through a dedicated committee (refer to the implementation arrangement section of the PAD). The implementation of the OSBP facility will also benefit from consultation with the National Trade Facilitation Committee (NTFC) on as needed basis. The Government of Zambia has developed strong experience in the coordination of the implementation of OSBPs, following the establishment of several OSBPs in the different borders of the country. **Cost and Financing Plan:** The cost estimates and the proposed financing plan of the Nakonde OSBP are shown in the table below. These figures will be updated in due course following an ongoing design review.

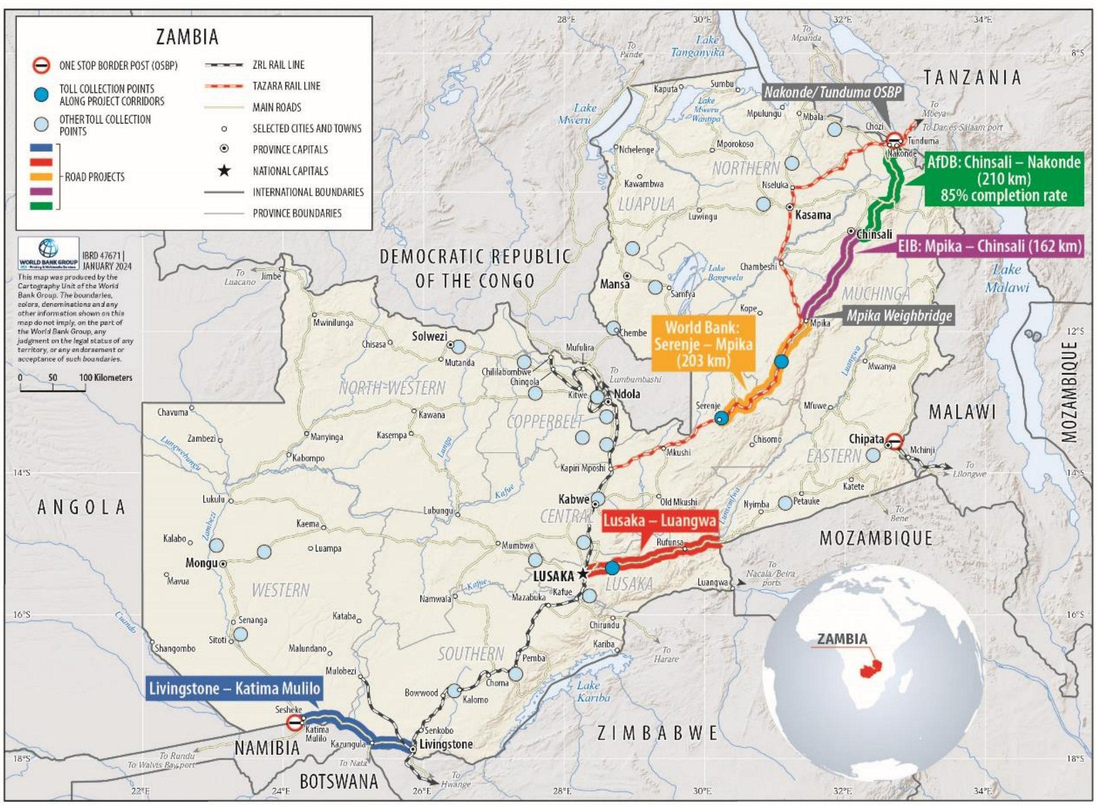
Element	Cost	Items
TRADEMARK - financing Lot 1	US$8.0 million	Main station scanner, access roads to scanner and fencing, associated ICT equipment, training activities
World Bank financing - Lot 2	US$22.0 million	Access, administrative buildings, offices furnishing, ICT equipment, parking spaces and associated infrastructure, power supplies & utilities, training
AfDB financing	TBD	Bypass access, including roundabout junction

14. **Coordination with national Trade Facilitation Programs:** It is to be noted that the GRZ has developed several national trade facilitation initiatives aimed at improving and simplifying trade processes and procedures and reducing trade barriers. Some of these initiatives, which are coordinated by the National Trade Facilitation Committee (NTFC)[93], do interact, either in terms of infrastructure and equipment or functionality, with several elements of the OSBP. It is against this background that the implementation arrangements of the SMART corridor will include key stakeholders from the NTFC as detailed above.

[93] The committee was established to bring together, for planning and decision-making purposes, the various stakeholders involved in the trade facilitation scene, including but not limited to ZRA, MCTI, private sector, Ministry of Finance & Planning.

ANNEX 7: Maps


PROJECT CORRIDORS:
DAR ES SALAAM
NACALA
TRANS CAPRIVI
OTHER CORRIDORS:
BEIRA
LOBITO
MAPUTO
NORTH/SOUTH
TRANS KALAHARI
TRANS-CUNENE
PORTS
RAILWAYS
MAIN ROADS
SELECTED CITIES AND TOWNS
NATIONAL CAPITALS
INTERNATIONAL BOUNDARIES
ATLANTIC OCEAN
INDIAN OCEAN
Mozambique Channel
ANGOLA
ZAMBIA
TANZANIA
MALAWI
ZIMBABWE
MOZAMBIQUE
BOTSWANA
NAMIBIA
SOUTH AFRICA
ESWATINI
LESOTHO
MADAGASCAR
Luanda
Lusaka
Harare
Lilongwe
Windhoek
Gaborone
Pretoria
Maputo
Mbabane
Maseru
Dodoma
Dar es Salaam
Moroni
IBRD 47730 | JANUARY 2024
This map was produced by the Cartography Unit of the World Bank Group. The boundaries, colors, denominations and any other information shown on this map do not imply, on the part of the World Bank Group, any judgment on the legal status of any territory, or any endorsement or acceptance of such boundaries.


ZAMBIA
ONE STOP BORDER POST (OSBP)
TOLL COLLECTION POINTS ALONG PROJECT CORRIDORS
OTHER TOLL COLLECTION POINTS
ROAD PROJECTS
ZRL RAIL LINE
TAZARA RAIL LINE
MAIN ROADS
SELECTED CITIES AND TOWNS
PROVINCE CAPITALS
NATIONAL CAPITALS
INTERNATIONAL BOUNDARIES
PROVINCE BOUNDARIES
IBRD 47671 | JANUARY 2024
This map was produced by the Cartography Unit of the World Bank Group. The boundaries, colors, denominations and any other information shown on this map do not imply, on the part of the World Bank Group, any judgment on the legal status of any territory, or any endorsement or acceptance of such boundaries.
0 50 100 Kilometers
Nakonde/ Tunduma OSBP
AfDB: Chinsali – Nakonde (210 km) 85% completion rate
EIB: Mpika – Chinsali (162 km)
Mpika Weighbridge
World Bank: Serenje – Mpika (203 km)
Lusaka – Luangwa
Livingstone – Katima Mulilo
DEMOCRATIC REPUBLIC OF THE CONGO
TANZANIA
MALAWI
MOZAMBIQUE
ANGOLA
NAMIBIA
BOTSWANA
ZIMBABWE
NORTHERN
LUAPULA
MUCHINGA
NORTH-WESTERN
COPPERBELT
EASTERN
CENTRAL
LUSAKA
WESTERN
SOUTHERN
Lake Tanganyika
Lake Mweru
Lake Malawi
Lake Kariba
LUSAKA
Kasama
Chinsali
Mpika
Serenje
Kabwe
Ndola
Solwezi
Mansa
Chipata
Mongu
Livingstone
ZAMBIA