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Report No: PAD2289

INTERNATIONAL DEVELOPMENT ASSOCIATION

PROJECT APPRAISAL DOCUMENT

ON A

PROPOSED GRANT

IN THE AMOUNT OF SDR 106.2 MILLION

(US$150 MILLION EQUIVALENT)

TO THE

REPUBLIC OF MOZAMBIQUE

FOR AN

INTEGRATED FEEDER ROAD DEVELOPMENT PROJECT

April 12, 2018

Transport and Digital Development Global Practice
Africa Region

CURRENCY EQUIVALENTS

(Exchange Rate Effective September 30, 2017)

Currency Unit =	New Mozambique Metical (MZN)
MZN 61.205 =	US$1
US$1 =	SDR 1.4133

FISCAL YEAR

January 1 - December 31

ABBREVIATIONS AND ACRONYMS

AADT	Average Annual Daily Traffic
ABMS	Area-Based Maintenance System
ANE	National Road Administration (*Administração Nacional de Estradas*)
DAI	Internal Audit Directorate (*Direcção de Auditoria Interna)*
DHS	Demographic and Health Survey
DMU	Decision Making Under Uncertainty
ESIA	Environment and Social Impact Assessment
ESMF	Environment and Social Management Framework
ESMP	Environment and Social Management Plan
EU	European Union
GBV	Gender-based Violence
GBVI	Gender-based Violence Initiative
GDP	Gross Domestic Product
GRM	Grievance Redress Mechanism
HDM-4	Highway Development and Management Model
ICT	Information and Communication Technology
IDA	International Development Association
INATTER	National Overland Transportation Institute (*Instituto Nacional dos Transportes Terrestres e Rodoviarios*)
INCM	National Institute of Communication (*Instituto Nacional de Comunicação de Moçambique*)
IRR	Internal Rate of Return
JICA	Japan International Cooperation Agency
Km	Kilometer
M	Meter
MM	Millimeter
MOPHWR	Ministry of Public Works, Housing, and Water Resources (*Ministério das Obras Públicas, Habitação e Recursos Hídricos*)
Mt	Mozambican Metical
MZN	New Mozambique Metical
NDF	Nordic Development Fund
NGO	Non-governmental Organization
NPV	Net Present Value

OP/BP	Operational Policy/Bank Policy
OPRC	Output- and Performance-Based Road Contract
PAP	Project Affected Person
PDO	Project Development Objective
PIU	Project Implementation Unit
PPP	Public-Private Partnership
PPSD	Project Procurement Strategy for Development
RBMMP II	Roads and Bridges Management and Maintenance Program Phase II
RF	Road Fund (*Fundo de Estradas*)
RAP	Resettlement Action Plan
RPF	Resettlement Policy Framework
RUC	Road User Cost
SDR	Special Drawing Rights
SEA	Sexual Exploitation and Abuse
SIDA	Swedish International Development Cooperation Agency
UGEA	Central Procurement Unit (*Unidade Gestora Executora de Aquisições*)
UNFPA	United Nations Population Fund
USAID	United States Agency for International Development

Regional Vice President: Makhtar Diop

Country Director: Mark R. Lundell

Senior Global Practice Director: Jose Luis Irigoyen

Practice Manager: Benedict Eijbergen

Task Team Leaders: Kulwinder Singh Rao, Satoshi Ogita

BASIC INFORMATION

Is this a regionally tagged project?	Country(ies)	Financing Instrument
No		Investment Project Financing

[ ] Situations of Urgent Need of Assistance or Capacity Constraints

[ ] Financial Intermediaries

[ ] Series of Projects

Approval Date	Closing Date	Environmental Assessment Category
08-May-2018	31-Dec-2024	B - Partial Assessment

Bank/IFC Collaboration
No

Proposed Development Objective(s)

The Project Development Objective is to enhance road access in selected rural areas in support of livelihoods of local communities and to provide immediate response to an eligible crisis or emergency as needed.

Components

Component Name	Cost (US$, millions)
Rehabilitation and Maintenance of Feeder Roads	95.00
Rehabilitation of Primary Road Network	80.00
Pilot Rural Transport Services	2.50
Capacity Building and Project Administration	7.50
Contingency Emergency Responce	0.00

Organizations

Borrower : Ministry of Economy and Finance

Implementing Agency : Road Fund
National Roads Administration (Administração Nacional de Estradas, ANE)

PROJECT FINANCING DATA (US$, Millions)

[✓] Counterpart Funding	[ ] IBRD	[ ] IDA Credit	[✓] IDA Grant	[ ] Trust Funds	[ ] Parallel Financing

Total Project Cost:	Total Financing:	Financing Gap:
185.00	185.00	0.00
	Of Which Bank Financing (IBRD/IDA): 150.00	

Financing (in US$, millions)

Financing Source	Amount
Borrower	35.00
IDA-D2490	150.00
Total	**185.00**

Expected Disbursements (in US$, millions)

Fiscal Year	2018	2019	2020	2021	2022	2023	2024	2025
Annual	2.56	14.49	21.51	29.41	27.97	22.76	20.68	10.62
Cumulative	2.56	17.05	38.55	67.97	95.94	118.70	139.38	150.00

INSTITUTIONAL DATA

Practice Area (Lead)

Transport & Digital Development

Contributing Practice Areas

Agriculture
Climate Change

Climate Change and Disaster Screening

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

Gender Tag

Does the project plan to undertake any of the following?

a. Analysis to identify Project-relevant gaps between males and females, especially in light of country gaps identified through SCD and CPF

Yes

b. Specific action(s) to address the gender gaps identified in (a) and/or to improve women or men's empowerment

Yes

c. Include Indicators in results framework to monitor outcomes from actions identified in (b)

Yes

SYSTEMATIC OPERATIONS RISK-RATING TOOL (SORT)

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

8. Stakeholders	Substantial
9. Other	
10. Overall	Substantial

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

Safeguard Policies Triggered by the Project	Yes	No
Environmental Assessment OP/BP 4.01	✓	
Natural Habitats OP/BP 4.04	✓	
Forests OP/BP 4.36		✓
Pest Management OP 4.09		✓
Physical Cultural Resources OP/BP 4.11	✓	
Indigenous Peoples OP/BP 4.10		✓
Involuntary Resettlement OP/BP 4.12	✓	
Safety of Dams OP/BP 4.37		✓
Projects on International Waterways OP/BP 7.50		✓
Projects in Disputed Areas OP/BP 7.60		✓

Legal Covenants

Sections and Description

Section I.E.1. of Schedule 2 to the Financing Agreement: The Recipient shall, not later than December 31 of each year, prepare and furnish to the Association, an annual program of activities proposed for implementation under the Project during the following Fiscal Year, together with a proposed budget, including amounts of Counterpart Funding, for the purpose.

Sections and Description

Section II of Schedule 2 to the Financing Agreement: The Recipient shall furnish to the Association each Project Report not later than forty-five days after the end of each calendar quarter, covering such calendar quarter.

Conditions

Type	Description
Effectiveness	The Recipient has established a project steering committee in accordance with the provisions of Section I.A of Schedule 2 to the Agreement.
Effectiveness	The Project Agreement has been executed between the Association and the Project Implementing Entity.
Effectiveness	The Subsidiary Agreement has been executed between the Recipient and the Project Implementing Entity in accordance with the provisions of Section I.B of Schedule 2 to the Financing Agreement.
Effectiveness	A Cooperation Agreement has been executed between the Project Implementing Entity and ANE in accordance with Section I.C of Schedule 2 to the Financing Agreement.
Effectiveness	The Recipient and the Project Implementing Entity have adopted a Project Operations Manual satisfactory to the Association in accordance with Section I.D of Schedule 2 to the Financing Agreement.
Disbursement	No withdrawal shall be made for payments made prior to the Signature Date, except that withdrawals up to an aggregate amount not to exceed one million Dollars ($ 1,000,000.00) may be made for payments made prior to this date but on or after the date falling twelve months prior to the Signature Date, for Eligible Expenditures under Category (1);
Disbursement	No withdrawal shall be made for payments made under Category (2), for Emergency Expenditures under Part 5 of the Project, unless and until the Association is satisfied, and notified the Recipient of its satisfaction, that all of the following conditions have been met in respect of said activities: (i) the Recipient has determined that an Eligible Crisis or Emergency has occurred, has furnished to the Association a request to include said activities in the Emergency Response Part in order to respond to said Eligible Crisis or Emergency,

	and the Association has agreed with such determination, accepted said request and notified the Recipient thereof; (ii) the Recipient has prepared and disclosed all Safeguards Instruments required for said activities, and the Recipient has implemented any actions which are required to be taken under said instruments, all in accordance with the provisions of Section I.G of Schedule 2 to this Agreement; (iii) the Recipient's Coordinating Authority has adequate staff and resources, in accordance with the provisions of Section I.G of this Schedule 2 to this Agreement, for the purposes of said activities; and (iv) the Recipient has adopted an Emergency Response Manual in form, substance and manner acceptable to the Association and the provisions of the Emergency Response Manual remain, or have been updated in accordance with the provisions of Section I.G of this Schedule 2 so as to be, appropriate for the inclusion and implementation of said activities under the Emergency Response Part.

PROJECT TEAM

Bank Staff

Name	Role	Specialization	Unit
Kulwinder Singh Rao	Team Leader(ADM Responsible)	Highway Engineering	GTD07
Satoshi Ogita	Team Leader	Transport	GTD04
Amos Martinho Malate	Procurement Specialist(ADM Responsible)	Procurement	GGOPF
Elvis Teodoro Bernado Langa	Financial Management Specialist	Public Financial Management	AFCS2
Atsushi Iimi	Team Member	Transport Economics	GTD01
Damon C. Luciano	Team Member	Administration	GTD07
Eden Gabriel Vieira Dava	Social Safeguards Specialist	Social Development	GSU20
Fatima Arroyo Arroyo	Team Member	Transport	GTD07
Gaurav Relhan	Team Member	Citizen Engagement	GWA08
John Bryant Collier	Environmental Safeguards Specialist	Environment	GEN03
Jose C. Janeiro	Team Member	Financial Managment	WFACS
Julie Rozenberg	Team Member	Economics	GGSCE

Karla Dominguez Gonzalez	Team Member	Gender	GTD01
Laura Bonzanigo	Team Member	Climate Change	GWA07
Maria Do Socorro Alves Da Cunha	Social Safeguards Specialist	Social Development	GSU20
Norman Bentley Piccioni	Team Member	Agriculture Specialist	GFA07
Sofia De Abreu Ferreira	Counsel	Law	LEGEN
Xavier Espinet Alegre	Team Member	Climate Change	GGSCE

Extended Team

Name	Title	Organization	Location
David Rudge	Highway engineer		
Don Townsend	Rural Transport Planner		Yangon,Myanmar

MOZAMBIQUE
INTEGRATED FEEDER ROAD DEVELOPMENT PROJECT

TABLE OF CONTENTS

I. STRATEGIC CONTEXT

A. Country Context

1. **Mozambique's economy grew steadily in the ten years through 2015, averaging 7.3 percent, yet poverty has remained high, particularly in the mostly rural central and northern provinces**. Although poverty dropped 11.7 percent from 2003 to 2008, more than half of the population still lived below the poverty line in 2009.[1] Indeed, the poverty rate increased by 5 percent from 2003 to 2009 in Zambezia Province and held steady in its northern neighbor, Nampula Province, the two provinces targeted in the current project. The two, largely rural, sparsely populated, and home to more than 22 percent of the poor, have the country's highest poverty rates.

2. **This weak impact of sustained strong economic growth on poverty during the past decade reflects a pattern of growth driven by capital-intensive and import-dependent sectors, while low-skilled jobs in the agriculture sector continued to dominate employment.** As a result, the poorest people, living mainly in rural areas of the central and northern provinces, have benefited less from economic growth than the overall population.

3. **In this environment, agriculture—still the mainstay of Mozambique's economy—is critical for overall poverty reduction. However, agricultural productivity remains low and constrained by many factors, including limited access to transport infrastructure and services in rural areas.** Agriculture employs about 80 percent of the total workforce and generates about 30 percent of gross domestic product (GDP). Yet, despite vast agricultural potential, crop productivity is significantly lower than in neighboring countries; maize yields in Mozambique are 2.2 times lower than in Malawi, 2.5 times below those in Zambia, and 3.8 times below South Africa's.[2]

4. **Agricultural productivity is particularly low in Nampula and Zambezia**. Average income from farm activities in the two neighboring provinces was three times lower than in the rest of the country. This is because, among other things, use of agricultural technologies is limited, market-oriented farming is low, and road access to rural areas is inadequate. It is estimated that about 6.5 million rural dwellers do not have access to a road in good or fair condition. Climate shocks and natural disasters, such as floods, exacerbate chronic low agricultural productivity in these provinces.

5. **Rapid economic deceleration due to low commodity prices and the disclosure in April 2016 of previously unreported debt compound Mozambique's challenges.** Low commodity prices and weak external demand have hurt aluminum and coal, the main exports. Admission of previously undisclosed loans worth US$1.4 billion (10.7 percent of GDP) revealed that public debts reached 120 percent of GDP in 2016, shifting the risk of debt distress to "high". Public expenditures declined significantly after the revelation, in part as donors suspended support for the government budget, foreign direct investment declined, and the currency depreciated sharply. GDP growth fell from 6.6 percent in 2015 to 3.6 percent in 2016. Although the Mozambican metical (Mt) appreciated about 17 percent in 2017, amid signs of

[1] The latest available data is from 2009.
[2] World Bank. 2016. *Accelerating Poverty Reduction in Mozambique: Challenges and Opportunities.* Washington, DC: World Bank.

economic recovery, it remains nearly 45 percent below its January 2015 value. The Government has not made payments on various debts since early 2017.

6. **The sharp decline in public expenditures has hurt infrastructure investment, which contracted 14.5 percent, the largest decline of all sectors in the 2016 budget.** The road subsector was down even more, dropping 16.5 percent, in 2016. Falling international support, down 23.8 percent, worsened budget contractions in 2017, and between 2015 and 2017, maintenance expenditure on roads and bridges fell 45 percent. Such lower spending will raise transport costs and harm productivity and social welfare, especially of poor households.

7. **In addition, Mozambique is highly vulnerable to climate change risks and successive, increasingly frequent, extreme climate-related events have disrupted economic activity.** It is among the top-twenty countries threatened by climate change and the second nation in Africa, after Madagascar, with the highest impact of weather-related shocks in the past 20 years in terms of fatalities and economic losses.[3] Devastating floods in 2015 affected 326,000 people, killed 140, and caused damages estimated at US$371 million in parts of Zambezia, Nampula, and Niassa Province, another northern province. In 2013, a flood affecting the Limpopo lower basin killed 113 people, displaced more than 200,000, and ruined nearly 89,000 hectares of cultivated land. Other major floods (in 2000 and 2007) and cyclones (in 2008, 2012, and 2017) caused fatalities and severe damage in different parts of the country.

B. Sectoral and Institutional Context

Overview

8. **Mozambique's strategic position along the eastern coast of Southern Africa provides access to the sea for several landlocked countries**. Of six bordering countries, four are landlocked—Malawi, Swaziland, Zambia, and Zimbabwe—with South Africa and Tanzania the remaining two. This position on Africa's southeastern Indian Ocean shores offers great opportunity to develop logistics corridors and foster growth and trade between its African neighbors and the large economies of South and Southeast Asia (see map, Annex 7). The road and rail network in Nampula and Zambezia provides Malawi and Zambia with access to the Nacala and Quelimane ports.

9. **Although roads are the main transport mode in Mozambique, accounting for half of freight traffic and 98 percent of passenger traffic,[4] road density is low, and the network has few redundancies[5]; and loss of an individual road link to flood often leaves areas without a viable road connection to markets or essential services.** The classified road network—primary, secondary, tertiary, and vicinal—runs 30,464 kilometers (km), 24 percent of it paved. This works out to a classified road density of 2.9 km per 100 km^2 of land, which is relatively low compared to neighboring countries such as Kenya (10.8 km per 100 km^2) and Tanzania (5.5 km per 100 km^2). The extent of the unclassified road network, meanwhile, is uncertain, with estimates ranging from 30,000 km to 45,000 km. The national transport network primarily connects natural resources, agricultural clusters, and landlocked countries in the west to Indian

[3] Eckstein, David, Vera Künzel, and Laura Schäfer. "Global Climate Risk Index 2018." Bonn, Germany: Germanwatch (2017).
[4] Data are from the database of the Mozambique National Statistics Institute (*Instituto Nacional de Estatistica Mocambique*), 2014.
[5] Redundancy is a measure of alternatives available to the traveler in the event of disaster.

Ocean ports in the east—Maputo, Beira, Nacala, and Quelimane—through six east-west corridors[6]. Connectivity between the southern and northern provinces is particularly low, with National Highway N1, which extends north to south, providing the only link connecting the six east-west corridors. Disruption of N1, which occurs regularly, therefore has a disproportionate impact on regional mobility.

10. **Two governmental entities, the Road Fund (*Fundo de Estradas*, RF) and the National Road Administration (*Administração Nacional de Estradas*, ANE), collectively manage all classified roads.** Nationally, the RF is primarily responsible for strategy and planning, monitoring, and financial management in the sector. ANE handles execution of the works, including procurement, safeguards, and engineering on the primary network. Provincial governments manage secondary and tertiary networks with support from the ANE provincial delegations. Districts manage their portions of unclassified roads.

Key Challenges

11. **Because of resource constraints and extreme climate-risk vulnerability, investment for maintenance of the primary road network often crowds out maintenance and expansion of the secondary and tertiary networks, which primarily serve rural agricultural areas.** Keeping the primary road network in good condition largely benefits a major part of national and regional traffic, including heavy mining transportation. Investments in rural road access and resilience, by contrast, directly support agricultural production and rural poverty reduction. Yet, the ANE allocates more than 65 percent of its annual budget to primary roads and only 10 percent to non-primary roads, although the latter account for 80 percent of total network coverage. Additionally, the Government often resorts to reallocating money to emergency works on the primary network to speed recovery from flood events. For instance, in 2015, total emergency investment was about Mt 10 billion (about US$163 million), about 25 percent of the annual ANE budget; only 4 percent of this amount went to non-primary roads.

12. **While 85 percent of the primary road network is in good or fair condition, about half of non-primary roads are in poor condition, resulting in low rural access, particularly in the central and northern provinces.** More than 9,400 km of non-primary roads are in poor condition and about 1,200 km, or 4 percent of the classified network, are inaccessible due to severe damage. This comes at significant economic cost, especially in rural and remote areas. The impact on access to rural areas, particularly in Nampula and Zambezia Provinces, is substantial. The share of the rural population living within two kilometers of a road in good or fair condition (defined as Rural Access Index) is 14.5 percent and 10.3 percent in Nampula and Zambezia, respectively. These estimates are lower than the national average of 20.4 percent and far behind the average for sub-Saharan Africa (32 percent) and countries of comparable size, such as Kenya (56 percent). To increase access in the rural and remote areas, Mozambique needs to rehabilitate or maintain classified roads as well as expand the network by including and rehabilitating unclassified roads. The effort to improve access would thus require significant investment.

13. **The road network, especially the north-south links, is prone to disruption by river floods and cyclones, but uncertainty about the future and limited resources make it difficult to plan robust mitigating measures.** With 104 identified river basins, including nine cross-border, the country is the second-most exposed to floods and cyclones in Africa[7]. Most of the rivers flow from west to east, draining

[6] The six economic corridors are Maputo, Beira, Nacala, Limpopo, Libombo and Mueda-Lichinga.
[7] INDEX for Risk Management (*http://www.inform-index.org/*) Madagascar is first.

the water of the central African plateau into the Indian Ocean. Flood-related disruptions of the road network have significant socioeconomic consequences, partly because the existing road network has few alternative routes in the event of disruptions. It is estimated that floods in the Limpopo River Basin in 2013, for example, caused a direct loss of US$403 million worth of public infrastructure.

14. **Amid climate change, providing reliable access depends upon effective planning for potential impacts of extreme events and building resilience into the road network**. Though the country is among the first to decree mandatory climate risk screening of all major road projects, deep uncertainty about future climate events and transport demand[8], ongoing budget constraints, and low traffic volumes make it difficult to plan economically viable responses to climate risks.

15. **Meanwhile, Mozambique has among the highest road fatality rates in the world, ranking 165 out of 173 countries/regions.[9]** There were 8,173 road fatalities in 2013, or 31.6 per 100,000 people, much higher than the 26.6 average for all of Africa.[10] Considering strong growth in vehicle registrations, which are increasing at more than 10 percent per year, growth in road accident numbers will likely continue. The main risk factors for injuries include reckless driving, drunken driving, poor road surfaces, inadequate signage, lack of protection for pedestrians, poor speed regulation, inadequate traffic law enforcement, and weak governance.

Road Sector Programs and Actions

16. **The Government of Mozambique's Road Sector Strategy, 2015–2019, focuses on maintenance of existing assets, improved connectivity, and enhanced rural mobility.** The strategy's three pillars are (a) conservation of road assets through appropriate maintenance; (b) interurban connectivity through a robust national main network; and (c) rural mobility by ensuring "trafficability" of rural roads. To ensure the pillars are implemented, the strategy calls for balancing investment in the primary, secondary, and tertiary networks with optimal maintenance to maximize network benefits. The target budget allocation among the three pillars is 40 percent for paved and unpaved road asset conservation, 30 percent for interurban connectivity, and 30 percent for rural mobility. Despite this target, the 2017 budget allocates only 43 percent of funding to the conservation and rural mobility pillars combined. In addition, the strategy proposes to promote private sector participation in the road sector.

17. **The Government of Mozambique, the World Bank, and other development partners have jointly made significant progress rehabilitating and extending the primary network in the last decade.** The World-Bank-funded Roads and Bridges Management and Maintenance Program Phase II[11] (RBMMP II, P083325) originally focused on continuing the rehabilitation and upgrading of N1, the main National Highway. RBMMP II implementation was repeatedly restructured to respond to severe weather events in 2012 and 2013, and it was restructured in November 2012 to include emergency works following cyclones

[8] Uncertainty of travel demand is attributed to land-use choices, population growth, migration rates, and economic activities, among other things, while the uncertainty of climate risk is linked to the location, frequency, and intensity of weather events both in Mozambique and in the river basin areas in the neighboring countries.
[9] World Health Organization (WHO). *Global Status Report on Road Safety 2015.* Geneva: WHO.
[10] World Health Organization (WHO). *Global Status Report on Road Safety 2015.* Geneva: WHO. The official Mozambican database captured only 1,744 road accident fatalities (2013).
[11] Phase I of the three phase, ten-year Adaptable Program Lending (RBMMPI), in the amount of US$186.4 million, started on July 1, 2001 and closed in June 2007. It financed the rehabilitation and upgrading of 670 km of N1 in Maputo, Gaza, Inhambane, and Sofala Provinces. The second phase of the program (RBMMP II) was approved on May 23, 2007 for US$100 million.

earlier that year. After major floods in 2013, the World Bank again provided additional financing for immediate reconstruction of roads and integrated several activities intended to improve the climate resilience of future roadworks, including piloting of climate-resilient road designs and development of national road design standards. The third additional financing covered the cost of medium-term reconstruction works related to the same floods.

18. **The Government adopted public-private partnerships (PPPs) to mobilize private resources for the road sector, but it has encountered significant challenges in the implementation of this program.** In 2011, the Government passed Law No. 15 on PPPs, Large-Scale Projects, and Business Concessions. The law was designed to set down a legal and institutional PPP framework for mobilizing private sector money where possible—especially given inadequate public-sector capital resources—to bring in private sector expertise and innovation, and to encourage life-cycle risk assessment (ensuring that the private sector bears some of the risk). Nevertheless, the PPP agenda has not developed as expected.[12] Among other reasons, lack of transparency in procurement, inadequate regulation, unbalanced risk allocation, high contingent liabilities, and insufficiently detailed performance standards have contributed to a less than satisfactory outcome. Several major concessions are facing challenges, and the Government is preparing to renegotiate its contingent liabilities. That said, the authorities remain committed to expanding the PPP program in the road sector.

Rationale for the World Bank's Involvement

19. **The World Bank has been a key player in the development of Mozambique's road sector, facilitating donor coordination and the development of climate-resilient solutions.** It first engaged in the country's road sector in 1992, and was instrumental in preparing the Integrated Road Sector Program (*Programa Integrado do Sector de Estradas*), the development of a programmatic approach to the road sector, and leading the road sector working group to harmonize donor activity in the sector.

20. **The World Bank will continue to assist Mozambique in two key areas: to mitigate the growing climate risks to its road infrastructure and to manage its PPP program.** The organization's experience with adapting road infrastructure to climate change, disaster risk management, network analysis, as well as its focus on poverty and inclusive growth, offers significant value added. Through an ongoing project, the World Bank is supporting revision of national road design standards and specifications, which will help build more climate-resilient roads. Uneven implementation of several PPP transactions will require renegotiations and review of the regulatory framework. The World Bank's experience in supporting governments develop well-structured PPPs would help the road sector to face its challenges.

21. **Public sector financing is appropriate for the proposed project in that the traffic volume on the targeted national highways and rural roads is low, and cost recovery therefore will not be feasible.** Even though Output- and Performance-Based Road Contracts (OPRC) being used in the project would typically promote private sector involvement in road rehabilitation and maintenance through a longer-term contract, no private financing is expected at this stage. The World Bank is expected to add value by

[12] Currently, the only two concession/PPP contracts in place in the road sector are (a) the N4 toll road connecting Maputo and Pretoria (South Africa) and (b) the Tete bridge and road concession.

increasing the efficiency of the investment through important technical advice on implementation and management of (a) OPRC; (b) road safety; and (c) institutional capacity enhancement.

C. Project Contribution to Higher Level Objectives

22. **The proposed project is fully aligned with the new Road Sector Strategy.** The strategy supports the Government's goal of promoting economic and social development by (a) enhancing productivity and competitiveness through expanding road connectivity to all major productive zones and (b) reducing travel times and vehicle operating costs through maintenance of road networks. The project design is intended to help the Government move toward balancing the three Road Sector Strategy pillars: conservation of road assets, the primary road network, and rural mobility.

23. **The proposed project is aligned with the 2017–2021 World Bank Group Country Partnership Framework[13] for Mozambique**. The framework's three focus areas include (a) promoting diversified growth and enhanced productivity; (b) investing in human capital; and (c) enhancing sustainability and resilience. The project addresses the first and third focus areas directly. The project responds to Objective 2 of the first focus area, which calls for increasing agricultural growth by improving road conditions. On the third focus area, the project addresses Objective 11, improving management of climate risk and natural resources by integrating climate resilience into road investment planning and designs.

24. **The Country Partnership Framework prioritizes the targeted provinces in the project, Nampula and Zambezia, which in addition to high poverty rates, as noted, also have high agricultural potential, low rural accessibility, and road networks particularly vulnerable to extreme climate-related events.** Zambezia and Nampula alone accounted for almost half of the poor (48 percent) in 2008, up from 42 percent in 2003, their people reliant on subsistence agriculture amid low productivity yet high untapped agricultural potential. The limited rural transport access—more than 6 million people do not have access to a road in good or fair condition—hinders market-based agriculture and productivity. Additionally, these two provinces are extremely vulnerable to floods. Floods in 2015 directly affected more than 160,000 people and the estimated repairs for the road network were more than US$20 million in Nampula and US$30 million in Zambezia.

25. **The project supports the World Bank's twin goals, especially ending poverty, through enhanced focus on regions where the poor are concentrated.** The project aims to reduce regional disparities by focusing on secondary, tertiary, and vicinal roads in the poorest parts of the country, Zambezia and Nampula provinces, and in areas with the greatest agricultural potential. Development of Nampula and Zambezia are high on the Government's agenda, with a strong emphasis on building resilient infrastructure and basic services. The project also supports the World Bank's corporate focus on fragility and conflict by attempting to reduce regional economic disparities, which risk inciting conflict. The proposed project is coordinating and leveraging investments through other projects in the two provinces, including the European Union (EU) funded rural development program in Nampula and Zambezia (2017–2020) and the World-Bank-funded Agriculture and Natural Resources Land Management Project (P149620), approved in June 2016.

[13] The World Bank Report No. 104733-MZ.

II. PROJECT DEVELOPMENT OBJECTIVES

A. Project Development Objective (PDO)

26. The PDO is to enhance road access in selected rural areas in support of the livelihoods of local communities and to provide immediate response to an eligible crisis or emergency as needed.

B. Project Beneficiaries

27. **The primary project beneficiaries of Component 1, Rehabilitation and Maintenance of Feeder Roads, are the inhabitants of the 10 targeted districts in Zambezia and Nampula.** The population of targeted districts is around 2.2 million people, about 1.5 million of whom are living below the poverty line and will benefit from better access. Limited rural access is a major hurdle to raising agricultural production and lowering poverty in the project areas. As such, the project will help improve livelihoods by enhancing road access to markets, particularly from land with high agricultural potential.

28. **The project beneficiaries of Component 2, Rehabilitation of Primary Road Network, are local road users and national and international freight truckers who will benefit from lower transport costs.** Annual average daily traffic on sections of N1 and N10 (Quelimane to Namacurra - 70 km) ranges from 1,700 to 2,600 vehicles.

29. **In addition to the two road sector agencies, RF and ANE, the project will benefit several other government agencies.** Among these is the National Overland Transportation Institute (*Instituto Nacional dos Transportes Terrestres e Rodoviários*, INATTER) and traffic police, which will benefit from road safety activities. It also includes the National Institute of Disaster Management (*Instituto Nacional de Gestao de Calamidades*), which will benefit from disaster risk management activities. Component 3 will benefit provincial and district transport departments in selected rural areas.

C. PDO-Level Results Indicators

30. The proposed key results indicators (see Section VII) are (a) increase in rural accessibility (measured as percent of rural population within 5 km of good condition roads) in the project areas; (b) improvement in road conditions measured as roads in good and fair condition as a share of the total road network in project areas; and (c) increased access to markets for land with high agricultural potential.

III. PROJECT DESCRIPTION

A. Project Components

31. **The proposed project will enhance rural access in selected districts in Nampula and Zambezia by adopting climate resilient interventions across the road network in an integrated manner**. Components 1 and 2 target integrated rehabilitation and maintenance of the primary, secondary, tertiary, vicinal, and unclassified networks. The project components are detailed in the following paragraphs and Annex 1.

Component 1: Rehabilitation and Maintenance of Feeder Roads (estimated cost US$95 million equivalent, of which US$77.5 million financed by IDA)

32. This component will finance rehabilitation and maintenance works on sections of secondary, tertiary, vicinal, and some unclassified roads to enhance mobility in selected districts in Zambezia and Nampula Provinces, including design studies and supervision activities. The component will support the extension of the Area-Based Maintenance System (ABMS) currently in place in Zambezia into Nampula Province. Specific interventions on each road will be identified based on economic viability, considering disaster resilience, engineering assessments, and budget constraints. The types of interventions include, among others, reconstruction or rehabilitation of bridges and culverts, graveling, surface treatment, and routine/periodic maintenance to the prescribed level of service.

Component 2: Rehabilitation of Primary Road Network (estimated cost US$80 million equivalent, of which US$62.5 million financed by IDA)

33. This component will support rehabilitation of around 70 km of primary road to enhance connectivity to markets, ports, and other economic and social services. The intervention will include, among other things, improvement of road safety facilities, improvement of intersections, surface rehabilitation, and rehabilitation or reconstruction of culverts. The project will adopt the OPRC approach to implement rehabilitation and maintenance works.

Component 3: Pilot Rural Transport Services (estimated cost US$2.5 million equivalent financed by IDA)

34. This component will support a pilot rural transport services program on selected feeder roads, under Component 1, to improve mobility and access to economic and social services to population groups in the target areas. It will include, among other things, assessment of existing transport services and identification of market barriers to provision of transport services, and the usage of information and communication technology-based solutions to connect services and end users in a reliable and cost-effective manner. The pilot would benefit local communities near road improvement investments, for instance, through expanded access to markets, services, and agricultural inputs.

35. The pilot will give special attention to improvement of women's accessibility. Recognizing that women and men have different mobility patterns in terms of mode, affordability, quality, and social norms, the diagnostic exercise will assess mobility barriers to women's access to economic opportunities and services. The results of the diagnostic will inform the design of the rural transport services pilot to meet the needs of both women and men.

Component 4: Capacity Building and Project Administration (estimated cost US$7.5 million equivalent financed by IDA)

36. This component will finance knowledge development and institutional-strengthening activities, among other things, in the following areas: (a) improvement of road asset management at the national and subnational levels; (b) capacity building on road safety, including education, enforcement, engineering, and emergency response; (c) technical assistance for promoting PPP for the road sector; (d) enhancement of climate resilience in planning and management of road infrastructure; and (e) capacity building of a local engineering university on road engineering. This component will also provide support

and capacity building for improved management in implementation and supervision of the project, social and environmental management and safeguards, identification and mitigation of gender disparities, and mainstreaming citizen engagement in the road sector.

Component 5: Contingent Emergency Response

37. This component will facilitate access to rapid financing by allowing reallocation of uncommitted project funds in the event of a natural disaster, either by a formal declaration of a national or regional state of emergency or upon a formal request from the Government of Mozambique. Component 5 will use IDA Immediate Response Mechanism.

B. Project Cost and Financing

38. **The project lending instrument is Investment Project Financing.** The project costs of US$185 million are financed by a US$150 million IDA grant and US$35 million of counterpart financing. The duration of the project is six years, reflecting the complexity of the implementation arrangement involving local governments and time requirements of realizing the innovative institutional-strengthening activities. Table 1 summarizes project activities.

Table 1. Project Costs (US$, millions)

Project Components	Project Cost	IDA Financing	Counterpart Funding
Component 1: Rehabilitation and Maintenance of Feeder Roads	95.0	77.5	17.5
Component 2: Rehabilitation of Primary Road Network	80.0	62.5	17.5
Component 3: Pilot Rural Transport Services	2.5	2.5	0.0
Component 4: Capacity Building and Project Administration	7.5	7.5	0.0
Component 5: Contingent Emergency Response	0.0*	—	—
Total Costs	185.0	150.0	35.0

* Component 5, Contingent Emergency Response, will be reallocated resources to respond to an eligible emergency upon request of the Government and agreement of World Bank management.

C. Lessons Learned and Reflected in the Project Design

39. **Climate resilience is incorporated into the project design and planning using an innovative "decision making under uncertainty" (DMU) methodology.** Road infrastructure in Mozambique suffers from severe and recurring flood damage (as described in Section 1.B, Sectoral and Institutional Context). Traditional planning approaches do not account for the benefits of building climate resilience in the network and often lead to suboptimal investment decisions. Recent findings[14] have demonstrated that

[14] Rozenberg, Julie; Briceno-Garmendia, Cecilia M.; Lu, Xijie; Bonzanigo, Laura; Moroz, Harry Edmund. 2017. *Improving the resilience of Peru's road network to climate events (English)*. Washington, D.C.: World Bank Group.

hardening of road infrastructure may not be the optimal strategy to increase climate resilience. In light of these lessons, the project pilots an innovative methodology to incorporate the benefits of flood disaster resilience into project prioritization and economic evaluation. The DMU methodology is described in Annex 5.

40. **The OPRC is adopted to ensure consistent and affordable long-term service for road users.** OPRC has been widely proven as an effective approach to road asset management. It can provide better service at similar or lower cost than conventional contracting for a project. The approach has been piloted in Mozambique in the ongoing RBMMP II roadworks in Gaza Province contracted in January 2017, and lessons learned will be incorporated into the rehabilitation and maintenance works of national roads under Component 2. The project will also apply this approach to rural roadworks under Component 1 as part of the ABMS, which will measure performance indicators of the maintenance services for defining payments to the contractors.

41. **The project will follow the recommendations of the Independent Evaluation Group's report, Making Roads Safer [15].** The report provides empirical evidence of the importance of adopting a comprehensive, multi-sectoral, and systematic approach backed by high-level political support to raise road safety awareness and develop a strong road safety agenda. Component 4 will include technical assistances to enhance institutional capacity and promote collaboration among stakeholders in this area.

42. **The project's strategy to mitigate and respond to cases related to Sexual Exploitation and Abuse (SEA) is based on local context and lessons of international experience.** Since knowledge on SEA in the context of a linear transport project is evolving, the project retains flexibility to incorporate future adjustments as may be necessary during the implementation phase. Recognizing that addressing SEA risks is a highly complex matter and that these risks can never be fully eliminated, the project has developed an adapted approach to SEA, including the following five key actions: (i) enhanced upfront risk assessment; (ii) revamped grievance redressal system with multiple entry points for receiving complaints; (iii) involvement of a specialized non-governmental organization (NGO) to provide assistance and referral services to the survivors; (iv) adoption of a mandatory workers Code of Conduct with stringent compliance requirements; and (v) payments to contractors structured around obligations. The below table summarizes the key issues and the proposed risk mitigation measures (with more detail in Annex 3).

Table 2. SEA Risk Mitigation

Issue	Project Actions
Lack of understanding of SEA risk in context of the country and the project	• The project undertook a robust upfront risk assessment at country and project levels. Annex 3 contains a summary of the risk assessment and project risk classification. • A preliminary mapping of formal services (e.g. medical care, safe accommodation, counselling, police protection) and informal resources (such as community based organizations) in the project areas has been completed. • The social safeguards instruments (ESMF, ESMP, RPF, RAP) have been updated to reflect the latest lessons learned on effective mitigation measures.
Labor influx may increase the SEA	• The bidding documents will include specific requirements that minimize the use of expatriate workers. Most of the laborers are expected to be from local communities. The expected labor influx is 50 non-local workers for Component 1 and 100 to 150 non-local workers for Component 2.

[15] World Bank Independent Evaluation Group. *Making Roads Safer.* 2014.

Issue	Project Actions
risk [16].	• The ABMS contracts under Component 1 and the OPRC contract under Component 2 will directly link payment and the level of social and environmental compliance. • The contract documents for works as well as for monitoring consultants require explicit Codes of Conduct, with stringent compliance requirements, to be signed by all workers and staff. • Contractors will be required to establish anti-sexual harassment policies and adopt Action Plans for implementing environmental, social, occupational health and safety standards, and mitigation measures on SEA. • Periodic mandatory training of all workers on SEA issues.
Grievance Redress Mechanism (GRM) may not be able to respond rapidly, effectively, and comprehensively to allegations of SEA.	• The project will strengthen the GRM as one of the entry points for complaints including SEA through adoption of information and communication technology (ICT) that, with the consent of the survivor, immediately reports the complaint to the Government and to the World Bank. • The project has multiple other entry points to raise and address allegations. These entry points include the GRM, a toll-free number, a web-based reporting system, the NGO hired by the project, as well as the existing project liaison committee framework which has been successfully used under RBMMP II. • GRM will be enhanced by the information from the mapping exercise identifying partners for services for survivors of violence. • The project will support establishment of a grievance redress policy for the road sector.
Lack of multi-sectoral coordination and inadequate monitoring capacity	• The implementing agency has appointed a gender focal point that will coordinate activities related to SEA. • The project identified donors and NGO partners to coordinate mitigation measures that can contribute to the assessment and provide services (or referrals) for SEA survivors. • The project has identified an NGO to act as Third-Party Monitor. The NGO has robust experience and expertise in SEA with a strong network of organizations and services for survivors on the ground. It serves as technical adviser to the Gender Based Violence Initiative (GBVI) in Mozambique. The NGO will monitor the project SEA mitigation measures and will support survivors to report cases to the project GRM. • The monitoring consultants will monitor the fulfilment of SEA related obligations by the contractors throughout the contract term. The consultants will also monitor the provisions to mitigate and respond to SEA by reporting compliance with the Codes of Conduct, trainings to contractors, and awareness raising to the community carried out by the NGO. • Both the monitoring consultants and the contractors will be required to have environmental and social safeguards expertise as per terms of bidding documents.
Low implementing agency capacity and community awareness of SEA-related issues	• The project will support improved management of project implementation and supervision, social and environmental safeguards, identification and mitigation of gender disparities, and citizen engagement. • Community dialogue and awareness raising will be undertaken to make sure people in the project areas are aware that they can report project-related cases of SEA through different entry points to the referral pathway (including the GRM).

[16] Often in infrastructure projects, the labor force (total or partial) needs to be brought in from outside the project area. In many cases, this influx is compounded by an influx of other people ("followers") who follow the incoming workforce with the aim of selling them goods and services, or in pursuit of job or business opportunities. The rapid migration to and settlement of workers and followers in the project area is called labor influx.

IV. IMPLEMENTATION

A. Institutional and Implementation Arrangements

43. **The Ministry of Public Works, Housing, and Water Resources (*Ministério das Obras Públicas, Habitação e Recursos Hídricos,* MOPHWR) is responsible for overall coordination of the project.** The RF will be the implementing agency and ANE the lead executing agency. The RF will be responsible for implementation, coordination with ANE and other agencies, monitoring, financial management, and auditing of the project resources. ANE will oversee execution of works, including procurement, safeguards, and engineering. The RF will sign annual contracts (*Contrato Programa*) with ANE for execution.

44. **The MOPHWR will establish an interministerial Project Steering Committee responsible for strategic decision making and monitoring overall project implementation.** The committee will comprise nominees of the Ministry of Public Works, Housing, and Water Resources, RF, ANE, the Ministry of Economy and Finance (*Ministério da Economica e Finanças*), and the Ministry of Land, Environment, and Rural Development (*Ministério da Terra, Ambiente e Desenvolvimento Rural*). It will also comprise nominees of the Ministry of Agriculture and Food Security (*Ministério da Agricultura e Segurança Alimentaria*), Ministry of Transport and Communications (*Ministério dos Transportes e Comunicações*), INATTER, and the provincial governors of selected districts. The Project Steering Committee will meet twice a year in the respective project areas to monitor progress, and the RF and ANE will act as the Secretariat to the Project Steering Committee.

45. **Responsibility for implementation of Component 1 will be partly handed over to the provincial delegations of ANE in Zambezia and Nampula.** The provincial governments are responsible for planning the secondary, tertiary, and vicinal road networks under Component 1 through their respective Provincial Road Commissions. This arrangement will promote decentralization and build capacity in local government entities. The ANE provincial delegations will be responsible for procurement and supervision of rural roadworks under Component 1. Although the ANE delegations will manage supervision consultants for the works, ANE headquarters will procure supervision consultancy services. During the first three years, ANE headquarters will prepare environmental and social safeguards instruments and support provincial delegations to supervise safeguard compliance during implementation. During that time, ANE headquarters will train and build capacity in provincial delegations with the goal of transferring all safeguard responsibility to the ANE provincial delegations, upon the World Bank's agreement. ANE's capacity to supervise environmental and social aspects associated with roadwork will be strengthened as part of the present operation. The project includes budget for capacity building, especially with respect to the GRM and management of SEA cases, and for retaining an independent supervising consultant and third-party monitor NGO (under Component 4).

46. **Responsibility for implementation of Component 2 will remain with ANE Headquarters with support from the Zambezia provincial delegation.** The N1/N10 section from Quelimane to Nicoadala to Namacurra is a primary road falling under ANE Headquarters. ANE will implement the N1/N10 section using an OPRC. Under the OPRC, the contractor will update the Environment and Social Impact Assessment (ESIA) based on final design prior to the start of construction. ANE will also procure and manage a supervision consultancy to assist with day to day implementation, monitoring, and evaluation of roadworks under Component 2. The OPRC contractor and supervising consultant will be required to

maintain social and environmental safeguards staff throughout implementation. The OPRC contractor will also be required to have a qualified Environmental Officer, a Health and Safety Officer, and a Community Liaison Officer on site. For oversight of safeguards issues, ANE's environmental and social unit has four staff in Maputo and there are focal points in the Zambezia Provincial Delegation. ANE's reporting on safeguard implementation has been weak and will need to be strengthened as part of the present operation.

47. **Cooperation agreements will formalize the relationships between the implementation agency (RF) and each executing agency.** While ANE will be the lead executing agency, other agencies include, among others, INATTER and traffic police. These agreements will define the obligations of each entity to carry out project activities under their responsibility.

48. **The project will use "project liaison committees" as is done successfully in the ongoing IDA funded road project in Gaza province**.[17] These committees will monitor and follow-up on grievances and cases reported to the GRM, police, NGO, and others, ensuring the executing agency (ANE), the implementing agency (RF), the supervising consultant and the World Bank receive information on the number of cases from the project. However, in case of SEA complaints, the project liaison committees' role will be limited to facilitating the registration of a complaint with the GRM by the survivors that so wish, and to connect the complainant to the NGO or other service providers.

B. Results Monitoring and Evaluation

49. **The RF will be responsible for project monitoring and evaluation based on the results indicators established in Section VII, Results Framework and Monitoring.** ANE will collect data for indicators related to roadworks and report them to the RF. Other beneficiaries will oversee data collection in their areas. The RF will report the results to the World Bank in the semiannual Integrated Road Sector Program progress reports.

C. Sustainability

50. **The project is designed to ensure effective and sustainable management of primary and rural road networks.** Adoption of performance-based contracts that cover both the rehabilitation and maintenance phases fosters sustainability by guaranteeing adequate maintenance of road assets for six years. The project considers economic losses from natural disasters and the benefits of climate resilience in the assessment and prioritization methodologies. This approach contributes to robust investment decisions, leading to more sustainable infrastructure with reduced long-term risk of damage from natural disasters.

51. **The institutional-strengthening activities of Component 4 will support the sustainability of project outcomes.** This component is designed to enhance (a) financial sustainability, by supporting

[17] Although its structure is flexible, the project liaison committee comprises of the following members: (a) ANE representatives; (b) Contractor representatives; (c) A representative from the Workers' Union; (d) A representative of the Child Protection/ HIV&AIDS Service provider (specially for all matter linked to the social aspects of the project); (e) A representative from the District Administration; (f) A representative of the child protection mechanism network (either the District authority for health, Women & Social Action or *Gabinete de Atendimento a Mulher e Criança Vitima de Violência Doméstica*); (g) A representative elected by the District Consultative Council; and (h) Other relevant participants.

development of a sound regulatory framework for the governance of PPPs in the road sector; (b) institutional sustainability, through continuing to assist the RF and ANE in capacity building in road asset management; and (c) transport policy sustainability through improved road safety policy.

D. Role of Partners

52. **The project will closely collaborate with other development partners active in the road sector and with experience in mitigating key risks to successful project implementation such as incidents of SEA.** The African Development Bank, the EU, the Nordic Development Fund (NDF), the Export-Import Bank of India, the Korean EXIM Bank, and the Japan International Cooperation Agency (JICA) are active development partners in Mozambique. The EU is investing approximately US$200 million in rural road infrastructure in both Nampula and Zambezia Provinces. The World Bank and EU have coordinated preparation of the feeder roads program in Nampula and Zambezia Provinces to maximize the synergy of the two investments. JICA and the NDF are planning technical assistance on bridge asset management and climate resilience, respectively, and the World Bank will closely collaborate with them to avoid overlap. The Organization of the Petroleum Exporting Countries Fund for International Development has expressed keen interest in the project and may invest up to US$40 million dollars in parallel financing to cover a N1 road segment between Chimura-Nicoadala. The NDF is considering financing a scale-up of activities under the IFRDP; its decision and the potential scope of support will be determined in the coming year. Based on the outcome of the pilot under the ongoing RBMMP II, the project will also build upon recommendations of the Africa Community Access Partnership, a six-year research program on rural transport in Africa funded by the U.K. Department for International Development.

53. **The project will learn from the experience of the Gender Coordination Group, which brings together most of the multilateral and bilateral donors as well as civil society organizations.** The project will actively coordinate with development donors with ongoing development programs addressing SEA in Mozambique, such as the United States Agency for International Development (USAID), and the Swedish International Development Cooperation Agency (Sida). Specifically, the project will closely cooperate with the existing program, Rapariga Biz, that targets 1 million vulnerable adolescent girls on empowerment and sexual and reproductive health. This program was funded mainly by Sida and led by United Nations Population Fund (UNFPA), and has been active since 2016 in several districts in both Nampula and Zambezia provinces. The project has also learned from the experience of the Gender Based Violence Initiative (GBVI), an interagency effort created under the US President's Emergency Plan for AIDS Relief, on community strategies to raise awareness on gender-based violence (GBV), including SEA, and which could also further inform design of the project reporting mechanisms. Under this Initiative, an interagency effort was put into place where, for instance, the Ministry of Health and Ministry of Interior have used mass media campaigns and broader GBV and HIV awareness-raising activities. GBV-oriented awareness was inserted within HIV prevention initiatives through participatory processes involving the community.[18]

[18] Gennari, F., et.al. (2016). Lessons from the Gender Based Violence Initiative in Mozambique. Arlington, VA: Strengthening High Impact Interventions for an AIDS-free Generation (AIDSFree) Project.

V. KEY RISKS

A. Overall Risk Rating and Explanation of Key Risks

54. **The overall risk rating of the project is "substantial".** The following paragraphs detail key areas of risk.

55. **Political and governance.** This risk is rated as "substantial'. Despite generally peaceful elections in 2014, the political situation remains fragile, especially in the targeted provinces. Political confrontation between the two major political parties, which has roots in the civil war that ended in the early 1990s, deepened following the 2014 elections. Violent struggle is fueled by limited access to jobs, rising inequality, and persistent poverty. The confrontations diminished in 2016, resulting in a truce, and no military tension or attacks in country have been reported since then. Additionally, both parties are in close negotiation for a peaceful resolution. Therefore, embedding public or private security during implementation is not considered necessary and the disruptions, if any, during implementation will be managed through *force majeure* provisions of the contracts. The project aims to mitigate political risk by investing in two of the poorest areas of the country to help reduce disparities between the south, central, and northern provinces. However, this fragile political situation, marred by low-grade violence, sets the residual risk at "substantial" as it could undermine project implementation by triggering political force majeure.

56. **Macroeconomic.** Macroeconomic risk is "high". The rapid deterioration of the economy following the revelation of undisclosed borrowing has hurt public finances, including infrastructure expenditure. This economic vulnerability could affect counterpart financing; the government contribution may not materialize on time. The Financing Agreement incorporates minimum counterpart contributions under flexible *pari-passu* terms. Proposed counterpart funding is roughly equal to the taxes collected by the Government on the project plus the maintenance funds that it might spend on parts of the network under the project in normal circumstances.

57. **Institutional capacity for implementation and sustainability.** This risk is "substantial". Provincial road sector institutions' capacity for managing workloads, efficiency, and quality is relatively weak, although hiring consultants and service providers to support provincial delegations will mitigate the risk. Responsibility for implementation of Component 1 will be partially handed over to the provincial delegations of ANE in Zambezia and Nampula. The ANE provincial delegations will be responsible for procurement, supervision, and monitoring of rural roadworks under Component 1. While the ANE delegations will manage supervision consultants for the works, ANE headquarters will procure consultancy services. Training of ANE provincial delegations staff will be ensured before handing over those responsibilities. This arrangement will promote decentralization and build capacity in local government entities, improving the long-term sustainability of the project. Inclusion of long-term maintenance under Components 1 and 2 also helps reduce sustainability risks over the project life cycle.

58. **Fiduciary.** Overall, residual fiduciary risk is rated "substantial" based on the scope of the project, location of project interventions, changes in overall sector leadership, and the capacity of the procurement teams of the implementing entities, which can affect timely implementation of activities. Mitigation measures include the following: (a) ANE staff that are involved in the implementation of the proposed integrated feeder road development project will attend procurement courses related to the

World Bank's New Procurement Framework; (b) World Bank staff will closely collaborate with the project team with hands-on support; and (c) the project will recruit two procurement officers, one per province, to enhance the capacities of the Central Procurement Units (*Unidade Gestora Executora de Aquisições,* UGEA) at the provincial level, under the terms and conditions of ANE.

59. **Social and Environmental Risk.** Combined social and environmental risk is rated "high". The project area has a high risk of sexual exploitation and abuse (SEA) due to the prevalence of SEA drivers such as high levels of poverty, social acceptance of spousal abuse, and high levels of child marriage. While SEA risks cannot be eliminated, the proposed project incorporates a number of mitigating measures including requirements in works-related contracts for stringent staff codes of conduct, relevant SEA training, and adoption of action plans for mitigating environmental and social impacts. A non-government organization has been engaged to carry out public outreach, train staff of firms hired under the project, and provide case-level support to SEA survivors in the project area. The project Grievance Redress Mechanism (GRM) is redesigned to ensure survivors of SEA have multiple, safe, and confidential entry points to file complaints, receive immediate support, and to improve monitoring and reporting. These approaches are based on emerging global best practices for mitigating SEA risk and will evolve as new practices emerge. Also, as a part of the OPRC/ABMS supervision, the supervision consultant will track compliance with specified environmental and social safeguards requirements on a regular basis during both construction and maintenance phases. Penalties will be applied to OPRC/ABMS payments if contractors do not meet the environmental and social performance requirements set out in the contracts. The project will mitigate the risk of traffic accidents through specific road safety interventions on the project roads, capacity building activities, education and enforcement. The Environmental Risk is moderate because the safeguards instruments prepared are sufficient to mitigate the expected risks associated with rehabilitating and upgrading existing roads in Nampula and Zambezia provinces.

60. **Stakeholder.** Stakeholder risk is rated "substantial". Local stakeholders, civil society, and local governments may seek changes in road selection and interventions under Component 1. The project will mitigate this risk through sustained stakeholder engagement throughout the project. The district road councils, chaired by the governors (usually represented by the District Administrator) and on which all stakeholders have a seat, will be the natural platform to facilitate stakeholder engagement. The project already conducted two workshops in the targeted provinces during project preparation, and consultation will continue throughout implementation of both Components 1 and 2.

VI. APPRAISAL SUMMARY

A. Economic Analysis

61. **Cost and benefit analysis of the project demonstrates its economic viability.** The economic evaluation focused on the physical investments under Components 1 (rural roads) and 2 (primary roads), which account for 95 percent of the project costs. The economic analysis of rural roads was done through the disaster resilience analysis with the DMU methodology as described in Annex 5. The economic analysis of Component 2, Rehabilitation of Primary Road Network, used the Highway Development and Management Model (HDM-4). Over an appraisal period of 20 years, the net present value (NPV) of the investments, at a 12 percent discount rate, is US$136 million and the internal rate of return (IRR) is 21 percent. The gross estimate of greenhouse gas emissions over a 20-year period is 7.8 million tons and the

better roads are expected to reduce emissions by 16,000 tons compared to the "without project" scenario.

62. **Component 1.** The study assessed the rural roadworks in the 10 districts prioritized using the resilience analysis described in Annex 5. The following four kinds of benefits were assessed for each intervention option: (a) reduction of flood risk for the users; (b) reduction of flood risk for the road agency (lower repair and construction costs after flood events); (c) reduction of road user costs (RUC); and (d) reduction of maintenance expenditure.

63. Economic indicators were calculated for each investment option under more than 2,000 scenarios to capture the uncertainty that may affect the performance of each investment through eight different factors: (a) climate intensity; (b) flood duration; (c) traffic growth in the absence of interventions; (d) traffic growth due to agriculture development; (e) discount rate; (f) repair time; (g) construction cost; and (h) bridge repair cost. Five intervention options were assessed in each district and the best option was selected based on its robustness (intervention that has the highest NPV in most of the scenarios), minimax regret,[19] and the conditions of its failure (using a scenario discovery technique called the Patient Rule Induction Method). The median NPV over 20 years for the selected interventions is US$70 million and the IRR is 20 percent.

64. **Component 2.** The economic viability study, using HDM-4, assessed two priority sections: N1 (Nicoadala to Namacurra, 33 km) and N10 (Quelimane to Nicoadala, 37 km). The engineering interventions and costs were based on engineering designs prepared by ANE. The NPV over 20 years for the selected interventions is US$66.0 million and the IRR is 22.4 percent.

B. Technical

65. **The project will support agricultural growth and poverty reduction by improving movement along the targeted primary and non-primary roads in the two poorest provinces**. The project design adopts a holistic network-based approach as fragmented feeder road interventions tend to result in diminishing returns. The project will also provide technical assistance to develop national and subnational government capacity to manage road infrastructure sustainably.

66. **The targeted project areas in the two provinces were defined considering the wider economic benefits and available budget.** The prioritization criteria included (a) lack of redundancy to a road segment within the network; (b) proximity to areas of high agricultural potential; (c) proximity to areas with high fisheries potential; (d) current agricultural production; and (e) the district poverty rate. In addition, flood risk is assessed based on flood likelihood maps under various climate change scenarios and on vulnerability functions for bridges, culverts, and road surfaces. Finally, the prioritized project areas were chosen following close collaboration and coordination with ongoing and planned development projects in the country to maximize synergy across sectors.

67. **Investments under Component 1, the rural road component, were defined through a participatory approach**. Consultation with local stakeholders took place during workshops held in January

[19] The regret is defined as the difference in NPV between one option and the best option for the scenario. Minimax is the option that minimizes the maximum regret over a wide range of scenarios.

2017 in Quelimane and Nampula. The workshops discussed potential investment options with a combination of the following engineering solutions: (a) upgrade to surface treatment; (b) upgrade to gravel road; (c) rehabilitation of earth roads; (d) cleaning and repair of bridges; and (e) replacement of culverts. In each district, the workshops proposed the five potential investment options under a budget constraint and the economic viability of each option was assessed using the DMU methodology, considering benefits from climate resilience (see details in Annex 5). The final engineering designs will be prepared based on the results of this analysis and engineering site surveys. The ABMS, with an output and performance-based approach, will be introduced to ensure the sustainability of rural road infrastructure.

68. **Component 2 primarily supports rehabilitation of a 70-km primary road, selected using the prioritization analysis mentioned above**. It covers the only road that provides access to Quelimane, the provincial capital of Zambezia, the most critical link in the entire provincial road network. The intervention will include, among other things, rehabilitation, improvement of road safety facilities, improvement of intersections, and rehabilitation or reconstruction of culverts. The OPRC approach will be adopted as a contract modality to ensure long-term sustainability of the road asset.

C. Financial Management

69. **Assessment.** A financial management assessment was conducted in accordance with the Financial Management Manual issued by the Financial Management Sector Board in March 2010. Its objective was to determine whether the RF has acceptable and adequate financial management arrangements to ensure (a) reliability of financial reporting; (b) effectiveness and efficiency of operations; and (c) compliance with legal covenants, laws, and guidelines.

70. **Arrangements.** The proposed financial management arrangements were reviewed and the overall financial management risk rating of the project is assessed as “moderate”. The RF already has adequate financial management arrangements, a Financial Management Procedures Manual, and experience in handling World-Bank-financed operations, as well as experienced personnel in the accounting and internal audit departments. The RF will open a Designated Account at the Central Bank, and the external audit will be the overall responsibility of a private audit firm, which will audit the whole entity. The proposed financial management arrangements, as summarized in Annex 2, meet the minimum requirements for financial management under the Investment Project Financing Policy.

D. Procurement

71. **Procurement procedures.** Procurement for the proposed operation will be carried out in accordance with World Bank Procurement Regulations for IPF Borrowers—Procurement in Investment Project Financing: Good, Works, Non-Consulting, and Consulting Services, of July 1, 2016 and the provisions stipulated in the Financing Agreement. Further, the Guidelines on Preventing and Combating Fraud and Corruption in Projects Financed by IBRD Loans and IDA Credits and Grants, of October 15, 2006 and revised in January 2011, will apply.

72. The Borrower has prepared the Project Procurement Strategy for Development (PPSD) and the Procurement Plan to identify optimum procurement strategy for meeting the development objectives of the project. The procurement plan includes selection methods. A summary of the PPSD is included as Annex 6.

73. **National Procurement Procedures may be used while approaching the national market.** The requirements for national open competitive procurement include the following:

(a) open advertising of the procurement opportunity at the national level;
(b) the procurement is open to eligible firms from any country;
(c) the request for bids/request for proposal documents shall require that bidders/proposers submitting bids/proposals present a signed acceptance at the time of bidding, to be incorporated in any resulting contracts, confirming application of, and compliance with, the World Bank's Anti-Corruption Guidelines, including without limitation the World Bank's right to sanction and the World Bank's inspection and audit rights;
(d) contracts with an appropriate allocation of responsibilities, risks, and liabilities
(e) publication of contract award information;
(f) rights for the World Bank to review procurement documentation and activities;
(g) an effective complaints mechanism, including SEA cases; and
(h) maintenance of records of the procurement process.

74. Other national procurement arrangements (other than national open competitive procurement), that may be applied by the Borrower (such as limited/restricted competitive bidding, request for quotations/shopping, direct contracting), shall be consistent with the World Bank's Core Procurement Principles and ensure that the World Bank's Anti-Corruption Guidelines and Sanctions Framework and contractual remedies set out in its Legal Agreement apply. In all cases, the national procurement procedures to be used shall give due attention to quality aspects.

75. **Procurement arrangements.** The UGEA of ANE will be responsible for project procurement, under supervision of ANE's Director General. The Director General authorizes the procurement processes and signs all contracts irrespective of the amount. Some procurement activities are to be implemented at the provincial level. ANE has updated the procurement chapter which will be a part of the Project Operations Manual.

76. **Procurement capacity.** The central operational structure of ANE was reorganized in late 2016, which included appointment of a new head of the procurement unit (UGEA). Nine staff, including the head of UGEA, comprise the unit. The operational structure of ANE in UGEA at the provincial level consists of two technicians in Quelimane and one technician in Nampula. This arrangement, in the provincial delegations of ANE, will need to be strengthened through the project to carry out the provincial procurement activities. The national and provincial staff of ANE have no experience in the New Procurement Framework. The current arrangement at the central level is adequate for managing the procurement activities of the project. Nevertheless, the capacity of ANE will need to be improved, because the New Procurement Framework is triggered by the project, and continuously monitored during implementation to ensure compliance.

E. Environment (including Safeguards)

77. **Activities are expected to have a comparatively moderate impact on the biophysical environment.** The project's civil works focus on rehabilitating or upgrading the existing roads in Nampula

and Zambezia Provinces, and activities are not expected to have long-term negative environmental or social impacts. Potentially adverse environmental and social impacts are expected to relate mainly to construction activities during project implementation and will occur contemporaneously. The expected positive project impacts can be attributed to the proposed operation's integrated approach tailored to achieve rural development impact by combining the promotion of economic activity through improved connectivity and access to markets for rural populations.

78. **The project's proposed environmental screening rating is Category B.** The expected environmental and social impacts will be localized and adequate mitigation measures will be in place. Among environmental safeguards, the project triggers OP/BP 4.01 - Environment Assessment, because the proposed road rehabilitation activities under Components 1 and 2 are likely to lead to some environmental and social impacts that will require management and mitigation. The potential adverse environmental impacts may include soil erosion and degradation, decreased water quality, loss of vegetation, fauna disturbance, deposition of solid waste, dust and noise emission, and health and safety of construction workers/artisans. ANE and the RF have acquired considerable experience implementing and addressing safeguard needs in projects, nonetheless both entities need training and improvements to strengthen their capacity to adequately supervise the safeguards for the project (included in Component 4). The Environmental and Social Unit at ANE has assigned specialists (currently four), at the central level and focal points at the provincial level to manage and monitor safeguards for the project.

79. **OP/BP 4.04 – the Natural Habitats provision is triggered by the existence of protected areas in Nampula and Zambezia Provinces.** ANE will work with local administrations and communities to ensure that improved access does not increase degradation of critical habitats.

80. **OP/BP 4.11 - Physical and Cultural Resources is also triggered because of the potential for a chance finding of cultural or archeological significance during construction.**

81. **ANE has adopted a robust Environment and Social Management Framework (ESMF).**[20] The ESMF provides expected safeguards mitigation, monitoring, and reporting measures to be followed by ANE, the RF, supervising engineers, and contractors during the identification, preparation, construction, and management phases of road rehabilitation under the project. The ESMF addresses the following issues:

- environment and social screening criteria for selection of eligible feeder roads;
- labor influx;
- SEA;
- occupational health and safety;
- provisions for community engagement for both grievance redress and the importance of protecting natural habitats and forests—the project will work closely with the Mozambique Agriculture and Natural Resources Landscape Management Project on the latter activities;
- chance find procedures to be followed in the event of any cultural or archeological artifacts being unearthed during construction; and

[20] The ESMF was disclosed in-country by ANE (www.ane.gov.mz) and through the World Bank's external website on October 2, 2017. It has been updated and was redisclosed on February 27, 2018.

- environmental and social clauses to be included in the contract documents for both contractors and monitoring[21] consultants.

82. **Under Component 2, ANE has prepared an ESIA and an Environment and Social Management Plan (ESMP) for the rehabilitation of 70 km of the N1 and N10 highways from Quelimane to Namacurra.** The impact assessment and the management plans follow the ESMF. The ESMP was initially disclosed in-country by ANE and through the World Bank's website on October 3, 2017 and was subsequently updated to include SEA risk and mitigation and redisclosed on February 27, 2018. The ESIA was disclosed February 27, 2018.[22] Once selected, the contractor will be responsible to update the ESIA/ESMP based on the final designs and the instruments will then be cleared by the World Bank and redisclosed prior to any mobilization on site and any construction.

83. **Based on the ESMF, site-specific ESMPs will be prepared for each road rehabilitated under Component 1.** Those ESMPs will be disclosed in-country by ANE and through the World Bank's website as they are prepared and approved. The ESMPs will also be incorporated into the respective works and supervisory contracts to ensure full compliance with safeguards implementation by contractors and monitoring consultants.

84. **The ABMS contracts and the OPRC will include performance standards (service levels) for environmental and social safeguard compliance for both construction and maintenance.** In an innovative approach, the payments under Component 1 and 2 will be linked to service levels realized, for example, (a) preparation of environmental, social, health, and safety plan and establishing baseline indicators before start of construction; and (b) completion of periodic mandatory training of all workers on SEA issues. Under the contract, the contractor will also be responsible for continuous monitoring and control of road conditions and service levels for all roads or road sections included in the contract. This will not only be necessary to fulfill the contract requirements, but it will also provide the contractor with the information needed (a) to ascertain the degree of its own compliance with service level requirements; and (b) for timely defining and planning of all interventions required to ensure that service quality indicators never fall below the prescribed thresholds. The role of the ANE and the monitoring consultant will be responsible for verifying compliance with the agreed service levels and with all applicable legislation and regulations.

F. Social (including Safeguards)

85. **The project's civil works focus on rehabilitating and upgrading existing roads in Nampula and Zambezia Provinces will have positive impacts enhancing connectivity to final markets and economic destinations.** Component 1 of the project will finance activities such as rehabilitation works on parts of secondary, tertiary, vicinal and (classified and unclassified) rural roads in targeted districts in Zambezia and Nampula Provinces and support the extension of the Zambezia ABMS (a simplified performance-based contracting approach) into Nampula Province.

[21] In this document, the term monitoring consultant is used interchangeably with supervision consultant. In performance-based road contracts, the role of the consultant is to monitor the contractor's performance rather than supervise the contractor's activities.

[22] See the ANE website at *www.ane.gov.mz* and the Ministry of Economy and Finance website at *www.ufsa.gov.mz*.

86. **The Involuntary Resettlement Policy (OP/BP 4.12) is triggered due to foreseen civil works activities that may require temporary use or permanent acquisition of land and/or loss of access to natural resources and means of livelihoods.** While the project activities under Components 1 and 2 do not involve construction of any new roads, those project activities may involve temporary displacement of people and/or involuntary restriction and/or loss of access to assets, means of livelihood, or natural resources, with adverse impacts on the livelihoods of the displaced persons. The Borrower has prepared a Resettlement Policy Framework (RPF) to guide the preparation of site-specific Resettlement Action Plans (RAPs), acceptable to the World Bank, once such details are known.

87. **The Borrower has prepared a RAP for the rehabilitation of the 70-km primary road section between N1/N10 Quelimane-Nicoadala-Namacurra under Component 2, which identified 1,000 directly affected Project Affected Persons (PAPs).** Most impacts are on commercial activities and structures along the roadside, including in the right of way, and in some cases on structures that are part of residential parcels, but no physical relocation of households is currently anticipated. Given that three years elapsed since the RAP census and recognizing the dynamics of the area, the RAP is being updated based on the results of an ongoing census, and will include contingency funding if an increase in the number of PAPs is found. The RAP budget also includes a contingency to accommodate adjustments to the RAP that may arise after the contractor has finalized designs. The updated RAP will be redisclosed by May 14, 2018. The RAP will be fully implemented prior to the commencement of works.

88. The RPF also provides for temporary use of land by contractors (lay down areas, camps, etc.). While contractors are primarily responsible for identifying these areas and compensating affected PAPs, ANE will verify that agreements to this effect are in accordance with requirements established in the RPF.

89. The RPF and the RAP for Component 2 were publicly disclosed both in-country and at the World Bank external website on October 2, 2017 and redisclosed on February 23, 2018.

90. **The land acquired may lead to negative impacts such as loss of access to assets, sources of income, or means of livelihood for some households, especially in rural communities.** These negative impacts may occur whether project-affected people are physically relocated or not. An appropriate GRM procedure has been included in the RAP based on prior experiences with RAP implementation, along with appropriate arrangements for monitoring site-specific RAP implementation.

91. **The ANE GRM procedures will be consolidated with those of the OPRC contractor, and be expanded and enhanced to cover all project related impacts, including SEA, and improve its accessibility and systematic monitoring prior to signature of the first road civil works contract.** The GRM procedure will be disseminated in the affected communities to create awareness. Additionally, the project has identified an NGO (JHPiego)[23] with demonstrated capacity to address SEA and related challenges in the project areas – including work on HIV prevention dating to 2004 – to partner with the GRM. The NGO will sensitize the public on SEA, raise public awareness about different entry points to submit complaints, train stakeholders (contractors, communities, and ANE), assist and refer survivors to appropriate service providers, and monitor implementation of the SEA mitigation and response measures. The information so

[23] See *https://www.jhpiego.org/wp-content/uploads/2015/08/Jhpiego-Mozambique.pdf*.

gathered will be monitored and reported to the World Bank and other stakeholders by the implementing agency.

Gender

92. **Gender equality in Mozambique has improved in some respects during the past few years.** Girls accounted for 47 percent of primary enrollment in 2014, compared to 11 percent in 2000, and maternal mortality decreased from 915 per 100,000 live births in 2000 to 489 in 2015. The country's Law on Domestic Violence (Law N.29/2009), recognizes physical violence and defines a specialized procedure to respond to it.

93. **However, the following gender gaps persist:**[24]

(a) Women's employment participation in the low-income population was 69 percent in 2016 while men's was 81 percent[25]. In the middle-income population, the gap increases to 30 percent (46 percent for women and 76 percent for men). Evidence shows that women's employment is mainly in the informal sector.[26] Women's lower education and skills hurt their ability to find work in the formal sector and their potential as entrepreneurs. Women are also absent in formal sectors where sex occupational segregation is clear: the female workforce participation rate in construction is about 3 percent in Mozambique.[27] Data from the ongoing World Bank RBMMP II project, shows that women constitute only about 10 percent of the total workforce of the contractor and very few are employed as skilled workers.

(b) Several health issues disproportionately or exclusively affect women (abortion complications, anemia, eclampsia, hemorrhage, obstructed labor, and postpartum infections)[28] and put their lives at risk given the low access to maternal health services. According to the National Demographic and Health Survey (2011), 48.7 percent of the interviewed women ages 15–19 and 50.9 percent of women ages 20–34 indicated distance as the main factor limiting access to health facilities.

(c) The 2016 Gender Profile from the Ministry of Gender, Children and Social Protection documents significant rates of GBV, including SEA, in Mozambique. These issues disproportionately impact women and girls.

94. **The project will contribute to closing the aforementioned gender gaps with the following activities:** (a) promoting women's participation in road rehabilitation and maintenance through gender sensitization of the contractor and ANE, under Component 4, and by developing guidelines for gender-sensitive recruitment strategies in roadworks; and (b) increasing women's accessibility to health facilities through the rehabilitation and maintenance of selected roads during all seasons, complemented by an analysis on women's mobility barriers to access better economic opportunities and social services, to inform the pilot on rural transport services under Component 3. The transport services pilot will cover

[24] Mozambique Country Partnership Framework FY17–21.
[25] World Bank Gender Data portal: *http://datatopics.worldbank.org/gender/country/mozambique*.
[26] S. Jones and F. Tarp. (2013). *Jobs and Welfare in Mozambique*. Washington: World Bank. p. 28.
[27] Danish Trade Union. *Mozambique Labor Market Profile 2014.* p. 12.
[28] U.S. Agency for International Development, *Inquérito Demográfico e de Saúde 2011*, page 122.

both women's and men's needs, and the project will monitor the improved transport services from a gender perspective.

95. **The project approach to mitigate the risk of SEA and to respond promptly and adequately to SEA cases related to the project area is based on the current knowledge of this complex issue.**[29] The approach will continue to evolve as the team learns from experiences both from implementing the project as well other emerging best practices across the globe.

96. **The project is adopting a series of measures to mitigate the SEA risk and respond promptly and adequately to any case that may arise.** The ESIA identifies that the influx of workers may lead to increased risk of crimes and violence such as robberies, GBV, SEA, and violence against children. The project will minimize labor influx by inserting requirements in the bid documents promoting hiring of Mozambican workers from the vicinity of the project area. This approach was adopted successfully in the ongoing World Bank project (RBMMP II), where project labor is estimated to be 90 percent local, on average. The project incorporates several other measures to mitigate SEA risks related to risk assessment, labor influx, strengthening of the GRM, multi-sectoral coordination and monitoring, and capacity building and awareness as outlined in Table 2 and Annex 3.

97. **As noted elsewhere, the project will engage an NGO to enhance the GRM to adequately and promptly address any potential project related grievance related to SEA.** If the GRM directly receives a complaint of SEA, it will be recorded, and the survivor will be referred to the NGO for assistance and, if needed, for referral to other service providers by the NGO. Service providers will be trained about the availability of the GRM so that they can support the survivors who wish to file a complaint of SEA perpetrated by the project contractors or consultants. The contracted NGO will keep pertinent information confidential to protect the privacy of survivor(s). The project will strengthen the GRM to receive project-related complaints, including SEA. If the survivor agrees, the GRM will immediately report the case to the Government and to the World Bank in a confidential manner.

Citizen Engagement

98. **To enhance project monitoring, transparency, and social accountability, the project will use and further deepen earlier initiatives undertaken under IDA-funded projects.** Already, smartphone-based geospatial applications are being used by agencies in low-capacity regions for monitoring of work sites and receiving citizens' feedback and grievances. The project will incorporate these mechanisms and provide training on different aspects of filing, receiving, and responding effectively to stakeholders' grievances.

99. The project will support citizen engagement activities, including among others: (a) developing a grievance redress policy for the road sector; (b) developing detailed procedures for redress of grievances, including pinpointing grievance redressal roles and responsibilities among government officials; (c) designing a web-based grievance registration system; (d) creating a mechanism for providing feedback to complainants and monitoring the status of resolution of grievances; (e) undertaking campaigns for sensitizing the general public on the opportunity of registering grievances, including the use of billboards

[29] The project has assessed risk of sexual exploitation and abuse during project implementation. The mitigation approach is based on the assessment as well as global experiences and lessons from past projects (see details in Annex 3).

and radio broadcasting; and (f) providing support to the road sector for establishment of an institutional mechanism for the registration, processing, management, and resolution of grievances. The results framework contains the following citizen engagement indicators reflecting these efforts: (a) grievances registered related to delivery of project benefits that are addressed (percentage); (b) grievances responded and/or resolved within the stipulated service standards (percentage); and (c) project-supported organization(s) publishing periodic reports on GRM and how issues were resolved [including resolution rates] (Yes/No).

100. **The citizens' engagement component will be implemented through the following arrangements:** (a) building upon and empowering "project liaison committees", as described in Annex 2; (b) establishing the use of a dedicated administrator, who will manage the toll-free number and web-based grievance registration system at the backend; (c) collaborating with the National Communication Institute of Mozambique (*Instituto Nacional de Comunicação de Moçambique*, INCM) for support on mobile communication regulatory aspects; (d) launching citizen-centric public relations campaigns; and (e) specifying upfront, in construction companies' contracts, that the web-based grievance registration system needs to be applied to depict resolution of all citizens' issues. The project has earmarked about US$350,000 for this activity.

G. World Bank Grievance Redress

101. Communities and individuals who believe that they are adversely affected by a World Bank supported project may submit complaints to existing project-level GRMs or the World Bank Grievance Redress Service. The service ensures that complaints received are promptly reviewed to address project-related concerns. Project-affected communities and individuals may submit their complaint to the World Bank's independent Inspection Panel, which determines whether harm occurred, or could occur, because of World Bank non-compliance with its policies and procedures. Complaints may be submitted at any time after concerns have been brought directly to the World Bank's attention, and bank management has been given an opportunity to respond.[30]

[30] For information on how to submit complaints to the World Bank's corporate Grievance Redress Service, please visit http://www.worldbank.org/en/projects-operations/products-and-services/grievance-redress-service. For information on how to submit complaints to the World Bank Inspection Panel, please visit www.inspectionpanel.org.

VII. RESULTS FRAMEWORK AND MONITORING

Results Framework
COUNTRY : Mozambique
Integrated Feeder Road Development Project

Project Development Objectives

The Project Development Objective is to enhance road access in selected rural areas in support of livelihoods of local communities and to provide immediate response to an eligible crisis or emergency as needed.

Project Development Objective Indicators

Indicator Name	Core	Unit of Measure	Baseline	End Target	Frequency	Data Source/Methodology	Responsibility for Data Collection
Name: Rural accessibility (% of rural population within 5 kilometers of good condition roads) in the project areas		Percentage	12.00	52.00	Annual	Gridded population and road condition datasets.	ANE
RAI (Rural Accessibility Index calculated as % of rural population within 2 km of good condition roads) in the project areas		Percentage	7.00	32.00	Annual	Gridded population and road condition datasets.	ANE
Description: The percentage of the rural population living within 5 kilometers of a road in good condition in the project areas.							
Name: Improvement in road conditions measured as		Percentage	40.00	80.00	Annual	ANE project implementation reports and	ANE

Indicator Name	Core	Unit of Measure	Baseline	End Target	Frequency	Data Source/Methodology	Responsibility for Data Collection
roads in good and fair condition as a share of total road network in project areas						road condition survey reports	
Description:							
Name: Access to markets from land with high agriculture potential		Square kilometer(km2)	9300.00	14000.00	Annual	Agriculture potential comes from SPAM model developed by IFPRI and commodity prices.	ANE
Description: The indicator is defined as area of land with high agriculture potential of more than US$0.5 million/km2/year within 60 minutes travel time to the closest market. The travel speed is estimated as 1.7 and 20 km per hour by foot and by motorized vehicle on poor condition roads, respectively, and 5 and 60 Km per hour on good condition roads.							

Intermediate Results Indicators

Indicator Name	Core	Unit of Measure	Baseline	End Target	Frequency	Data Source/Methodology	Responsibility for Data Collection
Name: Roads Rehabilitated		Percentage	0.00	100.00	Yearly.	ANE project implementation reports	ANE

Indicator Name	Core	Unit of Measure	Baseline	End Target	Frequency	Data Source/Methodology	Responsibility for Data Collection
Roads Rehabilitated - rural		Percentage	0.00	100.00	Yearly.	ANE project implementation reports.	ANE.
Roads rehabilitated - nonrural		Percentage	0.00	100.00	Yearly.	ANE project implementation reports.	ANE.
Description: The number of kilometers of road to be rehabilitated will be determined in the first year of project implementation. The target is measured as the percentage of the rehabilitation program financed by the project.							
Name: Number of bridges, drifts, and culverts rehabilitated or reconstructed on feeder roads in the project areas		Percentage	0.00	100.00	Yearly.	ANE project implementation reports.	ANE.
Description: End target number of cross-drainage structures will be identified in year one of project implementation. Target is expressed as the percentage of the project investment completed.							
Name: Length of unpaved feeder roads under performance-based contracts		Kilometers	0.00	2000.00	Annual	ANE Project Implementation Reports	ANE
Description: Length of non-primary unpaved classified roads in the ten selected districts.							

Indicator Name	Core	Unit of Measure	Baseline	End Target	Frequency	Data Source/Methodology	Responsibility for Data Collection
Name: Percent of women employed in feeder road rehabilitation and maintenance contracts under the project		Percentage	0.00	20.00	Annual	ANE Project Implementation Reports. Indicator will be tracked using information provided by the contractor on a monthly basis.	ANE
Description: The indicator will be tracked by comparing the person-days worked by gender.							
Name: Launch of pilot for improved transport services		Yes/No	N	Y	Annual	ANE Project Implementation Reports. .	ANE
Description: The pilot will incorporate actions to address some of the recommendations from the analysis of women's mobility barriers.							
Name: Endorsement of PPP strategy for the road sector		Yes/No	N	Y	Annual	RF Implementation Reports	Road Fund
Description: A PPP strategy to mainstream private sector financing in the road sector.							
Name: Length of primary roads with road safety assessment		Kilometers	0.00	70.00	Annual	ANE Project Implementation Reports	ANE

Indicator Name	Core	Unit of Measure	Baseline	End Target	Frequency	Data Source/Methodology	Responsibility for Data Collection
Description: The project is piloting a new automated road safety assessment technology using image recognition.							
Name: Road asset management system used to inform annual implementation plan		Yes/No	N	Y	Annual	Road Fund Implementation Reports	Road Fund
Road condition data update		Yes/No	N	Y			
Description:							
Name: Geospatial Climate Resilience Tool used to inform annual implementation plan		Yes/No	N	Y	Annual	Road Fund Implementation Reports.	Road Fund
Number of ANE/RF staff trained in the Geospatial Tool		Number	0.00	8.00	Annual	RF annual report. 4 staff in ANE/RF HQ and 2 staff in each ANE/RF provincial delegation will be trained	Road Fund
Description:							
Name: Grievances registered related to delivery of project benefits that are addressed		Percentage	0.00	100.00	Annual	The report provided by the project liaison committees and a newly developed citizen engagement	ANE

Indicator Name	Core	Unit of Measure	Baseline	End Target	Frequency	Data Source/Methodology	Responsibility for Data Collection
						system.	
Description: The Project Operation Manual shall include incidence reporting and response protocol.							
Name: Grievances responded and/or resolved within the stipulated service standards		Percentage	0.00	90.00	Annual	The report provided by the project liaison committees and a newly developed citizen engagement system.	ANE
Description: The project shall adopt incident reporting and response protocol.							
Name: Publishing periodic reports on GRM and how issues were resolved including resolution rates		Yes/No	N	Y	Annual	GRM reports	ANE
Description: The resolution rates will be published on the ANE website.							
Name: Increased awareness of the GRM among women in project area		Percentage	0.00	95.00	Annual	The project will conduct surveys to establish baseline data and measure progress.	ANE

Indicator Name	Core	Unit of Measure	Baseline	End Target	Frequency	Data Source/Methodology	Responsibility for Data Collection
Description: The percentage of women in project communities who know how to report cases of sexual exploitation and abuse related to the project.							
Name: Gender sensitive recruitment and communication guidelines developed for contractors and firms hired under the project.		Yes/No	N	Y	Achievement of the indicator will be reported yearly.	ANE reports.	ANE
Description:							

Target Values

Project Development Objective Indicators

Indicator Name	Baseline	YR1	YR2	YR3	YR4	YR5	YR6	YR7	End Target
Rural accessibility (% of rural population within 5 kilometers of good condition roads) in the project areas	12.00	12.00	37.00	47.00	52.00	52.00	52.00	52.00	52.00
RAI (Rural Accessibility Index calculated as % of rural population within 2 km of good condition roads) in the project areas	7.00	7.00	16.00	23.00	32.00	32.00	32.00	32.00	32.00
Improvement in road conditions measured as roads in good and fair condition as a share of total road network in project areas	40.00	40.00	55.00	65.00	80.00	80.00	80.00	80.00	80.00
Access to markets from land with high agriculture potential	9300.00	9300.00	10300.00	12000.00	14000.00	14000.00	14000.00	14000.00	14000.00

Intermediate Results Indicators

Indicator Name	Baseline	YR1	YR2	YR3	YR4	YR5	YR6	YR7	End Target
Roads Rehabilitated	0.00	0.00	40.00	60.00	100.00				100.00
Roads Rehabilitated - rural	0.00	0.00	40.00	60.00	100.00				100.00
Roads rehabilitated - nonrural	0.00	0.00	55.00	100.00					100.00
Number of bridges, drifts, and culverts rehabilitated or reconstructed on feeder roads in the project areas	0.00	0.00	40.00	60.00	100.00				100.00
Length of unpaved feeder roads under performance-based contracts	0.00	0.00	800.00	1200.00	2000.00	2000.00	2000.00	2000.00	2000.00
Percent of women employed in feeder road rehabilitation and maintenance contracts under the project	0.00	5.00	15.00	20.00	20.00	20.00	20.00	20.00	20.00
Launch of pilot for improved transport services	N	N	Y	Y	Y	Y	Y	Y	Y
Endorsement of PPP strategy for the road sector	N	N	N	Y	Y	Y	Y	Y	Y
Length of primary roads with road	0.00	30.00	70.00	70.00	70.00	70.00	70.00	70.00	70.00

Indicator Name	Baseline	YR1	YR2	YR3	YR4	YR5	YR6	YR7	End Target
safety assessment									
Road asset management system used to inform annual implementation plan	N	N	N	N	Y	Y	Y	Y	Y
Road condition data update	N	N	N	N	Y	Y	Y	Y	Y
Geospatial Climate Resilience Tool used to inform annual implementation plan	N	N	Y	Y	Y	Y	Y	Y	Y
Number of ANE/RF staff trained in the Geospatial Tool	0.00	4.00	6.00	8.00	8.00	8.00	8.00	8.00	8.00
Grievances registered related to delivery of project benefits that are addressed	0.00	0.00	50.00	70.00	80.00	80.00	80.00	100.00	100.00
Grievances responded and/or resolved within the stipulated service standards	0.00	30.00	60.00	90.00	90.00	90.00	90.00	90.00	90.00
Publishing periodic reports on GRM and how issues were resolved including resolution rates	N	Y	Y	Y	Y	Y	Y	Y	Y
Increased awareness of the GRM among women in project area	0.00	0.00	60.00	95.00	95.00	95.00	95.00	95.00	95.00

Indicator Name	Baseline	YR1	YR2	YR3	YR4	YR5	YR6	YR7	End Target
Gender sensitive recruitment and communication guidelines developed for contractors and firms hired under the project.	N								Y

Annex 1: Detailed Project Description

COUNTRY: Mozambique
Integrated Feeder Road Development Project

1. The project will focus on addressing transport infrastructure constraints in two of the poorest provinces, Zambezia and Nampula. Interventions will improve the efficiency of movement of people and goods along the targeted primary and non-primary roads in support of agricultural growth and poverty reduction. The estimated project cost of US$185 million will be supported by a US$150 million IDA Grant.

2. Nampula and Zambezia Provinces were selected for the project as they contain concentrated pockets of poverty in which more than 22 percent of the country's poor reside. The project aims to reduce regional disparities by focusing on road infrastructure in areas of these provinces with the greatest agriculture potential. This enhanced focus on regions and sectors where the poor are concentrated advances the World Bank's twin goals, especially ending poverty. Development of Nampula and Zambezia is also high on the Government's agenda, with a strong emphasis on building a resilient framework of infrastructure and basic services.

3. The proposed components will directly support the project development objective because unreliable and poor condition road access is a major bottleneck, among others, to increasing agricultural productivity and improving livelihoods for people in the affected rural areas. Enhancing physical resilience of the road network and improving the condition of feeder roads will help to increase agriculture productivity by improving reliable access to markets, services, and agriculture inputs. Although better transport infrastructure is a necessary condition to unlock economic and agriculture potential of local communities, complementary policy interventions may also be required.[31] Component 3 (Pilot Rural Transport Services) will support review the policy environment.

4. The project includes the following components.

Component 1: Rehabilitation and Maintenance of Feeder Roads (estimated cost US$95 million, of which US$77.5 million will be financed by IDA)

5. This component will finance rehabilitation and maintenance works on parts of secondary, tertiary, vicinal, and some unclassified roads in targeted districts in Zambezia and Nampula Provinces, including design studies and supervision activities. This component will also support the extension of the Zambezia ABMS into Nampula Province.

6. The project design used a multi-criteria analysis to identify 10 candidate districts within the two provinces and gives weight to wider economic benefits and financial resource availability. The prioritization criteria included (a) lack of redundancy to a road segment (for example, criticality) within the network; (b) proximity to high agriculture potential areas; (c) proximity to high fishery potential areas; (d) current agriculture production; and (e) poverty rate in the district. The analysis assessed flood risks

[31] Banjo, George; Gordon, Henry; Riverson, John. 2012. Rural Transport: Improving its Contribution to Growth and Poverty Reduction in Sub-Saharan Africa. Sub-Saharan Africa Transport Policy Program (SSATP) working paper no. 93. World Bank, Washington, DC.

based on (a) flood likelihood maps under various climate change scenarios; and (b) vulnerability functions for bridges, culverts, and road surface. Finally, the prioritized project areas were chosen to ensure close collaboration and coordination with ongoing and planned development projects in the country to maximize synergy across sectors. Other prioritized districts in the southern Nampula Province were excluded from the project as the EU is preparing a road rehabilitation project in those districts. The prioritized districts selected for intervention are shown in Table 1.1. Annex 5 provides a detailed description of the selection methodology.

Table 1.1. Candidate Districts[32] for Intervention

	Nampula	Zambezia
1	Memba	Maganja da Costa[33]
2	Namapa[34]	Morrumbala[35]
3	Monapo	Lugela
4	Mogincual[36]	Pebane
5	Mossuril	Chinde[37]

7. Potential investment options in each district were identified during two workshops with local stakeholders in January 2017, in Quelimane and Nampula. The investment options comprise a combination of the following engineering solutions: (a) upgrade to surface treatment; (b) upgrade to gravel road; (c) rehabilitation of earth roads; (d) cleaning and repair of bridges; and (e) replacement of culverts. The workshops proposed the five potential investment options in each district under a budget constraint. The economic viability of each option was assessed with the DMU approach considering benefits from road users and climate resilience (see the details in Annex 5). Final engineering designs will be prepared based on the results of this analysis and engineering site surveys. An output- and performance-based ABMS approach will be introduced to ensure sustainability of all rural roads under the target districts.

8. The ABMS has been applied in the districts in Zambezia and has been shown to help maintain rural roads in good condition for the long run. The project will build on previous experience using the ABMS in Mozambique, initially supported by the German Reconstruction Credit Institute, as well as the international best practices for use of the OPRC on unpaved roads in Zambia and Bolivia. Typically, the ABMS has a contract term of five years. The project will review and improve the contract modality and apply it to the rural road network in the target districts together with rehabilitation works identified in the above analysis.

Component 2: Rehabilitation of Primary Road Network (estimated cost US$80 million, of which US$62.5 million will be financed by IDA)

9. This component will support rehabilitation of around 70 km of primary road selected using the

[32] The latest census in 2017 has affected some of the boundaries in the candidate district under component 1. To keep consistency along the document, the old naming and division is used in this PAD. The changes are reflected in the following footnotes:
[33] The district of Maganja da Costa includes the newly created district of Mocubela.
[34] The district of Namapa has changed its name to Erati.
[35] The district of Morrumbala includes the newly created district of Derre.
[36] The district of Mongincual includes the newly created district of Liupo.
[37] The district of Chinde includes the newly created district of Luabo.

same criticality-based prioritization analysis used for prioritization of district-level interventions under Component 1. The analysis identified 70 km of N1 and N10 as the most critical areas for intervention, including 33 km of N1 from Nicoadala to Namacurra and 34.7 km of N10 from Quelimane to Nicoadala. This intervention is critical because it will rehabilitate the only road providing access to the provincial capital of Zambezia. The intervention will include, among others, surface rehabilitation, improvement of road safety facilities, improvement of intersections, and rehabilitation or reconstruction of culverts. The engineering designs were prepared by ANE and will be updated, if necessary, considering further surface deteriorations by the time of the effectiveness of the project. The project adopts the OPRC modality to ensure long-term sustainability of the road asset.

10. The OPRC is adopted to ensure a consistent and affordable long-term service for road users. The OPRC format has widely proven an effective approach to road asset maintenance; it can provide better service quality at a similar or lower cost compared to conventional contracting for a project. This approach has been piloted in Mozambique in the ongoing RBMMP II roadworks in Gaza Province, contracted in January 2017. Lessons learned will be incorporated into the rehabilitation and maintenance works of national roads under Component 2.

Component 3: Pilot Rural Transport Services (estimated cost US$2.5 million financed by IDA)

11. Component 3 will support a pilot rural transport services program, in a set of the feeder roads targeted in Component 1, to improve mobility and access to economic and social services for all population groups in the targeted areas. It will include, among other things, assessment of the existing transport services and identification of market barriers to provision of transport services, and the usage of information and communication technology-based solutions to connect services and end users in a reliable and cost-effective manner. The scope of the pilot will be identified based on these diagnostics exercises. The pilot would benefit local communities near road improvement investments, for instance, through expanded access to markets, services, and agricultural inputs.

12. The pilot will give special attention to improvement of women's accessibility. Recognizing that women and men have different mobility patterns in terms of mode, affordability, quality, and social norms, the diagnostic exercise will assess mobility barriers to women's access to economic opportunities and services. The results of the diagnostic will inform the design of the rural transport services pilot to meet the needs of both women and men. The pilot will be designed to contribute to elimination of identified barriers for women's mobility.

Component 4: Capacity Building and Project Administration (estimated cost US$7.5 million financed by IDA)

13. This component will finance knowledge development and institutional capacity-building activities through the provision of goods, training, and consulting and non-consulting services. The proposed activities build on the institutional-strengthening activities of the previous project, comprising, among others, the following areas:

- **Road asset management.** In support of the RF and ANE, the activities would include, among other things, (a) improvement of the existing Pavement Management System by including

feeder roads into the system at the subnational level and (b) updating the road condition data.

- **Road safety.** The project will assist the ANE, the National Territorial Transportation Institute, and traffic police with implementation of the activities identified by the National Road Safety Policy prepared by the Government of Mozambique, including, among other things, (a) development of a Road Accident Data Management System; (b) improvement of road safety audit capacity and engineering standards for road safety; and (c) road safety risk assessment of the selected primary road sections.

- **PPP.** This would support ANE and the RF in carrying out, among other things, (a) review of the existing highway concession projects and (b) support development of a sound regulatory framework for the governance of PPPs in the road sector.

- **Climate resilience.** This would assist the ANE, the RF, and the National Institute of Disaster Management, among others, in (a) development of a geospatial screening tool to identify transport assets that are most critical and vulnerable to climate change impacts. The tool would be managed in conjunction with the National Institute of Disaster Management and the Ministry of Transport and Communications; (b) extension of the climate resilience DMU tool for economic analysis of road infrastructure projects to the entire country; and (c) enhancement of disaster risk management for road infrastructure. The climate resilience tool is expected to support development of a disaster risk management master plan in the road sector, which will establish strategies and prioritize actions to enhance climate resilience of road assets.

- **Engineering school.** This would support local engineering schools in building its capacity to train qualified engineers for the local job market. One of the potential target schools is the faculty of engineering of Eduardo Mondlane University, which has the oldest and the biggest engineering faculty in country. The activities will include, inter alia, (a) training for faculty staff; (b) acquisition of equipment for laboratories of civil and environment engineering; and (c) support to research programs in selected topics of road infrastructure and transport.

14. This component will also provide support for improved project management for implementation and supervision of the project, social and environmental safeguards, the GRM, SEA efforts, mitigation of gender gaps, and citizen engagement. Institutional-strengthening activities for the provincial delegations of the two project provinces will be included, as the delegations will be partially responsible for project implementation and mainstreaming GRM in the road sector.

Component 5: Contingent Emergency Response

15. This component will facilitate access to rapid financing by allowing reallocation of uncommitted project funds in the event of a natural disaster either by a formal declaration of a national or regional state of emergency or upon a formal request from the Government of Mozambique. This component aims to use IDA's Immediate Response Mechanism.

Annex 2: Implementation Arrangements

COUNTRY: Mozambique
Integrated Feeder Road Development Project

Project Institutional and Implementation Arrangements

1. The Borrower is the Government of Mozambique (represented by the Ministry of Economy and Finance). The RF will be the executing agency and will implement the project together with ANE in accordance with the conditions of the Financing Agreement, the project design, and implementation procedures included in the Project Appraisal Document and the Project Operations Manual.

2. The MOPHWR is responsible for overall coordination of the project. The RF will be the implementing agency for the project and ANE will be an executing agency. The RF will be responsible for implementation, coordination with ANE and other agencies, monitoring, financial management, and auditing of the project resources. ANE will oversee execution of the works, including procurement, safeguards, and engineering aspects. The RF will sign annual contract agreements (*Contrato Programa*) with ANE for execution of the project.

3. The Government will establish an inter-ministerial Project Steering Committee responsible for strategic decision making and monitoring overall project implementation. The committee will comprise nominees of the MOPHWR, RF, ANE, Ministry of Economy and Finance, the Ministry of Land, Environment, and Rural Development, the Ministry of Agriculture and Food Security, the Ministry of Transport and Communications, National Territorial Transportation Institute (INATTER), and the provincial governors. The Project Steering Committee will meet twice a year in the respective project areas to monitor progress. The RF and ANE will act as the Secretariat of the Project Steering Committee.

4. Responsibility for implementation of Component 1 will be partially handed over to the provincial delegations of ANE in Zambezia and Nampula. The provincial governments, with the support of ANE's provincial delegations, are responsible for planning the secondary, tertiary, and vicinal road network under Component 1. This arrangement will promote decentralization and build capacity of local government entities. The ANE provincial delegations will be responsible for procurement, supervision, and monitoring of rural roadworks under Component 1. While the ANE delegations will manage supervision consultants for the works, ANE headquarters will procure consultancy services. ANE headquarters will be solely responsible for environmental and social safeguards for the first three years of project implementation and will subsequently transfer these responsibilities to the ANE provincial delegations, upon the World Bank's agreement. Component 2 will be solely managed by ANE and the RF headquarters as detailed in Table 2.1.

5. The project will engage with the following agencies: INATTER and traffic police for the road safety activities under Component 4 and the National Institute of Disaster Management for disaster risk management under Component 4. In addition, Component 3 may benefit the provincial or district transport departments in selected rural areas, depending on the scope of the activities.

Table 2.1. Institutional Arrangements for Components 1 and 2

	Component 1	Component 2
Procurement for Works Consulting services	ANE Provincial ANE Headquarters	ANE Headquarters ANE Headquarters
Contract management for Works Consultants	ANE Provincial ANE Provincial	ANE Headquarters ANE Headquarters
Financial management	RF/ANE Headquarters	RF/ANE Headquarters
Social/environmental safeguards	ANE Headquarters (to be transferred to ANE Provincial in year three)	ANE Headquarters
Reporting	RF/ANE Headquarters	RF/ANE Headquarters
Audit	RF/ANE Headquarters	RF/ANE Headquarters

6. Cooperation agreements will formalize the relationships between the implementation agency (RF) and each executing agency. This includes ANE, INATTER, and the other institutional beneficiaries. These agreements will define the obligations of each entity to carry out project activities under their responsibility.

Financial Management

7. **A financial management assessment was conducted in accordance with the Financial Management Manual issued by the Financial Management Sector Board in March 2010.** Its objective was to determine whether the RF has acceptable and adequate financial management arrangements to ensure (a) reliability of financial reporting; (b) effectiveness and efficiency of operations; and (c) compliance with legal covenants, laws, and guidelines.

8. **Financial management arrangements.** The MOPHWR, through the RF, will be the lead coordinating agency for the project. The overall responsibility for project financial management implementation will lie with the RF. The RF is a public entity which is already staffed and has significant experience in handling World Bank-financed operations, and is familiar with the World Bank procedures, including those for disbursements and reporting. The RF also has experience in collaborating with ANE, as well as municipalities, due to its mandate. The project will use the country's financial management systems for budgeting, accounting, and internal controls, but funds will be hosted only at the central bank and auditing will be under the responsibility of a private sector auditor.

9. **Budgeting.** Budgeting, budgetary control, and budget revisions will follow national procedures requiring that the project budget be inserted as part of the MOPHWR's budget and be approved by the Parliament. In coordination with all government project stakeholders, including ANE, the provincial delegations of ANE, and municipalities, annual work plans and budgets will be prepared following the budget preparation cycle of Mozambique. These annual work plans will be approved by the RF Board and subsequently, by IDA, no later than December 31 each year. The project would also need to be registered with the National Directorate of Planning and Budget, soon after signing of the Financing Agreement but before effectiveness, and the RF would also need to report on its execution to the National Directorate of

Public Accounting. Budget monitoring will take place directly on the Primavera accounting software used at the RF.

10. **Internal control and accounting procedures.** Internal controls and accounting will similarly be based on national procedures and the procedures used in the RF's day-to-day operations**.** The RF also has its own internal audit directorate (*Direcção de Auditoria Interna*, DAI), which is responsible for carrying out independent and objective assurance activities regarding the operations of the RF. The DAI has also benefited from the Quality Assurance and Improvement Program, a consultancy which has helped it perform in accordance with International Standards for Professional Practice of Internal Audit (Standards). To ensure the DAI adds value to the project, DAI's audit plans are expected to include project activities. The Ministry of Economy and Finance also has its own Inspector General of Finance (*Inspeção Geral das Finanças)*, which has overall responsibility for internal controls and for oversight of the Internal Control Boards of the Government *(Orgãos de Controle Interno*) through annual inspections. These two organizations will need to coordinate and share their yearly audit plans to maximize efficiency and avoid duplication of efforts.

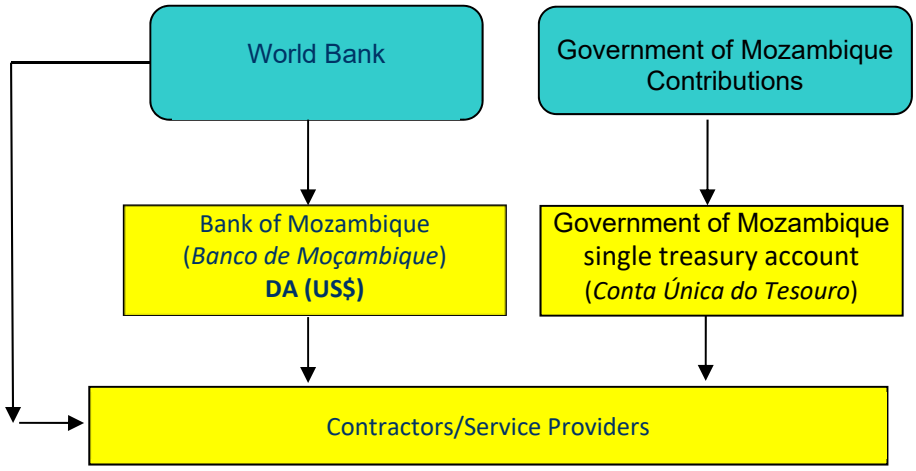
11. **The RF has a Financial Management Procedures Manual.** The manual contains accounting procedures for issues that are normally raised by independent audits such as approval of transactions, travel and per diem procedures, and supporting documentation. Procedures relating specifically to the project, including the disbursements and reporting templates will need to be finalized and captured in the Financial Management Procedures chapter as part of the Project Operations Manual. The manual will also provide procedures and guidance on coordination between the entities and the project coordinating team.

12. **Staffing.** The RF has benefited from several hands-on trainings in financial management and disbursements for World Bank-financed operations. The RF has recently hired a new Chief Accountant. The Chief Accountant will also partake in similar trainings in future. Finance personnel who have been responsible for financial management aspects of the ongoing RBMMP II will also play a key support role in ensuring that know-how and knowledge is transferred to provincial delegations of the RF and municipalities.

13. **Accounting system.** The RF is connected to the Government's own Integrated Financial Management Information System, known as e-SISTAFE, but the project will use the Primavera accounting software, which has been customized to the needs of the RF. The system will be used for capturing and summarizing its transactions. Primavera has embedded segregation of duties, which is the most fundamental internal control. Preparation of accounting information will be on cash basis in accordance with the Government of Mozambique's requirements, which are in alignment with the International Public Sector Accounting Standards. As the Integrated Financial Management Information System makes use of the Government's economic classifiers, the accounting software facilitates classification of expenditures by activity/component/project. This classification will ease monitoring of project progress.

14. **Funds flow.** The project will operate one Designated Account in U.S. dollars at the Bank of Mozambique *(Banco de Mozambique)*. This account will be managed by the RF. Payments will originate from this account as shown in Figure 2.1.

Figure 2.1. Funds Flow



15. The counterpart contributions from the Government of Mozambique will be paid directly from its single Treasury Account. The budget related to the contributions will be clearly identified to allow for adequate tracing, verification, and auditing of the contributions toward the project. The auditors will ascertain completion of the contributions and inform the readers of the audited financial statements annually regarding the respective contributions.

16. **Reporting.** Quarterly reports will be prepared and submitted to the World Bank within 45 days of the end of each reporting quarter. The reports will use a format that will include

- Sources and uses of funds;
- Detailed use of funds schedule by project component/disbursement categories, comparison with budgets, and short-term forecasts of expenditure;
- Summary statements of Designated Account expenditures subject to prior review;
- Summary statements of Designated Account expenditures not subject to prior review; and
- A narrative description of implementation highlights and challenges for the quarter which will help the readers understand the financial statements with more clarity.

17. **The RF will submit the audited annual financial statements together with the Management Letter to the World Bank within six months of the end of the fiscal year.** As per current practice, these audits will be conducted by a private sector audit firm in accordance with International Standards on Auditing. The respective terms of reference would need to be cleared by IDA. The complete RF financial statements would be submitted for audit, and the notes to the financial statements will reflect the amounts of funds received and spent by separate sources of financing. The financial statements will also incorporate all activities and will be prepared in accordance with International Public Sector Accounting Standards for cash basis.

18. **In addition to the above arrangements, the RF will ensure that the Project Operations Manual will include the financial management procedures.** The financial management procedures of the Project Operations Manual will be the guiding tool documenting all project financial management procedures and will ensure consistency of procedures. The Finance Manager will be responsible for ensuring that the project's financial management arrangements are adequate and satisfactory throughout the life of the project.

Table 2.2. Table of Audit Compliance Requirements

Action	Submission Date	By Whom
Submit annual audited financial statements together with the Management Letter	Annually by June 30	RF

Disbursements

19. **The project will use report-based disbursement procedures through the Advance Disbursement Method.** The project may also make use of other disbursement methods such as (a) the Reimbursement Disbursement Method, whereby the World Bank reimburses the Borrower for eligible expenditures that the Borrower has pre-financed from its own resources; (b) the Direct Payment Method, by which at the Borrower's request, the World Bank makes direct payments to suppliers and contractors from the credit account; and (c) the Special Commitment Method, whereby the World Bank will issue special commitment to commercial banks for payment of eligible expenditures. The Disbursement Letter will specify the additional instructions for withdrawal of the proceeds of the credit.

Procurement

20. **Applicable procedures.** Procurement for the proposed operation will be carried out in accordance with 'The World Bank Procurement Regulations for IPF Borrowers—Procurement in Investment Project Financing: Good, Works, Non-Consulting, and Consulting Services,' dated July 1, 2016 and the provisions stipulated in the Financing Agreement. The 'Guidelines on Preventing and Combating Fraud and Corruption in Projects Financed by IBRD Loans and IDA Credits and Grants,' dated October 15, 2006, and revised in January 2011, will apply.

21. **Procurement strategy.** A PPSD has been finalized to assess the market conditions, define the applicable procurement arrangements and procurement methods during implementation. The outcome of the PPSD is the Procurement Plan recorded by the Borrower in the World Bank's Systematic Tracking of Exchanges in Procurement (STEP) and cleared by the World Bank. A summary of the PPSD key issues is included in Annex 6.

22. **Procurement arrangements.** Considering that some of the activities will be implemented at the decentralized level, there may be challenges in procurement capacity on the client and supply sides. The PPSD has identified the appropriate procurement methods to ensure that the goods, works, and services for the project are procured in accordance with the core principles of the World Bank's procurement policy, considering the value for money and fit-for-purpose.

23. **Procurement capacity.** The operational structure of ANE at the central level was reorganized in late 2016. As part of this reorganization, a new head of UGEA was appointed. Nine staff, including the

head of UGEA, form the unit. The operational structure of ANE in UGEA at the provincial level consists of two technicians in Quelimane and one technician in Nampula. This arrangement, at the provincial delegations of ANE, will need to be strengthened through the project to carry out the provincial-level procurement activities. The staff of ANE at the national and provincial level have no experience in the New Procurement Framework.

- The current arrangement at the central level is adequate for managing the procurement activities of the actual projects, nevertheless, this capacity of ANE will need to be improved considering that the New Procurement Framework is triggering the new project, and continuously monitored during implementation to ensure adequate implementation of the project.

- The ANE staff involved in the implementation of the proposed integrated feeder road development project will need to immediately attend procurement courses related to the New Procurement Framework. Two procurement officers will need to be recruited, one per province, to enhance the capacities of UGEAs at the provincial level. The two technicians will be recruited and retained for the duration of the project under the terms and conditions of ANE and will be paid through the project.

- ANE, at all levels, has UGEAs physically housed and equipped with the basic means to provide enough assurance that procurement under this project will be executed with adequate levels of transparency, efficiency, and fairness, and considering all principles of value for money and fit for purpose.

- Record keeping at the ANE central level is an issue that needs to be resolved after the completion of the works of the new building. Office space will need to be allocated to UGEA to maintain the records properly and have the filing system, labeled and numbered in chronological order. An electronic filing system needs to be established. A consultant with extensive experience in hard and electronic filing systems will need to be recruited to organize all the procurement files. The overall project risk for procurement is Substantial.

24. **Procedures for selection of consultants**. Open competition will be the main approach. Other methods Quality Cost Based Selection and Consultant Qualification Based selection, are indicated in the PPSD and reflected in the procurement plan based on the market analysis conducted during the preparation of PPSD.

25. **Procedures for goods and works.** Open competition will be the main approach. Other methods including National and International Competitive Bidding, two stage bidding, are indicated in the PPSD and reflected in the procurement plan based on the market analysis conducted during the preparation of PPSD.

26. **The Procurement Plan** will be managed through the World Bank's tracking system, Systematic Tracking of Exchanges in Procurement.

27. **Review by the World Bank of procurement decisions.** Table 2.3 indicates the initial values for prior review by the World Bank. All activities estimated to cost below these amounts shall be treated as

post review and will be reviewed by the World Bank during the Implementation Support Missions under a Post Procurement Review exercise. Direct Contracting/Single Source will be subject to prior review only above the amounts given in Table 2.3. The World Bank may, from time to time, review the amounts based on the performance of the implementing agencies.

Table 2.3. Prior Review Thresholds

Procurement Type	Prior Review (US$)
Works	5,000,000
Goods and Non-Consulting Services	1,5000,000
Consultants (Firms)	500,000
Individual Consultants	200,000

Environmental and Social (including safeguards)

Environment

28. **Both the RF and the ANE have experience in successfully delivering similar IDA-financed projects through the implementation of ESMFs and RPFs.** The ANE Environment and Social Unit is well-versed in both national regulations and World Bank safeguards requirements and will be responsible for the overall safeguards implementation of the project. ANE will ensure that the site-specific ESMPs for individual roads being rehabilitated are incorporated into the works and supervisory contracts and that reporting on safeguards implementation is timely and detailed enough to be useful for project monitoring and supervision.

29. **Activities are expected to have a comparatively moderate impact on the biophysical environment.** The project's civil works focus on rehabilitating or upgrading the existing roads in Nampula and Zambezia Provinces, and activities are not expected to have long-term negative environmental or social impacts. Potentially adverse environmental and social impacts are expected to relate mainly to construction activities during project implementation and will occur contemporaneously. The expected positive project impacts can be attributed to the proposed operation's integrated approach tailored to achieve rural development impact by combining the promotion of economic activity through improved connectivity and access to markets for rural populations.

30. **The project's proposed environmental screening rating is Category B.** The expected environmental and social impacts will be localized and adequate mitigation measures will be in place. Among environmental safeguards, the project triggers OP/BP 4.01 - Environment Assessment, because the proposed road rehabilitation activities under Components 1 and 2 are likely to lead to some environmental and social impacts that will require management and mitigation. The potential adverse environmental impacts may include soil erosion and degradation, decreased water quality, loss of vegetation, fauna disturbance, deposition of solid waste, dust and noise emission, and health and safety of construction workers/artisans. ANE and the RF have acquired considerable experience implementing and addressing safeguard needs in projects, nonetheless both entities need training and improvements to strengthen their capacity to adequately supervise the safeguards for the project (included in Component 4). The Environmental and Social Unit at ANE has currently assigned four specialists to manage

and monitor safeguards for the project.

31. **OP/BP 4.04 – the Natural Habitats provision is triggered by the existence of protected areas in Nampula and Zambezia Provinces.** ANE will work with local administrations and communities to ensure that improved access does not increase degradation of critical habitats.

32. **OP/BP 4.11 - Physical and Cultural Resources is also triggered because of the potential for a chance finding of cultural or archeological significance during construction.**

33. **ANE prepared, consulted upon, and disclosed an ESMF in-country by ANE (www.ane.gov.mz) and through the World Bank's external website on October 2, 2017 (updated and redisclosed on February 27, 2018).** The ESMF provides expected safeguards mitigation, monitoring, and reporting measures to be followed by ANE, the RF, supervising engineers, and contractors during the identification, preparation, construction, and management phases of road rehabilitation under the project. The ESMF addresses the following issues:

- environment and social screening criteria for selection of eligible feeder roads;
- labor influx;
- SEA;
- occupational health and safety;
- provisions for community engagement for both grievance redress and the importance of protecting natural habitats and forests—the project will work closely with the Mozambique Agriculture and Natural Resources Landscape Management Project on the latter activities;
- chance find procedures to be followed in the event of any cultural or archeological artifacts being unearthed during construction; and
- environmental and social clauses to be included in the contract documents for both contractors and monitoring consultants.

34. **Under Component 2, ANE has prepared an ESIA and ESMPs for the rehabilitation of 70 km of the N1 and N10 highways from Quelimane to Namacurra.** The impact assessment and the management plans follow the Environment and Social Management Framework and will be applied to these works along with the framework. The ESMP was initially disclosed in-country by ANE and through the World Bank's website on October 3, 2017 and was subsequently updated to include SEA risk and mitigation and redisclosed on February 27, 2018. The ESIA was disclosed February 27, 2018.[38] Once selected, the contractor will be responsible to update the ESIA/ESMPs based on the final designs and the instruments will then be cleared by the World Bank and redisclosed prior to any mobilization on site and any construction.

35. **Based on the ESMF, site-specific ESMPs will be prepared for each road rehabilitated under the project.** Those ESMPs will be disclosed in-country by ANE and through the World Bank's website as they are prepared and approved. The ESMPs will also be incorporated into the respective works and supervisory contracts to ensure full compliance with safeguards implementation by contractors and

[38] See the ANE website at *www.ane.gov.mz*.

monitoring consultants.

36. **The ABMS contracts and the OPRC will include performance standards (service levels) for compliance with certain key environmental and social indicators** for both construction and maintenance. In an innovative approach, the payments under Component 1 and 2 will be linked to service levels realized, for example, (a) preparation of environmental, social, health, and safety plan and establishing baseline indicators before start of construction; and (b) completion of periodical mandatory training of all workers on SEA issues. Under the contract, the contractor will also be responsible for continuous monitoring and control of road conditions and service levels for all roads or road sections included in the contract. This will not only be necessary to fulfill the contract requirements, but it will also provide the contractor with the information needed (a) to ascertain the degree of its own compliance with service level requirements; and (b) for timely defining and planning of all interventions required to ensure that service quality indicators never fall below the prescribed thresholds. The role of the ANE and the monitoring consultant will be responsible for verifying compliance with the agreed service levels.

Social

37. **The project's civil works focus on rehabilitating and upgrading existing roads in Nampula and Zambezia Provinces will have positive impacts enhancing connectivity to final markets and economic destinations.** Component 1 of the project will finance activities such as rehabilitation works on parts of secondary, tertiary, vicinal and (classified and unclassified) rural roads in targeted districts in Zambezia and Nampula Provinces and support the extension of the Zambezia ABMS (a simplified performance-based contracting approach) into Nampula Province.

38. **The Involuntary Resettlement Policy (OP/BP 4.12) is triggered due to foreseen civil works activities that may require temporary use or permanent acquisition of land and/or loss of access to natural resources and means of livelihood.** While the project activities under Components 1 and 2 do not involve construction of any new roads, a rapid assessment found those project activities may involve temporary displacement of people and/or involuntary restriction and/or loss of access to assets, means of livelihood, or natural resources, with adverse impacts on the livelihoods of the displaced persons. The Borrower has prepared a RPF to guide the preparation of site-specific RAPs acceptable to the World Bank once such details are known.

39. The Borrower has prepared a RAP (2014) for the rehabilitation of the 70-km primary road section between N1/N10 Quelimane-Nicoadala-Namacurra under Component 2, which identified 1,000 directly affected PAPs. Most impacts are on commercial activities and structures along the roadside, including in the right of way, and in some cases on structures that are part of residential parcels, but no physical relocation of households is currently included. Given that three years elapsed since the RAP census and the dynamics of the area, the RAP will be revised based on the results of an ongoing census, and will include contingency funding if an increase in the number of PAPs is found. The updated RAP will be redisclosed by May 14, 2018. Further adjustments may be needed if the footprint is changed once design is finalized and these updates and budget are also included in the RAP. The RAP will be fully implemented prior to the commencement of works.

40. The RPF also provides for temporary use of land by contractors (lay down areas, camps, etc.) While contractors are primarily responsible for identifying these areas and compensating PAPs for their use and any related impacts, ANE must verify that agreements to this effect are in accordance with requirements

established in the RPF.

41. The RPF and RAP for Component 2 were publicly disclosed both in-country and at the World Bank website on October 2, 2017 and redisclosed on February 23, 2018.

42. **The land acquired may lead to negative impacts such as loss of access to assets, sources of income, or means of livelihood for some households, especially in rural communities.** These negative impacts may occur whether project-affected people are physically relocated or not. An appropriate GRM procedure has been included in the RAP based on prior experiences with RAP implementation, along with appropriate arrangements for monitoring site-specific RAP implementation.

43. **The ANE GRM procedures will be consolidated with those of the OPRC contractor, and also be expanded and enhanced to cover all project related impacts, including SEA, and improve its accessibility and systematic monitoring prior to signature of the first road civil works contract.** The GRM procedure will be disseminated in affected communities to create awareness and enable project-affected people to file complaints. Additionally, the project has identified an NGO (JHPiego)[39] with demonstrated capacity addressing SEA and related challenges in the project areas – including work on HIV prevention dating to 2004 and subsequent work – to partner with the GRM. When the GRM receives a complaint on SEA, it will only record information on (i) the nature of complaint (what the complainant says in hers/his own words); and (ii) if, to the best of their knowledge, the survivor believes the perpetrator was associated with the project. The GRM will refer the survivor to the NGO to ensure the adequate provision of case management (while always maintaining the survivor's confidentiality). If the survivor needs to be referred to other services, the NGO will provide consistent case-level support and advocacy. The NGO will also sensitize the public on SEA, raise public awareness about the different entry points to place complaints with the GRM, train stakeholders (contractors, communities, Project Implementation Unit [PIU]), assist and refer survivors to appropriate service providers, and monitor implementation of the SEA mitigation and response measures (i.e. that Codes of Conduct for contractors and workers are in place and signed, and that the GRM and project liaison committees are maintaining case confidentiality and acting in conformance with the Response Protocol). The supervision engineer will monitor that the courses for contractors regarding the Code of Conduct obligations and awareness raising activities to the community are in place. The information so gathered will be monitored and reported to the World Bank and other stakeholders by the implementing agency.

Gender

44. **The project will contribute to closing the gender gaps regarding access to formal economic opportunities as in the construction sector, access to health facilities, and GBV through the following activities:** (a) promoting women's participation in road rehabilitation and maintenance through gender sensitization of the contractor and ANE, under Component 4, and by developing guidelines for gender-sensitive recruitment strategies in roadworks and conducting gender sensitive communication strategies for the recruitment of women; and (b) increasing women's accessibility to health facilities through the rehabilitation and maintenance of selected roads during all seasons, complemented by an analysis on women's mobility barriers to access better economic opportunities and social services, to inform the pilot on rural transport services under Component 3. The project will ensure that the design of the transport

[39] See *https://www.jhpiego.org/wp-content/uploads/2015/08/Jhpiego-Mozambique.pdf*.

services pilot incorporates the needs of both women and men, and monitor that these considerations will be reflected in the pilot during implementation.

45. **The project will mitigate the risk of SEA by minimizing labor influx through the inclusion of specific requirements in the bid documents that encourage hiring of Mozambican workers from the vicinity of the project area**. The ESIA identifies that the influx of workers may lead to increased risk of crimes and violence such as robberies, GBV, SEA, and violence against children. This approach was adopted successfully in the ongoing World Bank project (RBMMPII), where project labor is estimated to be about 90 percent local, on average.

46. **As noted elsewhere, the project will engage an NGO to enhance the GRM to adequately and promptly address any potential project related grievance related to SEA.** If the GRM directly receives a complaint of SEA, it will be recorded, and the survivor will be referred to the NGO for assistance and, if needed, for referral to other service providers by the NGO. Service providers will also be trained about the availability of the GRM so that they can support the survivors who wish to file a complaint of SEA perpetrated by the project contractors or consultants. The contracted NGO will keep pertinent information confidential to protect the privacy of survivor(s). The project will strengthen the GRM to receive project-related complaints, including SEA. If the survivor agrees, the GRM will immediately report the case to the Government and to the World Bank in a confidential manner.

47. **In addition, the project is adopting a series of measures to mitigate the SEA risk and respond promptly and adequately to any case that may arise.** The measures are related to risk assessment, labor influx, strengthening of the GRM, and multi-sectoral coordination and monitoring, and capacity building and awareness, as outlined in Table 2 in the main text and Annex 3.

Monitoring and Evaluation

48. The RF will be responsible for project monitoring and evaluation based on the results indicators established in Section VII, Results Framework and Monitoring. The data for indicators related to roadworks will be collected by ANE and reported to the RF. Other beneficiaries will be responsible for data collection in their areas. The RF will report the intermediate results of the indicators to the World Bank in the semiannual progress reports.

Citizen Engagement

49. The project will make use of, and further deepen, earlier initiatives undertaken under IDA-funded projects for enhancing project monitoring, transparency, and social accountability. Already, smartphone-based geospatial applications are being used by agencies in low-capacity regions for monitoring of work sites and receiving citizens' feedback and grievances. The project shall incorporate these mechanisms including their integration with the project GRM and also provide the necessary training on different aspects of filing, receiving, and responding effectively to stakeholders' grievances.

50. The project will support the following citizen engagement activities: (a) developing a grievance redress policy for the road sector; (b) developing detailed procedures for redress of grievances, including pinpointing grievance redress roles and responsibilities among government officials; (c) designing a web-based grievance registration system; (d) creating a mechanism for providing feedback to complainants

and monitoring the status of resolution of grievances; (e) undertaking campaigns for sensitizing the general public on the opportunity of registering grievances, including the use of billboards and radio broadcasting; and (f) providing support to the road sector for establishment of an institutional mechanism for the registration, processing, management, and resolution of grievances. The project has earmarked US$350,000 for citizen engagement activities. The web based grievance registration system is expected to be operationalized in the first year of project implementation.

51. The project-supported citizen engagement mechanisms will build upon and empower (through ICT) the existing structure of established 'liaison committees', which have been effective during the monitoring of the RBMMP II. The 'liaison committees' act as intermediaries between contractors and communities and include representatives of the client, the contractor and the community. These committees will monitor the follow up of cases reported to the GRM, Police, NGO, helping to make sure that the information on the number of cases derived from the project reaches the supervisor consultant and the World Bank.

52. The project will entail the use of a dedicated administrator, who will manage the web-based grievance registration system at the backend, undertake related coordination for driving data collection activities and addressing issues, and ensure that the citizen engagement indicators are met. Once the administrator receives a report from the citizen engagement system, he/she will liaise with the Project Coordinator on the same, who in turn will instruct which stakeholder to coordinate with and the best way forward for issue resolution. Once defined, the strategy and time frame to respond to citizen requests or complaints and resolve issues will be integrated in the Project Operations Manual.

53. **Collaboration with INCM.** The project will collaborate and liaise with INCM, which is the national telecom regulatory authority in Mozambique. INCM will support the project by regulating all mobile operators to apply the same short code for citizen engagement purposes. INCM can authorize mobile operators to share short code users' Global Positioning System coordinates through SMS itself, thus, enabling users' location to be easily depicted on a digital map.

54. **Public relations campaigns.** Installation of billboards on highways and use of radio communication will be strategies for sensitizing citizens on the availability of the web-based grievance registration system as a GRM.

55. **Completing the feedback loop.** To ensure that contractors apply the web-based grievance registration system to depict resolution of citizens' issues, this shall be specified upfront in the contracts with the construction companies.

56. **Monitoring parameters.** The following are the key parameters that need to be monitored through the ICT-enabled citizen engagement mechanism:

- Road quality (as a measurement of surface roughness);
- Conformity with road markings, signage, and signals;
- Road safety aspects: accidents;
- Vegetation quality; and

- Social issues: health and safety, HIV, contract verification (between contractors and workers), and disruption to local communities.

Role of Partners

57. The project will closely collaborate with other development partners in the road sector, in particular, EU, JICA, and the NDF. The EU is investing approximately US$200 million in rural road infrastructure in both Nampula and Zambezia Provinces. The World Bank and EU have coordinated the feeder roads program in Nampula and Zambezia Provinces to maximize the synergy of the two investments. JICA and the NDF are planning technical assistance on bridge asset management and climate resilience respectively and the World Bank will closely collaborate with them to avoid any overlap.

58. The project will coordinate with the Gender Coordination Group, which groups most of the multilateral and bilateral donors, and has expanded its membership to civil society. For the design and implementation of activities related to SEA, the project will learn and actively coordinate with development donors with ongoing experience on the matter in Mozambique, such as the USAID, and Sida. Specifically, the project will closely cooperate with the existing program, Rapariga Biz, that targets 1 million vulnerable adolescent girls on empowerment and sexual and reproductive health. This program is founded mainly by Sida and led by UNFPA and has been active since 2016 in several districts in both Nampula and Zambezia provinces. The project has learned from the GBV initiative (GBVI) regarding community strategies to raise awareness on GBV, including, SEA and which could also be used to inform on project reporting mechanisms. The GBVI, created in 2011 under the U.S. President's Emergency Plan for AIDS Relief (PEPFAR), is an interagency effort to integrate GBV activities under HIV ongoing efforts. Through the Ministry of Health and Ministry of Interior mass media campaigns and broader GBV and HIV awareness-raising activities at all levels have been implemented. GBV oriented awareness was inserted within HIV prevention initiatives through participatory processes involving the community.[40]

[40] Gennari, F., et.al. (2016). Lessons from the Gender-Based Violence Initiative in Mozambique. Arlington, VA: Strengthening High Impact Interventions for an AIDS-free Generation (AIDSFree) Project.

Annex 3: Mitigating and Responding to Sexual Exploitation and Abuse

COUNTRY: Mozambique
Integrated Feeder Road Development Project

1. **The project's approach to mitigate the risk of SEA and to respond promptly and adequately to SEA cases related to the project is based on current knowledge on this complex issue.** The project has assessed the risk of GBV, including SEA during project implementation and the proposed approach is based on the assessment as well as global experiences and lessons from past projects. The approach will continue to evolve as the team learns from experiences while implementing the project, as well as from emerging global best practices.

Risk assessment

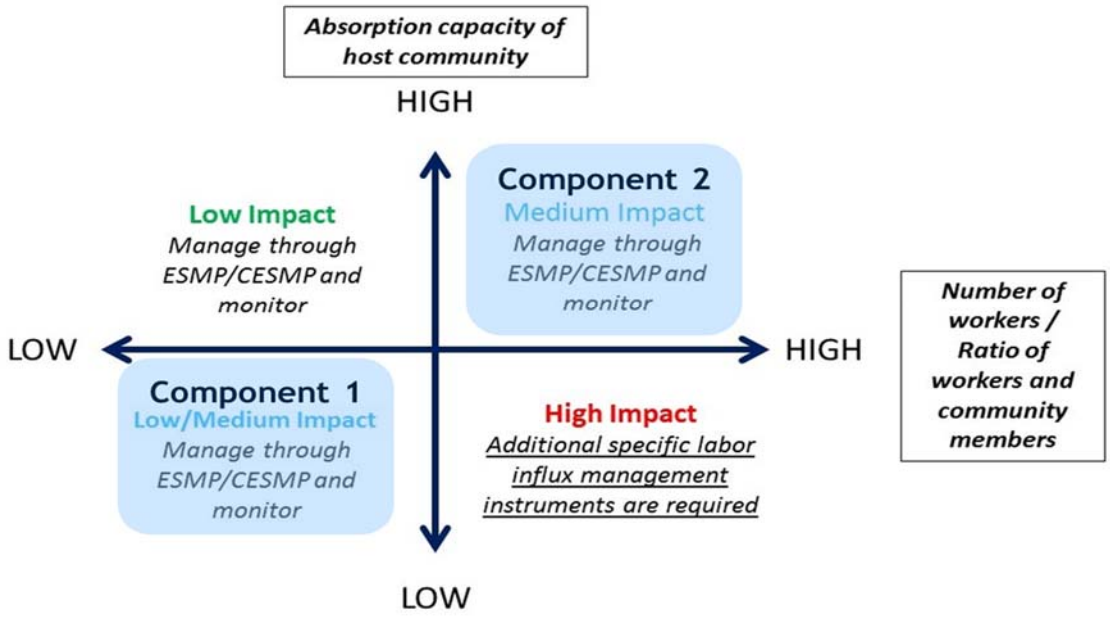
2. **GBV, including SEA, affects women and girls in Mozambique**. The Gender Profile 2016 from the Ministry of Gender, Children and Social Protection (with data from the Demographic and Health Survey (DHS, 2011) highlights the following data: one-third of 15-year-old adolescents surveyed said they were survivors of physical violence, 12 percent of women declared themselves survivors of sexual violence, and 46 percent said they were survivors of domestic, sexual, or emotional violence from their partners. Given the existence of stigma and underreporting, there is a likelihood that the actual incidence of these forms of abuse is higher than reported. Moreover, data shows the existence of gender social norms that condone GBV, with 23 percent of women surveyed in the DHS pointing to at least one reason that makes it acceptable for a husband to beat his wife. Moreover, Nampula and Zambezia are the two provinces with highest levels of poverty and child marriage in Mozambique which could be risk factors for SEA (economic stress).

3. **These gender norms and other contributing drivers increase women's and girls' vulnerability to the labor influx expected under the project**. As established by the International Finance Corporation's Handbook to Address Project-induced Migration, evidence shows that in-migration is associated with negative environmental, social, and economic impacts that often lead to deterioration in the social context in which the project's host communities reside and the project is operating. Because they are far from home and need to socialize, influx populations may hasten the introduction and/or increased expression of vices such as prostitution, gambling, alcoholism, and drug use, which can have significant negative social impacts and consequences. The handbook also identifies risks related to a rise in the "four Ms": men, money, movement (influx), and mixing (that is, the interaction between high and low disease prevalence groups).

4. **Impact of labor influx is assessed as low to medium based on the number of workers and absorption capacity.** Component 2 investments will result in labor influx of around 100–150 skilled and non-local/international workers, and the absorption capacity will be relatively high; communities in Nicoalada, and Quelimane where the labor camps will be established, are large and semi-urbanized, which reduces the marginal impact of each worker on the population. Accordingly, and based on the Labor Influx Guidance Note, for Component 2, risks are rated as "medium". Although Component 1 investments will be in remote and relatively sparsely populated areas with low absorptive capacity, the size of labor influx will be very low, namely around 50 skilled/non-local workers in total for the 10 districts in the two target

provinces. Based on the Labor Influx Guidance Note, for Component 1, risk is rated as "low/medium".

Figure 3.1. Project Risk Classification of Labor-Influx Impact



5. **Regardless of the low to medium impact of labor influx, the overall social risks are deemed high because several risk factors for SEA are present in the contexts in which the works will take place.** Certain aberrant behaviors such as alcoholism, drug abuse, and transactional sex can be aggravated or triggered by higher expendable incomes. Besides the abovementioned secondary sources that identify high rates of SEA/GBV, approval attitudes towards violence in the community, high rates of child marriage and increase of disposable income of workers vis-à-vis the communities living in high poverty situation, the ESIA mentions some risks as well. Among these risks are: (a) increased exposure to sexually transmitted infection and HIV/AIDS leading to opportunistic diseases; (b) community health and safety; (c) increased prostitution; (e) road-related accidents during construction; (f) negative quality of life impacts in communities; (g) conflict with communities; (h) high levels of poverty; and (i) crime.

Mitigation Measures

6. **Most of the laborers hired for roadworks are expected to be local, which might substantially reduce labor-influx related SEA risks**. The bidding documents will include specific requirements that minimize the use of expatriate workers and encourage local hiring of workers, minimizing labor influx. The ongoing project, RBMMP II, successfully used this approach, with local labor estimated to account for 90 percent of the workforce, and hiring of local workers facilitated through Ministry of Labor provincial delegations. Contractors will also be encouraged to reach to local leaders for the recruitment of workers.

7. **The project will undertake several activities to mitigate SEA risks emanating from project activities.** They include (a) contractual obligations to reduce the SEA risks due to labor influx; (b) strengthening the GRM to effectively handle SEA complaints, through collaboration with NGO with

expertise to address cases of SEA; (c) enhanced multi-sectoral coordination and monitoring mechanism; and (d) capacity building of the implementing agency and community awareness raising activities to implement these SEA mitigation measures effectively.

Defining Contractual obligations

8. **The project will introduce contractual obligations into the roadwork contracts to reduce the SEA risks.** Specific measures will include (i) briefing prospective contractors on the Environmental, Social, and Occupational Health and Safety Standards, and SEA-related requirements during pre-bid meetings; (ii) incorporating requirements to minimize use of expatriate workers into bid documents; (iii) requiring that contractors and consulting firms submit "Codes of Conduct" with their bids; (iv) requiring contractors to establish anti-sexual harassment policies, adopt Action Plans for implementing environmental, social, and occupational health and safety standards, and mitigation measure on SEA; and (v) requiring firms pay the NGO to provide worker training on SEA, HIV/AIDS mitigation, and Code of Conduct obligations. The ABMS contracts and the OPRC will directly link payment penalties in case of noncompliance with specified environmental and social performance indicators.

Strengthening the GRM

9. **The proposed project will enhance the existing GRM to gather and refer to SEA-related grievances.** Currently, the only entry point for complaints is by filling up forms that are available at administrative posts, with local community leaders, representative of implementing agency, contractor, supervisor, and the resettlement committee. Typically, local leaders attempt to resolve the complaints amicably at the local level through the informal village grievance resolution system within two weeks. In case the local leader is unable to resolve the issue, (s)he refers the complaint to the district resettlement committee. The existing GRM will be enhanced with inputs from the mapping exercise to identify partners for services for survivors of violence. The link between service providers and informal sources (community based organizations and the NGO) will be enhanced through the project liaison committees. The project approach is for survivors of SEA to have different entry points to the referral pathway besides the GRM, while maintaining close collaboration. To enhance the coordination between the different entry points and ensure confidentiality of the survivor, the project will adopt a Response Protocol (to be detailed in the Project Operations Manual). In this context, the project will support developing a sector wide grievance redress policy for the RF and ANE.

10. **The project has identified a local NGO to enhance the GRM to adequately and promptly address any potential grievance from survivors of SEA.** If the GRM receives a case on SEA related to the project, it will be recorded, and the survivor will be referred to the NGO for assistance and, if needed, for referral to other service providers. Service providers will also be trained about the availability of the GRM, so that they can refer survivors of SEA in the project area. The contracted NGO will keep the information confidential to protect privacy of survivors. The project shall strengthen the GRM as one of the entry points for complaints, including SEA, by adopting ICT that, with the consent of the survivor and while still protecting the complainant's confidentiality, immediately reports the existence of the complaint to the Government and to the World Bank. In cases, where the perpetrator(s) is linked to project activities then the contractor will take appropriate actions as per the Code of Conduct signed by the particular person. However, this will not preclude prosecuting the perpetrator(s) as per Mozambique's existing laws.

Capacity building, community dialogue and awareness raising

11. **Component 4 will provide support for improved management of project implementation and supervision, social and environmental safeguards, identification and mitigation of gender disparities, and citizen engagement.** The project, in partnership with the local NGO will launch activities and learning modules to enhance the PIU's ability to address SEA and properly design a project-level GRM with the capacity to design SEA sensitive protocols to guide the project to institute strong mechanisms for reporting, including a feedback system for timely response to complaints. The protocol should include provision to protect confidentiality. The project will also support the Government's efforts to enhance its response to SEA and GBV by mapping ongoing initiatives through multi-sectoral coordination.

12. Moreover, community dialogue and awareness raising will be carried out in the communities to make sure people potentially affected by the project identify the different entry points to the referral pathway if they are victims of SEA (including specifications about the role of the GRM). This community dialogue and awareness raising will be carried out by the partner NGO taking into account previous successful experiences to outreach communities and introduce SEA topics in closed environments, such as the GBV initiative where the topic has been introduced within past ongoing initiatives on HIV and where the communities are already involved. Activities were designed to build capacity of nongovernmental and civil society organizations to include GBV in HIV prevention. This initiative has already identified clinical and community partners.

Monitoring and Multi-sectoral Coordination

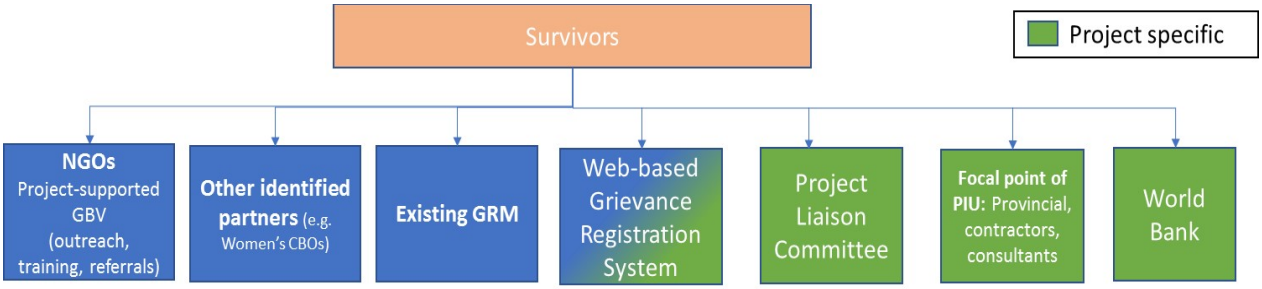
13. **The monitoring consultants will monitor the fulfilment of SEA related obligations by the contractors throughout the contract term.** The consultants will be hired before the start of construction contracts. The consultants will monitor the SEA related compliance. The monitoring consultant will also have a relevant role monitoring the provisions to mitigate and respond to SEA by reporting compliance with the Codes of Conduct, trainings to contractors, and awareness raising to the community carried out by the NGO. Both the monitoring consultants and the contractors will be required to have environmental and social safeguards expertise as per terms of bidding documents.

14. **With the survivor's agreement, the partner NGO will support reporting to the GRM, implementing and executing agencies any SEA case that is identified as coming from the project (e.g. contractors, workers, and consultants).** The NGO will also monitor that provisions to mitigate and respond to SEA are in place and functioning. This includes monitoring that a Response Protocol is in place and properly applied for registering complaints, survivor referrals, and resolution of complaints; that the different entry points for survivors of SEA are coordinated; and that survivors' confidentiality is maintained at every stage. It will also monitor development of the Codes of Conduct and their signing by the contractors, workers, and consultants. In case the survivor informs or chooses to have the NGO informed that the perpetrator is project-related, upon her request, the NGO will support the survivor to place the report to the GRM, which will inform the PIU and the World Bank.

15. **The project will develop a web-based grievance registration system as one of the entry points for SEA complaints.** The complaints registered in this system will be managed by a dedicated trained administrator to receive reports on SEA with strict confidentiality and, if the survivor approves, liaise with the NGO to receive proper care.

16. **The project will learn from the experience of the Gender Coordination Group, which connects most of the multilateral and development partners, and has expanded its membership to civil society**. For the design and implementation of activities related to SEA, the project will learn and actively coordinate with development partners with ongoing experience on the matter in Mozambique, such as the USAID, and Sida. Specifically, the project will closely cooperate with the existing program, Rapariga Biz, that targets 1 million vulnerable adolescent girls on empowerment and sexual and reproductive health. This program is founded mainly by Sida and lead by UNFPA and has been active since 2016 in several districts in both Nampula and Zambezia provinces. The project has also learned from the experience of the GBVI on community strategies to raise awareness on GBV, including SEA, and which could also be used to inform about the project reporting mechanisms. Under this Initiative, an interagency effort was put into place where, for instance, the Ministry of Health and Ministry of Interior have used mass media campaigns and broader GBV and HIV awareness-raising activities. GBV oriented awareness was inserted within HIV prevention initiatives through participatory processes involving the community.[41]

Figure 3.2. Entry Points for SEA Survivors to Access Project



17. **The implementing agency has appointed a gender focal point for coordinating activities linked to SEA mitigation.** This person will lead mitigation of SEA risks from the implementation agency side. The focal point will also be in constant communication with the project liaison committees.

18. **The environmental and social risk is rated "high".** The project plans to implement actions at different levels, and these actions will be further detailed in the Project Operations Manual. The satisfactory preparation of the manual is a condition of project effectiveness.

[41] Gennari, F., et.al. (2016). Lessons from the Gender-Based Violence Initiative in Mozambique. Arlington, VA: Strengthening High Impact Interventions for an AIDS-free Generation (AIDSFree) Project.

Annex 4: Implementation Support Plan

COUNTRY: Mozambique
Integrated Feeder Road Development Project

Strategy and Approach for Implementation Support

1. The implementation support strategy is informed by lessons learned from the implementation of the ongoing RBMMP II, the risks defined in the Systematic Operations Risk-Rating Tool, and pre-identified mitigation measures, and is tailored to the specific needs of the project. The main objective of the implementation support strategy is to ensure the quality of works, timely award of contracts, timely review and decision making on consultants' reports by the RF, adherence to the implementation schedule, and compliance of environmental and social requirements. The strategy remains a flexible tool that may be amended during project supervision in response to the client's changing needs.

2. World Bank supervision will focus on compliance with fiduciary and environmental and social safeguards requirements. The RF will submit a semiannual implementation progress report, which will describe the status of project activities and identify all implementation issues. The reports, combined with site visits, will be used as the basis for undertaking substantive reviews of implementation progress and reaching agreement with the client.

3. Although the objective and scope of the new operation are clearly defined, flexibility in project implementation will be sought to adapt to changing needs during implementation, including redistribution of allocations to cover contingencies, as needed.

Implementation Support Plan and Resource Requirements

4. The World Bank task team will provide timely and effective implementation support through a combination of daily supervision (desk review) and semiannual implementation support missions. The World Bank task team will include financial management, procurement, gender, and social and environmental specialists. As needed for implementation, experts in OPRC, disaster risk management, PPP, ICT, and road safety will support supervision. Furthermore, the task team will closely collaborate with staff in relevant units, including social, environment, and procurement.

5. The specific approaches to various project activities will include the following:

(a) **Technical.** The core task team assembles the appropriate technical skills mix and experience in transport, OPRC, road sector policy, ICT, social, environment, and gender to support the implementation. The World Bank team will guide technical and institutional dialogue based on national and international best practices, participate in semiannual supervision and field visits, and advise on the design of activities envisaged in the project. Additional field-based supervision will be conducted during the implementation of the roadworks if necessary. The World Bank missions will report on progress—or lack thereof—toward achieving the PDO and component targets based on the Results Framework and other evidence and agreeing with the client's actions to ensure the project is on track to achieve its outcomes and objectives.

(b) **Financial management.** The financial management implementation support plan will be risk-based. The financial management specialist will conduct annual reviews of the project's financial management system, including but not limited to, accounting, reporting, and internal controls during the project implementation in accordance with the World Bank's financial management requirements. The specialist will also (a) review quarterly reports; (b) review annual audited financial statements and prepare draft management letters; (c) follow up on issues as they arise; and (d) participate in project supervision missions as appropriate. In addition, the financial management specialist will conduct capacity-building activities tailored to the client's skills gap and needs.

(c) **Procurement.** The procurement specialist will participate in project supervision missions, as appropriate, and in at least one annual post-procurement review. Missions in the first 18 months shall be accompanied by a World Bank procurement specialist or consultant. Procurement-related implementation support will include (a) timely advice on various procurement and contract management issues; (b) guidance on the World Bank's Procurement Rules and Framework; (c) review of procurement documents subject to prior and post review; and (d) monitoring of procurement progress against the Procurement Plan. The World Bank team will also organize capacity-building activities tailored to the skills gap, as needed.

(d) **Environmental and social safeguards.** The environmental and social specialists on the task team will monitor and evaluate the implementation effectiveness of the agreed Environmental and Social Frameworks (and other documents as needed). They will conduct site field visits on a semiannual basis to monitor the implementation of safeguard policies and provide guidance to the ANE's and RF's environment safeguards teams to address the issues that may arise. The social specialist will be engaged on an as-needed basis if involuntary resettlement, land acquisition, SEA, or other social issues arise. Field-based supervision, including site visits to the works will be conducted at least twice a year by both environmental and social specialists. The specialists will visit the sites more frequently in particular during the implementation of the roadwork.

(e) **Gender.** In collaboration with the social specialist and procurement specialist mentioned above, the gender specialist will monitor and supervise the implementation of the risk mitigation measures on SEA (see Annex 3). The specialists will periodically be in touch with the NGO selected as a third-party monitor and the supervision engineer to monitor the SEA risks and mitigation efforts. The NGO will be able to directly contact the team whenever any urgent issue occurs. The team will also work closely together with World Bank's Gender Cross-cutting Solution Area, and other relevant units (social, procurement and OPCS) to make sure that the SEA risk mitigation measures are aligned with the World Bank's policy on gender, and advise the task team of any necessary actions that may arise. The gender specialist, in collaboration with the social specialist, will conduct semiannual field-based supervision including site visits and additional supervision during the implementation of the roadworks.

6. Tables 4.1 and 4.2 describe the focus of implementation support.

Table 4.1. Implementation Support Plan

Time	Focus	Skills Needed	Resource Estimate (staff weeks)
First 12 months	Project management	Task team leader	8
	Disaster risk management, road safety, sector dialogue, project implementation	Transport specialist	4
	Support with preparation and implementation of Output- and Performance-based Road Contracts	Transport specialist (specializing in OPRCs)	8
	Gender	Gender specialist	6
	Procurement review of the bidding documents	Procurement specialist	4
	Financial management and disbursements	Financial management specialist	2
	Environmental supervision	Environmental specialist	2
	Support with social safeguard compliance	Social specialist	2
12–60 months	Project management	Task team leader	32
	Disaster risk management, road safety, sector dialogue, project implementation	Transport specialist	15
	Support with preparation and implementation of OPRCs and area-based maintenance contracts	Transport specialist (specializing in OPRCs)	15
	Gender	Gender specialist	8
	Procurement review of the bidding documents	Procurement specialist	12
	Financial management and disbursements	Financial management specialist	8
	Environmental supervision	Environmental specialist	8
	Support with social safeguard compliance	Social specialist	8

Table 4.2. Skills Mix Required (12-60 months)

Skills Needed	Number of Staff Weeks	Number of Trips	Comments
Task team leader	32	Quarterly mission, field visit as required	Headquarters based
Transport specialist (Disaster risk management, road safety, sector dialogue, project implementation)	16	Semiannual mission, field visit as required	Headquarters/Country office based
Transport specialist (OPRC)	8	Semiannual mission	Headquarter based
Gender specialist	8	Semiannual mission, field visit as required	Headquarters based
Environmental specialist	8	Semiannual mission field visit as required	Country office based
Social specialist	8	Semiannual mission field visit as required	Country office based
Procurement specialist	14	Semiannual mission	Country office based
Financial management specialist	8	Semiannual mission	Country office based

Annex 5: Economic Evaluation

COUNTRY: Mozambique
Integrated Feeder Road Development Project

Summary

1. **The project's economic evaluation focuses on Component 1 (rural roads) and Component 2 (primary roads), which account for 95 percent of the project costs.** While the rural roads are assessed and prioritized using the climate resilience analysis with the DMU methodology described in paragraphs 8 and 9 below, the economic analysis of Component 2 used HDM-4. Applying an appraisal period of 20 years and 12 percent discount rate, the estimated NPV and related IRR of the investments are US$136 million and 21 percent.

Component 1

2. **The economic analysis for Component 1 was carried out in the following two phases: (a) identify the priority districts and (b) complete a cost-benefit analysis of road interventions in the priority districts.** Road interventions are selected from a set of five alternatives in each selected district using the DMU methodology. The methodology presented here uses a transport network model to estimate network-level climate adaptation co-benefits. Additionally, the methodology is based on a robust decision-making framework[42] that properly deals with a large range of plausible future scenarios.

Prioritization of Districts based on Socioeconomics and Natural Disaster Risk Reduction

3. **The prioritization of district is based on two pillars: (a) socioeconomic criticality and (b) current and future flood risk to the roads.** District socioeconomic criticality values are composed of the following five attributes: (a) lack of network redundancies;[43] (b) proximity to high agriculture potential areas;[44] (c) proximity to high fishery potential areas;[45] (d) current agricultural production;[46] and (e) the district poverty rate.[47] The second pillar, flood risk, is calculated using flood maps[48] of current flood risk and future climate change scenarios combined with vulnerability functions for bridges, culverts, and road surfaces. The flood risk is calculated as expected annual damage to infrastructure using 10 different return periods and four climate scenarios (current, low, medium, and high climate change).

[42] Lempert, R. J., D. G. Groves, S.W. Popper, and S.C. Bankes. 2006. "A General, Analytic Method for Generating Robust Strategies and Narrative Scenarios." *Management Science* 52 (4): 514–528.
[43] The criticality of a link is defined as the degree to which network performance declines if the link is disrupted. The metric for evaluating the network performance is additional RUC, measured as U.S. dollars per vehicle. The performance of the network—defined as the total RUC between each origin-destination pair—is calculated in the baseline (no disruption). The performance is reevaluated when individual links are removed one by one.
[44] Based on the results from an agriculture production potential model, Spatial Production Allocation Model, developed by the International Food Policy Research Institute.
[45] From Halpern et al. 2015. Global Database on Artisanal Fishing. http://www.nature.com/articles/ncomms8615.pdf.
[46] Data from the Mozambique Ministry of Agriculture 2015/16 agriculture production.
[47] Poverty head count rate from the World Bank.
[48] Derived from the SSBN Global Flood Model for the project area.

4. **The socioeconomic criticality analysis suggests that the most critical districts are Namapa, Nampula, Memba, and Monapo in Nampula Province; and Maganja, Morrumbala, Mopeia, and Pebane in Zambezia Province.** The reasons for high criticality vary across districts; although Namapa and Memba are critical due to higher poverty rates and high fishery potential, Nampula and Monapo are critical due to high current agriculture production and low redundancy of the road network. In Zambezia, although Mopeia's criticality is driven by high poverty and low redundancy, the other three districts are critical due to high current agriculture and high potential in either fishery or agriculture.

5. **The flood risk assessment indicates that the vulnerable districts are Moma, Memba, and Namapa in Nampula and Lugela, Morrumbala, and Maganja in Zambezia.** Moma is located in the Molocue River delta. Namapa and Memba are located in the Lurio River Basin. In Zambezia, in addition to the districts adjacent to the Zambezi River (Chinde and Morrumbala) and Licungo River (Namarroi and Lugela), the districts of Ile, Maganja, and Pebane are identified as highly vulnerable with more than US$1 million of expected annual damage to road assets. Those three districts have many smaller tributary rivers which, combined with poor road condition, make them highly vulnerable to flood events.

6. **The top priority districts, identified by combining scores for socioeconomic criticality and flood risk, are Moma, Memba, Namapa, Monapo, and Mogincual in Nampula and Morrumbala, Maganja, Pebane, Lugela, and Chinde in Zambezia.** The results are driven by the individual road scores and are aggregated at the district level. These results exclude values from primary roads. Table 5.1 summarizes the scores for each criterion.

Table 5.1. Selection of Districts

Province	District:	*Assigned Weights*						Final Score	Rank
		0.125	*0.125*	*0.125(max of either)*		*0.125*	*0.5*		
		Network Criticality	**Current Agriculture Production**	**Agriculture Potential**	**Fishery Potential**	**Poverty Headcount**	**Flood Risk**		
Nampula	Memba	4	2	1	5	4	5	4.375	1
	Moma	5	4	3	3	3	5	4.375	1
	Namapa	3	4	1	4	5	5	4.375	1
	Monapo	5	4	4	3	2	4	3.875	2
	Mongincual	3	4	5	4	2	4	3.750	3
	Ribaue	2	5	2	1	4	4	3.625	4
	Malema	1	3	2	3	3	4	3.250	5
Zambezia	Maganja da Costa	4	5	3	5	2	5	4.500	1
	Morrumbala	2	5	4	3	4	5	4.375	2
	Lugela	3	3	5	3	3	5	4.250	3
	Pebane	3	4	1	4	4	4	3.875	4
	Chinde	5	1	2	3	5	4	3.750	5

Prioritization of Road Investments based on Cost-benefit Analysis under Deep Uncertainties

7. **Five different investment options are identified in each of the selected districts based on structured interactions with stakeholders.** Two workshops were held in January 2017 with more than 70 participants from governmental agencies and local stakeholder organizations in Quelimane and Nampula.

Each investment option was constrained to a total of approximately US$15 million and consisted of a potential combination of the following five engineering solutions: (a) upgrade to surface treatment; (b) upgrade to gravel road; (c) rehabilitation of earth roads; (d) cleaning and repairing of bridges; and (e) replacement of culverts. Each of these solutions leads to four kinds of cost savings: (a) reduction of flood risk for users; (b) reduction of flood risk for road agency (lower repair and construction costs after flood events); (c) reduction of RUC due to improvement of road conditions; and (d) reduction of maintenance expenditure due to improvement of road conditions.

Table 5.2. Summary of Unit Cost for Economic Analysis

	Paved (US$/km)	Gravel (US$/km)	Rehabilitation (US$/km)	Repair Bridge (US$, millions)	Upgrade Culvert (US$/unit)	Baseline
Capital investment [a]	215,000	60,000	5,000	44,000	11,000	—
Routine maintenance	1,250	626	225	—	—	150
Periodic maintenance	8,571	2,143	571	—	—	286
Intervals (years)	8	1	4	—	—	8
RUC [b]	0.23	0.27	0.30	—	—	Depends on condition

Notes:
a. All capital costs, routine and periodic maintenance costs, and frequency were provided by local road authority - ANE.
b. RUC values are obtained with HDM-4 calibrated for Mozambique.

c. "—" implies null value.

8. **The NPV is calculated for each investment option using the unit cost values in Table 5.2.** The number of trips foregone to disruption is also calculated but it is not included in the NPV, as there is no accepted method to give a dollar value to foregone trips. The NPV for intervention *i* follows the equations below when compared to baseline *o*:

$$NPV^i = -\left(CI^i + \sum_{y=1}^{20} \frac{ME_y^i + EAD^i + RUC^i * Tr_y^i + EAUL^i * Tr_y^i}{(1+d)^{y-1}}\right) + \left(\sum_{y=1}^{20} \frac{ME_y^o + EAD^o + RUC^o * Tr_y^o + EAUL^o * Tr_y^o}{(1+d)^{y-1}}\right),$$

where *d* is the discount rate and *y* the years going from 1 to 20. *CI* is capital investment or initial cost, *ME* is maintenance expenditure, *EAD* is expected annual damage to the infrastructure (due to flood impacts), *RUC* is road user cost (daily cost of users in absence of disruption), Tr_y is traffic level in year *y,* and *EAUL* is expected annual user losses (due to disruption of optimal routes).

9. **The NPV, IRR, and greenhouse gas emissions are calculated in 2,000 scenarios, to capture the uncertainty that may affect the performance of each investment through eight different factors:**[49] (a) climate projections: current, low, medium, and high; (b) flood duration, −50 percent to 50 percent

[49] The Latin Hypercube Sampling method is used for generating the 2,000 scenarios.

increase compared to the results of the hydrological model; (c) traffic growth in the absence of interventions, 0 percent to 6 percent; (d) traffic growth with interventions due to agriculture development increase (elasticity), 0.5 to 1.5; (d) discount rate, ranging from 3 percent to 12 percent; (e) repair time, −50 percent to 50 percent of original; (f) construction cost, −50 percent to 50 percent of original; and (g) bridge repair cost, −50 percent to 50 percent of original.

10. **The results suggest that given the limited budget per district (approximately US$15 million), cleaning and repairing of the bridges together with upgrading the culverts is the most robust intervention in almost every district.** Cleaning and repairing bridges and upgrading culverts has a lower capital cost and returns a high benefit, mostly in avoided damage to the infrastructure due to flood events. The other investments—paving, gravelling, or rehabilitating—have a higher capital cost and very few kilometers of road can be upgraded with the budget constraint of US$15 million. Besides, the low traffic volumes in these provinces makes it harder to justify these last interventions. High robustness means that the selected intervention has the highest NPV in most of the scenarios and that the conditions for its failure (that is, negative NPV) are improbable. The analysis used a scenario discovery technique called Patient Rule Induction Method to identify the conditions for failure. Medium or low robustness means that the conditions for failure are likely to materialize, even if this intervention is the best of the five considered.

11. **The minimax regret is calculated for each investment option as a risk-averse approach to select the most appropriate investment.** The regret is defined, for each scenario (that is, future state of the world), as the difference in performance between one option and the best option for that scenario. If *i'* are all the options considered, and using NPV of the option as the performance criteria, the regret of an option *i* in the future state of the world is defined by: $\text{regret}(i,s) = \max_{i'}(NPV(i',s) - NPV(i,s))$. We can then identify the option that minimizes the maximum regret across a wide range of possible futures. The most robust option therefore is the one that solves: $\min_{i}(\max_{s}(regret(i,s)))$.

12. **When comparing all investment scenarios across each province, the top five most robust investments in Zambezia are in the same district, Morrumbala.** Morrumbala is a district with high agriculture potential, higher average daily traffic, and at the same time high exposure to floods due to its proximity to the Zambezi River. Most interventions in this district generate higher benefits than in other districts. On the other hand, interventions in Pebane never bring large benefits and lead to negative NPVs in most scenarios.

13. **In Nampula, each of the top three interventions are located in different districts.** The three top interventions are the same: cleaning and repairing bridges plus upgrading culverts. While the robustness does not seem to be as clearly correlated with the location as in Zambezia, the trend indicates that interventions in Monapo are more robust than the ones in Memba, while interventions in Namapa seem to be less robust. Monapo is located in the Nacala corridor, the busiest transport corridor in the province. It has large current and potential agriculture production. Therefore, interventions in this district bring larger benefits. Apart from the top three interventions in Nampula, all the other interventions have a significant risk of generating a negative NPV (the conditions for a negative NPV are likely to materialize). This is because in those districts, the traffic volumes are so small that reducing the RUC does not economically justify most of the investments. However, the non-monetized benefits have been calculated in terms of avoided disruption and reduction of isolated trips between communities.

14. **The median NPV over 20 years for the selected interventions is US$61.9 million (+36.5/−28.3)[50] for Nampula Province and US$8.1 million (+21.9/−18.4) for Zambezia.** The median value of saved trips annually is 172,000 (+77,000/−54,000) trips for Nampula and 59,000 (+22,000/−16,000) trips for Zambezia. The 75th and 25th percentiles are US$97.9 million and US$33.6 million for Nampula and US$29.9 million and −US$10.4 million for Zambezia. The median IRR is 20 percent (+6.3/–6.5) for Nampula and 8.3 percent (+3.7/–2.8) for Zambezia.

15. **The median greenhouse gas emission savings over 20 years for the selected interventions in Nampula province is 54,000 (+22,000/–16,000) tons and 88,000 (+29,000/–20,000) tons in Zambezia.** The median greenhouse gas emission gross estimate over 20 years for the selected interventions in Nampula province is 3.58 (+1.62/–1.15) million tons and 3.13 (+1.53/–0.83) million tons in Zambezia. The greenhouse gas emissions are calculated using the HDM-4 model. HDM model includes unit values of GHG that range from 380 grams to 479 grams per vehicle-km based on road surface type and its condition. The model estimates the total GHG by multiplying unit values with projected travel lengths and traffic volumes in each road segment. These calculations are done for the same 2,000 scenarios described in paragraph 9 of this section.

Component 2

16. **National Highway N1 is one of the top priorities in the Government's road strategy, Road Sector Strategy**. It carries an average annual daily traffic of more than 1,500 vehicles (weighted average over a total length of 2,400 km). In recent years, the Government has made significant efforts to rehabilitate and maintain this road. However, several segments remain to be improved, including the Nicoadala-Namacurra Section (34 km).

17. **The Quelimane-Namacurra Road (N1/N10) comprises two parts: Quelimane-Nicoadala and Nicoadala-Namacurra.** While the former is a 33-km connection from Quelimane, the capital of Zambezia Province, to the N1 junction at Nicoadala, the latter is a part of N1 extending 34.7 km up to a small village, Namacurra. The road is a critical route for the Quelimane region to connect the rest of the country and needs to be rehabilitated. A significant proportion of the road has been lost to edge breaks, which extend into the traffic lanes.

The Evaluation

18. **The conventional consumer surplus approach is used to evaluate the economic benefits of improvement of the two roads using HDM-4**. The underlying main parameters and assumptions as well as the evaluation results are presented in the following sections.

Quelimane-Nicoadala-Namacurra Road

19. **Current and future traffic.** The traffic counts were carried out in October 2013. While the average annual daily traffic on Quelimane-Nicoadala (N10) is estimated at 2,587, the Nicoadala-Namacurra section has an average annual daily traffic of 1,704 (Table 5.3). Future traffic is assumed to grow at 4.2 percent. This is consistent with the rapid growth of Quelimane Port traffic. The total port operations increased

[50] The bracketed values indicate the difference between the median and the 75th and 25th percentiles, respectively.

from about 65,000 tons in 2008 to 202,000 tons in 2012. About 10 percent are regional transit from and to Malawi. Forestry and agricultural products account for the majority of cargo handled at Quelimane Port. While the traffic growth can be 3 percent to 5 percent under the high growth scenario, the growth rate may be 3 percent under the low growth scenario (Table 5.4).

Table 5.3. Current Traffic on Quelimane-Namacurra

	Autos	Pickups	Minibuses	Buses	Trucks 2x	Trucks 3-4x	Trucks 5x	AADT
Quelimane-Nicoadala	749	277	628	59	722	78	74	2,587
Nicoadala-Namacurra	462	191	248	82	366	127	230	1,704

Table 5.4. Assumed Traffic Growth Rates: High and Low Cases

	Autos	Pickups	Minibuses	Buses	Trucks 2x	Trucks 3–4x	Trucks 5x
High scenario							
Quelimane-Nicoadala (%)	5.2	4.2	4.2	3.0	3.0	4.2	Varies
Nicoadala-Namacurra (%)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Low scenario							
Quelimane-Nicoadala (%)	3.0	3.0	3.0	3.0	3.0	4.2	Varies
Nicoadala-Namacurra (%)	3.0	3.0	3.0	3.0	3.0	3.0	3.0

20. **Vehicle operating costs.** The project is expected to reduce vehicle operating costs. This is generally one of the major benefits of road investment. The costs are determined by vehicle characteristic, vehicle/trip purpose, and underlying economic costs of various vehicle inputs (Table 5.5).

21. **Project interventions and investment costs.** Two intervention options are examined. Option 1 proposes in situ stabilization of the subbase to depths of 200 millimeter (mm) (Quelimane-Nicoadala) and 250 mm (Nicoadala-Namacurra) with cement and add a 150 mm thick crushed stone base with a 45 mm asphalt concrete wearing course. Maintenance for this option would be routine, only consisting of grass cutting and drainage cleaning, with patching when needed. The width of the new construction would be 12.0 m comprising 2 x 3.5 m traffic lanes + 2 x 1.5 m surfaced shoulders + 2 x 1.0 m unsurfaced shoulders. The structural number of the finished pavement is predicted to be 3.3 and the modulus of soil cement 0.5 GPa. Improvement Option 2 assumes the same cement stabilized subbase and crushed stone base but with a double bituminous seal surface treatment. Maintenance would include routine actions and patching with a single surface reseal in year 11.

22. Each option comprises three road links: (a) km 0–4.0; (b) km 4.0–33.0 of N10 from Quelimane to Nicoadala; and (c) km 33.0–67.744 of N1 from Nicoadala to Namacurra. Based on the current road conditions and future traffic forecasts, different works are required at different work costs (Table 5.5).

Table 5.5. Summary of Vehicle Operating Cost by Vehicle Type

Type of vehicle	Cars	Pickup	Small Trucks and Vans	Minibuses	Buses >20 Passengers	2-Axle Trucks (>5 ton)	3–4-Axle Trucks	5 and More Axles Trucks	Tractor	Motorcycles	Bicycles
Vehicle Category	**A-1**	**A-2**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**I**	**J**
Description of basic characteristics											
Gross vehicle weight - ton	1.2	2.7	3.5	2.5	12	13	30	40	3.5	0.25	0.1
ESALF [a] per vehicle (exp 4.5)	0.0001	0.0001	0.6	0.01	3.5	2	5.5	6.5	3	0	0
Passenger car space	1	1	1.2	1.2	2	1.4	1.6	2.2	1.4	0.5	0.3
Number of axles	2	2	2	2	2	2	4	6	2	2	2
Number of tires	4	4	4	4	6	6	14	22	4	2	2
Number of passengers	4	3	1	20	40	1	1	1	0	1	1
Vehicle utilization data											
Service life - year	10	8	10	8	7	10	12	12	15	10	10
Hours driven per year	550	1,300	2,000	2,200	1,750	2,500	2,500	2,500	400	1,300	250
Km driven per year	23,000	30,000	44,000	90,000	70,000	80,000	80,000	80,000	3,500	16,000	2,500
Annual interest rate %	12	12	12	12	12	12	12	12	12	12	12
Economic cost											
New vehicle price (US$)	23,4	38,357	48,521	37,107	71,300	84,982	110,352	137,547	35,500	375	55
New tire price (US$)	40	75	95	75	185.6	185.6	264	264	350	16	9
Maintenance labor (US$/hr)	3	3	3	3	3	3	3	3	3	2	0.5
Crew cost (US$/crew-hour)	—	2.33	2.33	2.33	4.23	3.53	3.53	3.53	2.33	2.33	1.16
Passenger working time	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	—	0.45	0.45
Passenger non-working	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	—	0.13	0.13
Cargo time US$/vehicle-hr)	—	—	—	0.06	0.06	0.06	0.06	0.06	—	—	—

Type of vehicle	Cars	Pickup	Small Trucks and Vans	Minibuses	Buses >20 Passengers	2-Axle Trucks (>5 ton)	3–4-Axle Trucks	5 and More Axles Trucks	Tractor	Motorcycles	Bicycles
Gas/petrol price (US$/L)	—	0.65	—	—	—	—	—	—	—	—	—
Diesel price(US$/L)	—	0.63	—	—	—	—	—	—	—	—	—
Lubricants price (US$/L)	–	[1.8]	–	–	–	–	–	–	—	—	—

Note: [a] Equivalent standard axle load factor.

23. The same maintenance strategy is assumed for both reconstruction options: routine maintenance and patching, and a 10 mm responsive single surface treatment triggered by 20 percent surface damage and 10 percent area cracking. The routine maintenance and patching also served as the 'base case' maintenance, or common denominator against which the improvement alternatives with the interventions are compared. This option is applied to all links in both the 'without project' cases as follow-on maintenance, in addition to the single seal surface treatment after construction in the 'with project' options.

Table 5.6. Rehabilitation Cost Estimates (US$, millions per km)

	Financial Cost	Economic Cost
Option 1		
Quelimane-Nicoadala (4 km)	2.071	1.493
Quelimane-Nicoadala (29 km)	1.135	0.818
Nicoadala-Namacurra (34.7 km)	1.584	1.141
Option 2		
Quelimane-Nicoadala (4 km)	1.786	1.287
Quelimane-Nicoadala (29 km)	0.982	0.708
Nicoadala-Namacurra (34.7 km)	1.379	0.994

24. **The result.** The HDM-4 model is run under the following assumptions. The discount rate is assumed to be 12 percent and the project life is 15 years. Under the medium traffic growth scenario, the NPVs of options 1 and 2 are estimated to be approximately US$65.98 million and US$65.44 million, respectively. The economic rates of return are 22.4 percent and 24.2 percent, respectively (Table 5.7). Option 1 has slightly higher economic efficiency than Option 2, though the difference is not significant. Both options are economically viable. The result is robust against cost increases and traffic reduction.

25. The gross estimate of greenhouse gas emissions for Option 1 is 1,064,000 tons over the project life, assuming a traffic growth of 4.2 percent. This value ranges from 937,000 tons to 1,159,000 tons for the two traffic scenarios. Net Component 2 emissions over the project life is estimated to be 126,000 tons compared to the "without project" scenario for a traffic growth rate of 4.2 percent. These values include induced traffic arising from reduced VOC, additional to the future traffic growth rates, using an elasticity of 1.0.

Table 5.7. Summary of Evaluation Indicators: Baseline and Sensitivity Analysis

	Option 1		Option 2	
	NPV (US$, millions)	IRR (%)	NPV (US$, millions)	IRR (%)
Baseline	65.98	22.4	65.44	24.2
Sensitivity analysis				
Low traffic scenario	54.29	21.0	54.97	22.8
Cost increase by 30%	53.18	19.4	49.25	19.7
Both	41.49	18.1	38.78	18.3

Annex 6: Summary of Project Procurement Strategy for Development

COUNTRY: Mozambique
Integrated Feeder Road Development Project

1. **The PPSD and the Procurement Plan developed for Integrated Feeder Road Development Project reflects the current situation on ground.** The PPSD will be a living document that at any time and depending on the market conditions may change. The issues that require attention of the project are as follows:

- Training/competency development for the ANE and RF Procurement teams on the basic tools and techniques of the PPSD and the New Procurement Framework;
- Greater involvement of the ANE contract management staff to manage the performance and outputs of the contracts;
- Increased focus on monitoring of key performance indicators for the Project. The World Bank staff will provide the necessary 'hands-on' support to the ANE/RF staff unlike previous projects in Mozambique;
- There is a need to consider how World Bank Group-supported projects are marketed to the supply base to improve the attractiveness of this type of contract;
- A number of issues need to be addressed to hold private sector interest in road sector contracts; for example, delayed invoice payments, poor communication with the stakeholders, and slow change management processes (for contracts);
- A robust communication strategy needs to be developed to ensure that all stakeholders requirements and business needs are considered; and
- Training for contractors to ensure that they understand the concept of OPRC and comply with all requirements on social and environmental safeguard.

Annex 7: Map

COUNTRY: Mozambique
Integrated Feeder Road Development Project