THE WORLD BANK
IBRD • IDA | WORLD BANK GROUP

FOR OFFICIAL USE ONLY

Report No: PAD00239

INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT

PROJECT APPRAISAL DOCUMENT
ON A
PROPOSED LOAN

IN THE AMOUNT OF US$162.4 MILLION

TO THE

STATE OF ESPÍRITO SANTO

WITH A GUARANTEE FROM THE FEDERATIVE REPUBLIC OF BRAZIL

FOR THE

BRAZIL PROACTIVE, SAFE, AND RESILIENT ROAD ASSET MANAGEMENT PROGRAM – STATE OF ESPÍRITO SANTO PROJECT

AS PHASE (2) OF THE MULTI-PHASE PROGRAMMATIC APPROACH

WITH AN OVERALL FINANCING ENVELOPE OF US$1,662.4 MILLION

February 25, 2025

Transport Global Practice
Latin America and Caribbean Region

CURRENCY EQUIVALENTS

(Exchange Rate Effective {January 23, 2025})

Currency Unit =	BRAZILIAN REAIS (R$)
US$1 =	5.93 R$
MUS$0.17 =	1 R$

FISCAL YEAR
January 1 - December 31

Regional Vice President:	Carlos Felipe Jaramillo
Regional Director:	Maria Marcela Silva
Country Director:	Johannes C.M. Zutt
Practice Manager:	Bianca Bianchi Alves
Task Team Leader(s):	Carlos Bellas Lamas, Eric R. Lancelot

ABBREVIATIONS AND ACRONYMS

ASA	Advisory Services and Analytics
BIM	Building Information Modeling
BPA	Biodiversity Preliminary Assessment
CAF	Development Bank of Latin America and the Caribbean
CC	Concept Note for Brazilian Government *(Carta Consulta*)
CCDR	Country Climate and Development Report
CDD	Consecutive Dry Days
CEPDEC	Protection and Civil Defense Coordination Agency (*Coordenadoria Estadual de Proteção e Defesa Civil - CEPDEC/ES*)
CERC	Continent Emergency Response Component
CETRAN	State Traffic Council *(Conselho Estadual de Trânsito*)
CNT	Brazilian National Transport Confederation *(Confederação Nacional do Transporte)*
COFIEX	External Financing Commission *(Comissão de Financiamento Externo)*
CPF	Country Partnership Framework
CREMA	Performance-based Contracts for Rehabilitation and Road Maintenance *(Contratos de Reabilitação e Manutenção*)
DA	Designated Account
DBM	Design-Build-Maintain
DER-ER	Building and Roads Department of Espírito Santo *(Departamento de Edificações e de Rodovias do Espírito Santo)*
DETRAN	State Traffic Department *(Departamento Estadual de Trânsito)*
DFBOM	Design-Finance-Build-Operate-Maintain
DNIT	National Department of Transport Infrastructure (*Departamento Nacional de Infraestrutura Terrestre*)
DRM	Disaster Risk Management
DRR	Disaster Risk Reduction
EIB	European Investment Bank
EIRR	Economic Internal Rate of Return
ES	Espírito Santo
ESIA	Environmental and Social Impact Assessment Study
ESF	Environmental and Social Framework
ESMF	Environmental and Social Management Framework
ESMPs	Environmental and Social Management Plans
ESS6	Environmental and Social Standard 6
FM	Financial Management
FUNSES	ES Sovereign Fund (*Fundo Soberano do Estado do Espirito Santo*)
GBV	Gender-based Violence
GDP	Gross Domestic Product
GFDRR	Global Facility for Disaster Reduction and Recovery
GHG	Greenhouse Gases
GIIP	Good International Industry Practice
GRID	Green, Resilient and Inclusive Development
GRM	Grievance Redress Mechanism
GRS	Grievance Redress Service
GRSF	Global Road Safety Facility
HDI	Human Development Index
HDM-4	Highway Development and Management Model (Version 4)
IADB	Inter-American Development Bank
IBGE	Brazilian Institute of Geography and Statistics (*Instituto Brasileiro de Geografia e Estatística*)

IBRD	International Bank for Reconstruction and Development
ICR	Implementation Completion Report
IEG	Independent Evaluation Group
IEMA	State Institute of Environment and Water Resources *(Instituto Estadual de Meio Ambiente e Recursos Hídricos)*
INEMA	Institute of Environment and Water Resources *(Instituto do Meio Ambiente e Recursos Hídricos)*
IFC	International Finance Corporation
IFR	Interim Financial Report
IP	Indigenous People
IRR	Internal Rate of Return
ITS	Intelligent Transport Systems
IUCN	International Union for Conservation of Nature
MEL	Monitoring, Evaluation and Learning
MFD	Maximizing Finance for Development
MoT	Ministry of Transport
MPA	Multiphase Programmatic Approach
NDC	Nationally Determined Contribution
NMT	Non-motorized Transport
NPV	Net Present Value
PBC	Performance-based Contract / Performance-based Conditions
PCE	Private Capital Enabling
PCM	Private Capital Mobilization
PCU	Project Coordination Unit
PNATRANS	National Plan for Reducing Traffic Deaths and Injuries *(Plano Nacional para Redução de Mortes e Lesões no Trânsito)*
PPA	Multiannual Plan (*Plano Plurianual*)
PPP	Public Private Partnership
PPSD	Project Procurement Strategy for Development
PDO	Program Development Objective
PREMAR2	Bahia Road Rehabilitation and Maintenance Project—2nd phase
PSI	Project Safety Impact
RED	Road Economic Decision
ROW	Right of Way
RSSAT	Road Safety Screening and Appraisal Tool
SAFF	Structured Asset Financing Facility
SEA/SH	Sexual Exploitation and Abuse / Sexual Harassment
SEAMA	State Secretariat for the Environment and Water Resources *(Secretaria de Estado de Meio Ambiente e Recursos Hídricos)*
SECBO	World Bank Board Secretariat
SECONT	Secretariat of Control and Transparency (*Secretaria Estadual de Control e Transparência*)
SEDES	Secretary of Development (*Secretaria Estadual de Desenvolvimento*)
SEFAZ-ES	State Finance Secretariat (*Secretaria de Fazenda – Espirito Santo*)
SEMOBI	Secretary of Mobility and Infrastructure (*Secretaria de Mobilidade e Infraestrutura*)
SENATRAN	National Secretary of Traffic (*Secretaria Nacional de Trânsito*)
SEP	Secretary of Economy and Planning (*Secretaria de Economia e Planejamento*)
SEPPI	Special Secretariat for Investment Partnerships Program of the Presidency (*Secretaria Especial do Programa de Parcerias de Investimentos - Casa Civil*)
SES	State of Espirito Santo
SESP	Public Safety and Civic Defense Secretary *(Secretaria da Segurança Pública e Defesa Social)*
SIGA	Integrated System for Administrative Management *(Sistema Integrado de Gestão Administrativa do Governo do Estado do Espírito Santo)*

SNT	National Traffic System (*Sistema Nacional de Trânsito)*
SOE	Statement of Expenditures
STEM	Science, Technology, Engineering and Mathematics
STEP	Systematic Tracking of Exchanges in Procurement
TA	Technical Assistance
ToC	Theory of Change
TOR	Terms of Reference
UA	Universally Aligned
UNFCCC	United Nations Framework Convention on Climate Change

TABLE OF CONTENTS

DATASHEET

BASIC INFORMATION

Project Beneficiary(ies)	Operation Name		
Brazil	Brazil Proactive, Safe and Resilient Road Asset Management Program - State of Espirito Santo Project - Phase 2		
Operation ID	Financing Instrument	Environmental and Social Risk Classification	
P500469	Investment Project Financing (IPF)	Substantial	

Financing & Implementation Modalities

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

Expected Approval Date	Expected Closing Date	Expected Program Closing Date
18-Mar-2025	28-Feb-2034	31-Dec-2036
Bank/IFC Collaboration	Joint Level	
Yes	Complementary or Interdependent project requiring active coordination	

MPA Program Development Objective

The MPA Brazil Pro-Roads Program Development Objective is to improve access to sustainable, safe and resilient transport in selected states of Brazil

MPA FINANCING DATA (US$, Millions)

MPA Program Financing Envelope	2,545.00

Proposed Development Objective(s)

Improve access to sustainable, safe, and resilient transport in the State of Espírito Santo.

Components

Component Name	Cost (US$)
Proactive maintenance based on a long-term (8–25 years) CREMA model using PBCs	243,406,000.00
Institutional strengthening	6,000,000.00
Safe and resilient improvements of road infrastructure	66,000,000.00
Project management	4,594,000.00

Organizations

Borrower:	State of Espírito Santo
Implementing Agency:	Departamento Estradas de Rodagem - DER/ES

MPA FINANCING DETAILS (US$, Millions)

Board Approved MPA Financing Envelope	**2,545.00**
MPA Program Financing Envelope:	2,545.00
of which Bank Financing (IBRD):	1,662.40
of which Bank Financing (IDA):	0.00
of which Other Financing sources:	882.60

PROJECT FINANCING DATA (US$, Millions)

Maximizing Finance for Development

Is this an MFD-Enabling Project (MFD-EP)?	Yes
Is this project Private Capital Enabling (PCE)?	Yes

SUMMARY

Total Operation Cost	**320.40**

Total Financing	**320.40**
of which IBRD/IDA	**162.40**
Financing Gap	**0.00**

DETAILS

World Bank Group Financing

International Bank for Reconstruction and Development (IBRD)	162.40

Non-World Bank Group Financing

Counterpart Funding	41.00
Local Govts. (Prov., District, City) of Borrowing Country	41.00
Commercial Financing	117.00
Unguaranteed Commercial Financing	117.00

Expected Disbursements (US$, Millions)

WB Fiscal Year	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Annual	0.00	10.00	25.00	30.40	28.00	20.00	19.00	17.00	8.00	5.00
Cumulative	0.00	10.00	35.00	65.40	93.40	113.40	132.40	149.40	157.40	162.40

PRACTICE AREA(S)

Practice Area (Lead)

Transport

Contributing Practice Areas

Agriculture and Food; Digital Development; Gender

CLIMATE

Climate Change and Disaster Screening

Yes, it has been screened and the results are discussed in the Operation Document

SYSTEMATIC OPERATIONS RISK- RATING TOOL (SORT)

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

POLICY COMPLIANCE

Policy

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

[ ] Yes [✓] No

Does the project require any waivers of Bank policies?

[ ] Yes [✓] No

ENVIRONMENTAL AND SOCIAL

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

E & S Standards	Relevance
ESS 1: Assessment and Management of Environmental and Social Risks and Impacts	Relevant

ESS 10: Stakeholder Engagement and Information Disclosure	Relevant
ESS 2: Labor and Working Conditions	Relevant
ESS 3: Resource Efficiency and Pollution Prevention and Management	Relevant
ESS 4: Community Health and Safety	Relevant
ESS 5: Land Acquisition, Restrictions on Land Use and Involuntary Resettlement	Relevant
ESS 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources	Relevant
ESS 7: Indigenous Peoples/Sub-Saharan African Historically Underserved Traditional Local Communities	Not Currently Relevant
ESS 8: Cultural Heritage	Relevant
ESS 9: Financial Intermediaries	Not Currently Relevant

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

LEGAL

Legal Covenants

Sections and Description
Section I.A. of Schedule 2 Not later than ninety (90) days after the Effective Date, cause DER-ES to complete, in a manner acceptable to the Bank, the staffing of the PCU (including the hiring of consultants) as set out in the Project Operations Manual and the ESCP Not later than ninety (90) days after the Effective Date, complete, in a manner acceptable to the Bank, the staffing of Steering Committee, as set out in the Project Operations Manual. Not later than ninety (90) days after the Effective Date, the Borrower, through SEP, shall cause DER-ES to establish and thereafter operate and maintain, throughout Project implementation, a procurement commission (the "Special Bidding Commission"), responsible for effective and efficient bidding processes with the composition, functions and resources set forth in the Project Operations Manual.
Section I.C. To facilitate the implementation of Parts 1.2, 2.1.(a), 2.1.(b), and Part 3 of the Project, the Borrower, through SEP, shall cause DER-ES to not later than ninety (90) days after the Effective Date, enter into (a) a Cooperation Agreement with SEDES, for the implementation of Part 1.2 of the Project, (b) a Cooperation Agreement with each of the Municipalities involved in Part 2.1.(a) of the Project, addressing matters related to their technical capacity in the context of road safety, (c) a Cooperation Agreement with SEMOBI, for the implementation of Part 2.1.(b) of the Project, and (d) a Cooperation Agreement with each of the Municipalities involved in Part 3 of the Project, addressing the long-term maintenance of public works carried out in the context of said Part 3 of the Project, in each case under terms and conditions acceptable to the Bank, and thereafter maintain said Cooperation Agreements throughout Project implementation.
The Borrower shall carry out the Project in accordance with the Implementation Arrangements set out in Section I, Schedule 2 of the Loan Agreement.

Conditions

Type	Citation	Description	Financing Source
Effectiveness	PCU staffing	The PCU has been established, and its Key Staff hired or designated, all in a manner acceptable to the Bank as described in the Loan Agreement (Section 4.01(a))	IBRD/IDA
Effectiveness	Project Steering Committee	The Steering Committee has been established, and its Focal Point hired or designated, all in a manner acceptable to the Bank as described in the Loan Agreement (Section 4.01(b))	IBRD/IDA
Effectiveness	Subsidiary Agreement	The Subsidiary Agreement has been entered into in form and substance acceptable to the Bank, and all conditions precedent to its effectiveness (if any) have been fulfilled as described in the Loan Agreement (Section 4.01(c))	IBRD/IDA
Effectiveness	Project Operation Manual	The Project Operations Manual has been prepared, approved and adopted in form and substance acceptable to the Bank as described in the Loan Agreement (Section 4.01(d))	IBRD/IDA
Disbursement	Retroactive Finance	Notwithstanding the provisions of Part A above, no withdrawal shall be made for payments made prior to the Signature Date, except that withdrawals up to an aggregate amount	IBRD/IDA

		not to exceed thirty two million four hundred eighty Dollars (USD 32,480,000) may be made for payments made prior to this date but on or after the date falling twelve (12) months prior to the Signature Date, for Eligible Expenditures, following an Environmental and Social Report, satisfactory to the Bank, showing that the pertinent obligations set forth in this Agreement, as applicable to each Eligible Expenditure, have been complied with.	

I. STRATEGIC CONTEXT

1. **This Project Appraisal Document (PAD) covers Phase 2 of the Brazil Proactive, Safe and Resilient Road Asset Management Program – *Brazil Pro-Roads* –**a horizontal and simultaneous1 multi-phase programmatic approach, hereafter referred to as the MPA. The Board of Executive Directors of the International Bank for Reconstruction and Development (IBRD) approved the MPA's overall financing envelope on September 10, 2024. This envelope amounts to US$1,662.4 million across at least five phases. The Board approved Phase 1 of the MPA ({P180555, PAD0056}) on September 10, 2024, for US$150 million in IBRD financing to support the MPA in the state of Bahia. Phase 2 will finance the State of Espírito Santo (SES). The overall IBRD financing envelope for the MPA is expected to be US$1,662.4 million, including US$150 million in IBRD financing for Phase 1,[2] and US$162.4 million for Phase 2. Phase 2 is also submitted to the Board as its environmental risk rating is Substantial.

A. Project Strategic Context

2. **Brazil's real GDP grew by 3.2 percent in 2023 and is estimated to have maintained the same pace in 2024, driven by strong consumption, supported by a resilient labor market and fiscal transfers.** Growth in 2023 was fueled by private consumption, fiscal stimulus, and declining inflation, while exports benefited from a record grain harvest and favorable external conditions. From January to September 2024, GDP grew 3.3 percent compared to the same period a year prior, underpinned by solid consumption and recovering investment. Growth is expected to moderate to 2.2 percent in 2025 and stabilize at 2.3 percent in the medium term, reflecting gains of recent structural reforms. The government has made progress to improve the business environment, financial sector, and indirect taxation. However, faster, inclusive, long-term growth requires additional reforms to enhance competitiveness, reduce financial and market distortions, expand infrastructure investment, integrate into global value chains, and improve education quality.

3. **Poverty and inequality remain significant challenges.** Parallel to GDP growth patterns, the poverty rate has been decreasing since 2021 and is projected to reach 20.5 percent in 2026, supported by consistent GDP growth and improvement of the labor market (unemployment rate was 6.9 percent in June 2024) combined with consistent social protection policies. Still, as of 2023, 43 million people – 21.3 percent of the population – lived below the poverty line (US$6.85 per day).[3] Brazil ranks ninth globally in terms of inequality levels,[4] and access to services and opportunities varies sharply across subregions and population segments. On average, rural areas are twice as poor as urban areas.[5] Women and minorities, especially Afro-descendants and Indigenous Populations (IPs) [6], have lower wages, the lowest rates of access to job opportunities, and higher poverty rates in Brazil.[7]

[1] Horizontal means replicating a similar program among different borrowers, in this case States and the Federal Government, while simultaneously it means implementing several phases at the same time in the different territories.
[2] Link to the PAD from Program and Phase 1
[3] Poverty rates increased from 25.3 to 29.4 percent over 2019–21 and then dropped to 21.3.1 percent in 2023—lower than 2014 levels. Poverty levels have been driven down by the recent increase in job opportunities and the minimum wage, combined with a major overhaul of the *Bolsa Família* program and plans for additional benefits to families with children.
[4] The Gini index for Brazil is 0.518 in 2022. The wealthiest one percent own around 32.2 percent of Brazil's household wealth.
[5] Balbino, Tomás de Faria, Aline Cristina da Cruz, and Mariangela Furlan Antigo. 2021, "A Pobreza Rural e Urbana Brasileira sob a Ótica das Privações: Uma Análise Regional a partir de Dados Domiciliares de 2005 a 2019," in Revista Brasileira de Estudos Regionais e Urbanos [S. l.] Vol. 15, no. 1: 28–56, https://revistaaber.org.br/rberu/article/view/724.
[6] Men earn a per capita household income of R$994 a month, whereas women earn R$902.00, or 9.2 percent less than men. White men self-declaring their income earn an average per capita household income of R$1,437, whereas mixed-race and Afro-descendant men earn, respectively, R$857 and R$570. Data from the Brazilian Institute of Geography and Statistics (IBGE).
[7] More than 70 percent of the population in situations of poverty in Brazil are Afro-descendants or Indigenous Persons (IPs); 40.2 percent of Afro-descendant men and 43 percent of Afro-descendant women are in situations of poverty. (IBGE 2024).

4. **Brazil's competitiveness and inclusion agendas have been impaired by inconsistent public investment policies, especially on infrastructure, amid sporadic economic crisis over the past three decades – resulting in transport infrastructure lagging substantially behind both in quantity and quality.** Brazil ranks poorly on the quality of its infrastructure[8] that contribute to impair, rather than boost, its growth and inclusion agendas. Insufficient investment in infrastructure,[9] stemming in part from the surge in mandatory federal expenditures that has encroached on the fiscal space available for discretionary spending and has impacted the Government's capacity to finance investments, have led to a substantial infrastructure backlog. In transport, the poor quality of infrastructure has been negatively impacting people mobility and compounding the costs of doing business due to low accessibility and high costs (contributing to the well-known "*Custo Brasil*"[10] – the high cost of doing business in Brazil, which adversely affects the economy's competitiveness.[11] Sixty-eight percent of this *Custo Brasil* stems from logistics, the highest share in the region. As only 12.5 percent of Brazil's roads are paved and its main road transport corridors are incomplete, Brazil's transport emissions are the fastest growing among energy sectors. While Brazil's emissions per capita are lower than other countries in the region, Greenhouse Gases (GHG) emissions have grown during the past three decades.[12] In order to achieve the Sustainable Development Goals,[13] Brazil needs to invest an estimated US$412 billion (around 7.5 percent of Brazil's GDP) in infrastructure before 2030, 53 percent of it in transport.

5. **Brazil has the 27th highest climate risk index score among 182 countries, because of its vulnerability to natural disasters and extreme weather events, particularly affecting the population in situation of poverty.**[14] Climate change is expected to have increasingly adverse impacts, including loss of biodiversity (Brazil is home to 20 percent of global biodiversity), degradation of its many distinct ecosystems (including the Amazon rainforest, the *Mata Atlântica*[15] and the *Cerrado* tropical savannah), reduced agriculture production, and increasing risk of severe droughts, rainforest fires and millennial floods – severely impacting people's lives.[16] Brazil suffers from the effects of floods and droughts every year, at an average cost of more than R$13.33 billion, and those events are expected to become more severe.[17] By 2040, the average annual occurrence of intense precipitation events is projected to be at least 20 percent greater than what Brazil experienced in 1970–99.[18] In rural areas, climate change compounds the difficulty of accessing services, jobs, and markets during the rainy season, when roads can become impassable.

6. **The State of Espírito Santo (SES) outpaces Brazil's performance in most socio-economic indicators.** It is strategically located on the Atlantic coast in the Southeast of Brazil and comprises 0.5 percent of Brazil's territory and 2 percent of its population (3.8 million people in 2022, across 78 municipalities). Sixty-one percent of the population identifies as Afro descendants. Despite its small size (14th in the size of its economy and 15th in population among the Brazilian states), its GDP per capita (US$8,027) ranked 5th in 2021. With a GDP of R$230.2 billion in 2023, SES contributed 2.1 percent of national GDP and 3.5 percent of national exports in 2021. Most of its population is urban (83 percent) and

[8] Overall, Brazil ranks 74th on the Road Connectivity Index and 51st on the Logistics Performance Index, lagging peers in the quantity and quality of its infrastructure (by comparison, China is 19th and India is 38th on LPI).
[9] Total investments in infrastructure ranged between 0.9 percent of GDP in 2008 to 0.5 percent in 2022, and despite surging due to special budgetary provisions in 2023 and 2024, are still well below the ideal of 4 to 5 percent of GDP needed for Brazil match its main peers.
[10] More details on *Custo Brasil* in Project Files. Also, the Federal Strategy to reduce it in this link.
[11] Data from the National Logistics Plan 2035 and Brazil's Country Climate Development Report (CCDR).
[12] Karpavicius, Luiza Martins. 2020. 120.24% increase in greenhouse gas emission levels in Brazil since 1990. *Climate Scorecard* (December 17). https://www.climatescorecard.org/2020/12/120-24-increase-in-greenhouse-gas-emission-levels-in-brazil-since-1990/.
[13] World Bank, *Brazil Infrastructure Assessment 2022* (Washington, DC: World Bank, 2022).
[14] Global Climate Risk Index (CRI) measured by German Watch in 2021.
[15] The Atlantic Forest, *Mata Atlântica*, extends along the Atlantic coast of Brazil, including in Espírito Santo. It is characterized by a high biodiversity and endemism. More than 85 percent of the original area has been deforested, threatening many plant and animal species with extinction.
[16] In 2023 and 2024, two 10,000-year floods impacted *Rio das Antas* in Rio Grande do Sul.
[17] World Bank. 2016. *Relatório de danos materiais e prejuízos decorrentes de desastres naturais no Brasil 1995–2014.* The report provides data on material damages and losses due to natural disasters in Brazil during 1995–2014. Washington DC.
[18] The intense precipitation metric measures the maximum annual five-day sum of precipitation ("wettest five-day period"). The results show the increase in intense precipitation on an annual average basis for each decade (2030, 2040) relative to the annual average for 1970–99. *Brazil Country Climate and Development Report* (Washington, DC: World Bank, 2023), http://hdl.handle.net/10986/39782.

largely concentrated in the metropolitan area of the capital, Vitória (49 percent in 2021). The state has a developed and diverse economy, with contributions to GDP coming mainly from services (70 percent), followed by industry (26 percent, of which 45 percent comes from oil and gas, and to a lesser extent from the mining, steel, and cellulose industries). Agriculture accounts for only 4 percent of GDP. The oil and gas segment has grown more than 200 percent in real terms since 2002, generating a massive increase in state revenues and financing a sovereign wealth fund.[19]

7. **Nevertheless, SES's poverty and inequality levels are high, albeit lower than the national average.** According to 2023 figures, roughly 22.8 percent of SES' population is living in poverty (compared to 21.3 percent nationally), and 2.7 percent in extreme poverty (compared to 4.4 percent nationally). Poverty levels are higher in rural areas. The state's Human Development Index (HDI) is higher, and inequality slightly lower, than the national average.[20,21] At the end of 2022, more than 700,000 state residents (roughly 20 percent of the state's population) were registered in Brazil's *Cadastro Único* social registry,[22] rendering them eligible to receive government assistance.

8. **Raising and sustaining real GDP growth and reducing poverty and inequality levels are the state's overarching development goals.** Throughout most of the past decade, both Brazil and SES have posted sluggish economic growth as well as increases in poverty and income inequality rates. From 2012 to 2019, the state's average annual real GDP growth rate has been slightly negative.[23] Its economic growth in past years (2021 and 2022) also lagged Brazil's average growth. This is in sharp contrast to the 2000-2010 period, when SES's economic growth, poverty levels and income inequalities had improved considerably, outpacing gains made by Brazil as a whole. The State 2030 Strategic Development Plan[24] lays out a comprehensive agenda to boost economic growth and reduce poverty and inequality and sets ambitious governance and socioeconomic development targets. These targets would be achieved through a combination of public sector reforms, job creation programs, and increased investment, including in climate-resilient roads. Achieving these goals will require particular attention to gender disparities: even before the pandemic, women's participation in the labor market (57.3 percent) in SES was significantly lower than men's (77.1 percent).[25]

B. Sectoral and Institutional Context

9. **Poor road conditions in SES and the country as a whole[26] increase transport costs, GHG emissions and traffic crashes.** Despite the importance of roads for the country and the state's logistics network (two-thirds of inland freight depends on roads in Brazil), past road management policies have focused mostly on reactive reconstruction programs,[27] often triggered by public pressure, rather than on proactive maintenance. SES lags on road asset management, recently started using PBCs for routine maintenance. However, the contract duration is too short and not linked to the design and rehabilitation phases, which reduces the potential benefits of the PBC model. Costly rehabilitation works have been carried out cyclically over many years, with periods of good road conditions after rehabilitation, followed by degradation and long periods of poor conditions, during which vehicle operation costs, emissions and road crashes

[19] Data from Instituto Jones dos Santos Neves - https://ijsn.es.gov.br/publicacoes/cadernos/pib-estadual
[20] According to UNDP's Human Development Atlas of 2017: http://www.atlasbrasil.org.br/ranking.
[21] Human Development Index (HDI): Espírito Santo has an HDI of 0.771, which is significantly higher than the national average of 0.765, placing it fifth out of the 27 Brazilian states. GINI Coefficient: The GINI coefficient for Espírito Santo is 0.493, which is slightly lower than the national average of 0.518. This suggests that the state has somewhat lower inequality compared to the national level.
[22] The *Cadastro Único* (CadÚnico) is the country's social registry used to identify individuals and households that are eligible to receive government support. The half of minimum wage per capita income threshold (R$550 monthly) used by the CadÚnico has been found to be a close representation of the costs of basic needs in Brazil (Lara Ibarra et al. 2021).
[23] Data from Instituto Jones dos Santos Neves - https://ijsn.es.gov.br/publicacoes/cadernos/pib-estadual
[24] The document was published in 2013.https://planejamento.es.gov.br/Media/sep/Plano%20ES%202030/ES2030.pdf
[25] According to 2019 data from the Instituto Jones dos Santos Neves. Access: http://www.ijsn.es.gov.br/component/attachments/download/7507
[26] According to a 2022 study by the Brazilian National Transport Confederation (*Confederação Nacional do Transporte*, CNT), 40.7 percent of the road stretches are in average condition, 18.8 percent in poor condition and 6.5 percent in very poor condition; 34 percent are in good or excellent condition, but only 25 percent of publicly managed roads are in good condition.
[27] Currently, a reactive strategy is being implemented to rehabilitate damaged roads as part of the National Department of Transport Infrastructure (DNIT) program, with Ministry of Transport (MoT) and some of the states participating.

increase. Lack of regular maintenance has also increased the climate vulnerability of the roads and has led to a systematic over-dimensioning of technical solutions at all levels (norms, engineering design, contracts). Moreover, the state, despite its good fiscal condition and advanced institutions, has little experience implementing concession contracts in the road sector. As a result of those policies, the road network overall is inadequate, with only 33 percent in good condition, 32 percent in acceptable condition, and 35 percent in poor condition, according to 2024 data from the State Building and Roads Department (*Departamento de Edificações e Rodovias do Espírito Santo,* DER-ES).

10. **The poor condition of the road network also adds to traffic deaths and injuries, a significant issue in Brazil and a critical one in the SES.** According to Ministry of Health data, there were 34,881 traffic-related deaths in Brazil in 2023, a 9.2 percent increase from 2019 and 2.9 increase from 2022, while road accident costs account for 3.8 percent of the GDP.[28] In the case of Espírito Santo, the road safety challenge is more critical. Road safety in the SES has a fragmented governance system, wherein responsibility is scattered among a variety of actors and there are no integrated road sector governance or safety policies in the state. These conditions have resulted in the high death toll of 21.44 per 100,000 inhabitants, above the national average of 16.7 deaths per 100,000 inhabitants, and the highest in the Southeast region.[29] In 2022, SES had 822 traffic-related deaths. Additionally, management of the crash data system does not follow best practice, and the state police has little technical capacity to implement operational plans for road safety. However, in 2023, Brazil and Espírito Santo renewed their commitments to halve national traffic fatalities by 2030 as part of the National Plan for Reducing Traffic Fatalities and Injuries (PNATRANS).[30]

11. **While some Brazilian states have extensive experience involving the private sector in road management through concessions and performance-based contracts (PBCs), SES is lagging.** Over the past 25 years, Brazil has implemented one of the world's largest road concession programs,[31] with support from the World Bank and the International Finance Corporation (IFC). Under this model, road user tolls are supposed to cover the full cost of investment in and management of the infrastructure, which is proving increasingly unsustainable in roads with limited traffic[32] or high costs of the interventions.[33] Brazil has also implemented multiannual PBCs, known in the country as CREMA (*Contratos de Reabilitação e Manutenção*), with an overall high degree of success. PBCs have focused on road quality rather than the amount of works and services produced and have shown significant costs reductions – 20 percent lower than traditional rehabilitation and maintenance approaches – and have led to better road conditions.[34]

12. **In Espírito Santo, climate change is impacting the well-being of its population, economy, and environment, principally through the increased frequency and intensity of natural disasters.** From 2013 to 2022, natural disasters resulted in US$283 million in public losses and more than US$1.7 billion in total losses and claimed 535 lives.[35] The state's climate vulnerability risks relate to extreme events such as floods, droughts, and landslides. In March 2024, flash floods caused 20 deaths and damaged several roads and bridges throughout the state. Moreover, average temperatures will continue to rise, while average precipitation is expected to decline. In towns such as *Santa Leopoldina* and *Santa Teresa* and upstream areas, extreme flooding events put the towns underwater and block off

[28] The World Bank, with the support of Global Road Safety Facility (GRSF), carried out a study to assess the real costs of the road injuries, factoring in health, caretaker, and other costs. The document will be published as part of the Green Mobility and Logistics for Sustainability and Resilience (P179908) ASA.
[29] According to DATASUS - 2022.
[30] Brazil Ministry of Transport. 2023. *PNATRANS: Juntos Salvamos Vidas*. CONTRAN Resolution n. 1004/2023. https://www.gov.br/transportes/pt-br/assuntos/transito/pnatrans.
[31] One of the most advanced concession programs in the world, reaching a total of 11,500 km or close to 20 percent of the federal roads network.
[32] Even in the case of using free-flow tolling, a system that allows toll payment without stopping, reducing labor and equipment costs. The first has been implemented in Brazil with the Bank's and the IFC's support in the first steps: Fabiane Ziolla Menezes, "Tech Roundup: Free-Flow Tolling Test a Testament to Brazil's Preference for Digital Solutions," The Brazilian Report, September 18, 2023, https://brazilian.report/tech/2023/09/18/free-flow-tolling-bandwagon/.
[33] BR 381/262 concession bid was abandoned twice until main construction risks were reallocated to the public sector, showing the difficulties of using a pure user-pay model in rolling terrain.
[34] Eric Lancelot, "Performance Based Contracts in the Road Sector: Towards Improved Efficiency in the Management of Maintenance and Rehabilitation—Brazil's Experience," Transport paper series no. TP-31, World Bank, Washington, DC, 2010, http://hdl.handle.net/10986/17452.
[35] Data from *Sistema Integrado de Informações Sobre Desastres* (S2iD), *Ministério da Integração e do Desenvolvimento Regional.* 2024. http://S2iD.mi.gov.br/.

access to mountainous areas. Projections from the Climate Change Institute of the Federal University of Espírito Santo show that extreme water events are expected to increase further throughout SES. Considering the high dependency on roads for freight transport along river valleys,[36] and the fact that the state main roads intersect those towns situated along riverbeds, these climate risks pose important logistical challenges for several regions Further, the lower access and connectivity levels in rural areas increase poverty rates and reduce access to opportunities for women and minorities such as Afro-descendant communities such as the *Quilombolas*[37] or Indigenous Populations.[38] More information on SES climate vulnerability is available in the project files.

13. **While the gender and racial equality agendas have been recognized as critical in Brazil, there are still main gaps in the labor participation of women and traditional communities in transport and construction sectors.** Occupational segregation, with women concentrated in lower-wage sectors and occupations,[39] is still apparent – only 11 percent of workers in the transport and communications, and 5 percent in the construction sectors are women.[40] Restrictive social norms confine women to domestic work, healthcare, education, and clerical jobs, with no significant shift in this trend from 2011 to 2022. In Brazil's trucking industry, only 6.5 percent of the 4.5 million licensed truck drivers are women.[41] More specifically, in SES, 1 percent of the E type truck licenses and the 1.6 percent of the C type active licenses[42] are held by women. Female truckers face distinct challenges, including safety concerns and discrimination.[43]

14. **The proposed Brazil Pro-Roads MPA is expected to contribute to strengthen Brazil competitiveness and resilience, in line with the objectives of the Brazil FY24-FY28 Country-Partnership Framework (CPF) - Report # CPF0000013.**[44] With the country high reliance on the road network and high logistics costs associated to its poor condition, improving the management of the road sector is key for the nation's competitiveness agenda. Encouraged by the demonstrated success in the State of Bahia, Brazil's Federal Government, the SES, and other Brazilian states, have decided to embark on an ambitious PBC program to break the cycle of decay and reconstruction and to improve the management of roads by increasing private sector participation. The proposed MPA has at its core the involvement of the private sector. Its involvement will likely improve the efficiency of public expenditures and, at times, mobilize private finance. Recent experience worldwide and in Brazil confirms the potential of the approach to achieve higher efficiency in the use of public resources with the transfer of responsibility to the private sector, reducing costs and lowering pressure on the public budget, while proving long-term benefits to road users. In turn, both road safety will improve and logistics costs will be reduced, contributing to the nation's competitiveness agenda in line with High Level Objective (HLO) 1.4 of the FY24-FY28 CPF "expand and modernize infrastructure". Similarly, proactive management of the infrastructure stemming from long-term PBCs to the private sector combined with targeted reactive actions envisioned in those contracts and the ease to mobilize the contractors in case of climate related and/or disaster events, will improve both access to underserved areas and the resilience of the road transport systems, in line with

[36] For instance, Santa Maria de Jetibá is the second most important producer of eggs in Brazil and the *Três Santas* region is an important producer of horticulture (lettuce, tomato, and other food crops).
[37] *Quilombolas* are residents of Afro-Brazilian *quilombo* settlements, established by escaped slaves.
[38] Brazil still has 12 million people without access to all-season roads. This is about 40 percent of the country's 30 million rural inhabitants, according to the latest rural access estimate of 60 percent (World Bank).
[39] World Bank. (2021) Brazil Country Gender Scorecard: https://documents1.worldbank.org/curated/en/179551645767119421/pdf/Brazil-Country-Gender-Scorecard.pdf
[40] Furthermore, data from the Federal Council of Engineering reveals that out of the 1.1 million registered workers in the civil construction sector, approximately 208,000, or 19.5 percent, are women. These figures are corroborated by 2022 statistics from the Ministry of Labor. Additionally, the National Secretary of Traffic reports that of Brazil's 4.4 million holders of professional heavy vehicle licenses in 2022, 97.2 percent are men, with women representing just 2.8 percent.
[41] https://mobilidade.estadao.com.br/mobilidade-para-que/mulheres-na-boleia/
[42] A Category C license allows the operation of all types of vehicles in Category B, as well as non-articulated cargo vehicles that exceed a total gross weight of 3.5 tons. A Category E license allows the operation of all vehicles in categories B, C, D, and any coupled unit, trailer, semi-trailer, or articulated vehicle that has a total gross weight of 6,000 kg or more, or a capacity exceeding eight seats.
[44] Twenty-six percent of female drivers have reported feeling unsafe, and 36.3 percent have experienced sexual harassment (SH) in the workplace Data from Forum Hub. 2023. Survey conducted with 469 respondents between March and May 2023.
[44] World Bank. Brazil - Country Partnership Framework for the Period FY24-FY28 (English). Washington, D.C: World Bank Group. http://documents.worldbank.org/curated/en/099031824151014222/BOSIB1a9c64a780861b8d01b824b30cdb50

the CPF HLO 2.1 – improve access to essential services and products and CPF HLO 3.3 – promote green and resilient cities and communities.

15. **As a signatory to the Paris Agreement on Climate Change, Brazil has pledged to reduce greenhouse gas emissions as part of the global response to the threat of climate change. The MPA Program and Phase 2 are consistent with Brazil's Nationally Determined Contribution (NDC)and the SES's plans on decarbonization and climate adaptation.**[45] In its 2024 NDC submission,[46] Brazil is setting an economy-wide target of reducing its net greenhouse gas emissions by 59 to 67 percent below 2005 levels by 2035 while updated its National Adaptation Plan (NAP), including transport-related actions. Phase 2 aligns with the revised NDC by reducing the carbon footprint of road construction, improving road management (linked to GHG emissions), promoting non-motorized transport (NMT) in settlements and on rural roads, and supporting policies and initiatives for green logistics. Regarding adaptation, Phase 2 supports climate-resilient roads, including the design, construction, and maintenance of bypasses in areas of high climate vulnerability risk (see climate vulnerability appendix).[47] It will also require long-term contractors to develop management plans to respond to climate risk. Phase 2 is aligned with the recommendations of Brazil's Country Climate and Development Report (CCDR) for the decarbonization of logistics and proactive road maintenance, and with the National Logistics Plan 2035[48] and the current State Logistics and Transport Development Plan, which will be updated to incorporate transport decarbonization actions.[49]

16. **In Espírito Santo, the proposed Phase 2 of the MPA Program will support the DER-ES in improving the management of road assets through long-term PBCs for significant climate resilience and road safety improvements.** Phase 2 will implement two long-term modalities of PBCs (Box 1). SES will also benefit from the MPA's detailed learning agenda, aimed at improving the technical and institutional capacity of participant governments to use PBCs to improve road infrastructure and its sustainability along time, lower transport costs, improve road safety, lower emissions, and improve climate resilience.

Box 1: Brazil Pro-Roads Modalities explained.

The Bank introduced multi-year rehabilitation and maintenance performance-based contracts in Brazil in the early 2000s. These were called *Contratos de Reabilitação e Manutenção* (CREMA)—or performance-based contracts for rehabilitation and road maintenance. This contractual modality was piloted in several states and at the federal level, often under World Bank-supported operations over the past two decades. They aimed at transferring to the private sector the technical responsibility of road infrastructure management via medium- to long-term contracts paid upon the achievement of pre-determined outcomes. The approach has demonstrated interesting results, improving the effectiveness of road asset management and reducing its cost by 20 percent on average for equivalent or better road conditions than the traditional contracting model.[50] Among other limitations, though, contract duration was capped

[45] Decree No. 4938, August 2, 2021. Espírito Santo Joins the UN's "Race to Zero" and "Race To Resilience" Campaigns, Outlining Related Measures. https://leisestaduais.com.br/es/decreto-n-4938-2021-Espírito-santo-dispoe-sobre-a-adesao-do-estado-do-Espírito-santo-as-campanhas-race-to-zero-e-race-to-resilience-no-ambito-da-convencao-quadro-das-nacoes-unidas-sobre-mudanca-do-clima-e-da-providencias-correlatas.
Net zero and decarbonization State Plan. https://planodescarbonizacao.es.gov.br/.
Brazil's NAP did not set specific goals for the infrastructure sector, but it is under review as the current version became outdated (2016) – Brazil Ministry of Environment and Climate Change: https://brasilparticipativo.presidencia.gov.br/processes/planoclima/f/85/proposals/19380.

[46] Link to the 2024 Brazil NDC

[47] Phase 2 rural access interventions will support agricultural production activities under the Transforming Agriculture MPA.

[48] Ministry of Transport. PNL 2035. https://www.gov.br/transportes/pt-br/assuntos/planejamento-integrado-de-transportes/politica-e-planejamento/ResumoExecutivoPNL2035final.pdf.

[49] State Logistics and Transport Development Plan.
https://planometropolitano.es.gov.br/Media/comdevit/Refer%C3%AAncias/PELTS%20Vol%201%20-%20Sumario.pdf

[50] World Bank Transport Paper #31, 2010.

at 5 years in the context of the prevailing public procurement regulatory context. There has been a change, however, in the public procurement laws: contracts can now be authorized for a duration of up to 10 years. This, combined with the possibilities offered by the PPP regulation for even longer contracts,[51] and a renewed approach to the CREMA contracts, will further delegate responsibility to the private sector for infrastructure management. Along with the extended contract duration, the private sector will assume full technical responsibility in selecting rehabilitation and maintenance solutions. The contracts will also include targeted climate resilience / road safety improvements. In that context, two main CREMA types will be supported under the MPA:

- **CREMA-Design-Build-Maintain (DBM):** This will involve contracts of 8 to 10 years, which will follow a Design-Build-Operate-Maintain (DBOM) approach and will be contracted under the new public procurement regulation. Payment of rehabilitation works will be done upon the delivery of outputs that will follow the contactors' own design (except improvements), decided by the public sector. Maintenance services will be paid upon achievements of pre-determined standards of road conditions. Mechanisms of guaranty retentions on payments during the rehabilitation phase, which is expected to represent up to 70-80 percent of the contract value, will require the mobilization of private finance in an amount estimated on average at 5 percent of the contracts.[52]
- **CREMA-Public-Private Partnership (PPP):** This will involve contracts, ranging from 10 to 25 years, and will follow a Design-Finance-Build-Operate-Maintain (DFBOM) approach, contracted under the PPP regulation. The contract's full financing will be provided by the private sector to implement the rehabilitation works defined by the contractor itself, with improvement works defined by the delegating authority. Payment to the contractors will be made based on availability, and a road will be deemed available when it matches pre-determined standards of quality (resilient and safe roads in good condition). As the full amount of the contract is expected to be brought by the private sector, private capital mobilization (PCM) will be accounted for the amount of the contract.

C. Multiphase Programmatic Approach

17. **The proposed MPA long-term engagement will facilitate the scaling-up, replicability and consistent implementation of critical road sector improvements.** The long duration of the Program and its phases, combined with the leadership of the Ministry of Transport (MoT), responsible for the monitoring, evaluation, and learning (MEL) agenda and the use of the CREMA approach across the country, will mitigate the policy risks that may result from changes in government at state and federal levels. The duration of the proposed MPA (12 years) will span several electoral cycles and provide financing instruments that allow for consistent contract payments to foster continuous maintenance of road assets. The MPA will facilitate the harmonization, simplification, and standardization of Bank processes and the required documentation for all participating states, thereby reducing preparation time and enhancing implementation support. The MEL agenda will amplify the impacts of the MPA by disseminating lessons from earlier phases and adapting successful approaches that can be implemented by 26 states in Brazil. This combined approach, in turn, will increase the likelihood of success compared to multiple standalone projects with limited technical cooperation. The proposed MPA is the only instrument commensurate with the ambition of the Program in line with the WBG evolution roadmap, allowing the Bank to seek replicability and scalability to respond to complex and interrelated challenges to road asset management, especially climate resilience and road safety.

18. **The MPA ambition is to tackle the difficult challenges of road management, climate resilience and road safety in Brazil at once, generating technical knowledge on how best to implement solutions at scale by different borrowers – learning from each other.** This is expected to be achieved through a paradigm shift in the management and design

[51] A pilot project was developed with support of the IFC in the State of Bahia in 2016.

[52] Innovations in payment modalities in a contract's rehabilitation phase will be tested to further foster the responsibility of the contractor in terms of quality (e.g., payment "at cost of execution" by kilometer executed independently from the solution employed). This advancement of funds during the rehabilitation phase from the private contractor can be up to 7 percent of the contract costs and can be counted as PCM. Between 5 and 7 percent of the rehabilitation costs will be withheld by the government.

of road infrastructure, transferring to the private sector the responsibility to achieve specified road quality, climate resilience and road safety indicators using long-term (8-25 year) pluri-annual PBCs. Moreover, the mobilization of private capital reduces the burden on public finance to manage the road infrastructure, as the MPA will also lay the groundwork for implementing the more complex CREMA-PPP contracts at scale in different states,[53] with support from the federal government and IFC – thus Private Capital will be mobilized in all phases. Other activities integrated in the Program include road safety and climate resilience critical interventions: bypasses in climate risk areas, rural access, and active mobility interventions in urban areas where roads pass through. The Program will also promote digitalization of logistics and promoting the employment of women in the construction and logistics sectors.

19. **The MPA theory of change (ToC) described in the MPA PAD for Phase 1 remains relevant.[54]** A theory of change for Phase 2 aligned with the MPA ToC is available in section II.A. The MPA Program Development Objective (PrDO) is to improve access to sustainable, safe, and resilient transport in selected states of Brazil. It remains relevant. The PrDO indicators also remain:
    a) **Improved access to sustainable transport:** Millions of people that benefit from improved access to sustainable transport infrastructure and services in selected states in Brazil (number).
    b) **Improved access to safe transport:** Change in annual road traffic fatalities along targeted state/federal road corridors in selected states in Brazil (number).[55]
    c) **Improved access to resilient transport:** Share of the paved road networks with updated Management Response Plans for climate risks and natural disasters in selected states in Brazil (percentage).

20. **The MPA is a horizontal and simultaneous Multiphase Programmatic Approach that includes both the federal government and five state authorities**. Bahia (P180555) is Phase 1 of the MPA; Espírito Santo (P500469) is the Phase 2; Santa Catarina (P504253), Phase 3; and Mato Grosso do Sul (P505590), Phase 4. Additional phases are envisioned: one in Piauí, one with the federal government, through the Brazilian MoT, focusing on the Northeast region, and potentially other States joining: Sergipe, Goiás, Pernambuco, among others. The MPA Program includes four main components: (a) Component 1—Proactive maintenance based on a long-term (8–25 years) CREMA model using PBCs, either CREMA-DBMs or CREMA-PPPs; (b) Component 2— Institutional strengthening, covering three sets of activities: Proactive, safe, and resilient road asset management; Green mobility and logistics; and Social inclusion and gender; (c) Component 3— Safe and resilient improvements of road infrastructure, covering also three set of activities – Construction of bypasses in areas prone to flooding and logistical bottlenecks along selected state road corridors; Safe active mobility infrastructure in selected urbanized areas; and Improvement to all-season access to transport in rural areas; and (d) Component 4—Project management.

[53] Design-Finance-Build-Operate-Maintain model with availability payments (Government-Pays PPP), and no government payments during the rehabilitation period until the PBC is completed and the road is open.
[54] See Section D. (ii) of the MPA / Phase 1 PAD.
[55] See Appendix in Project Files for explanations on the calculations of PDO indicator for Road Safety baseline.

Table 1: Phases of the Pro-Roads MPA, proposed DOs, financing instruments, estimate approval date and E&S risk rating[56]

Phase #	Operation ID	Sequential or Simultaneous	Phase's Proposed DO*	IPF or PforR	Estimated IBRD Amount (US$ million)	Estimated IDA Amount (US$ million)	Estimated Other Amount (US$ million)	Estimated Approval Date	Estimated Environmental & Social Risk Rating
1	P180555-Bahia	Simultaneous	Same as PrDO	IPF	150.00	0.00	50.00	Sept 10, 2024	High
2	P500469 – Espírito Santo	Simultaneous	Same as PrDO	IPF	162.40	0.00	157.60	March 18, 2025	Substantial
3	P504253 – Santa Catarina	Simultaneous	Same as PrDO	IPF	300.00	0.00	175.00	March 18, 2025	Moderate
4	P505590 – Mato Grosso do Sul	Simultaneous	Same as PrDO	IPF	200.00	0.00	150.00	May 8, 2025	Moderate
5	Piauí	Simultaneous	Same as PrDO	IPF	150.00	0.00	200.00	Dec 2025	Moderate
6	Federal Phase and other potential States	Simultaneous	Same as PrDO	IPF	700.00	0.00	150.00	March 2026	Moderate
Total					1,662.40	0.00	882.60		
Total Financing Envelope (including IBRD, PCM and counterpart funding)					US$2,545.00			Total Program Cost	**US$2,545.00**
Board Approved IBRD Financing Envelope					**US$1662.4**				

Note: Rio Grande do Norte (P502493) and Tocantins which already submitted the CC, will contain a PBC component and will participate on the learning agenda.

DO = development objective; IBRD = International Bank for Reconstruction and Development; IPF = Investment Project Financing; P4R = Program for Results;

PCM = private capital mobilization; PrDO = Program Development Objective.

[56] * Piaui request for financing is still pending approval from the External Financing Commission (COFIEX) – in the upcoming June 2026 meeting.
** At the time of the preparation of the MPA's first phase, the Ministry of Transport had submitted to COFIEX a US$700 million request for World Bank financing to support the Program targeting selected roads of the Federal Road network. This request has not yet been approved and may be revised. While the Ministry of Transport is committed to playing a leadership role in the Program, the form of its involvement (IPF Loan, IPF TA or other) and the amount of financing allocated to it from the MPA remains to be determined. At the same time, other States have expressed interest in participating to the Program, including particularly the States of Sergipe, Pernambuco, Goiás which are working on the requests, and Minas Gerais, Alagoas, Maranhão or Paraná which expressed some interest, and it is possible that the US$700m originally allocated to the Ministry will be reallocated in part to those or other states.

II. PROJECT DESCRIPTION

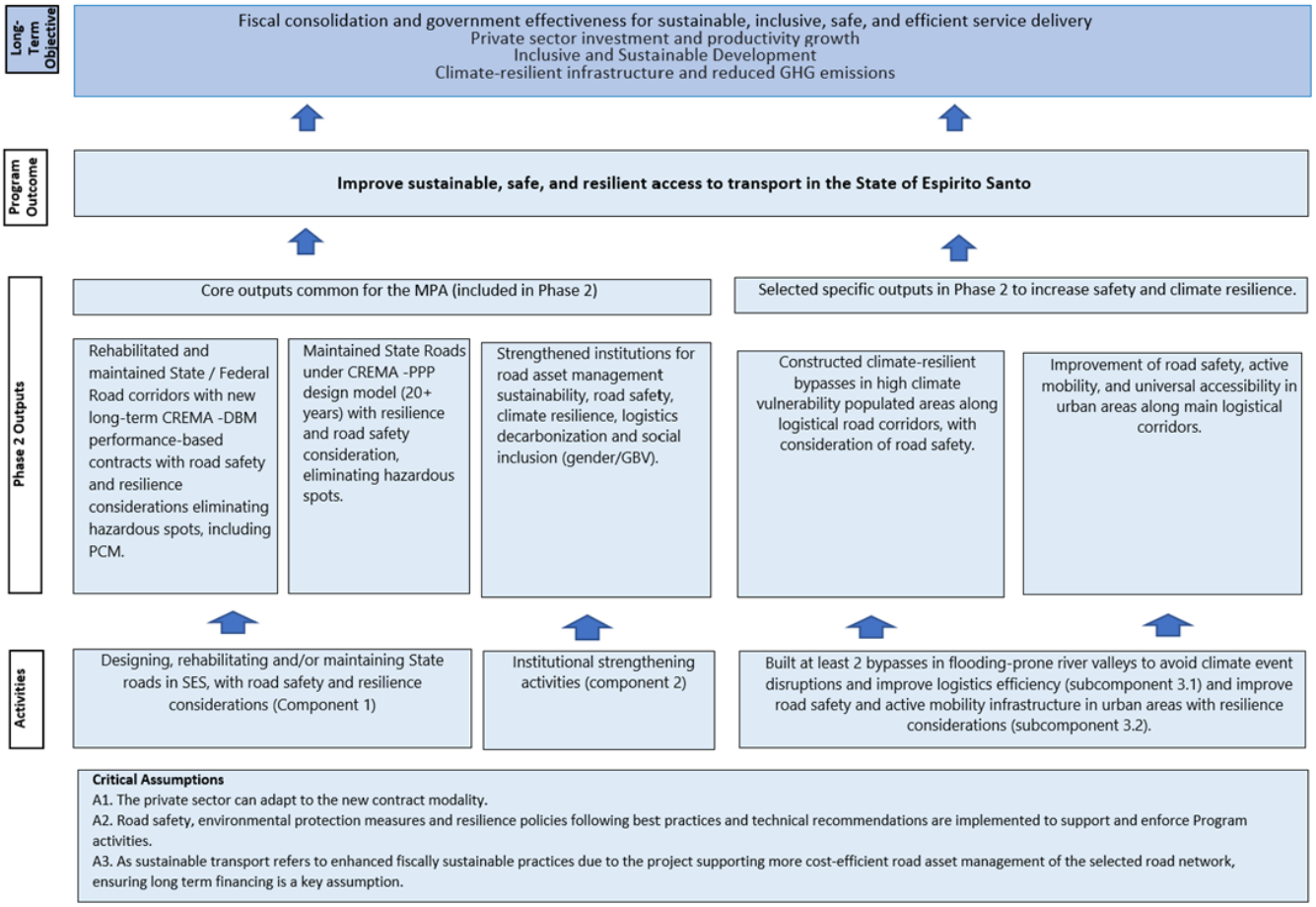
A. Project Development Objective

(i) PDO Statement

For Phase 2, the Project Development Objective (PDO) is to improve access to sustainable, safe, and resilient transport in the State of Espírito Santo.

B. Theory of Change and PDO Indicators

(i) Phase 2 Project Theory of Change



(ii) PDO Level Indicators

a. **Access to sustainable transport:** People that benefit from improved access[57] to sustainable transport infrastructure and services in the State of Espírito Santo (number)

b. **Access to safe transport:** Change in annual road crash fatalities along targeted state road corridors in the State of Espírito Santo (number)[58]

c. **Access to resilient transport:** Share of the paved state road networks in the State of Espírito Santo with updated Management Response Plans to climate risks and natural disasters (percentage)

[57] Access in this case refers to improved transport connectivity (reduced operation costs and time for users) along main State Road corridors.
[58] Baseline indicator is 74 fatalities, and the target is a 30 percent reduction to 52 fatalities.

C. Project Beneficiaries

21. **The proposed Phase 2 interventions will directly benefit about 1.05 million of the 3.8 million inhabitants of Espírito Santo.** The project directly covers 26 of the 78 municipalities in the State of Espírito Santo, which have 28 percent of the vehicle fleet registered in Espírito Santo. Direct project beneficiaries[59] will be the residents of areas served by the rehabilitated highways, improved urban stretches along selected roads and the newly built bypasses, including family agriculture producers. Rural cooperatives, agribusiness industries, community-based tourism enterprises and mining industries will benefit as well. Targeted interventions on selected state roads and in *Três Santas* region municipalities—where the median HDI is 0.670 compared to the state average of 0.771— will increase the climate resilience and all-season access to transport infrastructure for the economically vulnerable bottom quarter of the population.[60]

22. **Phase 2 will engage with traditional communities to ensure the preservation of their rich traditions and customs.** In its formation, Espírito Santo received immigrants from different parts of Europe, mainly Germany and Italy who, together with the Portuguese, Africans and Indigenous People gave the main features of Espírito Santo culture. This European heritage is present in the mountains of the interior of ES in the Italian, Pomeranian,[61] German, Dutch and Polish dances and spoken languages that resist and renew themselves in those communities. The historical sites of *Santa Leopoldina* and the cultural traditions of municipalities such as *Santa Teresa* and *Domingos Martins*, among others, make up the cultural and economic wealth of the state. Those cultures and distinct languages will be supported by the project with bilingual signaling, and beneficiaries' requests will be considered as part of the citizen engagement exercise.[62]

23. **The Phase 2 project will improve the technical capacity of DER-ES and other ES government institutions on several fronts.** From a fiscal perspective, Phase 2 will improve the efficiency and quality of road-related expenditures, and substantially reduce overall fiscal costs over the 20-year road life cycle, including by promoting the PPP agenda. Concerning road safety and logistics management, DER-ES, SEMOBI (*Secretaria de Mobilidade e Infraestrutura*, Secretary of Mobility and Infrastructure), SESP (*Secretaria de Estado de Segurança Pública e Defesa Social,* Public Safety and Civic Defense Secretary), DETRAN and CETRAN management and selected municipalities will benefit from capacity building. Institutional strengthening for road safety will follow the recommendations provided by the Institutional Capacity Review. Regarding resilience, Phase 2 will contribute to increasing technical knowledge and understanding and managing disaster and climate risks, building expertise in strategic approach to creating resilience and climate adaptation within road networks. Finally, the project will support the state's agenda for environmental protection, inclusion, gender equity and citizen engagement.

D. Project Components

24. **The project consists of four components for a total estimated value of US$320 million**, including US$162.4 million of IBRD financing, US$30.6 million of counterpart financing from the State and an expected US$117 million of PCM. A detailed cost table is shown below in Table 1.

[59] CREMA contracts have an estimated potential creation of 2,000 jobs in road maintenance. Each CREMA-DBM contract can create 250 direct jobs. This opens long-term employment opportunities for women and the low-income population by encouraging large contractors to subcontract low-cost routine maintenance, promoting the development of small local contractors. Further 138 indirect jobs are generated and, due to the income effect, another 770 jobs would be created.

[60] The State of Espírito Santo has approximately 14.410 indigenous people, which represents 0.38% of the total population of the State. However, there are no indigenous inhabitants in the area directly affected by the Project. Among the 78 municipalities in Espírito Santo, 26 have *Quilombola* population, totaling a contingent of 15,652 people throughout the State.

[61] The Pomeranian dialect of the German language is still spoken in SES and Santa Catarina but is extinct in Europe.

[62] A specific approach to the population in situation of economic vulnerability will be included in the Citizen Engagement exercises.

25. **Component 1. Proactive maintenance based on a long-term (8–25 years) CREMA model using PBCs: Design, rehabilitation and maintenance of selected roads within the Borrower's territory through CREMA Agreements**[63]. Total estimated cost is US$243.4 million, including US$91.8 million in financing from IBRD, US$34.6 million counterpart financing, and US$117 from PCM.

    a. **Subcomponent 1.1. Proactive maintenance CREMA-DBM: Long-term performance-based safe and resilient road management contracts for state road corridors** (estimated cost US$96.4 million, including US$91.8 million in IBRD financing and US$4.6 million from PCM). This subcomponent consists of contracting and carrying out the design, rehabilitation and maintenance of selected State roads through CREMA-DBM Agreements[64]. Three long-term CREMA-DBM Agreements are contemplated for a total of 250 km of state roads, for both design and physical works. The selected roads (shown in Map 1) are in poor condition and highly vulnerable to climate events and require complete rehabilitation. The selection criteria prioritized roads located in lower-than-average HDI municipalities, which have an elevated number of road accidents and are highly vulnerable to climate events (e.g., landslides, flooding, potential coastal erosion). The prioritization exercise has also identified other roads suitable for additional CREMA-DBM contracts if budget becomes available during implementation. Safety improvements will focus on roads that cross urban settlements, with designs that take gender and universal accessibility into account. Climate resilience management and response plans will be integrated in the contracts,[65] together with climate adaptation improvement works. Along the 250 km of the selected roads, there will be about 25 spot improvements for safety and 25 for climate resilience.[66]

    b. **Subcomponent 1.2. Proactive maintenance CREMA-PPP: Long-term performance-based contracts using the PPP modality for selected safe and resilient state roads** (estimated cost US$147 million, including US$34.6 million for contract structuring expenditures and availability payments during Phase 2 implementation timeline covered by counterpart financing, and US$112.4 million of PCM). This subcomponent consists of (i) technical assistance in the structuring (including financial and economic aspects) of, and (ii) contracting and implementing; CREMA-PPP Agreements[67] for the design, rehabilitation and maintenance of selected State roads. These PPPs will be structured during project implementation with potential assistance from the IFC. The target is to implement a US$147 million CREMA-PPP contract covering 180 km of roads in the southern part of the SES. The structuring of the PPP will comprise the technical support provide by the SEPPI. Road safety and climate adaptation improvements, together with small increases in capacity to avoid bottlenecks will be integrated into the 20- or 25-year PPP contract. The selection of roads for the first PPP was determined by their condition, traffic levels, and the need for larger upgrades and greater capital expenditure (larger rehabilitation costs). Additional PPP contracts may be structured during the project implementation to enable larger amounts of private capital investment.[68]

26. **Component 2. Institutional strengthening: Sustainable, safe, and resilient road asset management; Green mobility and logistics; and Social inclusion and gender** (total estimated cost US$6 million, covered by IBRD financing). This component will build on the Program's MEL agenda. It will strengthen the technical capacity of SEP and the DER-ES

[63] "CREMA Agreements" means contracts for road design, rehabilitation and maintenance, including, as necessary, selected improvements to enhance climate resilience and road safety conditions, as well as climate resilience management and response plans, to be entered into with private sector contractors, whose remuneration is linked to performance-based criteria; CREMA Agreements may take the form of CREMA-DBM Agreements or CREMA-PPP Agreements.

[64] "CREMA-DBM Agreements" means CREMA Agreements with a duration of 8 to 10 years, structured following a design, build and maintain model to be carried out through public procurement.

[65] Including manuals for the contractors to reduce climate vulnerability by performing recurrent maintenance throughout the contracting period.

[66] A baseline of 350 km of roads with CREMA contracts is accounted as part of the current Inter-American Development Bank (IADB) project: https://www.iadb.org/en/whats-our-impact/BR-L1524.

[67] "CREMA-PPP Agreements" means CREMA Agreements with a duration of 15 to 25 years, structured as availability payment PPPs, as further specified in the Project Operations Manual.

[68] The target value of additional capital investment in CREMA-PPPs is US$200 million, which would allow for two additional PPPs to be structured for selected roads.

with respect to items (a), (b) and (c) below; CEPDEC with respect to items (a) and (b) below; DETRAN, CETRAN and certain municipalities with respect to item (a) below; and SEMOBI with respect to item (b) below. A detailed list of the consultancies involved is shown in Project Files.

a. **Proactive, Safe and Resilient Road Asset Management:** The TA activities will promote the sustainability of good road asset management practices and will include: (i) consultancies to assess and manage the long-term fiscal implications (i.e., increased efficiency and cost reduction) PPPs and PBCs; (ii) strengthening the long-term financing of road maintenance by promoting the regulation and implementation/reform of road/transport funds at the state level; (iii) preparation of a strategic plan for DER-ES, with a focus on climate resilient conservation and maintenance; (iv) pilots of innovative approaches for road condition monitoring, such as drones, building information modeling (BIM) or AI; (v) basic design and road audits, including climate and safety analysis of the road network; and (vi) analysis of the status of rights-of-way and potential ancillary revenues from them. Regarding road safety, (vii) TA will support improved road safety governance in the state in line with recommendations from the Institutional Capacity Review background study. Specific support will be provided to: (a) SEP; (b) DER-ES; (c) CEPDEC; (d) DETRAN; (e) CETRAN; and (e) municipalities willing to participate in the national traffic data system. Additional activities include (viii) purchase of road safety enforcement equipment and services for weight control and crash data management; and (ix) the implementation of pilot operational road plans with a focus on road safety, including action plans for the removal of loose animals. Finally, (x) the development of a geospatial tool to improve climate resilience adaptation on state roads. DER-ES technical staff will receive training in the use of innovative models and methodologies to mitigate climate impacts in the state.

b. **Green Logistics and Digitalization of Transport:** TA activities will support SEP, DER-ES, CEPDEC and SEMOBI in (i) updating the State Logistics and Transport Plan, including elements focusing on the energy transition in road transport, and the need to increase multimodal transport to reduce greenhouse gas emissions. The updated plan will include roadmaps to implement electric mobility or other low-carbon fuels. Additionally, (ii) studies to enhance the digitalization and mobile coverage of the road infrastructure in rural areas of the state are envisioned.

c. **Social Inclusion and Gender:** TA activities will support SEP and DER-ES in the context of the national program to increase the number of women working in construction and logistics – including the analysis of gender barriers and facilitators for women to be employed in medium and high-skilled jobs. Other activities will increase the project's engagement with citizens, including through communication platforms and training to reduce the risk of gender-based violence (GBV) near construction areas. Other consultancy services will be provided as needed.

27. **Component 3— Safe and resilient improvement of selected State roads and transport infrastructure within the Borrower's territory** (total estimated cost US$66 million, including US$60 million in IBRD financing and US$6 million in counterpart financing).

a. **Subcomponent 3.1. Construction of bypasses in areas prone to flooding and logistical bottlenecks along selected state road corridors** (estimated cost US$60 million of IBRD financing).[69] This subcomponent covers (i) the preliminary design (in one single contract) of bypasses for four large urban settlements in the mountainous central part of SES (*Santa Leopoldina, Santa Teresa, Santa Maria de Jetibá* and *Domingos*

[69] The estimated length is 20 km for two newly built bypasses.

Martins), with a focus on assessing impacts and proposing alternatives to mitigate environmental and social (E&S) impacts. It also covers (ii) a consultancy for works supervision and E&S supervision. The design will incorporate resilience, road safety and measures to mitigate environmental impacts, with special focus on reducing impacts to the *Mata Atlântica* and riverbed ecosystems; (iii) design and construction (Design-Build contract) of two bypasses for an estimated total of 25 km around *Santa Teresa* and *Santa Leopoldina*, where roads are at high risk of becoming unpassable due to river flooding and erosion of the roadbed,[70] and where congestion and safety hazards are continuously present. Those two bypasses have been prioritized by the state based on continuous demand from the local population and their potential to increase climate resilience and alleviate bottlenecks.[71] The bypasses will be linked to CREMA-DBM Agreements once they are open, enhancing sustainability and resilience of the roads for the longer term. Construction techniques and processes will be required to follow environmental best practices to mitigate impacts on natural habitats. Map 2 shows the four bypasses.

b. **Subcomponent 3.2. Safe active mobility infrastructure in selected urbanized sections of state road corridors** (total estimated cost of US$6 million, covered by counterpart financing). This subcomponent will delegate counterpart funds to the municipalities where the bypasses will be built. Once the bypasses are open, this subcomponent will construct walking pathways and cycling infrastructure along 10 km of urban roads in the densely populated municipalities of *Santa Teresa* and *Santa Leopoldina*. It will also improve longitudinal drainage along the state roads. The DER-ES will donate the project design and provide technical supervision to the *Santa Teresa* and *Santa Leopoldina* municipalities to implement the activities. Improvement interventions will include complete streets that prioritize pedestrians and cyclists, elevated intersections, bike lanes, sidewalks, lighting, traffic lights and renewed urban areas. The planned interventions include universal accessibility, road safety, a violence prevention[72] designs, environmentally friendly solutions, traffic enforcement equipment and climate resilience.

28. **Component 4. Project management (total estimated cost US$4.594 million from IBRD financing).** This component will support the implementation, management, and coordination of the project, including technical, financial, audit, procurement, monitoring and evaluation, social and environmental aspects, by providing the DER-ES with the required human capital. Individual consultants and a Project Management Technical Support Consultant with the necessary expertise in technical, social, environmental, financial management and procurement areas will be engaged to facilitate progress in document preparation, project implementation and the MEL agenda.

Table 1: Project cost table for Phase 2

Components and description	IBRD (US$, millions)	Counterpart (US$, millions)	PCM (US$, millions)	Total
Total cost	**162.4**	**41.006**	**117**	**320.406**
Component 1—Proactive maintenance with long-term (8–25 years) CREMA model using performance-based contracts	**91.806**	**34.6**	**117**	**243.406**
Subcomponent 1.1—Proactive maintenance CREMA-DBM: Long-term performance-based safe and resilient road management contracts for state road corridors	**91.806**		**4.6**	**96.406**

[70] The climate risk for the *Santa Leopoldina* and *Santa Teresa* areas is further explained in the climate vulnerability appendix in project files and in the Paris Alignment discussion. Pictures of catastrophic floodings in those areas are also provided in the appendix.
[71] As part of the news and social media monitoring, frequent demonstrations are made in *Santa Teresa* and *Santa Leopoldina* to request the construction of by-passes.
[72] Design and management of a violence-prevention environment can help to reduce crime, especially against women.

	Subcomponent 1.2— Proactive maintenance CREMA-PPP: Long-term performance-based contracts using the PPP modality for selected safe and resilient state roads		34.6	112.4	**147**
Component 2— Institutional strengthening: sustainable, safe, and resilient road asset management, green mobility and logistics, and social inclusion and gender		**6**			**6**
Component 3— Safe and resilient improvements of road infrastructure		**60**	**6**		**66**
	Subcomponent 3.1— Construction of bypasses in areas prone to flooding and logistical bottlenecks along selected state road corridors	60			
	Subcomponent 3.2— Safe active mobility infrastructure in selected urbanized sections of state road corridors		6		
Component 4—Project management		**4.594**			**4.594**
Front-end fee			**0.406**		**0.406**

Source: **DER/ES and World Bank**.
Note: CREMA = performance-based contract for rehabilitation and road maintenance; CREMA-DBM = 8- to 10-year design, build, and maintain contract developed through public procurement regulations; CREMA-PPP = 15- to 25-year contract developed as an availability payment public-private partnership; IBRD = International Bank for Reconstruction and Development.

E. Role of Partners

29. **The Bank has been leading the agenda in Brazil for performance-based contracting, road safety, climate resilience, active mobility, and rural access.** The PBC concept, which the Bank introduced in Brazil 25 years ago, has been progressively improved and is ready to be used in longer-term contracts. Phase 2 will support the DER-ES to pilot the first CREMA-DBM and CREMA-PPP contracts in the state, building on the brief experience with traditional 5-year CREMA contracts under the Inter-American Development Bank (IADB) project. A subsequent IADB future parallel financing will ensure deeper collaboration between the Bank and the IADB in the road and knowledge agendas, opening the door for other development partners (DPs).[73] DER-ES will support the Secretary of Agriculture in improving rural road access and road asset management, as part of the synergies with the proposed SES Phase of the Transforming Brazilian Agriculture MPA[74] (P180429). The project will also target the elimination of critical climate vulnerable spots. Road safety and climate resilience are at the top of the Bank's development agenda, with long-time support from the Global Road Safety Facility (GRSF) and the Global Facility for Disaster Reduction and Recovery (GFDRR). More recently, the active mobility agenda, with a focus on cyclists, pedestrians, and universal accessibility, has been supported in several Brazilian cities and will be piloted in the SES. Moreover, Phase 2 will support digitalization of rural roads, to improve monitoring and traffic control, in partnership with the ongoing Espírito Santo Digital Acceleration Project (P180462).[75] The Bank's widespread interventions in water and environmental protection (e.g., the ongoing Espírito Santo Water Security Management Project, P176982) has helped to optimize intersectoral synergies and support shared agendas. Finally, the Bank will facilitate the upgrade of the legal framework needed to

[73] IADB and other DPs, such as the Development Bank of Latin America and the Caribbean (CAF) and the European Investment Bank (EIB) have been approached. IADB have expressed interest in working together in the different MPA agendas.
[74] The World Bank Brazil agriculture team has prepared the Transforming Brazil Agriculture MPA (P180429) to improve access to markets and services for small farmers and inhabitants of targeted rural areas in selected Brazilian states. A specific component in Phase 2 supports that MPA by improving road access for family agriculture using PBCs.
[75] Link to Espírito Santo Digital Acceleration Project (P180462).

implement the proposed CREMA-PPP contracts during project implementation, strengthening the existing regulations for guarantee funds to ensure PPP payments.

F. Lessons Learned and Reflected in the Project Design; Progress on Learning Agenda

30. **The MPA Program's design and Phase 2 in the SES reflect the lessons learned from the World Bank's engagement in recent road projects in Brazil, as well as from other strategic road interventions.**[76] On the learning agenda, the Program will support the new smart concession model, as per agreements reached at a workshop on road asset management in May 2024. Smart concessions will see long-term concession contracts with small toll fees to cover mostly maintenance and some climate resilience and safety improvements. Phase 2 will incorporate the lessons drawn from the Implementation Completion Reports (ICRs) and the IEG evaluations of Bahia Road Rehabilitation and Maintenance Project (P147272; PREMAR 2) for piloting the CREMA-DBM and CREMA-PPPs activities and the Tocantins Integrated Sustainable Regional Development Project (P121495). Phase 2 will also follow the lessons derived from the 2019 Federal Network Climate Resilience assessment conducted in Brazil,[77] and from the ongoing climate vulnerability assessments for various states as part of the Green Mobility and Logistics for Sustainability and Resilience (P179908) advisory services (Advisory Services and Analytics, ASA). The Bank team, with support from GFDRR, is preparing novel climate resilience manuals and methodologies for contractors and for federal and state-level implementing agencies. Phase 2 will also support circular economy approaches for road rehabilitation, inspired by recent experiences with concessionaires in Brazil.[78] Finally, the IFC Transaction Advisory team and the Bank's PPP unit will support the road concessions and the CREMA-PPP model.

31. **The Program's Monitoring, Evaluation and Learning (MEL) Agenda has been structured jointly, under MoT leadership, with the Special Secretariat for Investment Partnership Programs (SEPPI)**. The MEL Agenda will disseminate knowledge and level-up the expertise of participating states in the following aspects of transport sector management: (a) long-term PBC and related financing strategies for proactive maintenance of assets; (b) road safety; (c) climate resilience; (d) green logistics; (e) gender and social inclusion; (f) environmental impact mitigation; (g) use of innovative technologies; (h) transparent public contracting and procurement; and (i) promote the CREMA-PPP model[79] among states participating in the MPA – led by SEPPI. The programmatic approach requires strong coordination among the stakeholders, but will capitalize on MoT's existing responsibilities in the sector to provide a platform for participants to share experiences and knowledge on best practices for road safety and climate resilience.[80]

32. **A first set of actions has already been implemented and a road map targeting key challenges (e.g., honoring contractual commitment and long-term financing, institutional strengthening and technical aspects) is being structured.** Several trainings were carried out and others are under preparation by the World Bank and the Ministry of Transport, with the support of the participating states. These trainings include (a) presentation to the states of the past experiences of the BA-052 PPP and the CREMA-DBM pilot in Bahia; (b) training in use of the Highway Development and Management Model v.4 (HDM-4) tool; (c) methodologies for climate vulnerability and criticality assesments for roads, prepared for Phase 1 and Phase 2 with the participation of the states and different federal

[76] Links to India Green National Highways Corridor Project and Support to Panama PPP Program Development for Recovery Project PADs. Link to the PPP project for Panamericana Road in Panamá https://pressroom.ifc.org/all/pages/PressDetail.aspx?ID=28028.

[77] World Bank. 2019. Improving Climate Resilience of Federal Road Network in Brazil. https://documents.worldbank.org/pt/publication/documents-reports/documentdetail/ 585621562 945895470/improving-climate-resilience-of-federal-road-network-in-brazil.

[78] These approaches, including deep pavement recycling, warm asphalt resurfacing and cold asphalt repairs. These greener and less intensive rehabilitation methodologies account for a reduction of approximately 133 tons of CO_2-eq during construction versus traditional construction methodologies. Calculation available in the GHG accounting document for the Phase 2 construction and maintenance activities; see project files.

[79] The CREMA-PPP model will be based on the successful contract implemented by the State of Bahia along 540 km along the BA-052 road.

[80] Knowledge and best practices already disseminated under the MEL include project management efficiencies (EPROJ in Santa Catarina); resilience issues (Espírito Santo, Santa Catarina); protection of biodiversity and fauna (Mato Grosso do Sul); knowledge on PPPs and concessions (Bahia and Mato Grosso do Sul); and gender aspects of road safety (Bahia, Tocantins).

agencies; (d) road safety interventions in urban areas, and the inclusion of road safety indicators in the CREMA contracts; (e) institutional capacity reviews in states with projects in preparation; (f) discussions about implementing PPPs for roads, and sustainable road maintenance financing supported by taxing vehicle or agriculture commodities; and (g) knowledge exchanges about how to support public consultation and citizen engagement on rural roads. The Bank is also leading the discussion about the set of guidelines for new long-term CREMA contracts. Those guidelines for bidding documents and manuals for road safety and climate resilience were presented at the ENACOR Congress in Aracaju in August 2024. Finally, under the leadership of MoT and the SEPPI, the MPA Program is being presented to other states interested in replicating the PBC and PPP models. MoT, SEPPI and the states could potentially participate in roadshows to present the Program to the private sector in Brazil and overseas in the future.

III. IMPLEMENTATION ARRANGEMENTS

A. Institutional and Implementation Arrangements

33. **The SES will be responsible for implementing Phase 2, while the MoT remains committed to the MEL agenda.** The Program will leverage the existing responsibilities of the MoT to build and lead the learning agenda and the coordination of policies at federal and state levels. The MoT will coordinate the learning agenda and the results monitoring, while DER-ES will be responsible for implementing all components and ensuring robust monitoring and evaluation of the project and its indicators. To enable the implementation of the Project, the Borrower, through SEP, shall enter into a Subsidiary Agreement with DER-ES under terms and conditions acceptable to the Bank, and thereafter maintain said Subsidiary Agreement throughout Project implementation. A Project Coordination Unit (PCU) within DER-ES will be the implementation and coordination unit. The PCU will coordinate the management, monitoring and evaluation of all project activities and undertake the primary fiduciary responsibilities. The Secretary of Economy and Planning (SEP) will oversee the project activities and will lead a project Steering Committee that includes the main institutional state stakeholders. The DER-ES will enter into a Cooperation Agreement with SEDES for the implementation of subcomponent 1.2; also a Cooperation Agreement with each of the Municipalities involved in component 2.(a), addressing matters related to their technical capacity in the context of road safety; a Cooperation Agreement with SEMOBI, for the implementation of component 2.(b), and a Cooperation Agreement with each of the municipalities involved in the component 3, addressing the long-term maintenance of the active mobility public works. The agreement with SEDES shall include performing necessary changes in the legal framework for the PPPs under subcomponent 1.2. The PPP unit of SEDES has developed a guarantee fund for PPPs and is analyzing the potential use of the investment branch of the ES Sovereign Fund (FUNSES) for the state's capital participation in the PPPs. Finally, cooperation agreements between the MoT and individual municipalities (as applicable) may be entered into for the purpose of spelling out their obligations for implementation of the technical trainings and works in urban areas.[81]

B. Results Monitoring and Evaluation Arrangements

34. **The MoT will be responsible for the Program's overall MEL strategy, and the DER-ES will be responsible for the MEL arrangements of Phase 2**. DER-ES will provide progress reports to the MoT and the Bank twice a year, and the MoT will report to the World Bank on the progress of the learning agenda at federal and state levels also twice a year. The MEL team at the MoT will continuously update the learning agenda based on lessons learned as the phases are implemented. However, the success of Phase 2 implementation will not be measured by the success of the MoT's progress in coordinating the MEL agenda.

[81] The municipalities of *Santa Teresa* and *Santa Leopoldina* will be responsible for implementing the works financed by counterpart funds under subcomponent 3.2. The works will improve road safety, climate resilience and universal accessibility for pedestrians and cyclists in urban areas. The DER-ES will provide technical support for the design and implementation of the works to ensure quality results.

35. **A PCU will manage and consolidate information for monitoring and evaluation purposes.** The PCU will gather information from the DER-ES management reports, civil works supervision reports, project consultancies, beneficiary surveys and the information provided by other stakeholders. The PCU will prepare and submit to the Bank the semestral progress reports, including the results framework (section VII). The PCU will also document the lessons learned and knowledge that was acquired from the MPA monitoring and learning agenda. The DER-ES, with inputs from the project management consultant and Bank support, will conduct the midterm review for Phase 2 and will prepare a Borrower Completion Report at the conclusion of the phase. Finally, the PCU will organize the participation of project staff and other stakeholders in learning agenda events, including staff from related digital, water and agriculture projects in the state.

C. Disbursement Arrangements

36. **Financial management (FM) and disbursement arrangements are well established.** The DER-ES has acceptable FM arrangements in place to support project implementation. Funds will be disbursed against eligible expenditures incurred or to be incurred under the project, following agreed financing percentages. funds flow, and disbursement arrangements. Disbursement may be made by reimbursement, advance or direct payment, with advance payment being the primary disbursement method. Disbursements will be documented based on the Statement of Expenditures (SOEs) generated using the SAFF system. The PCU will maintain the information required to compile the SOEs. The State Finance Secretariat (SEFAZ-ES) has years of experience working with IBRD and other international development organizations, and therefore has a smooth procedure in place for DER-ES to access the funds that will be available in the project's Designated Account.

37. **The Project Operational Manual (POM) will detail the institutional arrangements.** These arrangements will include (a) the relationship between DER-ES and other secretariats and the project Steering Committee; (b) the duties of key staff, including specialists and consultants; (c) internal control procedures and processes, including disbursement arrangements, procurement timelines, funds flow and monitoring of the counterpart process;[82] and (d) the operation/financial framework. The draft POM available at negotiations was satisfactory to the Bank, and its final version shall be in place before Effectiveness.

IV. PROJECT APPRAISAL SUMMARY

A. Technical, Economic and Financial Analysis

38. **Improving the condition of SES road networks through sustainable asset management will have a substantial impact on the state's development path.** Freight transport in SES depends largely on its climate-vulnerable road network, which links the main agriculture and mining areas to cargo ports. Better roads based on the PBC model will help Brazil to be more competitive by reducing vehicle operation costs (estimated by 7 percent on rehabilitated roads), travel time[83] and logistics costs.[84] Better roads also improve the population's access to services, goods and markets, especially in rural areas,[85] which can have a significant impact on poverty reduction.[86] This is especially relevant for

[82] Brazilian Law requires all external credit operations of interest to the states, the Federal District, their respective direct administrations, autarchies, foundations, or dependent companies to be examined by the COFIEX if there is a guarantee of the Federative Union if there is financing from an international organization or government agency of a foreign country. It also requests that the borrower provides counterpart funding of at least 20 percent of the total value of the project or program to be financed.
[83] Travel time will be reduced by 5 to 8 minutes for each bypass.
[84] Data from the HDM-4 model provided by DER-ES and included in the economic analysis.
[85] Rural population in the selected states of the MPA Program (including the federal phase) accounts for 14 million of the total population of 74 million in those states.
[86] World Bank. Transport–The Essential Connector; https://thedocs.worldbank.org/en/doc/157201585683713721-0190022020/WB-Transport-Narrative.

women, since their time burden is exacerbated by inadequate public transport supply and reduced access to cars or motorbikes in rural areas. Finally, since road investments and maintenance represent important shares of borrowers' investment budgets,[87] Phase 2 can also have significant positive fiscal impacts over the lifetime of the roads. Phase 2 can also reduce climate vulnerability, as maintenance performance conditions are designed to directly enhance resilience, as discussed in a recent Bank report on the economy efficiency of long-term road asset management.[88]

39. **Phase 2 will use the CREMA guidelines to achieve an integrated design approach that shifts more responsibility to the private sector.** DER-ES is contracting basic designs and feasibility studies of the proposed works for budgeting purposes. Contractors will manage the final design, rehabilitation, and maintenance activities for both the CREMA-DBM and CREMA-PPP models and provide private capital for the latter. For the four bypasses, DER-ES will contract pre-feasibility studies. For the two bypasses that have been selected for construction in Phase 2, final design and construction bidding will be done together. For road safety in urban areas, complete designs will be prepared for at least two municipalities, addressing environmental and social risks.

40. **Phase 2 will boost innovation by encouraging contractors to find the most cost-effective ways to meet maintenance goals.** Expanding the PBC approach ensures resources for road maintenance in the medium and long term, while the security of contractual government payments will allow for innovation while strengthening fiscal discipline in the long run. Project management will be enhanced with building information models (BIM) and the use of drones for road asset management and right-of-way monitoring by the PCU. Other innovations might also be tested, such as the use of greener technologies for construction and rehabilitation, and the enhancement of digital network coverage on federal and state roads—a first step toward the future deployment of connected vehicles and Intelligent Transport Systems (ITS), which are expected to improve road safety and traffic efficiency.[89] The private contractors and implementing agencies will be provided with a World Bank manual on how to reduce the climate vulnerability risk of the roads and prepare plans for disaster risk management. Logistics plans to be supported under Component 2 will include efficiency and decarbonization initiatives, such as reducing the number of empty miles travelled, enhancing multimodality, and introducing e-mobility alternatives. Finally, the bypasses will serve as models for environmentally sensitive roads,[90] circumventing vulnerable areas and reducing traffic bottlenecks, noise, and pollution for residents, allowing the implementation of pedestrian and cyclist friendly areas along *Santa Leopoldina* and *Santa Teresa*.

41. **The project area is highly vulnerable to climate risks, as assessed during the Phase 2 climate screening.** The heavy rains experienced by Espírito Santo in 2019 and 2024 destroyed more than 30 roads and bridges and led to widespread flooding, landslides, and other damage across the region. Thousands of people were displaced for weeks and months, with their homes and businesses underwater.

42. **Despite the high climate vulnerability risks, Phase 2 is aligned with the goals of the Paris Agreement on both mitigation and adaptation.[91]** The proposed activities either Universally Aligned (UA) or considered of low residual risk:

Cook, Cynthia Tyrrell Duncan, Somchai Jitsuchon, Anil Sharma and Wu Guobao. 2005. *Assessing the Impact of Transport and Energy Infrastructure on Poverty Reduction.* Asian Development Bank, Manila.
Rayner, Nigel Rayner. 2005. The Importance of Transport Services for Poverty Reduction. Paper presented at Asian Development Bank Institute (ADBI) Workshop on Transport Infrastructure and Poverty Reduction. Asian Development Bank, Manila (July 18–22).

[87] Institute of Applied Economic Research (IPEA). https://repositorio.ipea.gov.br/bitstream/11058/6725/1/Radar_n18_Investimentos.pdf.

[88] World Bank. 2022. Assessing Economic Efficiency of Long-Term Road Asset Management Strategies. Washington DC. https://documents1.worldbank.org/curated/en/099235011182219257/pdf/P1679330af035007e0829505bcfd724025b.pdf.

[89] Cooperative Intelligent Transport Systems (C-ITS) will allow road users and traffic managers to share and use information to coordinate their actions. This cooperative element—enabled by digital connectivity among vehicles and between vehicles and transport infrastructure—is expected to significantly improve road safety, traffic efficiency and driving comfort by helping drivers to quickly adapt to traffic situations.

[90] *A Guide to Good Practices for Environmentally Friendly Roads.* https://www.nature.org/content/dam/tnc/nature/en/documents/latin-america/Friendlyroads.pdf.

[91] Alignment with the Paris Agreement is assessed using the three-step World Bank IPF Investment Method for Assessing Paris Alignment. Step 1, which assesses the project's consistency with the country's climate strategies, is discussed in the Higher-level Objectives section.

(a) *Universally Aligned (UA) activities,* which do not pose any inherent risks, include (i) PBC proactive road maintenance (upgrading, rehabilitation and reconstruction), with minor enhancements for resilience, road safety and accessibility without significant increases in traffic capacity (Component 1); (ii) institutional strengthening, with a focus on climate resilience, decarbonization of logistics and promotion of multimodality (Component 2); and (iii) active mobility, road safety and universal accessibility interventions in urban areas (Subcomponent 3.2).

(b) *Low residual risk activities* pertain to the greenfield road bypasses in *Santa Leopoldina* and *Santa Teresa* (Subcomponent 3.1). Considering Brazil's that motorization rate is above 100 (597 vehicles per 1,000 population in 2022 and 523 in 2021),[92] these greenfield bypasses could represent a significant risk to the country's low-GHG emissions development agenda. However, the bypass areas have low to medium traffic counts (fewer than 8,000 vehicles per day). Although motorization rates continue to increase, there are no other feasible lower-carbon transport alternatives, so the carbon lock-in risk is low. Additionally, the bypasses will play a critical role in the state's socioeconomic development by minimizing climate risks and logistical bottlenecks in those corridors. While GHG emissions are likely to increase with the bypasses, they would increase more without the project, which would leave the roads in poor condition.[93] In addition, the project will not divert traffic from other modes, and with its sidewalks and cycleways, could make non-motorized transport (NMT) more attractive. The improvement of safety conditions for NMT and the development of public transport will also contribute to the decarbonization of transport and facilitate its flow in urban areas. In the future, the new infrastructure will allow the use of electric vehicles for both public and private transport, supported by the roadmaps for energy transition developed under Component 2, which will contribute to achieving the Brazil's NDC goal of reducing emissions by 50 percent by 2030. The risk of an unforeseen increase of motorization and traffic in the area can be mitigated in the long run by the transition to electric mobility. Finally, to manage the risks of deforestation, three alternatives for the road alignment will be designed and the one with the lowest deforestation and environmental impacts will be selected. Construction of the bypasses will affect less than 100 ha of land, with 2,282 tons of CO_2-eq emissions from land use change, according to ESIA estimates However, a working group including DER-ES, the Secretariat for the Environment and Water Resources (SEAMA), Institute of Environment and Water Resources (IEMA), and the design/monitoring consultancies will ensure that the compensation for the construction of the bypasses will be larger than the affected area. The compensation will include the creation of new forest habitats in degraded pastures, with DER-ES supporting SEAMA reforestation efforts during project implementation – a model prepared under the Espírito Santo Integrated Sustainable Water Management Project (P130682).[94] The working group will also take measures to protect critical habitats, with continuous monitoring of risks during implementation. Finally, TA under Component 2 will support consultancies to update the state logistics plan, including electric mobility. **Taking all these factors into account, the residual mitigation risk is estimated to be low, therefore being aligned with the goals of the Paris Agreement on mitigation**.

43. **Phase 2 is also aligned with the goals of the Paris Agreement on adaptation.** As the roads were selected based on climate vulnerability, all roads have high to moderately high climate risks, particularly in the mountainous central region where the bypasses are located.[95] As certain areas of SES have some the highest precipitation levels in Brazil, while other areas are at high risk of sea level rise, floods and landslides, long-term PBCs are key to improve infrastructure resilience through climate-resilient designs and the introduction of climate disaster risk management systems, such as emergency plans. These efforts are measured as key indicators for the program and include specific actions like drainage cleaning and vegetation management near culverts. In essence, PBCs not only enhance the durability of roads but also protect the communities relying on them. Additionally, Phase 2 will benefit from the

[92] 203.1 million inhabitants (IBGE) for 111.4 million vehicles (SENATRAN).
[93] According to the GHG accounting carried out during project preparation; see paragraph 50.
[94] The DER-ES contributes economically to the reforestation efforts of SEAMA and IEMA in areas where their public works have environmental and biodiversity implications.
[95] Flooding and landslide risks are shown in Map 3. Also see the SES Climate Vulnerability appendix in the project files.

ongoing ES Water Security Project (P176982) which supports water basin management for disaster risk management purposes.

44. **To reduce these inherent risks, the project incorporates the following adaptation measures:**
    (a) The inclusion of climate criteria as the main performance conditions[96] in the contracts (Component 1) will help ensure the resilience of the roads in the face of climate events;[97]
    (b) Capacity building among the agencies and contractors, and preparedness planning (Component 2) will reduce the risk of climate impacts;
    (c) The bypasses will be constructed using climate-resilient materials and construction techniques, and will allow traffic to pass above flooded rivers (Subcomponent 3.1); and
    (d) NMT safety and access improvements in *Santa Leopoldina* and *Santa Teresa* will incorporate climate-resilient designs, including longitudinal drainage and permeable gardens (Subcomponent 3.2).

45. **As a result of these proposed measures, the project is assessed to have an Acceptable level of residual risk with respect to climate hazards.** More details are available in the climate vulnerability appendix in project files.

46. **The economic analysis of the project shows a robust economic justification**. The cost-benefit analysis shows a net present value (NPV) of US$520.12 million and an internal rate of return (IRR) of 40.3 percent, which significantly exceed the estimated opportunity cost of capital, set at 6 percent.[98] These estimates were calculated based on an HDM-4 analysis for the paved network and the Road Economic Decision (RED) model for the rural road access subcomponent. The Road Safety Screening and Appraisal Tool (RSSAT) was applied to assess the road safety impact of the proposed project. For the analyzed section—the rural section of ES-185—a Project Safety Impact (PSI) score of 0.94 was obtained, corresponding to a six percent reduction in fatalities. Project benefits have been estimated based on: (a) time savings and vehicle operation cost reduction on the selected improved roads (NPV of Component 1 estimated at US$495.3 million); (b) time savings from construction of the bypasses in the main urban areas in *Santa Teresa* and *Santa Leopoldina* (NPV estimated at US$24 million); (c) road safety benefits resulting from a reduction in road traffic fatalities (NPV estimated in US$123.1 million); and (d) gains from reduced CO_2 emissions (NPV estimated at US$5.9 million). Importantly, these values are consistent with the estimated savings from long-term contracts from the previous CREMA contracts in Bahia, estimated at 38 percent compared to traditional procurement contracts.[99] Included in the analysis were (a) the costs of feasibility studies, construction and supervision of works; and (b) costs of implementation, management and maintenance, with a counterfactual using the traditional contract modality. Project files[100] contain a complete economic analysis, including an analysis of GHG emissions, of the bypasses and rural access interventions and of road safety. The project files also contain further details on the methodology of the economic analysis and its main assumptions, and of the sensitivity analysis.

47. **GHG accounting confirms that the project's net GHG emissions are small and will not deter progress along the country's low-emissions development pathway.** The total absolute net reduction in emissions is estimated at 62,848 tCO_2-eq. Some roads are already in good condition and are not expected to have a significant increase in traffic. The 4 to 5 percent reduction in gas consumption and emissions along pavement in good condition compensates for the potential increase in traffic along improved roads. Emissions from vehicles are expected to be 3.29 percent lower than

[96] For example, road resilience requirements include elimination of vegetation and removal of debris from drainage networks. The neglect of such routine maintenance practices leads to accelerated infrastructure deterioration.
[97] For instance, during the floods in Bahia in December 2021 and January 2022, roads maintained under the PREMAR 2 project with PBCs were less affected, despite more than 60,000 people being displaced.
[98] A sensitivity analysis reveals that the results are robust to the risks associated with project implementation, variations in the discount rate, and reductions in time savings.
[99] A comparison of preservation versus reactive rehabilitation strategies in Bahia shows a 38 percent cost savings from the preservation strategy.
[100] The complete EFA document is available in the project files. Economic and Financial Analysis of CREMA contracts.

a scenario without the project. In absolute values, the reduction is estimated to be 64,941 tCO_2-eq over the life of the project, including components 1 and 3. The net reduction of emissions from major road construction and rehabilitation using PBCs compared to traditional rehabilitation is estimated at 133 tCO_2-eq. Emissions arising from the land use change from the construction of the bypasses are estimated to increase to 2,227 tCO_2-eq. In summary, the analysis confirms that the project will not increase net GHG emissions and will in fact reduce them compared with the counterfactual of traditional rehabilitation schemes without proactive maintenance.[101]

B. Fiduciary

48. **Procurement will be carried out in compliance with the World Bank's Procurement Regulations for IPF Borrowers, dated July 1, 2016, and revised in September 2023.** Individual consultants will support the PCU in daily procurement-related activities. A management consultancy support team will support those consultants as needed. The DER-ES will include a Special Bidding Commission to be the responsible for internal procurement procedures such as drafting bidding documents and evaluating proposals. Training in the Bank's procurement regulations will be provided before implementation commences. The Project Procurement Strategy for Development (PPSD) defines the approach for high-value and/or high-risk procurement and sets the basis for the first 18-month procurement plan, which will be uploaded in the Systematic Tracking of Exchanges in Procurement (STEP) portal before Negotiations. Sustainable procurement and gender aspects are included in the plan.

C. Environmental, Social and Legal Operational Policies

49. **This project is expected to yield various positive socio-environmental impacts.** Two bypasses will be constructed and two bypass projects developed (Component 3), along with maintenance and rehabilitation of existing roads (Component 1), and reinforcement of institutional capacity aimed at sustainable management of road assets, improved road safety, climate resilience, fleet decarbonization social and gender inclusion (Component 2). Consequently, it is anticipated that vehicles and trucks will operate more efficiently, resulting in reduced emissions of GHG gases and pollutants. Furthermore, reduced urban traffic is expected to result in a decrease in traffic accidents and pedestrian incidents. Road rehabilitation and maintenance will also lead to safer and more resilient infrastructure to mitigate climate change impacts.

50. **The enviromental risk is rated Substantial due primarily to the construction of two road bypasses and the resulting habitat loss, as well as maintenance and rehabilitation of existing roads within the right-of-way but inside protected areas (IUCN class V).** Other environmental risks associated with the activities are typical of road projects and are predictable, temporary, site specific, and addressed through established mitigation measures that are part of Good International Industry Practice (GIIP). DER-ES already has an established environmental and social management team, which the project will reinforce with one senior environmental specialist, one senior social specialist and a social communication specialist. It is noteworthy that DER-ES has a specialized department for resettlement issues. Prior to Appraisal, the draft ESMF was disclosed for consultation. The final ESMF will incorporate eligibility and exclusion criteria for subprojects, environmental and social technical specifications for the design and construction of road rehabilitation works, and requirements for the contractor's Environmental and Social Management Plans (ESMPs). The final version of the ESMF, revised to reflect the outcomes of the consultation process, will be adopted and disclosed within 30 days of Project Effectiveness. The structure of the contractor's ESMP, as outlined in the ESMF, should be included in the bidding documents for the hiring of contractors, as they will develop the ESMP. Its adoption and implementation must precede and occur throughout the construction works. To mitigate risks related to potential habitat loss and to ensure alignment with the objectives of the Environmental and Social Framework (ESF), the Bank

[101] GHG accounting document is available in the project files.

is already carrying out a comprehensive Biodiversity Preliminary Assessment (BPA), including habitat surveys, and will conduct an extensive Environmental and Social Impact Assessment (ESIA) before the start of implementation.

51. **The social risk classification is Moderate.** The project's interventions are expected to benefit the population most vulnerable to extreme weather events and natural disasters, particularly family farmers and people in situations of poverty. These farmers make up the majority of the population scheduled for the road improvements outlined in Component 1. The rural population will benefit from enhanced roads that facilitate the transportation of agricultural produce, while the urban population will experience improved mobility, accessibility and safety for pedestrians and cyclists in the city center. This will be achieved by reducing truck traffic in city centers. Despite the region's significant tourist potential, the challenges posed by the road network and urban mobility hinder the expansion and consolidation of the economic opportunities associated with tourism.

52. **The potential negative impacts of the project are associated with the construction works under components 1 and 3.** Subcomponent 3.1 involves the construction and maintenance of two road bypasses and the potential upgrade of dirt roads to asphalt roads, which expectations for limited land taking. Subcomponents 1.1 and 1.2 will support proactive road network management on existing highways, with impacts, if any, occurring mostly on land classified as non-construction land. The designs will be prepared following mitigation hierarchy criteria to avoid alternatives with significant adverse impacts, such as physical displacement and losses of livelihood. The Borrower has previous experience with World Bank policies and has a good capacity to minimize impacts related to physical displacement. Indigenous Peoples will not be affected by the project, as there are no indigenous territories or communities in the project area. The only municipality in SES with the presence of IPs is Aracruz, located at least 100 km away from the project area. The region has traditional communities of immigrants of Italian, German and Pomeranian origin, who preserve their own languages and folklore and cultural traditions, benefiting from several project activities.

53. **While no major community health-related risks are envisaged, there may be issues with noise, dust and traffic due to the construction and disruption of roads.** Construction activities may also induce potential concerns such as safety, accidents and road safety, especially during the operation of the roads. To mitigate these risks, specific road safety studies will be carried out. The works are likely to be implemented by local firms and local labor, with no labor influx issues foreseen. There is also a potential that vulnerable and marginalized groups might not benefit from the project. To address these risks, the project will carry out mapping of relevant stakeholders, including government entities and NGOs, to support the engagement process. A robust Grievance Redress System (GRS) will be implemented, and contractual clauses, as well as codes of conduct, will be adopted and implemented to clearly establish the responsibilities of contractors.

54. **A pilot program will be established to promote the employment of women in the logistics and construction sectors, aimed at overcoming the recruitment and retention challenges women encounter in these fields.** This initiative will support women's employment in roles requiring medium skills, including training in operating heavy machinery and truck driving. Participants will not only learn these skills but will also receive support to obtain their heavy equipment/truck licenses and certifications from equipment providers. The requirement for contractors to train women will be incorporated into the bidding documents, adhering to Law No. 14.133/2021. Companies involved in the pilot will be required to create a supportive work environment. This includes establishing a Management Complaints Mechanism to address complaints from female workers regarding sexual harassment (SH), discrimination, and violations of Occupational Health and Safety standards such as the lack of gender-sensitive Personal Protective Equipment and inadequate infrastructure. Furthermore, the pilot program will assess the specific barriers that impede women's employment as truck drivers and in construction. It will implement measures to address these issues, such as raising awareness to challenge stereotypes, determining suitable trip lengths to accommodate women's time constraints, evaluating and mitigating risks, and assisting women in obtaining truck driving licenses. Additionally, the

pilot program will develop methodologies to prevent gender-based violence (GBV), potentially involving community leaders in interventions, implementing intergenerational dialogues, and engaging with ideas about masculine identity. These methodologies will be part of a broader GBV prevention strategy outlined in the Stakeholder Engagement Plan (SEP), which aims to enhance the impact of women's economic empowerment activities in the road sector.

55. **The project will also establish a six-month internship program to promote women's employment in high-skilled STEM jobs.** The internship program will facilitate partnerships between the engineering departments of selected universities and private companies that have adopted gender equality policies. To support the successful transition of participants into the workforce, the initiative will include mentoring and coaching sessions aimed at helping women secure jobs in the sector within six months of completing their internships. Furthermore, the project will encourage contracted companies to implement policies that safeguard female workers and combat SH. These policies will include provisions for maternity leave, flexible working hours for breastfeeding employees and initiatives to support female leadership. This comprehensive approach aims to create a supportive environment that fosters gender equality and empowers women in the STEM field.

56. **The project will promote citizen engagement through various initiatives that have a strong emphasis on gender.** The project aims to boost the active participation of women in public consultations, with a particular focus on decisions concerning the improvement of roads passing through urban areas. To ensure that women's needs are accurately represented, the project will maintain comprehensive records of female participation. This includes monitoring the number of women involved, understanding their preferences, and observing how these preferences influence decisions related to road prioritization and design. By promoting women's involvement in selecting urban roads designs and analyzing gender differences in mobility, the project intends to prioritize roads that not only connect women to their main destinations but are also designed with safety features that prevent violence, such as street lightning, adhering to the principle of visibility ("see and be seen"). Moreover, the project will engage a diverse group of stakeholders, including local citizens, environmental NGOs and politicians in discussions about road projects and bypasses, which are often the subject of controversy. A communication policy, overseen by the PCU, will be developed to mitigate political interference and foster continuous cooperation among various levels of governance. Additionally, the project will seek extensive community input in the selection of roads, setting road safety measures, and collecting feedback on road quality to support the monitoring and enforcement of PBCs. These concerted efforts are designed to make the decisionmaking process both inclusive and reflective of the community's needs. A Grievance Redress Mechanism (GRM) for both public and workers will draw from the successful strategies used in PREMAR 2 in Bahia.

Legal Operational Policies	Triggered?
Projects on International Waterways OP 7.50	No
Projects in Disputed Area OP 7.60	No

V. GRIEVANCE REDRESS SERVICES

57. ***Grievance Redress.*** Communities and individuals who believe that they are adversely affected by a project supported by the World Bank may submit complaints to existing project-level grievance mechanisms or the Bank's Grievance Redress Service (GRS). The GRS ensures that complaints received are promptly reviewed in order to address project-related concerns. Project affected communities and individuals may submit their complaint to the Bank's independent Accountability Mechanism (AM). The AM houses the Inspection Panel, which determines whether harm occurred, or could occur, as a result of Bank non-compliance with its policies and procedures, and

the Dispute Resolution Service, which provides communities and borrowers with the opportunity to address complaints through dispute resolution. Complaints may be submitted to the AM at any time after concerns have been brought directly to the attention of Bank Management and after Management has been given an opportunity to respond. For information on how to submit complaints to the Bank's Grievance Redress Service (GRS), visit http://www.worldbank.org/GRS. For information on how to submit complaints to the Bank's Accountability Mechanism, visit https://accountability.worldbank.org.

VI. KEY RISKS

58. **At the MPA Program level, the overall risk is Substantial, as only four of the planned phases have been approved.** The rest are pending the approval of the Commission of External Financing (COFIEX), as described in the Program PAD. For Phase 2, environmental, stakeholder and procurement risks are Substantial. Other risks are Moderate.

59. **Fiduciary risk is rated Substantial.** Based on the procurement capacity of DER-ES and its experience with World Bank projects and procurement activities, the main procurement risks are the complexity of the high-value contracts and the novel arrangements for the PCU. With regard to the specific needs identified for project procurement, the following actions could reduce risk and facilitate implementation: (a) individual consultants will support the PCU's daily procurement-related routine; (b) DER-ES's procurement specialists and technical staff will attend procurement training and closely follow the STEP tracking system; (c) the Operation Manual will include a detailed description of procurement roles and responsibilities; (d) the Bank's procurement team will closely assist the PCU; and (e) A Special Bidding Committee will be dedicated exclusively to overseeing the project's bidding processes. Considering DER-ES's need for procurement support and the expected workload, the residual procurement risk at this stage is Substantial.

60. **Environmental and Social risk is Substantial.** The DER-ES already has socio-environmental risk management and resettlement management teams. A PCU will be established within DER-ES, subordinated to the Project and Action Management Directorate, and comprising an E&S risk management team (one environmental and one social coordinator, one technical coordinator, one environmental specialist, one social development specialist, and one communication and stakeholder engagement specialist) that will be fully dedicated to the project. To enhance the management of E&S risks, the PCU and DER teams received training during project preparation on the application of relevant environmental and social standards, and specifically on ESS6 pertaining to biodiversity conservation and the sustainable management of living natural resources. Additional training sessions are planned throughout the project implementation on (a) procedures for stakeholder mapping and engagement; (b) specific aspects of environmental and social assessment and management; and (c) application of the project's environmental and social risk management tools.

61. **The stakeholder risk is Substantial.** The different interests of the many actors involved in implementing the new contract models could affect the pace of implementation. The project timeline could also be impacted by the engagement of citizens along the roads slated for rehabilitation, and by possible controversies involving the bypasses, to which some citizens, environmental NGOs and local politicians may be opposed. The risk of political interference could therefore be high. These risks will be mitigated by the creation of an effective communications policy under the PCU's management, and by continuous collaboration between the state, the municipalities, and the citizens' groups.

Annex 1: RESULTS FRAMEWORK AND MONITORING

PDO Indicators by PDO Outcomes

Baseline	Closing Period
Improve access to sustainable, safe, and resilient transport in the State of Espirito Santo	
PDO indicator (safe transport access): Change in annual road crash fatalities along targeted state road corridors in the State of Espírito Santo (Number)	
May/2024	Dec/2032
74	52
PDO indicator (resilient transport access): Share of the paved state road network in the State of Espírito Santo with updated Management Response Plans to climate risks and Natural Disasters (Percentage)	
May/2024	Dec/2032
0	12
Direct users that benefit from improved access to sustainable transport infrastructure and services (Number of people) CRI	
May/2024	Dec/2032
0	1,054,000
➢Direct users that benefit from improved access to sustainable transport infrastructure and services - Female (Number of people) CRI	
May/2024	Dec/2032
0	527,000
➢Direct users that benefit from improved access to sustainable transport infrastructure and services - Youth (Number of people) CRI	
May/2024	Dec/2032
0	100,000

Intermediate Indicators by Components

Baseline	Closing Period
Proactive maintenance based on a long-term (8–25 years) CREMA model using PBCs	
Length of Safe and Resilient State road corridors under PBCs (Kilometers)	
May/2024	Dec/2032
0	430
➢Length of safe and resilient State road corridors under CREMA - DBM - (8 to 10 year contract with full rehabilitation) (Kilometers)	

May/2024	Dec/2032
0	250
➢Length of safe and resilient State road corridors under CREMA - PPP (over 20 years) (Kilometers)	
May/2024	Dec/2032
0	180
Hazardous spots for safety and resilience improved in selected State road corridors (Number)	
May/2024	Dec/2032
0	50
➢Hazardous spots for safety improved in selected State road corridors (Number)	
May/2024	Dec/2032
0	25
➢Hazardous spots for climate resilience improved in selected State road corridors (Number)	
May/2024	Dec/2032
0	25
CREMA-PPP contracts structured in the State of Espirito Santo (Number)	
May/2024	Dec/2032
0	1
Total value o Private Capital Enabling (Amount(USD))	
May/2024	Dec/2032
0	117
➢Of which CREMA-PPPs (Amount(USD))	
May/2024	Dec/2032
0	112.40
➢Private Capital Mobilization within CREMA-DBM contracts (during rehabilitation phase) (Amount(USD))	
May/2024	Dec/2032
0	4.60
Institutional strengthening	
Safe, sustainable and Resilient road asset management: Strategic Plan for Network Maintenance with implemented Maintenance Fund (Yes/No)	
May/2024	Dec/2032
No	Yes
Safe, sustainable and Resilient road asset management: Geospatial Tool and Manual for Climate Resilience Adaptation Adopted (Yes/No)	
May/2024	Sep/2032
No	Yes
Safe, sustainable and Resilient road asset management: Lead Road Agency established with road safety operations pilots implemented (Yes/No)	

May/2024	Dec/2032
No	Yes
Social inclusion and gender: Women trained as part of the trucking and construction companies contracted by the project. (Number)	
May/2024	Dec/2032
0	50
Green Mobility and Logistics: Updated State Logistics Plan including Decarbonization and Digitalization (Yes/No)	
May/2024	Dec/2032
No	Yes
Safe and resilient improvements of road infrastructure	
Physical progress of kilometers built for the bypasses along selected logistical state road corridors (Kilometers)	
May/2024	Dec/2032
0	20
Length of urbanized areas along the selected logistical state roads with pedestrian, cycling and drainage infrastructure implemented and improved (Kilometers)	
May/2024	Dec/2032
0	8
➢Length of urban areas along the selected State roads with pedestrian infrastructure implemented and improved (Kilometers)	
May/2024	Dec/2032
0	8
➢Length of urbanized areas along the selected logistical state road corridors with cycling infrastructure implemented and improved (Kilometers)	
May/2024	Dec/2032
0	8
➢Length of urbanized areas along the selected logistical state roads with drainage infrastructure implemented and improved (Kilometers)	
May/2024	Dec/2032
0	8
Municipalities where population was consulted and is satisfied with the improvement of road safety and construction of bypasses (Number)	
May/2024	Dec/2032
0	4
➢Level of satisfaction of population involved in the design of the road safety and active mobility improvements (Percentage)	
May/2024	Dec/2032
0	80
➢Level of satisfaction with the interventions in the selected municipalities of women (Percentage)	
May/2024	Dec/2032
0	80
Project management	

Number of learning events done annually among Brazil Pro-Roads Program participants (Number)	
May/2024	Dec/2032
0	4
Requests included in the Grievance Redress Mechanism of the Project satisfactorily solved (Percentage)	
Jun/2024	Jun/2032
0	80
Social inclusion and gender: GBV training events to mitigate GBV/SEA risks in construction and logistics companies and schools along the selected roads. (Number)	
May/2024	Jun/2032
0	25

Monitoring & Evaluation Plan: PDO Indicators by PDO Outcomes

Improve access to sustainable, safe, and resilient transport in the State of Espírito Santo	
PDO indicator (sustainable transport access): People benefiting from improved access to sustainable transport infrastructure and services (Number) – Scorecard indicator	
Description	Number of people that benefit from access to sustainable and reliable transport infrastructure in selected areas of the State of Espírito Santo. All the selected roads managed under PBCs will be counted as reliable and fiscally/environmentally sustainable infrastructure. Number in millions - to be refined during the first year of implementation.
Frequency	Each semester
Data source	DER-ES
Methodology for Data Collection	DER-ES will share this indicator with the Bank based the beneficiaries that live close to the selected roads that will benefit from the activities of the Project – starting from the baseline of 0 contracts today. This will be part of the Semestral Reports. The final baseline and target will be calculated during the first year of implementation.
Responsibility for Data Collection	DER-ES
PDO indicator (safe transport access): Change in annual road crash fatalities along targeted state road corridors in the State of Espírito Santo (Number)	
Description	Change in the number of fatalities and serious injuries in the selected roads of the Project. The target is to reduce 30 percent to 52 fatalities.
Frequency	Each Semester
Data source	DER-ES will report from their crash database system on the semestral reports of the Project
Methodology for Data Collection	Gathering the previous semester data on crashes on the roads of the Project and comparing the results with the baseline.
Responsibility for Data Collection	DER-ES
PDO indicator (resilient transport access): Share of the paved state road network in the State of Espírito Santo with updated Management Response Plans to climate risks and Natural Disasters (Percentage)	
Description	Share of the paved State Road network with Climate and DRM plans which will be incorporated as part of the new CREMA DBM and new CREMA PPP contracts (from the baseline of 0% km to a target of 12%). This indicator will be updated during the first year.
Frequency	Each semester
Data source	DER-ES
Methodology for Data Collection	DER-ES will share this indicator with the Bank based on their contracts with Management Response Mechanisms over the total of the State paved road network – starting from the baseline of 0 contracts today. This will be part of the Semestral Reports.
Responsibility for Data Collection	DER-ES

Monitoring & Evaluation Plan: Intermediate Results Indicators by Components

Proactive maintenance based on a long-term (8–25 years) CREMA model using PBCs	
Length of Safe and Resilient State road corridors under PBCs (Kilometers)	
Description	The total length of roads under the different PBC modalities: CREMA DBM, Proactive Maintenance, and CREMA PPP
Frequency	Each Semester
Data source	DER-ES
Methodology for Data Collection	Number of kms of roads contracted
Responsibility for Data Collection	DER-ES
Length of safe and resilient State road corridors under CREMA - DBM - (8 to 10 year contract with full rehabilitation) (Kilometers)	
Description	The total length of roads under CREMA DBM in Espírito Santo

Frequency	Each Semester
Data source	DER-ES
Methodology for Data Collection	Number of kms of roads contracted
Responsibility for Data Collection	DER-ES
Length of safe and resilient State road corridors under CREMA - PPP (over 20 years) (Kilometers)	
Description	The total length of roads under CREMA PPP in Espírito Santo
Frequency	Each Semester
Data source	DER-ES
Methodology for Data Collection	Number of kms of roads contracted
Responsibility for Data Collection	DER-ES
Hazardous spots for safety and resilience improved in selected State road corridors (Number)	
Description	Spots identified by the IRAP analysis, plus climate vulnerability areas
Frequency	Each Semester
Data source	DER-ES
Methodology for Data Collection	Number of spots along the roads eliminated
Responsibility for Data Collection	DER-ES
Hazardous spots for safety improved in selected State road corridors (Number)	
Description	Spots identified by the IRAP analysis and road safety audits
Frequency	Each Semester
Data source	DER-ES
Methodology for Data Collection	Number of spots along the roads eliminated
Responsibility for Data Collection	DER-ES
Hazardous spots for climate resilience improved in selected State road corridors (Number)	
Description	Spots identified by the climate resilience audits
Frequency	Each Semester
Data source	DER-ES
Methodology for Data Collection	Number of spots along the roads eliminated
Responsibility for Data Collection	DER-ES
CREMA-PPP contracts structured in the State of Espírito Santo (Number)	
Description	Road contracts under the PPP law in the State
Frequency	Each Semester
Data source	DER-ES
Methodology for Data Collection	Number of PPP contracts prepared and bidded.
Responsibility for Data Collection	DER-ES
Total value o Private Capital Enabling (Amount(USD))	
Description	Values of Private Capital financing to be invested in the potential PPPs along selected State Road Corridors and on the CREMA - DBMs
Frequency	Each Semester
Data source	DER-ES

Methodology for Data Collection	Total amount of private investment in the PPPs or CREMA-DBMs
Responsibility for Data Collection	DER-ES
Of which CREMA-PPPs (Amount(USD))	
Description	This is the estimated PCM value during the implementation of the CREMA PPP contracts.
Frequency	Each Semester
Data source	DER-ES
Methodology for Data Collection	Total amount of private investment in the rehabilitation phase for the PPP contracts
Responsibility for Data Collection	DER-ES
Private Capital Mobilization within CREMA-DBM contracts (during rehabilitation phase) (Amount(USD))	
Description	This is the estimated PCM value during the implementation of the CREMA DBM contracts.
Frequency	Each Semester
Data source	DER-ES
Methodology for Data Collection	Total amount of private investment in the rehabilitation phase
Responsibility for Data Collection	DER-ES
Institutional strengthening	
Safe, sustainable and Resilient road asset management: Strategic Plan for Network Maintenance with implemented Maintenance Fund (Yes/No)	
Description	A strategic plan detailing the type of contracts that will be implemented over each part of the State Road Network, among PPP, DBM, or others - ensuring sustainability, safety, and resilience, and pushing the MFD agenda with more PPPs. This will include climate-resilient features. A maintenance fund at State level shall be implemented to support the strategic plan.
Frequency	Each Semester
Data source	DER-ES
Methodology for Data Collection	Plan developed (Y/N)
Responsibility for Data Collection	DER-ES
Safe, sustainable and Resilient road asset management: Geospatial Tool and Manual for Climate Resilience Adaptation Adopted (Yes/No)	
Description	Tool developed for improving climate vulnerability knowledge of the State Network
Frequency	Each Semester
Data source	DER-ES
Methodology for Data Collection	Tool developed (Y/N)
Responsibility for Data Collection	DER-ES
Safe, sustainable and Resilient road asset management: Lead Road Agency established with road safety operations pilots implemented (Yes/No)	
Description	This indicator will track the stablishment of a Lead Road Agency and the implementation of a Road Safety pilot.
Frequency	Each Semester
Data source	DER-ES
Methodology for Data Collection	Pilots and Agency implemented (Y/N)
Responsibility for Data Collection	DER-ES
Social inclusion and gender: Women trained as part of the trucking and construction companies contracted by the project. (Number)	
Description	This indicator will measure the number of women trained in the construction and logistics companies participating on

	the pilot program of the Project, specifically designed for supporting capacity building for trucking and heavy machinery. The baseline account for 0 women trained and the target is to reach to 50 women trained by project closing on the companies participating in the pilot.
Frequency	Each Semester
Data source	DER-ES
Methodology for Data Collection	Number of women trained on those companies
Responsibility for Data Collection	DER-ES
Green Mobility and Logistics: Updated State Logistics Plan including Decarbonization and Digitalization (Yes/No)	
Description	This indicator will track whether the state's logistic plan has been updated to incorporate strategies for decabinization and digitalization, evaluating the states commitment to sustainable and modernized transportation and logistic practices.
Frequency	Annual
Data source	DER-ES
Methodology for Data Collection	Evaluation of the updated logistics plan documents and implementation reports.
Responsibility for Data Collection	DER-ES
Safe and resilient improvements of road infrastructure	
Physical progress of kilometers built for the bypasses along selected logistical state road corridors (Kilometers)	
Description	Number of kilometers of bypasses implemented
Frequency	Each Semester
Data source	DER-ES
Methodology for Data Collection	Number of kilometers of bypasses implemented
Responsibility for Data Collection	DER-ES
Length of urbanized areas along the selected logistical state roads with pedestrian, cycling and drainage infrastructure implemented and improved (Kilometers)	
Description	Measuring the number of Km of improved NMT and drainage infrastructure along the selected areas
Frequency	Each Semester
Data source	DER-ES
Methodology for Data Collection	Number of kilometers implemented
Responsibility for Data Collection	DER-ES
Length of urban areas along the selected State roads with pedestrian infrastructure implemented and improved (Kilometers)	
Description	Kilometers with pedestrian infrastructure implemented
Frequency	Each Semester
Data source	DER-ES
Methodology for Data Collection	Number of km implemented
Responsibility for Data Collection	DER-ES
Length of urbanized areas along the selected logistical state road corridors with cycling infrastructure implemented and improved (Kilometers)	
Description	Kilometers with cyclists infrastructure implemented
Frequency	Each Semester
Data source	DER-ES
Methodology for Data Collection	Number of km implemented
Responsibility for Data Collection	DER-ES

Length of urbanized areas along the selected logistical state roads with drainage infrastructure implemented and improved (Kilometers)	
Description	Kilometers with drainage infrastructure implemented
Frequency	Each Semester
Data source	DER-ES
Methodology for Data Collection	Number of km implemented
Responsibility for Data Collection	DER-ES
Municipalities where population was consulted and is satisfied with the improvement of road safety and construction of bypasses (Number)	
Description	The inhabitants of the Municipalities will be selecting and prioritizing the safe active mobility interventions in the urban areas where state roads intersect, as part of the public consultation. The follow-up survey will analyze their satisfaction with the selected roads once the roads are improved. A consultancy will support DER-ES and the municipalities to improve the process for future selection process in other areas.
Frequency	Each Semester
Data source	DER-ES
Methodology for Data Collection	Number of municipalities
Responsibility for Data Collection	DER-ES
Level of satisfaction of population involved in the desing of the road safety and active mobility improvements (Percentage)	
Description	Measure the satisfaction levels that reflects the extent to which the community feels their opinions and needs were considered in the decision-making process
Frequency	Each Semester
Data source	DER-ES
Methodology for Data Collection	Surveys will be conducted among the population involved in the selection and design/consultation process.
Responsibility for Data Collection	DER-ES
Level of satisfaction with the interventions in the selected municipalities of women (Percentage)	
Description	Percentage of women that are satisfied and feel that their opinions and needs were considered in the decision-making process
Frequency	Each Semester
Data source	DER-ES
Methodology for Data Collection	Surveys will be conducted among the population involved in the selection and design / consultation process.
Responsibility for Data Collection	DER-ES
Project management	
Number of learning events done annually among Brazil Pro-Roads Program participants (Number)	
Description	Events organized by the MoT and the World Bank in collaboration with other Stakeholders for the Learning Agenda.
Frequency	Each Semester
Data source	DER-ES and MoT
Methodology for Data Collection	Events organized by the MoT and the World Bank in collaboration with other Stakeholders for he Learning Agenda.
Responsibility for Data Collection	DER-ES and Minitry of Transport
Requests included in the Grievance Redress Mechanism of the Project satisfactorily solved (Percentage)	
Description	Percentage of queries and requests included in the GRM system of the Project which are satisfactorily solved after no more than 4 months
Frequency	Each Semester
Data source	DER-ES
Methodology for Data	Checking regularly the request done by the communities and other stakeholders in the GRM, and provide them with a

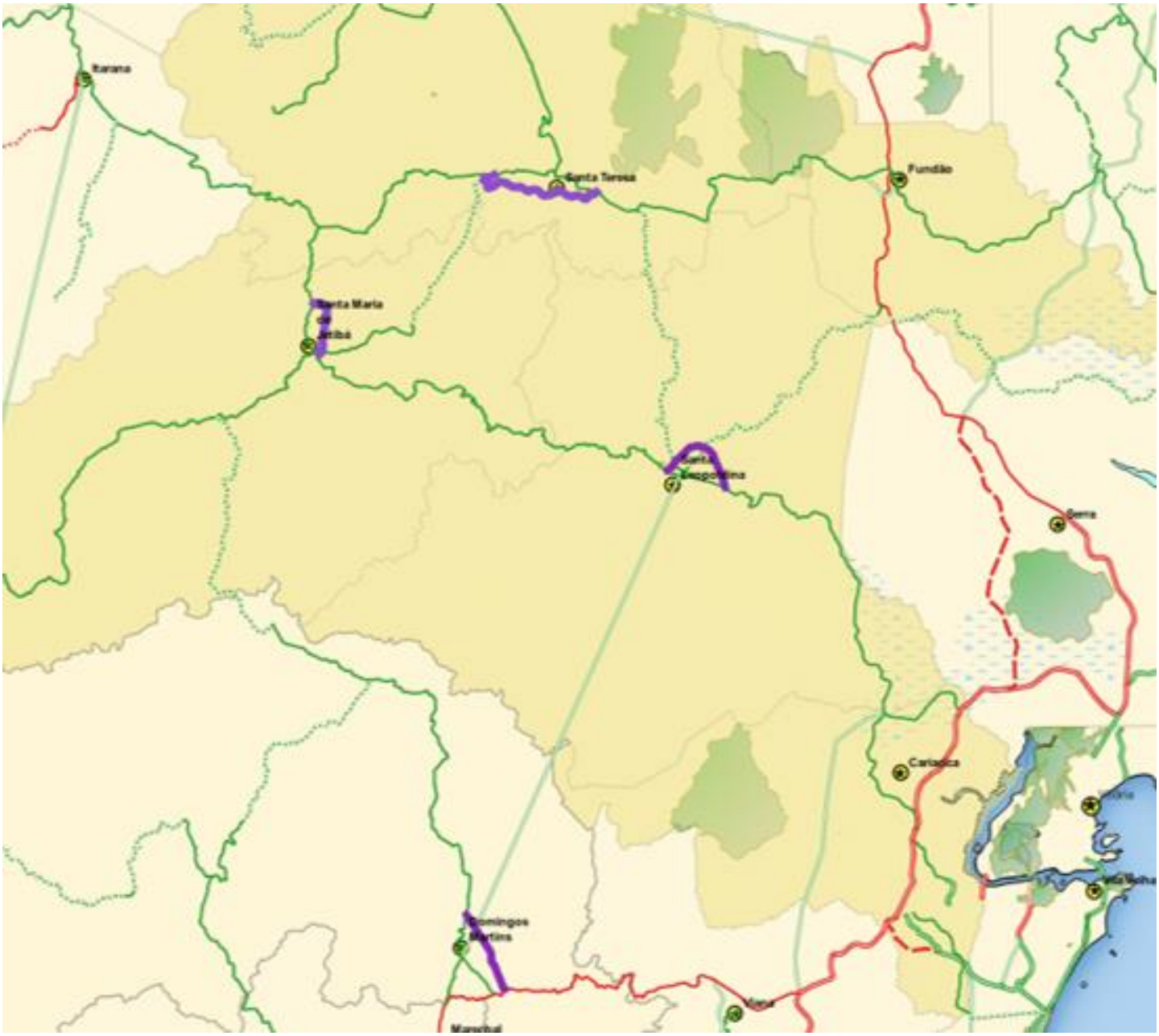
Collection	satisfactory action or response if the action can not be implemented.
Responsibility for Data Collection	DER-ES
Social inclusion and gender: GBV training events to mitigate GBV/SEA risks in construction and logistics companies and schools along the selected roads. (Number)	
Description	This indicator will measure the number of training and awareness campaigns done in schools, logistics, and construction companies to mitigate the risks of SEA/SH and GBV in those environments.
Frequency	Each Semester
Data source	DER-ES
Methodology for Data Collection	Events organized by the DER-ES and the contractors in collaboration with other Stakeholders for ensuring awareness.
Responsibility for Data Collection	DER-ES

Annex 2: Maps

Map #1: Planned interventions of the Project

Source: DER-ES

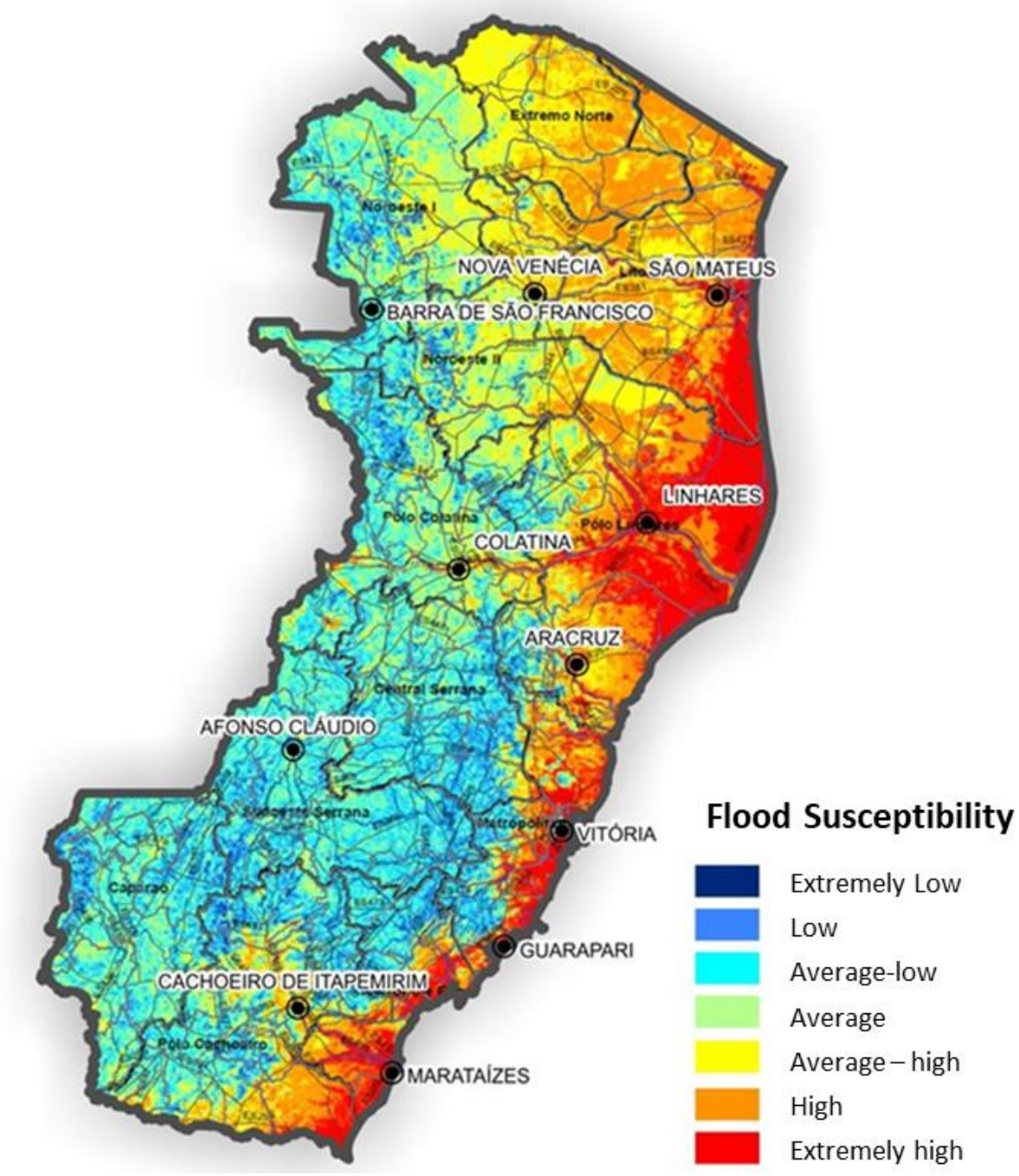
Map #2: Selected bypasses for Component 3



Source: DER-ES

Note: Domingos Martins and Santa Maria de Jetibá will only be projected, not built

Map #3: Flood susceptibility in Espírito Santo



Source: DER-ES