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INTERNATIONAL DEVELOPMENT ASSOCIATION

PROJECT PAPER

ON A

PROPOSED ADDITIONAL CREDIT

IN THE AMOUNT OF EUR 66 MILLION
(US\$70 MILLION EQUIVALENT)
FROM SCALE-UP WINDOW

TO THE

REPUBLIC OF SENEGAL

FOR THE

DAKAR BUS RAPID TRANSIT PILOT PROJECT

April 12, 2023

Transport Global Practice
Western And Central Africa Region

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CURRENCY EQUIVALENTS

Exchange Rate Effective February 28, 2023

Currency Unit =	CFA Francs (CFAF)
	EURO

US\$1 =	CFAF 618
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US\$1 =	EUR 0.942
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FISCAL YEAR

January 1 - December 31

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ABBREVIATIONS AND ACRONYMS

AF	Additional Financing
AFD	<i>Agence Française de Développement</i> (French Development Agency)
AFTU	<i>Association de Financement des Transports Urbains</i> (Urban Transport Financing Group)
AGEROUTE	<i>Agence Autonome de Gestion des Routes</i> (Autonomous Road Management Agency)
BRT	Bus Rapid Transit
CETUD	<i>Conseil Exécutif des Transports Durables de Dakar</i> (Dakar Sustainable Transport Council)
CPF	Country Partnership Framework
CRBC	China Road and Bridge Corporation
DA	Designated Account
DDD	Dakar Dem Dikk
E&S	Environmental and Social
EIB	European Investment Bank
EIRR	Economic Internal Rate of Return
ESIA	Environmental and Social Impact Assessment
ESMP	Environmental and Social Management Plan
EU	European Union
GBV	Gender-Based Violence
GCF	Green Climate Fund
GCRF	Global Crisis Response Framework
GDA	Greater Dakar Area
GDP	Gross Domestic Product
GHG	Greenhouse Gas
GoS	Government of Senegal
GRM	Grievance Redress Mechanism
IFC	International Finance Corporation
IFI	International Finance Institution
IP	Implementation Progress
ISR	Implementation and Status Results Report
ITS	Intelligent Transportation System
MIGA	Multilateral Investment Guarantee Agency
NDC	Nationally Determined Contribution
NPV	Net Present Value
OHS	Occupational Health and Safety
PAD	Project Appraisal Document
PDO	Project Development Objective
PMUS	<i>Plan de Mobilité Urbaine Soutenable</i> (Sustainable Urban Mobility Plan)
PP	Procurement Plan
PPP	Public-private Partnership

PPSD	Procurement Strategy for Development
PSE	<i>Plan Sénégal Emergent</i> (Emerging Senegal Plan)
RAP	Resettlement Action Plan
SEA	Sexual Exploitation and Abuse
SEP	Stakeholder Engagement Plan
SETER	<i>Société d'Exploitation du Train Express Régional</i> (Express Regional Train Operating Company)
SH	Sexual Harassment
SNCF	<i>Société Nationale des Chemins de Fer Français</i> (French National Railway Company)
SUW	Scale-Up Window
TER	<i>Train Express Régional</i> (Regional Express Train)
UNFCCC	United Nations Framework Convention on Climate Change

REPUBLIC OF SENEGAL
ADDITIONAL FINANCING FOR DAKAR BUS RAPID TRANSIT PILOT PROJECT

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BASIC INFORMATION – PARENT (Dakar Bus Rapid Transit Pilot Project - P156186)

Country Senegal	Product Line IBRD/IDA	Team Leader(s) Franck Taillandier		
Project ID P156186	Financing Instrument Investment Project Financing	Resp CC IAWT4 (9978)	Req CC AWCF1 (6550)	Practice Area (Lead) Transport

Implementing Agency: CETUD

Is this a regionally tagged project? No	
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Bank/IFC Collaboration Yes	Joint Level Joint Project - involving co financing with IFC (loan, equity, budget, other) or staffing
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Approval Date 25-May-2017	Closing Date 30-Jun-2023	Expected Guarantee Expiration Date	Original Environmental Assessment Category Full Assessment (A)	Current EA Category Full Assessment (A)
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Financing & Implementation Modalities

<input type="checkbox"/> Multiphase Programmatic Approach [MPA]	<input type="checkbox"/> Contingent Emergency Response Component (CERC)
<input type="checkbox"/> Series of Projects (SOP)	<input type="checkbox"/> Fragile State(s)
<input type="checkbox"/> Performance-Based Conditions (PBCs)	<input type="checkbox"/> Small State(s)
<input type="checkbox"/> Financial Intermediaries (FI)	<input type="checkbox"/> Fragile within a Non-fragile Country
<input type="checkbox"/> Project-Based Guarantee	<input type="checkbox"/> Conflict
<input type="checkbox"/> Deferred Drawdown	<input type="checkbox"/> Responding to Natural or Man-made disaster
<input type="checkbox"/> Alternate Procurement Arrangements (APA)	<input type="checkbox"/> Hands-on Expanded Implementation Support (HEIS)



Development Objective(s)

The Project Development Objective is to enhance urban mobility between Dakar and Guédiawaye through the development of a Bus Rapid Transit (BRT) corridor.

Ratings (from Parent ISR)

	Implementation					Latest ISR
	15-Jun-2020	11-Dec-2020	10-Jun-2021	04-Mar-2022	30-Sep-2022	11-Apr-2023
Progress towards achievement of PDO	MS	MS	MS	MS	S	S
Overall Implementation Progress (IP)	S	S	S	S	S	S
Overall Safeguards Rating	MS	MS	MS	MS	MS	MS
Overall Risk	H	H	H	S	H	H
Financial Management	MS	MS	MS	MS	MS	MS
Project Management	S	S	S	S	S	S
Procurement	S	S	S	S	S	S
Monitoring and Evaluation	S	S	S	S	S	S

BASIC INFORMATION – ADDITIONAL FINANCING (Additional Financing for Dakar Bus Rapid Transit Pilot Project - P180789)

Project ID	Project Name	Additional Financing Type	Urgent Need or Capacity Constraints
P180789	Additional Financing for Dakar Bus Rapid Transit	Cost Overrun/Financing Gap	No



	Pilot Project		
Financing instrument	Product line	Approval Date	
Investment Project Financing	IBRD/IDA	04-May-2023	
Projected Date of Full Disbursement	Bank/IFC Collaboration		
31-Jan-2025	No		
Is this a regionally tagged project?			
No			

Financing & Implementation Modalities

<input type="checkbox"/> Series of Projects (SOP)	<input type="checkbox"/> Fragile State(s)
<input type="checkbox"/> Performance-Based Conditions (PBCs)	<input type="checkbox"/> Small State(s)
<input type="checkbox"/> Financial Intermediaries (FI)	<input type="checkbox"/> Fragile within a Non-fragile Country
<input type="checkbox"/> Project-Based Guarantee	<input type="checkbox"/> Conflict
<input type="checkbox"/> Deferred Drawdown	<input type="checkbox"/> Responding to Natural or Man-made disaster
<input type="checkbox"/> Alternate Procurement Arrangements (APA)	<input type="checkbox"/> Hands-on Expanded Implementation Support (HEIS)
<input type="checkbox"/> Contingent Emergency Response Component (CERC)	

Disbursement Summary (from Parent ISR)

Source of Funds	Net Commitments	Total Disbursed	Remaining Balance	Disbursed	
IBRD				<div></div>	%
IDA	300.00	156.88	154.89	<div></div>	50 %
Grants				<div></div>	%

PROJECT FINANCING DATA – ADDITIONAL FINANCING (Additional Financing for Dakar Bus Rapid Transit Pilot Project - P180789)**FINANCING DATA (US\$, Millions)**

**SUMMARY (Total Financing)**

	Current Financing	Proposed Additional Financing	Total Proposed Financing
Total Project Cost	395.24	218.95	614.19
Total Financing	395.24	218.95	614.19
of which IBRD/IDA	300.00	70.00	370.00
Financing Gap	0.00	0.00	0.00

DETAILS - Additional Financing**World Bank Group Financing**

International Development Association (IDA)	70.00
IDA Credit	70.00
MIGA	22.00

Non-World Bank Group Financing

Commercial Financing	90.00
Commercial Financing Guaranteed	22.00
Unguaranteed Commercial Financing	68.00
Other Sources	58.95
Borrower/Recipient	5.00
EC: European Investment Bank	53.95

IDA Resources (in US\$, Millions)

	Credit Amount	Grant Amount	SML Amount	Guarantee Amount	Total Amount
Senegal	70.00	0.00	0.00	0.00	70.00
Scale-Up Window (SUW)	70.00	0.00	0.00	0.00	70.00
Total	70.00	0.00	0.00	0.00	70.00

**COMPLIANCE****Policy**

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

☐ Yes ☒ No

Does the project require any other Policy waiver(s)?

☐ Yes ☒ No

INSTITUTIONAL DATA**Practice Area (Lead)**

Transport

Contributing Practice Areas**Climate Change and Disaster Screening**

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

PROJECT TEAM**Bank Staff**

Name	Role	Specialization	Unit
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Fatima Arroyo Arroyo	Team Leader	Urban Transport	IAWT4
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Mountaga Ndiaye	Procurement Specialist	Procurement	EAWRU
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Aiga Stokenberga	Team Member	geo-mapping	ILCT1
Anta Tall Diallo	Procurement Team	Program Assistant	AWCF1
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Bianca Bianchi Alves	Peer Reviewer	Transport	ISAT1
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Faly Diallo	Team Member	Finance	WFACS
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Tojoaropenitra Ramanankirahina	Team Member	Transport	IAET1
Extended Team			
Name	Title	Organization	Location



I. BACKGROUND AND RATIONALE FOR ADDITIONAL FINANCING

A. Introduction

1. **This Project Paper seeks the approval of the Executive Directors to provide an Additional Financing (AF) to cover a cost-overrun** in the amount of Euro 66 million (US\$70 million equivalent) from the International Development Association (IDA) Scale-up Window (SUW) to the Republic of Senegal for the Dakar Bus Rapid Transit Pilot Project (P156186). The AF will cover a financing gap that has emerged due to cost overrun.
2. **The proposed AF envisages restructuring of the parent project including** (i) an extension of the closing date of the project by 18 months to December 31, 2024; and (ii) changes to the Results Framework by adjusting selected targets to reflect the extended closing date of the project. The Project Development Objective (PDO), the Project Scope, the safeguards category, and the implementation arrangements of the project will remain the same.

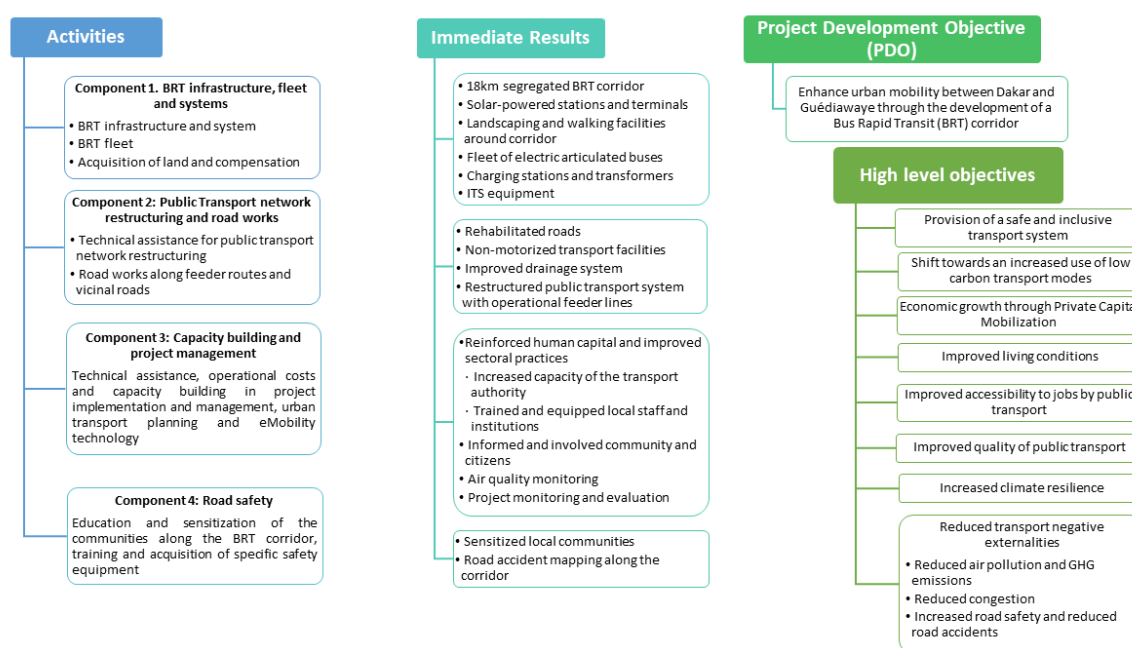
B. Brief Description of the parent project

3. **The Dakar Bus Rapid Transit Pilot Project (P156186)** (US\$300 million equivalent IDA credit) was approved on May 25, 2017, and became effective on November 14, 2017. The PDO is to enhance urban mobility between Dakar and Guédiawaye through the development of a Bus Rapid Transit (BRT) corridor. The Dakar BRT project will benefit residents across the Greater Dakar Area (GDA), especially low-income and vulnerable groups such as women or the elderly, who have been disproportionately affected by the lack of adequate public transport services. Once operational, the BRT will carry up to 300,000 passengers per day, with corridor travel times reduced from 95 to just 45 minutes. The project will significantly increase accessibility to jobs and other opportunities by public transport for the 1.7 million people in the BRT network's catchment area: during peak hours, the proportion of residents who can reach the city center within 60 minutes by public transport will increase from 57 to 69 percent and people in poorer areas in the northern suburbs will have access to more than 120,000 additional jobs. The project will also play an important role in reducing the climate impact of urban transport in Dakar, decreasing greenhouse gas (GHG) emissions and local pollutants emissions.
4. The core of the Dakar BRT project is the construction of a 18.3 km fully segregated BRT line connecting the Petersen Bus Station in Dakar Plateau (town center) to Guédiawaye Prefecture (northern suburbs), including three major passenger terminals and 20 additional stations, the provision of safe, convenient, and secure access and crossings for pedestrians, and the provision of a bus fleet and intelligent transportation systems (ITS) to assist in managing and operating services and to collect fares (Component 1). The project also includes restructuring the public transport network, provision of street furniture along feeder routes, road works on feeder roads and neighborhood roads along the corridor, and various technical assistance with a strong emphasis on accessibility and nonmotorized modes (Component 2). Capacity building and project outcome monitoring constitute Component 3. Component 4 is dedicated to road safety activities, including communication and training.



5. The overall theory of change is represented in Figure 1.¹ The combined outputs of activities will improve the quality of public transport, therefore increasing the accessibility of the population to jobs and other opportunities by public transport. Delivering this low-emission mass public transport system will also contribute to reducing transport negative externalities, especially when combined with outputs from activities such as road safety sensitization campaigns or monitoring activities, ranging from road accident mapping to air quality surveillance. Finally, capacity-building activities, especially in the domains of urban transport planning or electric mobility technologies, will contribute to reinforcing human capital and to improving sectoral practices. As a result, a shift towards increased use of low-carbon transport modes is expected to occur.

Figure 1: Theory of Change



C. Current Status of the Parent Project

6. **Progress towards PDO and Implementation Progress (IP).** Since the project's effectiveness, progress towards achieving the PDO and IP have been rated Moderately Satisfactory (MS) or Satisfactory. Since September 2022, progress towards achieving the PDO and IP are both rated Satisfactory as the project is now on track to meet the desired outcomes, mainly because (i) all resettlements² along the

¹ As the description of the Results chain and the Theory of Change were not included in the Project Appraisal Document (PAD) of the parent project, they are presented at this stage.

² The social impacts of these resettlements were carefully managed including (i) full compensation of roadside vendors considered as Project Affected Persons in addition to compensation for loss of revenues during the construction; (ii) additional actions to improve the living conditions of the population living nearby the corridor; and (iii) a comprehensive and regular social communication campaign and fully operational grievance redress mechanism (GRM).



corridor have been completed; (ii) the measures put in place to address the delays due to the COVID-19 slowdown have significantly sped up implementation of the BRT infrastructure works in the last two quarters of 2022 in order to complete the BRT infrastructure works on time; and (iii) the selection of the BRT private sector operator was successfully concluded with the signing of the concession contract in March 2022. However, the overall risk is “High” due to (i) the risks of delay and cost overruns, that jeopardize the prospect of achieving the PDO before the project's initial closing date on June 30, 2023; (ii) the choice of the electric technology for the BRT fleet, which resulted in a higher cost for both fleet and infrastructure.

7. Progress to date in each component is as follows:

- *Component 1 - BRT infrastructure, fleet, and systems (US\$379.5 million equivalent):* This component represents 83 percent of the total project cost. The contract for the construction works of the 18.3 km long segregated BRT corridor was signed in October 2019, and the progress of the physical work is now at 68 percent after picking up pace following delays experienced at the start due to COVID-19-related restrictions. The concession contract for the BRT Operator, which includes the provision of the fleet and bus operations, was signed in March 2022 and bus commercial operations are expected to start in the second half of 2023.
- *Component 2 - Public transport network restructuring and road works (US\$25 million equivalent):* This component represents 9 percent of the total project cost. The technical studies for the restructuring of the public transport network in Greater Dakar, urban infrastructure, and traffic and parking measures around the BRT are underway. The progress of this component is 65 percent, with 9 percent of the road works implemented. Bidding documents for the works were submitted to the Bank at the end of March 2023 and procurement to recruit the construction firms will be launched accordingly, subject to the project closing date extension. This component is essential for the smooth operation of the BRT corridor and good integration of the BRT in the existing public transport network and the urban environment.
- *Component 3 - Capacity building and project management (US\$12.3 million equivalent):* This component supports the operations, project management, and capacity building of the implementing agency, Dakar Sustainable Transport Council (*Conseil Exécutif des Transports Durables de Dakar*, CETUD). Implementation progress for this component to date is 60 percent and all activities are expected to be completed by June 2023.
- *Component 4 - Road safety (US\$2 million equivalent):* This component supports education and sensitization of the communities along the BRT corridors on road safety issues through training and specialized safety equipment. The progress of activities to date is 8 percent and all are expected to be completed by June 2023.

8. The appraisal mission on March 22-24, 2023, confirmed that the project is on track to ensure the start of the BRT commercial operations in the second half of 2023. All stakeholders are engaged for the success of the project. The electric bus prototype was presented to the public on April 4th, 2023, Senegal Independence Day with a high-level communication from the Head of State. Additional buses are expected in the coming months for an expected fleet of 158 in total. Civil works are ongoing and well advanced on all the 10 sections of the BRT corridor with some delays on some points such as depot and intermodal areas (Grand Médine and Petersen). Concerns were raised about the need to accelerate the pace of ongoing infrastructure works to meet this set deadline. Following a high-level meeting between



the Minister of Infrastructure, Land and Transport and the Managing Director of the construction firm China Road and Bridge Corporation (CRBC), and as stated in the latest Implementation Status and Results Report (ISR, April 2023), a revised action plan with committed dates shall be provided by the end of April 2023 by CRBC, which will provide details on the works' implementation arrangements to ensure completion and proper handover of the infrastructure works in due time to meet the deadline. This action plan will be monitored every two weeks.

9. **Environmental and Social (E&S) performance.** To date, the E&S performance of the project is deemed "Moderately Satisfactory". During the BRT infrastructure works, the parent project has experienced several Occupational Health and Safety (OHS) related incidents including a road safety accident, allegations of sexual harassment, and the collapse of the slab of a house close to the works injuring several people. Following the implementation of action plans to address identified shortcomings, the BRT infrastructure construction firm has significantly improved E&S management. Some actions remain however to be implemented notably for (i) improved OHS management on the works' sites; (ii) improved and safer traffic management around the BRT corridor.

10. In light of a recent serious accident on March 3, 2023, which involved a construction truck, all stakeholders have also agreed to a stringent action plan, which includes binding contractual measures to (i) further prevent the circulation of pedestrians on the works sites; (ii) improve the safe circulation of construction trucks on the sites; and (iii) strengthen CRBC's Environmental and Social Management Plan (ESMP) based on a recent World Bank road safety mission findings.

11. **As of April 1, 2023, the project has disbursed US\$156.88 million equivalent, which is 52 percent of the total IDA Credit.** Most of the disbursed amount was allocated to Component 1, the BRT infrastructure. The disbursement rate has significantly increased in 2022 and forecasts show that 66 percent of the IDA credits shall be disbursed by June 2023.

12. **A first project restructuring** was approved in March 2019 and was reflected in the Amendment to the Financing Agreement.³ The main change was to include a new part, "Acquisition of land and provision of compensation (including cash compensation and other assistance paid for involuntary resettlement) related to the implementation of the Resettlement Action Plan (RAP) and/or the relevant Site-specific RAPs, as applicable" to be financed by Regular IDA as approved by the World Bank regional management on January 30, 2019. As a result, a new category of expenditure was created with a Euro 18.15 million allocation, while the allocation for Category 2 expenditure was reduced from Euro 41.7 million to Euro 23.55 million.

D. Country Context since the Parent Project Appraisal

13. **The COVID-19 outbreak halted years of strong economic performance.** The combination of a COVID-19-induced global recession, disruptions in supply chains, and containment measures took a heavy toll on the Senegalese economy. As a result, growth dropped from 4.4 percent in 2019 to 1.5 percent in 2020. This first recession since 1990 has significantly altered the country's economic outlook, affecting services such as tourism and transport, as well as exports. Inflation also increased from 1 percent in 2019

³ Credits No. 6058-SN and 6059-SN.



to 2.5 percent in 2020 and 2.2 percent in 2021 due to higher transport and food prices stemming from lockdowns and supply chain disruptions.

14. **The recovery from the COVID-19 pandemic remains a challenge and has been undermined by continued macro-economic and logistical challenges.** Real growth is expected to slow from 6.1 percent in 2021 to 5 percent in 2022 as private consumption and investment are declining owing to higher food and energy prices and greater uncertainty. Average inflation is expected to peak at 5.5 percent in 2022, as a result of trade disruptions, with energy and food prices rising the most. Senegal has responded with several containment measures and has implemented an Economic and Social Resilience Program (*Programme de Résilience Économique et Sociale*, PRES). Nevertheless, limited fiscal buffers and safety nets, a vulnerable healthcare system, and a large informal sector continue to pose challenges to growth.

E. Sector Context and Challenges since the Parent Project Appraisal

15. **While mobility and accessibility in the GDA are essential for the city's competitiveness and inclusion, significant negative externalities of the existing transport system undermine the "agglomeration" benefits.** A recent study⁴ found that the yearly total cost of the negative externalities of transport in the GDA amounts to US\$1.3 billion, which represents 8 to 10 percent of the GDA's Gross Domestic Product (GDP) and around 4.7 percent of the country's GDP. Air pollution has the highest cost of around US\$687 million per year and is associated with 7 percent of non-accident-related deaths (of age 30 or over) in Dakar. Congestion is the second-highest externality cost (around US\$374 million a year). Thirdly, lack of road safety generates 6,000 road accidents per year with a cost amounting to US\$150 million.

16. **As assessed in the Climate and Disaster Risk Screening, the Dakar region will be increasingly vulnerable to the impacts of climate change.**⁵ The mean annual temperature in Dakar is projected to increase by 0.3°C to 0.8°C by 2039, and the frequency and intensity of extreme temperatures in future decades are projected to increase. The region is also subject to flooding, mostly related to urban run-off and the insufficient capacity of the stormwater network. These floods lead to asset destruction, increased morbidity, increased economic vulnerability of households, school disruption, and insecurity.⁶ Therefore, the mitigation of these impacts appears to be crucial for the success of a project in the area.

17. **The Government of Senegal (GoS) has started implementing a Sustainable Urban Mobility Plan (*Plan de Mobilité Urbaine Soutenable*, PMUS), of which the BRT is a backbone.** The plan focuses on making public transport systems more efficient, affordable, and accessible, as well as promoting non-motorized transport modes. It also aims to reduce carbon emissions and air pollution by promoting cleaner and more sustainable modes of transport. As part of this strategy and in addition to the Dakar BRT project, several projects are now under operation or preparation: (i) the passenger railway between Dakar

⁴ SETEC-CureM, *Etude sur les externalités négatives du transport à Dakar (Study on the negative externalities of transport in Dakar)*. December 2022.

⁵ The Disaster Risk and Climate Change assessment has been updated for the purpose of this AF. The identified main risks are the project location's vulnerability to flooding and extreme temperatures, and their impact on roads and multi-modal and transit systems.

⁶ For instance, the 2009 floods in Dakar impacted 360,000 people and caused over US\$100 million in economic losses, mainly affecting the poorest residents who tend to live in underequipped and low-lying peri urban areas. Major floods also occurred in 2022.



and Diamniadio started its operation in January 2022⁷ and carried 17 million passengers in 2022; a second phase is under construction between Diamniadio and Blaise Diagne International Airport and (ii) a new project has started for the bus-based public transport restructuring including the upgrade of the feeder buses and works along the feeder roads to prioritize public transport. On February 28, 2023, the GoS signed financing agreements with the French Development Agency (*Agence Française de Développement*, AFD), the European Investment Bank (EIB), the European Union (EU), and KfW Development Bank for a total amounting to US\$341.24 million equivalent. This public transport restructuring project further promotes the objectives of the BRT, by financing the first phase (14 lines, total length of 222 km) of a "priority" bus network, which will integrate the BRT and the regional express train (*Train Express Régional*, TER) and will enhance the access to mass transit to neighborhoods.

F. Rationale for Additional Financing and Restructuring

18. **The rationale for the proposed AF is to meet a cost overrun to complete the original project scope.** All physical investments under the AF were identified within the parent project and remain crucial to achieving its intended development outcomes.

19. **The cost overruns of the project are mainly related** to (i) an increase in commodity prices; (ii) an unforeseen increase in the volume of civil works of the BRT infrastructure corridor; (iii) incremental cost due to the choice of electric technology including the incremental cost of the electric BRT fleet, charging stations and depot; and (iv) increased cost of road works along the BRT corridor to improve traffic management in key bottlenecks and ensure smooth and safe BRT operations :

- *COVID-19 and global inflation have impacted project implementation and commodity prices, which translated into an increase in costs.* Since the restructuring in March 2019, the global context has been marked by (i) the COVID-19 pandemic, which has led to various restrictions, lockdowns, and global logistics chain disruptions, therefore increasing the cost of most projects worldwide and delaying workers' mobilization and project implementation; and (ii) inflation, a worldwide phenomenon, which has led to a global increase in the price of most commodities and construction materials.
- *The unforeseen increase in the volume of civil works within the planned scope of BRT corridor activities* is mainly linked to additional works to respond to hydraulic and flood resilience challenges, to additional needs of utilities' relocation, to improve non-motorized infrastructure between the BRT and buildings that were not integrated into the original design, to incorporate recommendations of the road safety audit in the corridor.
- *The selection of electric bus technology during project implementation has also resulted in a further increase in the overall cost.* While the transition towards an electric BRT system is fully aligned with the country's strategy towards transport decarbonization, this decision resulted in additional upfront costs, including the additional cost of the electric bus fleet, and the additional cost of adapting the public transport infrastructure for electric charging such as depots and bus terminal stations.

⁷ The TER (*Train Express Régional*) is operated by the SETER (Express Regional Train Operating Company, *Société d'Exploitation du Train Express Régional*), a joint venture created by SNCF (French National Railway Company, *Société Nationale des Chemins de Fer Français*), Keolis and the State of Senegal.



- *The increased cost of road works in key bottlenecks along the BRT corridor to enhance traffic management and ensure smooth and safe BRT operations.* These mainly target critical locations such as key congested intersections, side road works, and the road connecting the BRT corridor to the depot to ensure smooth and safe circulation of both buses and general traffic along the corridor.

20. **The parent project also requires an extension of the closing date from June 30, 2023, to December 31, 2024.** Although project implementation is advancing at a good pace, an extension of the closing date of the parent project is required to ensure (i) that the project reaches the expected results by the closing date as key result indicators (such as daily ridership, average rush hour travel time, enhancement in access to Central Business District) require a ramp-up period of several months to reach expected target values; (ii) the completion of infrastructure works under Component 1 and the end of the works defect liability period; (iii) the completion of the works under Component 2 to ensure smooth traffic management for BRT buses and general traffic, which is expected in June 2024. Most of the delays arose because of COVID-19 associated restrictions which (i) slowed down the mobilization of workers and advancement of works under Component 1; and (ii) delayed the mobilization of consultants for the studies required for the issuance of the bidding documents under Component 2.

21. **In this context, the GoS has requested a US\$70 million equivalent AF from the World Bank.** The official request letter was received on February 16, 2023. This AF would solely cover the cost overrun and finance planned activities necessary to achieve the PDO, which remain unchanged. The letter also requested an extension of the parent project's closing date of 18 months, to December 31, 2024.

22. **This AF is fully aligned with the current Senegal Country Partnership Framework (CPF) (FY20–FY24)⁸** which aims to support the country in its path towards achieving middle-income status by 2035, notably (i) its focus areas (b) boosting competitiveness and job creation through private sector-led growth and (c) increasing resilience and sustainability in the context of growing risks; and (ii) the cross-cutting theme (c) mitigating the effects of climate change as the decision to use electric technology brings even greater benefits for addressing climate change. The parent project (P156186) and the proposed AF are also fully aligned with the GoS' Emerging Senegal Plan 2035 (Plan Senegal Emergent, PSE) and its focus on investing in infrastructure with a specific emphasis on mass transit in Dakar through a Public-private Partnership (PPP).

23. **The project is aligned with the Global Crisis Response Framework (GCRF).** In particular, the project supports three interrelated pillars that are underpinned by the Green, Resilient, and Inclusive Development (GRID): (i) Protecting People and Preserving Jobs (Pillar 2) to help mitigate the medium- to long-term impact of crises, through the improvement of the accessibility to jobs; (ii) Strengthening Resilience (Pillar 3) by identifying and supporting paths to build long-term resilience, and (iii) Strengthening Policies, Institutions, and Investments for Rebuilding Better (Pillar 4) to utilize long-term policies to improve development outcomes. Component 1 (BRT infrastructure, fleet, and systems) is aligned with Pillar 2, Component 2 (Public Transport network restructuring and road works) is aligned with Pillar 3, Component 3 (Capacity building and project management) and Component 4 (Road Safety) are aligned with Pillar 4 respectively.

⁸ Report No. 143333-SN



24. **This project is identified in the Nationally Determined Contribution (NDC) of Senegal as a major potential contribution of the transport sector to reduce GHG emissions.** In the NDC, updated in 2020, Senegal commits to reducing its GHG emissions by 5 percent by 2025 and 7 percent by 2030, through mitigation actions in the energy, transport, agriculture, forestry, and other land use, industry, and waste sectors. The Dakar BRT project is specifically listed in the NDC submitted by Senegal ahead of the 2015 Paris Agreement as the only transport project under unconditional option as part of the mitigation activities in the climate action plan, and the project benefits from strong political ownership.

II. DESCRIPTION OF ADDITIONAL FINANCING

25. **An AF of US\$70 million and an extension of 18 months of the closing date are required to meet the PDO.** All physical investments within the AF were identified in the parent project and remain crucial to achieving its original scope.

26. The revised total project cost is US\$614.19 million, and the available financing is US\$544.19 million, compared to the initial indicative cost and financing of US\$426.3 million at the time of project appraisal of the original project. In consequence, there is a US\$70 million gap that this AF aims to cover. The changes in project costs and financing are described below:

- a. **Changes in project costs.** The cost overrun of the Dakar BRT project amounts to US\$187.85 million, compared to the initial indicative costs at appraisal. As indicated in Table 1, and with further details in Annex 1, the cost overrun is broken down as follows: (i) 82 percent for Component 1 (BRT infrastructure, fleet, and systems); (ii) 13 percent for Component 2 (Public transport network restructuring, and road works); and (iii) 9 percent for Component 3 (Capacity building, and project management). Broken down by component/subcomponent, the main justifications for these cost overruns are as follows. Details can be found in the annex.
 - **Subcomponent 1.1.** The main BRT infrastructure works contract signed in October 2019 with CRBC for CFAF 136 billion resulted in a cost initially lower than the original estimate. Since then, significant cost overruns amounting to CFAF 74 billion have however been identified on this contract, related to (i) unforeseen increase in volume of works to increase climate resilience and safety; (ii) increase in commodity prices; (iii) improvements to traffic management and accessibility; and (iv) adaption to electric technology.⁹ These overruns have offset the initial savings and are not fully compensated by the EIB's additional contribution.

⁹ Out of these CFAF 74 billion, CFAF 13.4 billion (18.1 percent) are related to works for improving climate resilience, CFAF 14 billion (18.9 percent) to commodity prices' increase, CFAF 12.8 billion (17.3 percent) to an unforeseen increase of volume of works, CFAF 14 billion (18.9 percent) to improvement to ensure the traffic management and accessibility to ensure the performance of the BRT corridor, CFAF 4.4 billion (6 percent) for additional road safety measures, CFAF 7.4 billion (10 percent) to adaptation to the electric technology, and CFAF 8 billion (10.8 percent) to increased works' supervision cost. All cost overruns on the main works contract were thoroughly reviewed and vetted by the independent Project Engineer ("mission de contrôle"), the Project Implementing Units (*Agence Autonome de Gestion des Routes* (Autonomous Road Management Agency, AGEROUTE) and CETUD), the technical teams of the EIB (co-financer) and the World Bank who provided the no objection. Details are in the annex.



- **Subcomponent 1.2.** The incremental upfront CAPEX cost of e-Buses compared to diesel-powered buses has led to a significant cost-overflow for this subcomponent amounting to US\$90 million equivalent, which is mostly financed by the private sector concessionaire. A US\$22 million equivalent guarantee from the Multilateral Investment Guarantee Agency (MIGA) will be considered for approval on May 18, 2023.
 - **Subcomponent 1.4 (new).** The BRT Bus fleet will be financed, procured, and operated by the BRT operator through the signed concession agreement. At the appraisal of the parent project, the financial analysis was conducted based on a scenario where 17 percent of users would pay half-price under a social program. However, during the negotiation of the concession agreement, this threshold was reduced to 10 percent to ensure the concession's financial viability, accounting for increased CAPEX with electric BRT system. Enabling more vulnerable people to access public transportation requires to raise this threshold while compensating for the loss of revenues over the 15-year operational period generated by the increase of the share from 10 percent to 17 percent. Thus, as per the financial model, an estimated maximum US\$17 million equivalent upfront viability gap financing is therefore to be provided to the concessionaire to ensure the concession's financial viability while meeting the social objectives as detailed in the financial analysis.
 - **Subcomponent 2.2.** A comprehensive study financed under the project has detailed the road works needed around the corridor to improve the circulation for both the general traffic and the BRT buses. Out of a US\$135 million program, a US\$40 million priority first phase was identified, which is critical to ensure smooth BRT operations on the BRT corridor and meet the PDO, and represents a cost overrun of around US\$17 million compared to the parent project appraisal.
 - **Component 3.** Within the capacity building and project management plan, an incremental amount of US\$16.45 million is required. As this is the first time a BRT project is implemented in Senegal, capacity building is critical for the success of the system and significant capacity-building activities have been and will be financed during project implementation. The choice of electric technology requires significant additional institutional strengthening as well.
- b. **Changes in project financing.** Private capital mobilization and co-financing from other donors are higher than expected at appraisal, however, the Green Climate Fund (GCF) financing has not materialized.
- **Private sector financing.** The private sector concessionaire has committed US\$144 million equivalent to the project,¹⁰ compared to the expected US\$55 million. On May 18, 2023, a US\$22 million equivalent guarantee from MIGA to the concessionaire will be considered for approval.

¹⁰ The concessionaire has committed to finance US\$144 million equivalent CAPEX for the bus fleet with the signing of the concession agreement on March 21, 2022.



- **European Investment Bank (EIB).** has provided a US\$85.45 million equivalent allocation,¹¹ instead of the US\$31.50 million equivalent expected at the appraisal stage.
- **Green Climate Fund (GCF).** The expected contribution of the GCF (of US\$30 million at the parent project appraisal and US\$70 million at the latest submission of a funding proposal to the GCF in December 2022) could not materialize, despite several attempts.¹²
- **Counterpart funding.** The counterpart contribution will be US\$14.74 million in total, including US\$9.74 million already mobilized and US\$5 million as a contribution to this AF.

Table 1 provides the detail of the indicative and updated costs, the current financing plan, and the consequent financing gap.

Table 1: Overview of Costs, financing, and Financing Gap (US\$ million)

Project Components	Indicative costs (2017) - (A)	Indicative costs (2019) - (B)	Overall costs (2023) - (C)	Cost overrun (C-B)	Financing plan					
					IDA - Parent Project	EIB	GoS	Private Sector	AF IDA	AF GoS
1. BRT Infrastructure, fleet and system	379.5	398.88	530.89	132.01	274.90	85.45	7.64	144.00	18.90	-
1.1 BRT infrastructure and system	325.5	317.84	342.85	25.01	255.50	85.45			1.90	
1.2 BRT fleet	54	54	144.00	90.00				144.00	-	-
1.3 Land Acquisition and compensation		27.04	27.04	-	19.40		7.64		-	-
1.4 Viability gap (new sub-component)			17.00	17.00					17.00	
2. Public Transport Network restructuring and road works	25	13.16	53.90	40.74	6.40	-	-	-	43.40	4.10
2.1 Technical Assistances	2	2	8.10	6.10	3.70				4.40	-
2.2 Road works	23	11.16	45.80	34.64	2.70				39.00	4.10
3. Capacity building and project management	12.3	12.3	26.10	13.80	16.50		2.10		7.00	0.50
4. Road Safety	2	2	3.30	1.30	2.20				0.70	0.40
Contingencies	7.5	0		-					-	-
Total	426.30	426.34	614.19	187.85	300.00	85.45	9.74	144.00	70.00	5.00
					614.19					

27. **The PDO will remain the same as in the original project.** The Results Framework and monitoring indicators are proposed to be revised to reflect the proposed new closing date. End target dates for most of the indicators will be revised to reflect the proposed new closing date of December 31, 2024.

28. **Implementation arrangements.** Overall institutional and implementation arrangements remain unchanged.

29. **Changes in the project components.** To align the parent project components and activities with the new project description, a new Subcomponent 1.4 “Viability gap” is added to finance the provision of the subsidy constituting the Recipient’s contribution to the financial equilibrium of the concession arrangements, in accordance with its obligations under the Concession Agreement, as further detailed in the above paragraph 26. A new disbursement category will be tied to this subcomponent with an

¹¹ The Financing Agreement was signed between the EIB and the GoS on December 19, 2017.

¹² Efforts were made to materialize the GCF financing (initially US\$ 30 million and final request of Dec 2022 equivalent to US\$70 million at the latest request). To this date, there is however no commitment made, and the required due diligence and timetable for its approval exceeds the time when those cost overruns should be covered in the implementation.



estimated maximum allocation of US\$17 million. The financing of this subsidy will be subject to the signing of an amendment to the concession agreement under terms and conditions acceptable to the World Bank.

30. **The AF will be financed by the SUW.** With its strong potential transformative impact on economic growth by improving public transport infrastructure and services in the capital city of Senegal, thereby reducing market inefficiencies, and improving economic returns, the AF benefits from funding from the SUW. Both the parent project and the AF aim at maximizing economic, social, monetary, and fiscal returns: (i) Economic returns will be numerous: The project will enhance economic productivity by reducing transport costs. Furthermore, it will generate a significant number of jobs, with a particular focus on the youth, during the construction of infrastructure, operation of the BRT, and maintenance of the BRT system and fleet. Due to strong multiplier effects usually induced by a boom in the construction industry, GDP growth is expected to be accelerated. Strong spillover effects are expected in transit and infrastructure improvements, utility upgrades, and climate resilience; and (ii) Social returns will be derived from the development of public transport and non-motorized infrastructure in some of the poorest areas of the Metropolitan Area of Dakar.

31. **Extension of the closing date of the parent project.** The closing date of the parent project is proposed to be extended by 18 months to December 31, 2024, to account for the execution of the work and several months of operation of the BRT system. An extension of the project closing date will allow to secure the necessary construction period and provide sufficient time for operations. This additional time will ensure that all aspects of the project are completed to the required standards and integration of urban transport into urban development is adequately addressed with increased accessibility and social acceptance. A thorough assessment done during the appraisal of the AF confirmed that all activities could be completed before December 31, 2024. A chronogram towards the end of the closing date with the target date and progress to date is shown in Annex 4.

III. KEY RISKS

32. **The overall residual risk rating for the project is substantial.** The risk was assessed over the whole project scope (parent project and AF). With the provision of the proposed AF, the project's overall risk is downgraded from "High" to "Substantial". As stated in the last ISR, the overall risk had been upgraded to "High" due to the risks of delay and cost overruns, that jeopardize the prospect of achieving the PDO before the project closing date on June 30, 2023. The AF and project closing date extension justifies a downgrade of the project's overall risk to "Substantial". Other risk categories are rated as below:

- **Political and Governance.** This risk is rated Substantial. Although there is strong political support for the project, it might be weakened should there be complaints from citizens. This risk is mitigated by CETUD's ongoing extensive communication campaign and stakeholder involvement at all stages and through various mediums (social media, flyers, mainstream press, television, radio dialog platform, *Maison de la Mobilité*, etc.).
- **Macroeconomic:** This risk is rated Substantial. While a strong economic recovery from COVID-19 is underway since mid-2022, driven by industrial production and the service sector, the risks related to higher oil prices, a volatile regional security environment, slower reform implementation, and delays in the start of oil and gas production remain, and risks to debt sustainability need to be carefully monitored. Since there are still some resettlement costs to be



covered by the Government under Component 2, this situation might impact the capacity of the GoS to allocate the required funds. To mitigate this risk, early communication with the Ministry of Finance took place during preparation to ensure the additional counterpart financing required (US\$5 million equivalent) are accounted for by the GoS and included in the Financial Agreement.

- **Technical Design of project:** The risk is rated High. This is the first time a BRT project is implemented in Senegal and the first electric BRT in Sub-Saharan Africa. To mitigate this risk, CETUD has (i) hired highly skilled technical specialists and qualified firms to support the BRT implementation and to adapt it to the electric technology and (ii) recruited a renowned BRT operator to run buses. However, the risk remains high due to the novelty of the technology.
- **Institutional Capacity for Implementation and Sustainability.** This risk is rated Substantial. CETUD is an experienced transport authority that has been reinforced by the past and ongoing World Bank projects in Senegal. However, the management of the interfaces with the operator, the novelty of the approach, and the works in a dense urban area continue to pose a challenge. This risk is mitigated by the capacity-building activities financed by the project.
- **Fiduciary:** This risk is rated Moderate. This risk was downgraded from Substantial to Moderate in February 2023 as (i) the Recipient is compliant with all World Bank requirements and has demonstrated its fiduciary capacity; (ii) major contracts have been signed, including the first amendment for the BRT corridor works and the concession agreement; and (iii) considering that all major contracts are under execution, the focus is now on contract management for timely completion within the extension period.
- **Environment and Social:** This risk is rated Substantial. Major E&S risks are related to OHS management on work sites, management of road safety, community health and safety, and waste management. All these risks will continue to be managed per the prepared instruments.
- **Stakeholders:** This risk remains rated Substantial. The opposition from some of the incumbent operators has been foreseen since the parent project appraisal and several mitigation measures have been implemented, namely (i) permanent communication and citizen engagement as per the Stakeholder Engagement Plan (SEP); (ii) creation of a consultation platform for engagement and communications with operators; (iii) involvement of local transport operators in the provision of feeder services to the BRT¹³ and participation of local operators in the shareholding structure of the BRT Operator (30 percent of the shares currently supported by FONSIS); and (iv) additional capacity building activities financed by the project including the construction of a training center for the drivers. In addition, the risk of renegotiation of the concession exists as this is the first Public-private Partnership (PPP) in the public transport sector. This risk has been mitigated by (i) ensuring the concession is financially viable, generating a concession fee that should cover the obligation of the conceding authority; (ii) embedding several mitigation measures set for in the concession agreement (e.g. Minimum Revenue Guarantee, automatic fare evolution, clear risk/role allocation) which shall be carefully monitored.
- **Others:** The risk remains rated substantial. The construction of a 18.3 km BRT infrastructure in a dense population and congested area remains a challenge and could trigger road users' opposition, although the risk has been mitigated during the construction by (i) hiring qualified

¹³ Including as part of the implementation of a new project which will imply the creation of new feeder routes that will integrate local operators and where GoS will support fleet renewal, therefore supporting the professionalization of the bus industry.



contractors and supervision firms to manage traffic disruptions and diversions, and (ii) a proactive information campaign to the public and road users to calm the frustration.

IV. APPRAISAL SUMMARY

A. Economic and Financial Analysis

Revised economic analysis

33. **Economic analysis.** A revised economic analysis was carried out spanning Components 1 and 2, which account for over 97 percent of the total cost. This revised economic analysis considers (i) additional infrastructure costs; (ii) additional CAPEX costs; (iii) OPEX costs as negotiated for the concession agreement; and (iv) two revised values of time when accounting for inflation since 2016. The economic evaluation is based on revised estimates of (i) savings in travel time; (ii) reduced vehicle operating costs; and (iii) quantified external benefits¹⁴ including traffic accident reduction and reduction in GHG and other pollutant emissions.

34. The socio-economic analysis confirms that the project remains socio-economically viable over its 30-year lifetime with an economic internal rate of return (EIRR) of 18.90 percent with a conservative value of time of CFAF 535 per hour under the Low estimate carbon shadow cost scenario. The result remains robust against a sensitivity test conducted with demand reduced by 20 percent with an EIRR higher than 9 percent. Details can be found in Annex 2.

35. **GHG accounting.** The choice of an electric engine technology for BRT rolling stock significantly increases the GHG emissions savings: the project is expected to allow an annual saving of 39 ktCO₂e, and 1.2 MtCO₂e GHG total savings are forecasted compared to a without-project baseline over the project's lifetime. GHG accounting was calculated based on GHG savings related to (a) modal shift from public transport vehicles (Dakar Dem Dikk (DDD), Urban Transport Financing Association (Association de Financement des Transports Urbains, AFTU), Cars Rapides) to the BRT and (b) modal shift from individual cars or taxis to the BRT.¹⁵ The choice of an electric BRT instead of a classic diesel-powered BRT is at the root of two-thirds of the observed GHG savings. The methodological base for GHG reduction calculations relies on the United Nations Framework Convention on Climate Change (UNFCCC) note for GHG assessment in the Transport Sector¹⁶ and uses a "Well-To-Wheels" (WTW) approach to show the most comprehensive picture of total GHG emissions, by considering the CO₂ emitted while producing electricity necessary for the BRT's operation.¹⁷ Details can be found in Annex 3.

¹⁴ For these estimated externalities, 2022 values were used, coming from: SETEC-CureM, *Etude sur les externalités négatives du transport à Dakar*. December 2022.

¹⁵ The assumptions for this modal shift are based on household travel surveys and are consistent with the ones of the parent project.

¹⁶ UNFCCC. 2015. "IFI (International Financial Institution) Joint Approach to GHG Assessment in the Transport Sector."

¹⁷ The energy mix of Senegal is also getting progressively cleaner through parallel measures: Senegal's aim is to rebalance the energy mix in a country where imported oil and coal predominate, notably through renewable energy.



Revised financial analysis

36. **Proposed tariffs** are aligned with the existing fares in Dakar. Following negotiations with the private sector operator, fares have been approved by the GoS and are set in the concession agreement with the following characteristics: (i) a CFAF 350/450 (US\$0.58/0.75) zone-based fare structure: the fare per trip is CFAF 350 (US\$0.58) when traveling within one zone and 450 (US\$0.75) when crossing zones; (ii) fare integration assumes a price of CFAF 200 (US\$0.33) for a trip on a feeder alone, and CFAF 500/600 (US\$0.83/1) as an integrated fare for boarding one feeder line and the BRT, and CFAF 600/700 (US\$1/1.16) for two feeders and the BRT; (iii) the concession agreement embeds a formula for automatic fare evolution of +1.9 percent per annum, the concessionaire bearing the risk in case of higher inflation; and (iv) the concession agreement set the threshold of 10 percent of users that could benefit from half discounted fare.

37. The fares were approved following a thorough analysis: (i) several options were assessed to balance affordability and concession financial sustainability, including a CFAF 500 (US\$0.83) per trip flat fare option initially proposed by the concessionaire that was deemed socially unacceptable; (ii) the CFAF 300 (US\$0.50) fare envisaged at appraisal in 2017 is equivalent to the base fare CFAF 350 (US\$0.58) considering the inflation; (iii) the proposed fares take into consideration the stated preference survey, the willingness to pay of users, and are in line with existing fares in Dakar; (iv) the CFAF 450 fare that might impact the most vulnerable is mitigated by a social fare included in the revenues targeting 10 percent of users.

38. **An estimated maximum US\$17 million equivalent subsidy is to be provided to the Concessionaire to make the half-fare available to more vulnerable people while ensuring the viability of the concession.** To ensure the concession's financial viability, the number of users that could benefit from half-discounted fares as part of the revenues of the concessionaire was defined at 10 percent¹⁸ at negotiations between the concessionaire and the GoS, compared to the 17 percent defined at appraisal. The concession agreement provides however that the GoS may increase this reduced share via a subsidy. Mobilizing this option would ensure the financial sustainability of the concession while providing an affordable fare to the more vulnerable people.¹⁹ Based on the financial model approved along with the concession agreement, a maximum US\$17 million subsidy was estimated to cover the GoS's contractual obligation to raise the share from 10 percent back to 17 percent over the 15-year lifetime of the concession. This amount will be further assessed before signing the amendment to the concession. The subsidy would be paid upfront subject to the signing of the said amendment.

The country is already at 22 percent of renewable energy available on the entire nation's grid and has just inaugurated the largest wind farm in West Africa at Taiba Ndiaye.

¹⁸ This means that within the financial model of the concession, full tariff is considered for 90 percent of passengers, while 10 percent would pay the half price. This percentage remains a threshold and the concession agreement defines a detailed mechanism to annually repay the GoS if the real number of users benefitting from half fare is lower or conversely to repay the concessionaire if the real figure is higher than the said limit. In this regard, this mechanism ensures that the concessionaire "prefinances" discounts for a minimum of 10 percent of users without subsidy. Raising this limit to 17 percent would ensure that a higher number of vulnerable people are covered by this mechanism.

¹⁹ A collaboration is ongoing between CETUD and the Social Protection and National Solidarity Directorate to identify the most vulnerable who could benefit from half fare based on income and disability.



39. **The concession appears to be financially viable and will allow the GoS to get a concession fee.** While the initial offer submitted by the bidder presented a deficit that would have required an operating subsidy, the negotiations enabled to rebalance the concession while maintaining an accessible fare structure and a high level of service, by notably focusing on (i) a significant reduction in OPEX costs; (ii) an extension of the concession period to 15 years, instead of 10 years; and (iii) zonal fare structure as stated above. It is expected that the concession will generate a concession fee²⁰ that should cover the obligations of the transport authority as per the concession agreement.²¹

B. Technical

40. **Global evidence confirms the socioeconomic and financial relevance of the transition to e-Buses in developing countries and the benefits of transport decarbonization.** Despite their higher capital cost, electric buses have proven to be relevant because those costs are often offset by the lower lifecycle costs, externality benefits, simpler maintenance, and energy efficiency.²² This assessment is also in line with the conclusions of various other reports^{23, 24, 25}, and the worldwide trend. In addition, the assessments for different electric BRT financed by the World Bank confirmed the significant GHG savings of the electric solutions compared to diesel solutions²⁶, which is also confirmed by a Transit Cooperative Research Board's TCRP Report,²⁷ which shows that an electric bus emits 62 percent fewer emissions than an average diesel bus in the USA.

41. **Due diligence was carried out for the Dakar BRT Project to confirm the technical readiness of the electric solution.** The private sector operator bears the operational risk and has therefore conducted thorough due diligence to confirm the technical readiness of the electric technology in Dakar: (i) electricity supply is stable, and studies have confirmed that the technology is suitable given the capacities and characteristics of the Senelec network²⁸; (ii) the electric articulated buses have the range of operations required to ensure operations as per the performance indicators set in the concession agreement; (iii) locations of charging stations have been duly assessed to ensure the range of operations required; and

²⁰ The agreed formula embeds a fixed fee and a profit-sharing portion.

²¹ These obligations are related to (i) the operating cost of the transport authority for the oversight of the 15-year concession; (ii) the operating costs of the traffic management center to be run by CETUD to ensure smooth traffic along the corridor; and (iii) the major repairs and replacement of the BRT infrastructure, while the concessionaire remains in charge of the small repairs and maintenance.

²² Briceno-Garmendia, Cecilia M., Wenxin Qiao, and Vivien Foster. 2022. The Economics of Electric Vehicles for Passenger Transportation. Mobility and Transport Connectivity Series. © World Bank.

²³ ICCT, 2017, "Financing the transition to soot-free urban bus fleets in 20 megacities", assesses 20 major cities (out of which 7 in Africa) and shows that: (i) when including the social cost of pollution, the electric buses would in most cases result in the lowest TCO (Total Cost of Ownership); (ii) electric buses will become financially the most advantageous option if the price of diesel increase or the price of eBuses decreases.

²⁴ Bloomberg, 2018. Electric Buses in Cities: Driving Towards Cleaner Air and Lower CO2.

²⁵ World Bank, 2019. Green your Bus Ride Clean Buses in Latin America.

²⁶ See the Abidjan Urban Mobility project (P167401) or the Douala Urban Mobility Project (P167795).

²⁷ TRB Transit Cooperative Research Board's TCRP Research Report 226: "An Update on Public Transportation's Impacts on Greenhouse Gas Emissions".

²⁸ Senelec (Société nationale d'électricité du Sénégal) is the national electricity company of Senegal.



(iv) the depot design has also been adjusted to electric technology and to ensure safe and clean storage of batteries.

42. **The private sector operator is a renowned consortium recruited following a controlled negotiation process.** Following the call for tenders deemed unresponsive on February 3, 2020, the procedure was relaunched with the two bidders initially pre-selected. The negotiation with the sole bidder who confirmed its interest took place from February 17, 2021, to February 22, 2022. The Technical Committee (TC) set up to conduct negotiations on behalf of the GoS, led by CETUD and composed of representatives of all relevant state entities was supported by (i) various consultants, including a legal expert, a rolling stock specialist, a tax specialist, and a strategy expert; and (ii) the International Finance Corporation (IFC) Advisory and its mandated firms. A probity advisor monitored the whole process²⁹ and the World Bank provided the non-Objection on the process, the outcome of the negotiations, and the concession agreement. The concessionaire is a Senegalese Special Purpose Vehicle (SPV) *Dakar Mobilité*, a joint venture between two shareholders MERIDIAM, a French investment company, and FONSIS (*Fonds d' Investissement du Sénégal*, Senegal Investment Fund) under a 70 percent / 30 percent shareholding agreement. FONSIS holds 30 percent of the shares on behalf of the GoS with a two-year timeframe obligation to sell these shares to the local transport operators, as agreed at the parent project appraisal. *Dakar Mobilité* has signed a binding 15-year service agreement with Keolis,³⁰ a well-renowned French bus operator. The consortium led by MERIDIAM with the technical expertise of Keolis offers strong guarantee of high-quality bus operations.

43. **The concession agreement presents a balanced PPP risk and role allocation.** The 15-year concession agreement was signed on March 21, 2022, between the GoS and the concessionaire. Negotiations achieved a balanced PPP risk and role allocation where (i) the SPV will finance, purchase, operate, and maintain the buses fleet, maintain the infrastructure, and collect the fares on behalf of the GoS, while the GoS is responsible for ensuring a minimum level of operations of feeder services operated by local operators and to finance, construct, and rehabilitate the infrastructure; (ii) the SPV would partially bear the risks associated with traffic with a minimum traffic guarantee set at 100k passengers/day, completely bears the operational risk and the risk associated with the variation of energy costs while the GoS is responsible to ensure a minimum volume of operations of the feeder services operated by local operators. This PPP risk and role allocation is aligned with international best practices.

44. **Additional climate resilience measures.** The project design reflects country-specific lessons and international best practices in terms of climate resilience and adaptation. In the Dakar agglomeration, the main natural risk is flood risk, notably because of the insufficient evacuation capability of the stormwater network or the absence of a network in the neighborhoods of Pikine and Guédiawaye. The BRT infrastructure and the urban roads were designed to be resilient to flooding and will help in making the project area flood-proof. This BRT project contributes to addressing this flooding vulnerability resulting from the adverse impacts of climate change. During the project implementation, the drainage system, which is an integral part of the BRT infrastructure, and the urban roads (Subcomponent 1.1 and Subcomponent 2.2) were carefully designed to adapt to this flood risk. Higher norms and standards were

²⁹ The probity advisor's report confirmed that (i) the negotiation was transparent and honest; (ii) each party defended its interests with a search for fairness between the two parties; and (iii) the principle of economy was well taken care of to the interest of the GoS.

³⁰ Keolis is a subsidiary of the SNCF.



used to calculate the drainage system and took into account this flooding vulnerability as technical studies were conducted to integrate several aspects such as analysis around the corridor to reduce flood risks, and urban insertion (pedestrian and bicycle lanes, green spaces). As a result, the volume of the civil works of rainwater networks and associated facilities is higher than initially expected.

C. Financial Management

45. **Overall Financial Management.** The financial management arrangements for the AF will rely on the existing fiduciary arrangements in place for the parent project. The overall performance of the BRT in financial management was **Moderately Satisfactory** at the last Financial Management supervision undertaken in December 2022. The accounting system operates satisfactorily, and staffing has remained adequate to handle additional activities. The auditors have issued an unqualified opinion on the 2021 financial statements of the ongoing projects. The overall risk for the AF is rated as **Moderate**. It is considered that the financial management arrangements satisfy the World Bank's minimum requirements under Investment Project Financing (IPF), and therefore are adequate to provide, with reasonable assurance, accurate and timely financial management information on the status of the project required by the World Bank.

46. **Disbursement arrangements and flow of funds:** Disbursement for the project will follow the existing disbursement arrangements for the parent project. The transactions-based method for disbursement will continue to be used. A Designated Account (DA) will be opened at a commercial bank acceptable to World Bank to facilitate payment for eligible expenditures. The DA would be managed by the Directorate of Public Expenditure Authorization (*Direction de l'Ordonnancement des Dépenses Publiques*, DODP, Ministry of Finance) the entity assigned with the overall responsibility of payments, in coordination with the CETUD. Arrangements for the management of the DA will be described in the Disbursement and Financial Information letter (DFIL).

47. **External audit:** The DFIL will require the submission of Audited Financial Statements for the project to the World Bank within six months after year-end. The Terms of Reference (ToR) of the external auditor of the parent project will be extended to include the AF. In accordance with World Bank Policy on Access to Information, the Recipient is required to make its audited financial statements publicly available in a manner acceptable to the World Bank; following the World Bank's formal receipt of these statements from the Recipient, the World Bank also makes them available to the public.

D. Procurement

48. **Procurement procedures.** The procurement of goods, works, non-consulting services, and consulting services for the proposed AF will be governed by the World Bank's Procurement Regulations for IPF Borrowers, edition of November 2020 under the New Procurement Framework and the provisions stipulated in the Financing Agreement. Further, the Guidelines on Preventing and Combating Fraud and Corruption in Projects Financed by IBRD Loans and IDA Credits and Grants, dated October 15, 2006, and revised January 2011, will apply. The institutional arrangements for Procurement will remain the same as per the original project. Slightly revised Project Procurement Strategy for Development (PPSD) and Procurement Plan (PP) were agreed upon during negotiations for this AF. As this AF is to meet cost-overruns, most of activities were already included in the original PPCS and the activities added to the revised PPCS amount to less than 2.5 percent of the project total cost.



E. Social (including Safeguards)

49. **The social risk rating of the AF is substantial.** As the parent project, this AF is classified as social category “A”, and the same safeguards policies are triggered, OP 4.01 (Environmental Assessment), OP 4.11 (Physical Cultural Resources), OP 4.12 (Involuntary Resettlement) and OP 4.03 (Performance Standards for Private Sector Activities). As there will be no change in the components and no additional activities in the project, the proposed AF will continue to be governed by the pre-ESF safeguard policies, as confirmed by Operations Policy and Country Services (OPCS) and the Regional Safeguards Adviser (RSA) on December 6, 2022. Key social risks are related to involuntary resettlement, including the displacement of socio-economic activities and resettlement of affected households, livelihood restoration, lack of communication, gender-based violence, and risks of increased prevalence of HIV/AIDS and other Sexually Transmitted Diseases (STDs) due to foreign workers on construction sites. All these risks will continue to be managed. The Integrated Safeguards Datasheet (ISDS) was updated for this AF³¹. It should be noted that while the Parent Project already triggered the OP4.03 as stated in the appraisal-stage disclosed ISDS, the policy did not appear in the parent project PAD datasheet. The triggering of this policy for this AF, which appears as a change, is therefore for correction only.

F. Environment (including Safeguards)

50. **The project is classified as Category A and the environmental risk rating is substantial.** The project is being implemented in an urban area, and the environmental concern is mainly related to OHS risks at work sites, community health and safety, as well as waste (including liquid) management. Another challenge remains the management of road safety. In addition to these risks, there is also the capacity to monitor and manage them by the contractor. Both CETUD and AGEROUTE have hired environmental experts and CETUD also hired an OHS expert. At the contractor's level, OHS experts are hired to monitor OHS issues on sites, their performance is estimated moderately satisfactory. In addition, a Stakeholders Engagement Plan was prepared to allow engagement of all stakeholders in addition to an operational Grievance Redress Mechanism and GBV/SEA/SH plan. Despite significant improvement, the management of OHS and safety of community must still be improved. Some serious OHS-related incidents were indeed reported, and corrective measures were developed and are being implemented. The project will continue to be managed as per the prepared Environmental and Social Impact Assessment (ESIA) and ESMP.³²

G. Gender

51. **The BRT corridor has been designed with a focus on providing a safe and inclusive environment including for women.** Inclusiveness and gender aspects have been well addressed in the parent project, and the proposed AF will continue implementing the same activities and monitoring their contribution towards closing gender gaps in mobility and labor force participation. The efforts are already made in the parent project through (i) infrastructure and fleet design (e.g. well-lit stations and surveillance cameras, upgrades in sidewalks and walking infrastructure, BRT project design in line with the Universally Accessibility standards); (ii) participation of women in the workforce (e.g. equal opportunities for both genders in workplace, equitable representation of both genders in the various training programs); (iii)

³¹ <https://documents.worldbank.org/en/publication/documents-reports/documentdetail/099144003272331977/p1807890003f72080bafc0fb77c9c4d9fe>

³² January 2017, https://www.cetud.sn/images/docs/docs_brt/Resume_Executif_Projet_BRT_Dakar_Janv_2017.pdf



inclusive stakeholder engagement; and (iv) safety and security measures with an emphasis on response system as part of BRT operations (e.g. closed-circuit television (CCTV), mechanisms to report and respond to sexual harassment, communication campaigns. The project continues to seek to increase women's employment in the BRT system operations in the long term, by making gender balance an obligation among transport workers for the BRT private operators, with all workers complying to the same labor conditions. The aim is to increase the number of women bus operators from 6 percent (baseline) to 25 percent (end target).

H. Climate Change

52. **The project will deliver significant impacts regarding climate change mitigation**, lock-in avoidance of high-emission private motorized trips, a shift towards a greener bus fleet, and climate change adaptation. The project will result in important GHG savings related to the modal shift to lower-carbon modes. The choice of an electric fleet will further improve the mitigation impacts of the project, as it is responsible for 2/3 of the GHG savings. The proposed AF will allow the works related to climate resilience to be completed. Indeed, Dakar is subject to flood vulnerability, and civil works in the project area include the construction of 40 km of new drainage network and rehabilitation of the existing system, providing a sustainable solution to cope with increased risks of flooding and to increase resilience in the project area.

I. Citizen Engagement

53. **A comprehensive SEP and communication strategy have been implemented.** Under the parent project, a SEP was approved in December 2018 and has set out a holistic and detailed engagement strategy with all stakeholders (road users, Project Affected Persons (PAPs), public, institutions, local transport operators, vulnerable people, etc.). A comprehensive communication strategy has been and will continue to be implemented on various mediums to target all groups. In addition, the project-level GRM is fully operational and has collected queries, feedback, and complaints throughout RAP implementation and infrastructure works. The same SEP/GRM mechanism will be used in the AF to promote citizen participation. As required under the concession agreement, the concessionaire will develop its specific communication strategy to engage with all stakeholders throughout the concession period, with a strong focus on inclusiveness.

V. WORLD BANK GRIEVANCE REDRESS

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), please visit



<http://www.worldbank.org/GRS>. For information on how to submit complaints to the Bank's Accountability Mechanism, please visit <https://accountability.worldbank.org>.



VI. SUMMARY TABLE OF CHANGES

	Changed	Not Changed
Results Framework	✓	
Components and Cost	✓	
Loan Closing Date(s)	✓	
Disbursements Arrangements	✓	
Safeguard Policies Triggered	✓	
Implementing Agency		✓
Project's Development Objectives		✓
Cancellations Proposed		✓
Reallocation between Disbursement Categories		✓
EA category		✓
Legal Covenants		✓
Institutional Arrangements		✓
Financial Management		✓
Procurement		✓
Other Change(s)		✓

VII. DETAILED CHANGE(S)

COMPONENTS

Current Component Name	Current Cost (US\$, millions)	Action	Proposed Component Name	Proposed Cost (US\$, millions)
BRT infrastructure, fleet, and systems	379.50	Revised	BRT infrastructure, fleet, and systems	530.89
Public transport network restructuring and road works	25.00	Revised	Public transport network restructuring and road works	53.90
Capacity building and	12.30	Revised	Capacity building and	26.10



project management			project management	
Road Safety	2.00	Revised	Road Safety	3.30
TOTAL	418.80			614.19

LOAN CLOSING DATE(S)

Ln/Cr/Tf	Status	Original Closing	Current Closing(s)	Proposed Closing	Proposed Deadline for Withdrawal Applications
IDA-60580	Effective	30-Jun-2023	30-Jun-2023	31-Dec-2024	30-Apr-2025
IDA-60590	Effective	30-Jun-2023	30-Jun-2023	31-Dec-2024	30-Apr-2025

DISBURSEMENT ARRANGEMENTS

Change in Disbursement Arrangements

Yes

Expected Disbursements (in US\$)

Fiscal Year	Annual	Cumulative
2017	0.00	0.00
2018	4,107,221.60	4,107,221.60
2019	10,218,682.13	14,325,903.73
2020	42,202,975.00	56,528,878.73
2021	40,655,978.91	97,184,857.64
2022	42,336,819.70	139,521,677.34
2023	59,882,038.05	199,403,715.39
2024	142,485,015.27	341,888,730.66
2025	28,111,269.34	370,000,000.00

SYSTEMATIC OPERATIONS RISK-RATING TOOL (SORT)

Risk Category	Latest ISR Rating	Current Rating
Political and Governance	● Substantial	● Substantial



Macroeconomic	● Substantial	● Substantial
Sector Strategies and Policies	● Low	● Low
Technical Design of Project or Program	● High	● High
Institutional Capacity for Implementation and Sustainability	● Substantial	● Substantial
Fiduciary	● Substantial	● Moderate
Environment and Social	● Substantial	● Substantial
Stakeholders	● Substantial	● Substantial
Other	● Substantial	● Substantial
Overall	● High	● Substantial

COMPLIANCE

Change in Safeguard Policies Triggered

Yes

Safeguard Policies Triggered	Current	Proposed
Environmental Assessment OP/BP 4.01	Yes	Yes
Performance Standards for Private Sector Activities OP/BP 4.03	No	Yes
Natural Habitats OP/BP 4.04	No	No
Forests OP/BP 4.36	No	No
Pest Management OP 4.09	No	No
Physical Cultural Resources OP/BP 4.11	Yes	Yes
Indigenous Peoples OP/BP 4.10	No	No
Involuntary Resettlement OP/BP 4.12	Yes	Yes
Safety of Dams OP/BP 4.37	No	No



Projects on International Waterways OP/BP 7.50	No	No
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Projects in Disputed Areas OP/BP 7.60	No	No
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LEGAL COVENANTS – Additional Financing for Dakar Bus Rapid Transit Pilot Project (P180789)

Sections and Description

The Project Implementing Entity shall, no later than one (1) month after the Financial Close, amend the Project Operations Manual (“POM”) as needed to reflect the Recipient’s additional financial obligations under the Concession Agreement referred to in Paragraph E of the Preamble to the Financing Agreement.

Conditions

Type Disbursement	Financing source IBRD/IDA	Description under Category (4) unless and until the Recipient has entered into an amendment to the Concession Agreement in accordance with Section I.A.3(b) of the Schedule of the Financing Agreement and the Financial Close as defined in the Concession Agreement has been achieved (including confirmation of the validity of the Concession Agreement and the amendment to the Concession Agreement under the laws of the parties, the authorization of their signatories to sign them and their binding effect on their signatories).
Type Effectiveness	Financing source IBRD/IDA	Description The Additional Condition of Effectiveness consists of the following, namely, that the Subsidiary Agreement has been entered into between the Recipient and the Project Implementing Entity in accordance with Section I.B of Schedule 2 to the Financing Agreement.



VIII. RESULTS FRAMEWORK AND MONITORING

Results Framework

COUNTRY: Senegal

Additional Financing for Dakar Bus Rapid Transit Pilot Project

Project Development Objective(s)

The Project Development Objective is to enhance urban mobility between Dakar and Guédiawaye through the development of a Bus Rapid Transit (BRT) corridor.

Project Development Objective Indicators by Objectives/ Outcomes

Indicator Name	PBC	Baseline	Intermediate Targets					End Target
			1	2	3	4	5	
Enhance urban mobility between Dakar and Guediawaye through the development of a BRT corridor								
Average daily passenger ridership in the BRT buses per weekday (Number (Thousand))		0.00			150.00	250.00	300.00	320.00
Action: This indicator has been Revised								
Average rush hour in-vehicle travel time by public transport from Guediawaye Prefecture to Petersen Bus Station in Dakar Plateau (Minutes)		95.00			50.00	45.00	45.00	45.00
Action: This indicator has been Revised								
Percentage of population of Greater Dakar Area		57.00	57.00	57.00	63.00	69.00	69.00	69.00



Indicator Name	PBC	Baseline	Intermediate Targets					End Target
			1	2	3	4	5	
residents with access to the city center (Medina) within 60 minutes commuting period using the BRT (Percentage)								
Action: This indicator has been Revised								
Number of kilometers serviced by the BRT buses per weekday (Kilometers)		0.00			18,000.00	32,000.00	37,000.00	37,000.00
Action: This indicator has been Revised								
Satisfaction rating by public transport users of the BRT (Percentage)		66.00			70.00	75.00	80.00	80.00
Action: This indicator has been Revised								
Satisfaction rating by female public transport users of the BRT (Percentage)		66.00			70.00	75.00	80.00	80.00
Action: This indicator has been Revised								



Intermediate Results Indicators by Components

Indicator Name	PBC	Baseline	Intermediate Targets					End Target
			1	2	3	4	5	
BRT infrastructure, fleet, and systems								
A concession agreement with a private company to invest and operate in the BRT operations between Dakar and Guédiawaye is signed (Yes/No)		No	Yes	Yes	Yes	Yes	Yes	Yes
Action: This indicator has been Revised								
Percentage of the Dakar Guédiawaye BRT infrastructure constructed (Percentage)		0.00	30.00	80.00	100.00	100.00	100.00	100.00
Action: This indicator has been Revised								
Number of operational BRT buses (Number)		0.00						140.00
Action: This indicator has been Revised								
A mirror system to monitor the fare collection system is in use at CETUD (Yes/No)		No			Yes	Yes	Yes	Yes
Action: This indicator has been Revised								
Percentage of women staff in the BRT operator (Percentage)		6.00			15.00	20.00	25.00	25.00



Indicator Name	PBC	Baseline	Intermediate Targets					End Target
			1	2	3	4	5	
Action: This indicator has been Revised								
A GRM (Grievance Redress Mechanism) for the BRT operation is in use (Yes/No)	No				Yes	Yes	Yes	Yes
Action: This indicator has been Revised								
Public transport network restructuring and road works								
Roads rehabilitated, Non-rural (CRI, Kilometers)	0.00	0.00	0.00	0.00	0.00	15.00	28.00	28.00
Action: This indicator has been Revised								
Number of feeder lines operational (Number)	0.00				26.00	26.00	26.00	26.00
Action: This indicator has been Revised								
A revised public transport licensing system is in use (Yes/No)	No			Yes	Yes	Yes	Yes	Yes
Action: This indicator has been Revised								
A GRM (Grievance Redress Mechanism) is in use during construction (Yes/No)	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Action: This indicator has been Revised								
Annual net savings of GHG emission (ton CO2) (Number)	0.00		12,706.00	13,087.00	13,480.00	13,884.00	13,884.00	13,884.00



Indicator Name	PBC	Baseline	Intermediate Targets					End Target
			1	2	3	4	5	
Action: This indicator has been Revised								
Capacity building and project management								
Annual disclosure by CETUD of the audited annual financial statements and the operational results of the Dakar Guédiawaye BRT (Yes/No)	No				Yes	Yes	Yes	Yes
Action: This indicator has been Revised								
Road Safety								
Number of serious injuries and deaths involving a BRT bus (Number)	0.00				0.00	0.00	0.00	0.00
Action: This indicator has been Revised								
Road safety assessment carried out on the BRT corridor with focus on pedestrians (Yes/No)	No	No	No		Yes	Yes	Yes	Yes
Action: This indicator has been Revised								
A road safety management plan is in place within the BRT operator (Yes/No)	No				Yes	Yes	Yes	Yes
Action: This indicator has been Revised								



Indicator Name	PBC	Baseline	Intermediate Targets					End Target
			1	2	3	4	5	
A system for mapping road accidents along the BRT corridor is in use (Yes/No)		No			Yes	Yes	Yes	Yes
Action: This indicator has been Revised								

Monitoring & Evaluation Plan: PDO Indicators

Indicator Name	Definition/Description	Frequency	Datasource	Methodology for Data Collection	Responsibility for Data Collection
Average daily passenger ridership in the BRT buses per weekday	This indicator measures the average passenger ridership of the BRT (all service plans: 2 express services, 1 limited service and 1 local service). This indicator will reflect the number of direct beneficiaries of the project: the BRT passengers.	Biannual	CETUD will collect the number of passengers using BRT buses through the mirror system.	CETUD will collect the number of passengers using BRT buses through the mirror system.	CETUD BRT operator
Average rush hour in-vehicle travel time by public transport from Guédiawaye Prefecture to Petersen Bus Station in Dakar Plateau	Average rush hour in-vehicle travel time by the BRT express service from Guédiawaye Prefecture to Petersen Bus Station in Dakar Plateau at morning peak hours between 7:00am and 9:00am. This	Biannual	Data to be obtained from the ITS.		CETUD BRT operator



	indicator measures the improved mobility objective of the project.				
Percentage of population of Greater Dakar Area residents with access to the city center (Medina) within 60 minutes commuting period using the BRT	This indicator measures the improved mobility objective of the PDO and more specifically the improved accessibility the project is expected to provide to the residents of the suburban part of Greater Dakar Area in terms of opportunities for jobs and services located at the CDB.	Annual	A global information system (GIS)-based spatial analysis will be conducted using the open source accessibility tool developed by the World Bank called Open Trip Planner Analyst (OTPA).		CETUD BRT operator (for the GPS data)
Number of kilometers serviced by the BRT buses per weekday	Number of km run by BRT buses (all service plans) per weekday from Guédiawaye Prefecture to Petersen Bus Station in Dakar plateau and on the way back. This indicator will reflect the improved mobility objective of the BRT project by quantifying the public transport services	Biannual	Data to be obtained from the ITS.		CETUD BRT operator



	provided.				
Satisfaction rating by public transport users of the BRT	This indicator will reflect the improved public transport services and the increased satisfaction by BRT users.	Annual	Public transport user surveys will be commissioned by CETUD on an annual basis among the BRT users.		CETUD BRT operator Consulting firm
Satisfaction rating by female public transport users of the BRT	This indicator will reflect the improved public transport services and the increased satisfaction by BRT female users.	Annual	This sub-indicator will report women answers.		CETUD BRT operator Consulting firm

Monitoring & Evaluation Plan: Intermediate Results Indicators

Indicator Name	Definition/Description	Frequency	Datasource	Methodology for Data Collection	Responsibility for Data Collection
A concession agreement with a private company to invest and operate in the BRT operations between Dakar and Guédiawaye is signed	This indicator measures the operational effectiveness of the project with a signed concession agreement with a BRT operator. This indicator will reflect the first step in putting in place the BRT system.	Once	The Yes value will be reached when the concession agreement between the private operator and the GoS is		CETUD



			signed meaning that the deal is closed.		
Percentage of the Dakar Guédiawaye BRT infrastructure constructed	This indicator will monitor the progress of the construction of the whole BRT infrastructure towards the full 18.3km long segregated infrastructure.	Biannual	CETUD will collect the information from the supervision firms via AGEROUTE.		CETUD
Number of operational BRT buses	This indicator will reflect the supply level of transport services, more specifically the availability of the BRT fleet (privately financed) after the hiring of the BRT operator.	Biannual	CETUD will collect the information from the BRT operator which has the number of operational buses every day.		CETUD
A mirror system to monitor the fare collection system is in use at CETUD	This indicator will monitor the progress of the implementation of a mirror system at CETUD to monitor the fare collection system and BRT operations. This indicator will reflect monitoring	Biannual	The value will be Yes when a reliable mirror system is fully in use at CETUD.		CETUD



	capacity of CETUD.				
Percentage of women staff in the BRT operator	This indicator will reflect the gender empowerment of the project. The GoS has made a long-term commitment towards equal job opportunities for men and women in the public transport sector. Taking into account that only 6% of staff working in public transport in Dakar are women, the 25% target value (4 times the baseline) among the BRT operator staff after 5 years will be an outstanding achievement.	Biannual	CETUD will collect the total number of the BRT operator staff of which women in order to get the percentage.		CETUD BRT operator
A GRM (Grievance Redress Mechanism) for the BRT operation is in use	This is to ensure that any citizen has the possibility to provide feedback on the BRT operations and any complaint/reclamation is appropriately handled and addressed, keeping the citizen informed about the status of the complaint until its conclusion.	Biannual	CETUD with the support of the WB will ensure that a GRM is permanently operational.		CETUD
Roads rehabilitated, Non-rural	Kilometers of all non-rural roads reopened to motorized traffic, rehabilitated, or upgraded	Biannual	This indicator will be the length of road works entirely		CETUD



	under the project. Non-rural roads are roads functionally classified in various countries as Trunk or Primary, Secondary or Link roads, or sometimes Tertiary roads. Typically, non-rural roads connect urban centers/towns/settlements of more than 5,000 inhabitants to each other or to higher classes of road, market towns and urban centers. Urban roads are included in non-rural roads.		completed. CETUD will collect the information from the supervision firms via AGEROUTE.		
Number of feeder lines operational	This indicator will measure the number of operational feeder lines to the BRT. This is the first expected outcome of the public transport network restructuring activities. These feeder lines will be operated by the existing local transport operators.	Biannual	CETUD as the urban transport authority will provide the value.		CETUD
A revised public transport licensing system is in use	This indicator will measure the progress in the reform and the professionalization of the public transport sector. This is a key expected outcome of	Once	The YES target value will be reached when the reform of the public transport		CETUD



	component 2, highly expected by existing public transport operators (AFTU) who expressed it during the preparation of the project.		licensing system is operational.		
A GRM (Grievance Redress Mechanism) is in use during construction	This is to ensure that any citizen has the possibility to provide feedback during the construction of the infrastructure and any complaint/reclamation is appropriately handled and addressed, keeping the citizen informed about the status of the complaint until its conclusion	Biannual	CETUD with the support of the WB will ensure that a GRM is permanently operational.		CETUD
Annual net savings of GHG emission (ton CO2)	This will measure the savings in GHG emissions thanks to the project.	Annual	Diesel consumption of the fleet of BRT buses, number of km run by this fleet as well as number of passengers will be collected by CETUD via BRT operator.		CETUD



Annual disclosure by CETUD of the audited annual financial statements and the operational results of the Dakar Guédiawaye BRT	CETUD will be the main entity in charge of monitoring the BRT operations and concession. This indicator will reflect the capacity of CETUD in playing that role and the transparent implementation of the BRT operations and concession.	Annual	The audited annual financial statements as well as the operational results will come from the BRT operator under the supervision of CETUD.		CETUD
Number of serious injuries and deaths involving a BRT bus	The 0 target value of this indicator reflects the ambitious and noble objective that no one should be injured (hospitalized) or killed by a BRT bus in operation. Baseline is 0 because no segregated data on road accident is currently available in the BRT area.	Biannual	The data will be collected by CETUD that supervises the BRT operator as well as by the department in charge of road safety at the Ministry of Infrastructure.		CETUD
Road safety assessment carried out on the BRT corridor with focus on pedestrians	This indicator measures the status of implementation of high-quality road safety measures along the BRT corridor supported under	To be rated after the completion of the implement	After completion of implementation of the BRT trunk corridor		CETUD



	the project with a focus on pedestrian crossings.	ation of the BRT infrastructure	works, an independent road safety audit/inspection will be conducted for all pedestrian crossings.		
A road safety management plan is in place within the BRT operator	This indicator will measure the focus on road safety for BRT operations. The requirement for a road safety management plan will be part of the concession agreement.	Annual	CETUD will monitor that the BRT operator gets and maintains a road safety certification.		CETUD
A system for mapping road accidents along the BRT corridor is in use	This is a key outcome of component 4 given that a mapping of road accidents in Dakar does not exist.	Annual	The indicator will have a YES value when a centralized mapping system is functional.		CETUD



ANNEX 1: Evolution of Cost Increase and Detail Breakdown

Overall allocation and cost changes from appraisal (2017), restructuring (2019) and proposed AF (2023)

1. Table 1.1 gives a summary of the indicative costs at appraisal (2017) and first restructuring (2019) of the parent project and at the appraisal of the proposed AF (2023) along with the detailed proposed financing plan:
 - **At appraisal in 2017**, the project total cost amounted to US\$426.3 million equivalent³³ out of which US\$300 million equivalent was financed by IDA, a US\$30 million contribution was expected from GCF, a US\$31.5 million equivalent from EIB, US\$54 million from the private sector, and US\$12.3 million from the GoS.
 - **The restructuring in 2019** included a new subcomponent, “Acquisition of land and provision of compensation (including cash compensation and other assistance paid for involuntary resettlement) and allocated US\$19.40 million (equivalent to CFAF 11.9 billion, from Subcomponent 2.2 to new Subcomponent 1.4). The total indicative cost and the total IDA contribution remained unchanged.
 - **The 2023 project total costs** amount to US\$614.19 million equivalent out of which US\$85.45 million equivalent from the EIB, US\$144 million from the private sector, US\$14.74 from the GoS and US\$370 million equivalent shall be provided by IDA (parent project and AF).

Details of the cost increase by subcomponents

Component 1: BRT infrastructure, fleet, and systems (indicative cost of US\$379.5 million in 2017, overall revised cost of US\$530.89 million in 2023)

2. **1.1 BRT infrastructure and system:** the main reasons are the (i) increase in commodity prices; (ii) unforeseen increase in the volume of civil works of the BRT infrastructure corridor; and (iii) incremental cost due to the choice of electric technology including associated infrastructure, notably charging stations and depot. The details are shown in Table 1.1 below.
3. **1.2 BRT fleet:** the increase is related to the choice of the electric fleet. As the Government endorsed the electric bus technology after the project was approved, the project is facing a financing gap to cover incremental costs due the choice of an electric technology for the BRT fleet. Electric buses imply additional upfront CAPEX compared to diesel buses, which has an impact on the concession financial viability. However, the cost of ownership analysis over 25 years shows a real advantage in terms of socio-economic and environmental balance for the electric option. The cost of the electric fleet is three times higher than the diesel, and the concessionaire are expected to cover most of the rolling stock provision for a total contribution amounting to US\$144 million.
4. **1.4 Viability gap:** An estimated US\$17 million equivalent subsidy is to be provided to the Concessionaire to make the half-fare available to more vulnerable people while ensuring the viability of the concession. Based

³³ At the time of the parent project appraisal, US\$418.80 million were allocated to the components while US\$7.5 million were unallocated and spared for contingencies as detailed in table 1. This amount is now fully allocated in the final financing plan.



on the financial model approved along with the concession agreement, a maximum US\$17 million subsidy was estimated to cover the GoS's contractual obligation to raise in the revenues the share of the beneficiaries of half discounted fare from 10 percent back to 17 percent.

Table 1.1. BRT infrastructure works' contract cost overrun

	Allocated budget in 2019	Actual contract Amount	Estimated overall cost 2023
1.1 BRT Infrastructure and system	199,900,760,584	136,326,300,243	210,513,620,635
BRT infrastructure and system works (Original)	199,900,760,584	136,326,300,243	136,326,300,243
BRT infrastructure and system works (unexpected increase in works)			74,187,320,392
Amendment 1			35,965,097,347
<i>Climate resilience, addressing flood risk</i>			13,433,250,904
<i>Unforeseen rerouting of utilities' networks (sewers, phone, electricity, water pipes)</i>			10,041,523,084
<i>Accessibility and urban integration</i>			8,042,100,983
<i>Additional services to meet the requirements of the contract regarding consideration of the WRI/Embarq road safety report</i>			4,448,222,375
Amendment 2			16,203,907,980
<i>Adjustment to electric technology</i>			7,335,294,293
<i>Traffic control and management</i>			6,083,643,549
<i>Related(unforeseen)increase of works</i>			2,784,970,138
Price increase			14,000,000,000
Increased supervision cost			8,018,315,065

Component 2: Public transport network restructuring and road works (indicative cost of US\$25 million in 2017, overall revised cost of US\$53.90 million in 2023)

5. To ensure the security of BRT operation, new traffic management plan, depot access, and priority turns were



designed. The works to be carried out cover the development of traffic management measures in main congestion points, detour lanes for the prohibition of left turns, and the access road to the depot. The works also include the development of the urban space with a walking and bicycle-friendly architectural and landscaping design, leading to a quality landscaped space for structured space sharing, with parking areas, bicycle lanes, and concession areas.

6. A comprehensive study financed under the project has therefore detailed the works needed. Out of a US\$135 million program, a US\$40 million priority first phase was identified, which is critical to meet the PDO. In addition, as seen in Component 1, the increase in commodity prices affected the overall cost of the component.

Component 3: Capacity building and project management (*indicative cost of US\$12.3 million in 2017, overall revised cost of US\$26.10 million in 2023*)

7. As this is the first time a BRT project is implemented in Senegal, capacity building is critical for the sustainability of the system. This activity will help CETUD, local authorities, technical services, and public transport operators build capacity to successfully implement and operate the first electric BRT in Africa. CETUD has hired skilled technical specialists and qualified firms to supervise and support the BRT implementation. For example, the need for risk management and interface management, implementation of E&S safeguards, and monitoring of the pre-operational phase of the BRT is increasing and has led to the increase of the project management cost and capacity building cost.
8. With the electric BRT System, an Urban Transport Information System is expected to be set up to centralize urban transport data for better knowledge of the sub-sector and to have reliable information and statistics on urban transport. The system will be able to collect, store, process, and disseminate information. It will also make it possible to manage data from transport fleet renewal projects and allow each actor to have access to the data according to their authorization, while ensuring the electronic archiving of documents generated by the system (fleet renewal, etc.).

Component 4: Road safety (*indicative cost of US\$2 million in 2017, overall revised cost of US\$3.30 million in 2023*)

9. The project site is in the heart of Dakar and many activities are carried out along/around the BRT corridor. As several schools are located along the BRT corridor, mostly frequented by vulnerable road users, it is important to increase the awareness of the actors and beneficiaries along the BRT corridor through different communication strategies and approaches. The project has started and will continue conducting communications campaigns for (i) school children located on the corridor and the zone of influence, to raise awareness of the risks of accidents and road insecurity and to inform schoolchildren about the new traffic rules and the specificity of the BRT; and (ii) public and private transport drivers, to carry out an awareness campaign (information and training workshops for drivers, focus groups, proximity meetings, and conferences) for the benefit of public transport drivers (public and private operators), cab drivers and motorcyclists to guarantee a good knowledge of traffic rules and reduce the risks of accidents.



ANNEX 2: Update of the Socio-economic Analysis

Calculation methodology and assumptions

1. The methodology of the study remains the same. This revised economic analysis considers (i) additional infrastructure costs; (ii) additional CAPEX costs; (iii) OPEX costs as negotiated for the concession agreement; and (iv) two revised values of time when accounting for inflation since 2016.
 - a. *Exchange rate and cost evolution index*: the exchange rate is updated to an average value of the last year. The cost trend index is updated to measured values for the years 2019-2022.
 - b. *Fleet data, number of buses and equipment and cost*: these values are updated to match the operator's business plan for the years 2023-2037, which was approved with the conceding authority. For years 2038-2052, the analysis considers the 15-year lifetime of the buses and the needed fleet expansion to guarantee a good quality of service, based on the increase in annual mileage.
 - c. *Annual mileage for the BRT and other modes, based on demand evaluation*: the demand and the annual mileage of the BRT fleet are updated based on the operator's operating plan for the years 2023-2037 and with a constant increase following the same trend for the next years. The modal shift factors from other modes of transport to the BRT remain unchanged.
 - d. *Road infrastructure cost*: The cost of the infrastructure is updated based on contractual values including foreseen cost overrun identified in this AF. The disbursement schedule is also adjusted to reflect the new project schedule.
 - e. *Operating costs*: The operating costs of the existing modes are corrected with inflation while those of the BRT are updated based on the negotiated concession agreement with the concessionaire, with a value of 3.43 US\$/km for the electric BRT.
 - f. *Social gains*: The socio-economic benefits assessed are (i) savings in travel time, (ii) reduced vehicle operating costs, and (iii) quantified external benefits including traffic accident reduction, and reduction in GHG and other pollutant emissions. The values are revised taking into account the inflation, the revised BRT mileage and the 2022 values for transport externalities.

Key results

Table 2.1: Economic Analyses and Sensitivity Test

Demand	Shadow price of carbon	Value of time	Net Present Value (NPV) (9%)	EIRR
			US\$	%
Baseline	Low estimate	535 CFAF	403,681,855	18.09%
Baseline	High estimate	535 CFAF	411,102,760	18.25%
Baseline	Low estimate	750 CFAF	496,933,174	19.91%
Baseline	High estimate	750 CFAF	504,354,078	20.06%
-20%	Low estimate	535 CFAF	270,426,397	15.43%
-20%	High estimate	535 CFAF	276,024,617	15.55%
-20%	Low estimate	750 CFAF	361,513,307	17.31%
-20%	High estimate	750 CFAF	367,111,527	17.43%

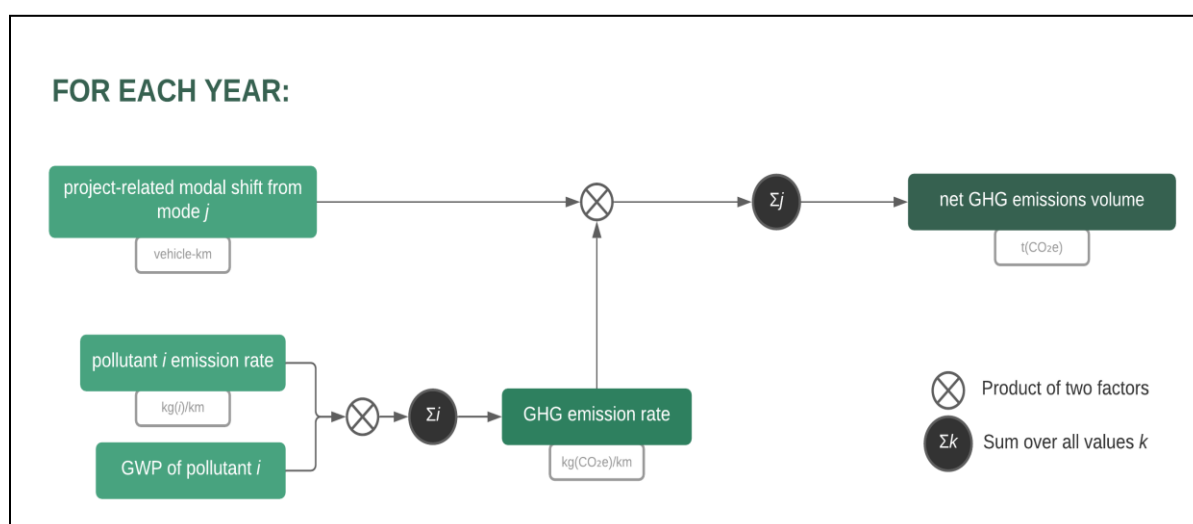


ANNEX 3: Update of the GHG Accounting

Calculation methodology

1. In order to take into account the recent study on negative externalities of transport in Dakar, to update some of the data to the latest available values, and as part of the process of the AF for the Dakar BRT, the GHG accounting has been updated. This updated calculation is also based on the demand projected in the concession agreement that takes into account the negotiated fare. The methodology, which relies on the UNFCCC note for the GHG assessment in the transport sector,³⁴ remains the same, and is summarized in the figure below.

Figure 3.1: Method used to determine GHG total savings



2. The accounting compares the baseline scenario and the with-project scenario, with an emphasis on the benefits brought by the choice of an electric fleet. Those benefits are illustrated by a comparison between a diesel fleet scenario and an electric fleet scenario. The computations are made over the 30-year project economic lifespan and rely on traffic projections coming out of the economic analysis and the operator's projection which give over the years (i) the number of kilometers run by the BRT; and (ii) the project-related modal shift which accounts the number of vehicle-km avoided due to the modal shift from existing users of individual modes (taxis, personal cars) or lower-capacity modes (minibus AFTU or bus DDD) that switch to the new mass transit mode.
3. For different pollutants emitted by the various vehicles, the assessment multiplies the emission rate by their Global Warming Potential (GWP) to obtain a unified GHG emission rate in kgCO₂e/km. The pollutants considered are selected for their impact as GHG: CO₂, Black Carbon (BC), CO, CH₄, N₂O and NO_x. The analysis uses a "Well-To-Wheels" (WTW) approach to show the most comprehensive picture of total GHG emissions:

³⁴ UNFCCC. 2015. "IFI Joint Approach to GHG Assessment in the Transport Sector."



- For the electric BRT, the analysis considers the CO₂ emitted while producing the electricity necessary for buses' operations. To obtain this number, the consumption of the electric BRT bus is multiplied by the combined margin electricity factor of Senegal.³⁵ The assessment considers 0.91 percent electricity production-related emissions decrease over the project economic lifetime based on the recent commitment from the GoS in the NDC.
 - For all other modes, assessment adds to the combustion emissions ("Tank-To-Wheels" or TTW) the "Well-To-Tank" (WTT) emission factors of the fuels, to account for GHG emitted during fuel generation and transport.
4. The product of the resulting emission rate and the number of kilometers accounting for the modal shift to the BRT finally gives us the volume of GHG emissions avoided thanks to the project.

Table 3.1 : Updated values

PARAMETER	VALUE	SOURCE
Electric production GHG emission rate		
Combined margin electricity factor	0.6560 kgCO ₂ e/kWh	Harmonized IFI Default Grid Factors 2021 v3.2, UNFCCC
Electricity emission factor annual decrease	0.91%	Ministère de l'Environnement et du Développement Durable du Sénégal (Senegal Ministry of Environment and Sustainable Development). (2020). Nationally Determined Contribution (NDC)
100-year Global Warming Potential		
CO	3	Fuglestad et al. (1996). Two-dimensional model including CH ₄ feedbacks and tropospheric O ₃ production by CO itself
NO _x	10	Lammel G, Graßl H. (1995). Greenhouse effect of NO _x . Dans Environmental science and pollution research international vol. 2,1
BC	786	Fuglestad JS, Shine KP, Berntsen T, Cook J, Lee DS, Stenke A, et al. Transport impacts on atmosphere and climate: Metrics. Atmospheric environment. 2010;44(37):4648-77.
CH ₄	30	IPCC Sixth Assessment Report, 2021 (AR6)
N ₂ O	273	

Calculation results

5. Each year, the Dakar BRT will lead to GHG savings averaging **38,556 tCO₂e**; over its economic lifetime of 30 years, this will amount to a total of **1,156,671 avoided tons of CO₂e**. Emission reductions have two origins: project-related modal shift (35 percent) that corresponds to efficiency gains related to higher-capacity BRT vehicles generating a lower number of vehicle-km traveled at higher speeds, and enhancement of the bus technology (65 percent) that assesses the choice of an electric BRT instead of a classic diesel-powered BRT.
6. The following table gives a summary of the results of the analysis.

³⁵ Harmonized IFI Default Grid Factors 2021 v3.2, UNFCCC.



Table 3.2 : Calculation results

EXPECTED TONNES OF CO2e TO BE REDUCED OR AVOIDED (WTW)		
TOTAL	tCO2e	1,156,671
AVERAGE ANNUAL	tCO2e	38,556
EXPECTED TONNES OF LOCAL POLLUTANTS TO BE REDUCED OR AVOIDED (TTW) (annual average, tonnes)		
PM _{2.5}		12
NO _x		69
SO ₂		14
CO		129
CH ₄		5



ANNEX 4: Chronogram towards the Closing Date

	2023												2024												Target Completion Date	Completion rate as of Mar 2023
	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12		
1. BRT Infrastructure, fleet and systems																									11/28/2024	62%
1.1 BRT infrastructure and system																									6/30/2023	66%
1.2 BRT fleet																									4/3/2024	5%
1.3 Land Acquisition and compensation																									6/30/2023	92%
1.4 Viability gap (new sub-component)																									11/28/2024	0%
2. Public Transport Network restructuring and road works																									10/25/2024	65%
2.1 Technical Assistances																									6/30/2023	91%
2.2 Road works																									10/25/2024	9%
3. Capacity building and project management																									6/30/2023	60%
4. Road Safety																									3/14/2024	7%